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VOLUME VII
JANUARY-JUNE, 1904



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Pneumonia a "Reportable" Disease.—Such is the amendment to the sanitary code of New York City. The order is said to be the first in the records of health departments anywhere, and marks both a recognition of the infectious nature of the disease and of its increased ravages in late years. These conclusions have long and persistently been emphasized by the Health Department of Chicago, but there has generally been an altogether too slow decision to make the administrative order to report cases of pneumonia, just the same as those of measles, smallpox, scarlet fever, etc. At last the logical and necessary step has been taken, and other cities will doubtless soon follow the example of New York. The increasing prevalence of the disease in that city is shown by the following excerpt from the report of the register of records:

PNEUMONIA.					
Week ending					
	Nov. 14.	Nov. 21.	Nov. 28.	Dec. 12.	Dec. 19.
1902.	113	119	116	105	120
1903.	138	158	164	172	188

If such ratios obtain in general, there can be no question of the infectiousness of pneumonia, and of the necessity of notification and public control.

The "unionized funeral," such as has recently been illustrated in Chicago, possibly relates to medicine and physicians only indirectly, but in conjunction with the unionized doctor, the matter comes closely home to the profession. Whatever opinion one may have as to the relations of "capital and labor," they should certainly end with the dead and with those bereaved, and as certainly with the prevention of death. No better way at least, exists for destroying whatever sympathy may exist for workmen, the drivers of carriages and hearses, for example, than the continuance or repetition of the indignities which these men have carried on. Why not also union-made hearses and coffins, union-grown flowers, and union-dug graves? If unionized medical men, why not unionized ministers and priests? and churches? and diseases? There is no limit, logically, until every act of life, every instrument and drug in medical and surgical practice, and every hygienic measure, shall be brought under the union label and rules. Are we to have unionized hospitals? The medical profession and the dissemination of medical knowledge is already sufficiently handicapped and taxed by the typographers'

unions, which make every medical book and periodical cost more than it should, and which are, in fact, against the true interests of the workman and the typesetter himself. The tribute the profession is forced to pay to moneyed and commercial interests is already high enough without additional disuniting unionism.

Locomotive whistling has in our country become a menace to public comfort, sleep, and health. We do not mean the whistling of the engineers at grade-crossings in the country (which should also be done away with by abolishing the grade-crossings), but that of the switching engines, in or near towns and cities, at work all night, and which is done solely for the convenience of the trainmen. In no other country in the world is this nuisance allowed. In some of our cities stringent laws exist against it, as *e. g.*, in Philadelphia, but they are utterly ignored by the officers sworn to execute the law. The officials seem to prefer to execute the people. There can be no doubt that a majority of the people of cities, especially in summer, are injured in health because of loss of sleep, and that the sick and convalescent are dangerously harmed. All physicians know how necessary sleep is to the maintenance and reestablishment of health. The whistling is wholly unnecessary and often is against the rules of the company. Thus because it is "nobody's duty" to stop it, a half dozen workmen disobey the railway rules and the city ordinances without check. But it is somebody's duty—and that somebody is the local Board of Health. Protests from physicians would soon prove effective—and surely from their patients!

Responsibility for the Typhoid Epidemic at Butler.—It is an old story to the medical profession, but it is well to have it laid before the lay and engineering world so admirably as has been done by Dr. George A. Soper in the *Engineering News*. Owing to the failure of a dam, the water had been drawn since last August from the Connoquenessing Creek at a point at which it was obviously polluted. The supply had been filtered until October 20. On that date the filters were shut down, and kept out of service until a pipe connection could be made between some new pumps and the basin for filtered water. It could not be ascertained that any warning had been given to the public that the water

from the polluted creek was being pumped during this time, and it is improbable that the water company considered that it was dangerous for drinking purposes. In fact, the families of some of the employes of the water works were among those most afflicted with typhoid fever. The filters were out of service from October 20 to 31. The epidemic broke out about November 2. The report is an exhaustive review of the municipal conditions at Butler, its system of water supply, the filter plant, sanitary condition of the sources of water supply, and the course of the epidemic. It says that it is still too early to take the full measure of the epidemic, but the most reliable statistics place Butler above all other epidemics of typhoid fever of recent times in the number of cases which have occurred. Following are the data of the most extensive typhoid epidemics which have taken place in the last twenty-five years:

Place.	Date.	Popula- tion.	No. of Cases.	No. of Deaths.	Cause.
Caterham, Eng.	1879	5,800	552	21	} Water Supply
Plymouth, Pa.	1885	8,000	1,104	114	
Ithaca, N. Y.	1903	13,000	1,300	78	
Butler, Pa.	1903	18,000	*1,270	*56	

* To December 17.

Dr. Soper says that—

Judging from all the evidence in hand, Butler might almost as well have had no local Board of Health as the one which accepted the grave responsibilities of that position. In fact, perhaps, it would have been better off without than with the existing Board, upon which more or less reliance was placed, until it showed its utter incapacity. Finally, we wish to repeat our warning of a week ago, that hundreds of communities in this country are liable any day to be overwhelmed with the horrors of such an epidemic as that at Plymouth, or Ithaca, or Butler. These communities merely had to pay the penalties for impure water and lax sanitary administration which other communities equally neglectful have been fortunate enough to escape.

"Graft" in the nursing and medical professions, according to the fashion of the day, is appearing. A confidential letter lies before us from a trained nurse to a physician offering him "a liberal fee" for every patient he may place her in charge of. Similar abuses among medical men themselves, and publicly exposed trade discounts from instrument-makers, druggists, undertakers, etc., make one shrink with shame at the mere knowledge of such propositions. But as pertaining to the nurses the multiplication of quack nursing schools and the frank placing of their ideals upon a purely financial basis (or with a worse gloss of hypocritical sentiment) emphasizes the need of organization and higher standards of education which are now being so eagerly sought by all honorable and well-trained nurses.

Abuse of Medical Certificates.—Physicians who certify to the usefulness of new devices or preparations—or devices or preparations alleged to be new—are always liable to have their certificates abused, as in a circular before us. In this advertisement professional recommendations of a presumably convenient form of formaldehyde generator are twisted into endorsements of an "infallible remedy." In large headlines it is said

that the device absolutely and permanently cures Hay-fever, Consumption, and "all Nose, Throat and Lung diseases" in two days! Two years would be a sufficiently moderate claim. But long before two years had elapsed the precious "guarantee" would be demanded—so two days is the limit in which dupes can get money back. And men with M.D., LL.D., etc. after their names write to the inventor of this fraudulent "Sure cure for Consumption" in praise of his wares! It is unfortunate for honorable manufacturers, and there are of course many such, that the scoundrelism of others must more and more prevent physicians from commending, in any quotable manner, even the best things. Too great caution cannot be urged as to testimonial giving.

A new method of "division of the spoils," devised by a manufacturer, is that by means of the "coupon label." In a private and confidential letter to one of our subscribers, a manufacturing firm, after extensively extolling the preparation as the greatest and surest cure for many diseases, says:

A novel feature of our proposition to the medical profession is the coupon label, a sample of which we are enclosing. These coupons are detached, returned by the dispensing druggist, to the prescribing physician, by whom they are signed and returned to us, and redeemed at the rate of 10%, either in cash, or if you prefer, we will exchange them for any medical or nonmedical periodical published. What we have to pay for constant sampling we would rather give to the physician in dividends.

In connection with the letter are testimonials from "physicians" to the virtues of the drug. The investment of money in the plan prevents the answer that there are surely not enough of that kind of medical men to make such a method of doing business a profitable one. Do such schemes really "pay"?

The exclusion from the public schools of unvaccinated children has been decreed by the Health Department of Chicago. The order pertains especially to the children of the Dowieites, but is, of course, general in its terms, and thus affects the antivaccinationists of all kinds. The general overseer of Zion has made his followers believe that vaccination does not prevent smallpox. The Zion children will be segregated by requiring all pupils to present certificates of vaccination. The names and addresses of all children who fail to comply with the order will be forwarded to the Health Department. It is time that all Boards of Health should come to a similar conclusion, and it is the best way to meet the (unconscientious) "conscientious objector." It is, of course, the first step, and must logically and practically be followed by the last—compulsory vaccination of every child, man, and woman of the community. Public feeling and intelligence have at last reached the clearness to warrant the safe promulgation and thorough administration of such laws, and every day demonstrates the folly and expense in lives, suffering, and money of further delay in proceeding to the realization of both policy and duty.

Prehistoric Trephining.—Since the publication of the original observations of M. Broca on the subject of trephining in prehistoric times, a vast mass of evi-

dence has been accumulated in connection with the question which, collectively, goes to show that in latter-day surgery, as in prechristian Indaic philosophy, "there is nothing new under the sun." The great French anthropologist informed his readers that "until quite recently trephining of a primitive kind was in use among some of the South Sea Islanders for the treatment of epilepsy, insanity, and even headache; and the operation was done by scraping with a piece of flint or broken glass, when the latter was to be had from Europeans. In much the same way and with similar instruments the operation was done in the neolithic or polished-stone period, the age following the so-called quaternary, and preceding the bronze epoch. This period corresponds with the burial in dolmens, the use of agriculture and the employment of domestic animals, and the making of hatchets of polished flint, though rough-chipped instruments were still in use." The investigations of Broca and Prunèires in this connection convinced those observers that there had been a practice of postmortem, as well as of antemortem, trephining among those primitive islanders. It also appeared that the antemortem (surgical) operation had in nearly all their specimens been performed during the first few years of life. Also, that the posthumous operation had been performed only on those who had survived the former one. In many of the skulls which bore unmistakable evidence of subsequent development, it was found that a number of pieces of bone had been chipped off from the margins of the orifice. Some of those pieces were actually found. They had been shaped as amulets or perforated for purpose of suspension. Broca's explanation was found by referring to the primitive notion that all very pronounced head symptoms—such as those of insanity, melancholy, epilepsy, and even violent headache—were caused by demoniacal possession; that, accordingly, an artificial cranial orifice was made to promote the exit of the evil spirit; and that for the remainder of life the individual would be regarded as a sacred personality, with the superadded distinction that his relics after death would be greedily sought as "charms" and miraculous agents for the warding off or the expulsion of evil spirits. But the sifting and weighing of the evidence was further complicated by the fact that in all the cases of this postmortem trephining noted by these distinguished observers, a certain proportion—usually about one-fourth—of the circumference of the original opening had been left undisturbed; and that the vacancies left by the removal of the amulet material had been, in each specimen, approximately filled by similar pieces from some other skull. In discussing this very curious point, M. Broca expands his hypothesis by offering the fact as an indication—the earliest that he knew of—of a belief in an existence after death. It proves, to his mind, that those primitive trephiners believed that the "individuality" was maintained after the death of the body; in religious deference to which faith they would not rob him "in the other life of the glorious evidence of the operation which he had undergone in his youth." So that it would actually appear that the twentieth century Anglo-Saxon problem of the survival of "human personality" had been

attacked and solved—to their own satisfaction—by those far-off, prehistoric savage islanders!

Primitive Trephining in America.—The first recorded specimen found on this side the Atlantic was taken from the Tucay cemetery, in the Valley of Yucay, Peru. American experts pronounced the specimen to be of (at least) precolumbian date. The skull was afterward forwarded to M. Broca. The result of his examination was that we are "authorized to conclude that there existed in Peru—before the European epoch—an advanced form of surgery." Dr. Robert Fletcher, in discussing this subject, observes that "the numerous specimens which have been found in Michigan suggest several inquiries. Many more prehistorically trephined skulls have been found in Michigan than in any other State of the Union." Illinois and Ohio come next in order in the number of such discoveries. The conclusion arrived at is, that either these States have made more explorations than the others, or that the valley of the Great Lakes contained a race of people who practised trephining while the surrounding tribes did not, as the Kabyles of Northern Africa do at the present day. Michigan appears to have fewer mounds than the other States of the Union. But although the mounds have been everywhere examined, there have been very few trephined skulls found outside this region. It is a remarkable, and very interesting fact, that the artificial openings in all the American skulls have been found near the vertex. "They have rarely shown any evidence of cicatrization, and for those reasons are generally believed to have been trephined for religious rather than for surgical purposes." However this may be, the net result of the investigations hitherto made has been to lead to the conclusion "that the valley of the Great Lakes once contained a people who practised surgical trephining." It has been critically observed that the incisions found in the wall of the "Inca skull" from Peru appear to have been made with some cutting instrument, "something like an engraver's burin, and not with a saw." In a discussion which recently took place on this subject in London, Sir Victor Horsley showed photographs of three American specimens of skulls so treated. He regarded the traces as those of saw-cuts. They were all in the frontal region; and the conditions, taken in connection with the other evidence now available, gave, according to this observer, "reasonable ground for believing that the Peruvian operation was probably done for headache."

The Primitive Trephining of the Savage of the Present Day.—The very interesting fact that trephining practices, such as would appear to have been used in prehistoric times, are at present familiarly carried out in far off Pacific and South Sea Islands, has recently been demonstrated before the Anthropological Institute of Great Britain and Ireland. In New Britain, the operation is performed for fracture only. The instrument used is formed from a piece of shell or a flake of obsidian, and the operator is the wizard or "tena-papait" of the tribe or district. A blow of a sling stone is the usual cause of the fracture which calls for the operation; the

sling, being the most formidable weapon used by the pugnacious natives in their tribal fights; and "a smooth stone as large as a pullet's egg being thrown with moderate accuracy, but considerable force." Death almost invariably ensues in cases which are not promptly treated. We are also told that, "Injury, caused by the stoneheaded club, is almost instantly fatal, but the flat two-edged club is not so deadly, and permits of an occasional operation. The procedure is after this manner: "A V-shaped or Y-shaped incision is made over the seat of fracture, and while assistants hold back the scalp, any loose fragments are picked out with the finger-nail. The other portions involved in the fracture are then scraped, cut, and picked away, leaving the brain exposed to the size of half a crown, then, all loose pieces having been removed, the scalp is carefully laid down, and the wound bandaged with strips of banana stalk about four inches wide. These strips are, when dry, of a spongy nature, the water which formerly filled the cells being replaced by air; moreover the inner surface is silky to the touch, and forms an admirable dressing for tender surfaces. It is astringent in its action, and nonabsorbent, all discharge escaping below the bandage. Sometimes a few bruised leaves are applied before bandaging. The patient is generally insensible from the time of the injury, and if consciousness returns during the operation, soon faints away again. In five or six days the bandages are renewed, and in two or three weeks a complete recovery is the result. The number of deaths is about 20%, most of these resulting from the first injury, and not from any complication after the operation. "Nearly all the deaths take place during or immediately after the operation, and I am assured that if a patient once becomes conscious he never fails to make a good recovery." The writer of this report recently discovered that in New Ireland the operation is also performed in cases of epilepsy, and for some cases of insanity which are attributed to pressure on the brain. He has in his possession one skull "which has been successfully trephined in no less than five places, the man meeting his death some years after the last operation by a blow from an axe." This man had suffered from severe, local throbbing headache. Although the cure does not appear to have been forthcoming, the operation was, in each instance, "successful." He reports a cure—at least up to date—of an epileptic patient. On Gerrit Demp Zeland, and in the central part of New Zealand, the usual form of operation—often performed for throbbing headache—consists of cutting 2 or 3 channels, in a vertical direction, on the frontal bone, each three or four inches in length.

Mortality in Pittsburg.—During the week ended December 5, 154 deaths occurred in Pittsburg; of these 36 were due to pneumonia, 11 were due to pulmonary tuberculosis, 11 to typhoid fever, 6 to diphtheria, and 6 to smallpox.

Many Rejected from Navy.—According to the report of the Surgeon-General of the United States Navy for the year 1902 the total number of applicants examined for service in the United States Navy was 31,826. The number rejected per 1,000 for all cases was 488.62; the number rejected per 1,000 for color-blindness was 27.9. It would appear from this that nearly 50% of those making application for service in the United States Navy are rejected for cause, and that between 2% and 3% are rejected not for ordinary defects of vision, but for color-blindness.

AMERICAN NEWS AND NOTES.

GENERAL.

Resignation of Instructor.—Dr. Augustin H. Goelet has resigned the chair of gynecologic electrotherapeutics in the International Correspondence Schools of Scranton, Pa., to take effect January 1, 1904.

Camp for Tuberculous Naval Employees.—The *Army and Navy Register* states that an experimental camp for the treatment of tuberculous employees has been established at Pensacola, Fla. This is the beginning of an attempt to find the best location for a permanent camp. Formerly those in the Navy who were stricken with tuberculosis were promptly discharged with a pension. Now they are kept in the service and treated by modern methods. There are now 6 patients at the temporary camp and this number will soon be increased to 25.

Against American Congress on Tuberculosis.—The Council of the Indiana State Medical Association in session at Indianapolis, December 17, 1903, passed a resolution stating "That the Council of the Indiana State Medical Association, representing the medical profession of Indiana, believing that the so-called American Congress on Tuberculosis, organized by Clark Bell, Esquire, of New York, is not a body which is representative of the medical profession or of the best scientific thought of this country, deems it inadvisable and inexpedient for the Indiana State Medical Association to be represented in said Congress, and that we advise our President to notify Mr. Bell that he declines to appoint delegates to it." The Secretary of the Council was instructed to furnish a copy of the resolution to the medical press and to the Secretary of State Hay who has been specially importuned to lend official aid and support to the movement.

Physicians for Philippine Service.—The United States Civil Service Commission announces that on January 27-28, 1904, an examination will be held to secure eligibles from which to make certification to fill vacancies in the position of physician in the Philippine Service, at salaries ranging from \$1,200 to \$1,800 per annum, and other similar vacancies as they may occur in that service. The examination will include the following subjects: Letter-writing, anatomy and physiology, chemistry and materia medica, surgery and surgical pathology, practice and special pathology, bacteriology and hygiene, obstetrics and gynecology, and experience. Questions on practice and special pathology will be principally upon tropical diseases. At least one year's experience in hospital work, or in the Philippine Islands as assistant surgeon in the U. S. Army, is prerequisite. The age limit is 20 to 40 years. Two days will be required for the examination. Examinations will be held in one or more places of practically all the States of the Union. In Pennsylvania they will be held at Bellefonte, Bethlehem, Harrisburg, Philadelphia, Pittsburg, Scranton, Warren, and Williamsport.

To Combat Yellow Fever in Mexico.—News from New Orleans under date of December 15, says: Dr. George R. Tabor, State health officer of Texas, wants the 3 States of Alabama, Louisiana, and Texas, which were the parties to the Galveston conference, to agree upon uniform regulations of quarantine against yellow fever, in Mexico, and he is going to Washington to confer with Surgeon-General Wyman, of the United States Public Health and Marine-Hospital Service, and ask for the cooperation of the national body. Speaking about his plans, Dr. Tabor said: "I want the United States Public Health and Marine Hospital Service to take up the question with the Superior Board of Health of Mexico to try to exterminate yellow fever not only from the Rio Grande, but in all Mexico. I have no doubt that it can be done there as it was done in Havana. Yellow fever is more prevalent in Mexico this year than it has been in past years, and in Vera Cruz, where it always exists, there were more cases than at any time in the last 10 years, but conditions are considerably improved now, and in Monterey, where there were several cases this summer, it is reported that not a case exists at the present time."

Statistical Report of the Health of the Navy and Marine Corps for the Year 1902.—The health record of the Navy and Marine Corps for the year 1902 was good; the ratio of admissions to the sick list per 1,000 being slightly greater than for the year 1901, but much less than the average for the 7 preceding years. During 1902 the average strength of the active list was 31,240, an increase of 4,367 over the previous year. The total number of admissions for all causes was 22,645, the ratio per 1,000 of strength being 767.63, as compared with a ratio of 766.75 for the previous year, and 801.44 for the 7 preceding years. There were 18,882 admissions for disease, and 3,763 for injury, giving ratios of 640.07 and 125.56. The corresponding ratios for the year 1901 were 652.96 and 113.78. The daily average of patients was 1,025.93, and the ratio per 1,000 of strength 34.77, the corresponding data for the previous year being 887.21 and 33.99. The total number of sick days was 374,466, or an average of 12.05 sick days for each man in the Navy and Marine Corps, with an average duration of 16.53 days' treatment for each case. During 1901 the average number of sick days was 12.40, and the

average duration of treatment per case was 16.12. The number of persons invalided from the service (including retirements of officers for disability and transfers to hospitals for the insane) was 1,144, giving a ratio of 37.81 per 1,000 of strength. The corresponding figures for the year 1901 were 1,003 and 37.32, respectively. The ratio for the year 1902 is considerably higher than the average ratio for the period of the 7 preceding years—26.17—due, no doubt, to the large number of recruits now being received to fill up the increased complement of the Navy and Marine Corps. The discharges for disability were divided into 1,001 for disease and 143 for injury, with ratios per 1,000 of strength of 33.09 and 4.72, respectively. The corresponding figures for 1901 were 875 and 128, respectively, with ratios of 32.56 and 4.76. Two hundred and eleven deaths occurred during the year, the mortality per 1,000 of strength being 4.13 for disease and 2.62 for injury; total, 6.75. This ratio (6.75), while slightly higher than that of the previous year (6.18), is still less than the average for the 7 preceding years. Twelve deaths from starvation (occurring during the campaign in Samar, in the marine detachment) and 6 from cholera, are unusual causes that swell the death list for this year. Among the causes of admission to the sick list, malarial diseases stand first with 1,408 admissions, wounds ranking second with 942 admissions, while epidemic catarrh, which has headed the list for the 2 preceding years, falls to third place with 877 admissions. Dengue fever adds 531 admissions to malarial affections. Rheumatic and diarrheal affections rank next in prevalence with 799 and 783 admissions, respectively. Epidemic diseases increased somewhat over 1901, the admissions for the most prevalent being 681 for 1902 to 527 for 1901. The number of admissions for mumps and measles was almost twice as great as for 1901, while the admissions for diphtheria and rubella are considerably less. The admissions for smallpox are practically the same. The admissions for the epidemic diseases are: Mumps, 330; measles, 245; diphtheria, 65; rubella, 48; smallpox, 23. Venereal diseases still cause a decided loss of efficiency, the total admissions for the year being somewhat greater than for 1901. Alcoholism also counts for an increase in admissions. The detailed figures are: Gonorrhea, 771; syphilis, 606; chancre, 284; alcoholism, 248. The total admissions for injuries of various character were 2,940, being divided among wounds, 942; contusions, 706; sprains, 612; fractures, 242; hernia, 175; burns, 171; luxations, 65; drowning, 27. The admissions for pulmonary diseases show a decrease from 1901, there being 158 admissions for pneumonia in 1902 to 185 for 1901, and 130 for pulmonary tuberculosis in 1902 to 125 in 1901. The average for organic diseases shows a decided increase; 190 admissions for heart disease during the year to 105 during 1901, and 46 admissions for nephritis to 25 for 1901. Diarrheal affections and dysentery are still prevalent, as is typhoid fever to a less degree, the admissions being: Diarrheal affections, 783; dysentery, 176; typhoid fever, 125; the total of these, 1,084, being an increase of 135 over the admissions for 1901. Among admissions for causes of an unusual nature are to be noted cholera (Asiatic), 11 cases, with 6 deaths; and starvation, 42 cases, with 12 deaths; all occurred in the Philippine Islands. Upon comparing these returns with those of the previous year it appears that there has been a decided increase in the number of cases treated for malarial affections, mumps, and measles; while the other diseases prevalent in the service remain at about the same average when compared with the total strength of the force employed. The small actual increase in figures can well be attributed to the increase in the complement of the Navy and Marine Corps during the year.

EASTERN STATES.

McLean Hospital Changes.—Dr. Edward Cowles will soon retire as superintendent of the McLean Hospital at Waverly, Mass., a position he has held since 1879 when the institution was known as the McLean Asylum. The trustees of the Massachusetts General Hospital have passed commendatory resolutions on the work of Dr. Cowles and appointed him a member of the board of consulting physicians for the McLean Hospital, a board just created. The new superintendent at McLean will be Dr. E. Stanley Abbott, at present assistant superintendent of the Boston City Hospital.

NEW YORK.

Columbia University.—The winter course of lectures before the Newman was opened December 15 by Dr. J. J. Morrisey of New York who chose for his subject "University Education and Citizenship."

Cornell University Medical College.—Dr. Alexander, professor of genitourinary diseases, has obtained a leave of absence on account of illness and this year the lectures upon the surgery of the genitourinary tract will be given by Dr. Charles L. Gibson.

Antidrug Movement at an End.—Annoyed at the manner in which they have been connected in newspaper stories with a private medical enterprise, the International Committee organized for the suppression of the drug addiction has dissolved, with a declaration that not one member had profited to the extent of a single cent through his connection with the work. It was also stated in the preamble of the resolution that contributions, despite many public appeals, have not been sufficient to carry on the benevolent part of the work on an extended scale.

Deathrate of Tuberculosis in New York City.—There is published in *Charities* for December 12, 1903, a table giving the deathrate, number of deaths, and other data concerning pulmonary tuberculosis in the city of New York from 1887 to 1902. This table shows that in 1887 the deathrate from that disease was 4.27 per 1,000 of population. In 1902 the rate was 2.29 per 1,000. In Greater New York the rate in 1898 was 2.25 per 1,000; in 1902, 2.08. The table also gives the number of cases reported yearly since registration was begun, number of specimens of sputum examined, and the deathrate from all forms of tuberculosis.

The Eastern Medical Society of New York has engaged permanent quarters at Clinton Hall, 151-153 Clinton street, New York. Possession will be taken on or about January 1. The building will offer every facility of the modern club house, all of which will be open to the members. A reference library is one of the projected features of the society. At the annual elections held recently, the following officers were chosen: President, Dr. Louis J. Ladinski; first vice-president, Dr. David Robinson; second vice-president, Dr. Tobias Borger; treasurer, Dr. Joseph Barsky; corresponding secretary, Dr. Abr. L. Wolbarst; recording secretary, Dr. A. J. Ronginsky; trustee, for 3 years, Dr. Wolf Freudenthal.

The Herter Lectures at Bellevue.—The Faculty of the University and Bellevue Hospital Medical College announce the first series of Christian A. Herter lectures to be delivered by W. D. Halliburton, M.D., F.R.S., Professor of Physiology, Kings College, London, on "The Biochemistry of Nerve and Muscle." These lectures will be an extension of a course delivered before the students of the University of London; they will be illustrated by experiments and will contain the results of the lecturer's own physiologic and pathologic research. The course will begin on Monday, January 4 and will continue until Saturday, January 16, daily at 4 o'clock, at the Carnegie Laboratory, 338 East 26th street. Those desiring reserved seats for the course will please communicate with Dr. E. K. Dunham or Dr. Graham Lusk.

Serum for Typhoid Fever.—News from New York under date of December 17 says: Remarkable cures of typhoid fever patients are reported by Beth Israel Hospital, where a serum imported from Italy and Switzerland is being used. Although the remedy has been in use more than 3 months, it has just been made public. In that time 30 cases have been treated at the hospital, which is in the most crowded quarter of the East Side. Not one of the patients died, and in some instances improvement set in before the fever had run more than half its regular course. The improvement was invariably permanent, and many patients were dismissed from the hospital from two to three weeks before the usual time. A small quantity of the lymph is injected into the body 3 times a day, sometimes in the thigh, sometimes in the breast. The operation is of the simplest and practically painless. The injections are in addition to the regular treatment for reducing the temperature, careful diet and nursing. Physicians in charge of the institution refuse to discuss the matter fully, pending the preparation of a detailed report on each case for the use of the medical profession. They admit the successful use of the new serum, but maintain that the treatment is still in its experimental stage.

PHILADELPHIA, PENNSYLVANIA, ETC.

To Vaccinate Railway Men.—The Pennsylvania Railroad Company has issued orders, compelling all employes to be vaccinated.

Contagious Diseases in Allegheny.—The following cases of contagious diseases were reported to the Allegheny Bureau of Health for the week ended December 12: Smallpox, 22 cases; diphtheria, 27 cases; scarlet fever, 7 cases; typhoid fever, 12 cases.

Contagious Diseases in Pittsburg.—The following cases of contagious diseases were reported to the Pittsburg Bureau of Health for the week ended December 5: Smallpox, 27 cases; diphtheria, 27 cases; scarlet fever, 19 cases; typhoid fever, 88 cases. This is an increase of 13 cases over the number reported for the preceding week.

Vaccinating in Allegheny.—The vaccinating corps of the Allegheny Bureau of Health recently vaccinated over 1,200 persons in the districts where most of the unvaccinated of the city reside. It is believed that the hardest part of the work is now accomplished and that Allegheny is prepared to efficiently cope with any further outbreak of smallpox.

Fatal Injury of Insane Patient.—Two attendants in the insane hospital of the Allegheny County Home at Woodville, near Pittsburg, are charged with the murder of an inmate. Ordinarily the man was not of a dangerous type, but had on several occasions injured other inmates during epileptic seizures. Recently while walking about the ward he was seized with an epileptic fit. He was caught by the attendants, and in the struggle that followed was thrown to the floor, dying about 15 minutes later. Postmortem revealed a broken rib, which had penetrated the heart and caused death.

SOUTHERN STATES.

Herter Lectureship.—The first lectures in the memorial lectureship endowed by Dr. and Mrs. C. A. Herter will be delivered at the Johns Hopkins University, Baltimore, Md., by Professor Paul Ehrlich, of Germany. The date has not been determined, but will probably be some time during April. It is stated that the lectures will be in German, but English translations will be distributed to the audience. They will, it is supposed, deal with the problems of immunity.

WESTERN STATES.

Utah has Ordained a Feast of Disinfection.—According to *Il Politecnico*, Rome, November 21, 1903, Utah, "one of the United States," has set apart the first Monday of each October for a general disinfection of public meeting-places, attaching a penalty for failure to comply. To this day is given the name of "Feast of Disinfection." More recently the "Feast" seems to be applied to some of Utah's public men as well as public places.

Sanitary Power of the Press.—In a recent bulletin of the Chicago Health Department, Commissioner Reynolds states that the press of that city is their chief sanitary pulpit. One prominent daily had put in type ready for instant use a warning from the Department bulletin regarding the danger to children of unboiled drinking-water if the snow should rapidly melt and flush the sewers into the lake. This notice at the proper time appeared in several places in its columns. The commissioner says: "The agency of the press as a sanitary pulpit multiplies the effectiveness of the Department's efforts ten thousand fold."

Mortality of Michigan during November, 1903.—There were 2,623 deaths reported to the Secretary of State for the month of November, or 1 death less than the number for the preceding month. The deathrate was 12.9 per 1,000 population. By ages, there were 412 deaths of infants under 1 year; 171 deaths of children aged 1 to 4 years, inclusive, and 789 deaths of elderly persons over 65 years of age. Important causes of death were as follows: Pulmonary tuberculosis, 158; other forms of tuberculosis, 27; typhoid fever, 80; diphtheria and croup, 112; scarlet fever, 14; measles, 7; whoopingcough, 28; pneumonia, 206; cancer, 140; accidents and violence, 194. The number of deaths reported from typhoid fever was less than during October. Tuberculosis also showed a decrease, while diphtheria, scarlet fever, and other diseases of children showed a considerable increase. There were no deaths from smallpox during the month. One death from chickenpox was reported from Ashland township, Newaygo county.

Disease and Death in Indiana in November.—The monthly statistics of the State Board of Health show that bronchitis was the most prevalent disease in November and tonsillitis was the next prevalent. Pneumonia was more prevalent than in the same month last year, the deaths being 241 and 181, respectively. The total number of deaths reported was 2,518, an annual rate of 12.2. In the corresponding month last year 2,406 deaths were reported, which is a rate of 11.6. By important ages the deaths were: Under 1 year, 322; 1-5, 175; 5-10, 98; 10-15, 54; 15-20, 83; 65 and over, 666. Some important causes of death were as follows: Pulmonary tuberculosis, 279; other forms of tuberculosis, 38; typhoid fever, 105; diphtheria, 68; scarlet fever, 18; measles, 6; whoopingcough, 6; pneumonia, 241; diarrheal diseases, 35; cerebrospinal meningitis, 20; influenza, 11; puerperal septicemia, 11; cancer, 94; violence, 163; and smallpox, 1. The city deathrate during the month was 15.5, which is 3.3 higher than the State rate for the same month. In the corresponding month last year the rate was practically the same as this year. The country deathrate is 10.4. In the corresponding month last year it was 9.7. **Smallpox:** Three hundred and twenty-four cases of smallpox with 1 death in 33 counties occurred in November. It is a singular coincidence that exactly the same number of cases was reported in October and also the same number of deaths. In the corresponding month last year there were 441 cases with 2 deaths, and 40 counties were invaded. **Tuberculosis:** The tuberculosis deaths numbered 279, a rate of 135.2 per 100,000. The same month last year the deaths numbered exactly the same, which is another remarkable coincidence to be noted. Of the total deaths from pulmonary tuberculosis, 146 were females and 133 males. Twenty-eight of the males were married and between the ages of 18 and 40, and they left 56 children under the age of 12. Sixty of the females were married and between the ages of 18 and 40, and left 120 children under the age of 12. The disease, therefore, made in November 56 fatherless orphans and 120 motherless orphans. **Typhoid fever:** Typhoid fever caused 105 deaths. The deathrate from this cause for the whole State was 50.9 per 100,000. The city rate was 44.7; country rate, 54.4. **Pneumonia:** Pneumonia deaths numbered 241, a rate of 116.8 per 100,000. In the corresponding month last year the rate was 87.7. The disease prevailed very much more extensively in the cities than in the country, the rates being, respectively, city, 179.1 per 100,000; country, 84.5. Pneumonia does not lead pulmonary tuberculosis as a cause of death in Indiana, and has only done so in 1 or 2 months in the last 4 years. **Violence:** The violence deaths numbered 163, rate of 79. Of the violent deaths, 4 were murders,

27 suicides, and the rest accidents. Nine of the suicides were females, and chose the following methods of self-destruction: Drowning, 1; morphin, 3; carbolic acid, 3; other poisons, 2. Some of the causes of accidental deaths were: Railroads 23, 2 of them being females; burns and scalds 27, 16 being females; fracture of skull 11, all males; fracture of femur or other bones 11, 7 being females; accidents in mines, 3; electricity, 1; horses, 3; explosions, 2.

FOREIGN NEWS AND NOTES

GREAT BRITAIN.

Honor for Physician.—The King of Italy has, through the Italian Ambassador, conferred the decoration of Cavalier of the Order of the Crown of Italy on Dr. James Donelan, attached to the new Italian Hospital in London, in recognition of his services in establishing the throat department.

OBITUARIES.

Clifford Doyle Boal, at his home in Baden, aged 24. He was the son of one of the best known physicians of Beaver county. He received his medical education at West Penn Medical College, and in California, where he resided for two years while under treatment for tuberculosis.

Hugh Burford, at his home in Brunswick, Ga. A graduate of the Savannah Medical College. He was acting assistant surgeon in the U. S. Public Health and Marine-Hospital Service. He was one of the founders of *American Medicine*.

William H. Webb, at his home in Philadelphia, December 23. A graduate of Jefferson Medical College, in 1866. He served during the Civil war as laboratory assistant at Washington, and afterward on the field.

E. L. Carr, of Pittsfield, N. H., December 22, as result of injury by a train, aged 62. For several years he was State superintendent of schools.

Timothy O'Connor, in Denver, December 11, aged 45. A graduate of the College of Medicine and Surgery of the University of Minnesota.

James L. Patty was found dead in his buggy near Brooksville, Miss., December 12. A graduate of the Louisville Medical College.

Charles H. Bushong, in New York City, December 21, aged 47. A graduate of the College of Physicians and Surgeons, New York.

Edward F. C. Rembe, in Lincoln, Ill., December 14, aged 49. A graduate of the St. Louis College of Physicians and Surgeons.

Josiah W. Willis, in Galesburg, Ill., December 14, aged 68. He was a graduate of the Hahnemann Medical College of Missouri.

A. L. Kline, at his home in West Enterprise, Miss., December 12, aged 57. A graduate of the Louisville Medical College.

Wilfred Stedman Fisher, at his home in Ann Arbor, November 30, aged 26. A graduate of the University of Michigan.

Daniel Embury Kissam, at Huntingdon Harbor, December 24, aged 87. He served as surgeon during the Civil war.

George Horace Brown, at Gilmanton, N. H., December 5, aged 50. A graduate of the University of Vermont.

Elisha Hall Bridges, at Ogdensburg, N. Y., October 9, aged 62. A graduate of Bellevue Hospital Medical College.

Samuel M. C. Hawthorne, at Pine Apple, Ala., December 9; a graduate of the Medical College of Alabama.

Albert Moser, at Lima, Ohio, December 9, aged 38. A graduate of Harvard University, Medical Department.

George Horine, at Americus, Ga., December 8, aged 47. A graduate of the Kentucky School of Medicine.

Charles B. Ridley, at LaGrange, Ga., December 14. A graduate of the New Orleans School of Medicine.

Alfred H. Brundage, at Xenia, Ohio, December 10, aged 68. A graduate of Albany Medical College.

Alvinzi G. Thomas, at Atlanta, Ga., December 14, aged 70; a graduate of the Toledo Medical College.

Fred J. Rothacher, at Detroit, December 8, aged 36; a graduate of the Detroit College of Medicine.

George A. Hollister, at Bellevue, Ohio, December 9. A graduate of the Ohio Medical University.

N. B. Ridgway, at Gallon, Ohio, December 12; a graduate of the Starling Medical College.

Otto Fuls, in Cincinnati, December 10; a graduate of the Miami Medical College.

Henry James Ward, at Birmingham, Ala., December 16, aged 61.

John Tallaferra Jones, at Charlotte, Va., December 10, aged 78.

Wilbur F. Harding, at Westfield, Mass., December 24, aged 68.

Carlton D. Ashley, at Cleveland, Ohio, December 9, aged 81.

Lincoln C. Sappington, at St. Louis, December 14, aged 46.

T. M. Gwin, at Blacksburg, S. C., December 9, aged 64.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

REPORT OF THE MATERNITY HOSPITAL OF THE WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA FROM JANUARY, 1888, TO MAY, 1903.

BY

MARY W. GRISCOM, M.D.,
of Philadelphia.

Formerly Associate in Obstetrics at the Woman's Medical College of Pennsylvania. Now Senior Obstetrician at the Woman's Hospital, and Attending Physician to the West Philadelphia Hospital for Women.

After reading an article in *American Medicine* for April 11, headed, "The Possibilities of Clean Obstetric Work in the Slums," it seemed of interest to report 15 years' work by woman medical students among the poorest of Philadelphia's poor.

In January, 1888, Dr. Anna E. Broomall established an out-practice maternity hospital in order that the students of the senior class might have practical experience in obstetrics.

At first only one case could be supplied for each student, but for several years every student has delivered 8 patients before her graduation.

The students were resident at the hospital during attendance on their patients and measured the pelvis of all applicants, made daily visits to the patients under their care and kept a careful record of the labor and puerperium.

The students' bags were supplied with the usual obstetric armamentarium, excepting forceps and ether. Basins for solutions were added and sterilized cloths in packages for the navel, and for the vulva in case of stitches; but no perineal pads were possible.

The personal antisepsis was first mechanical, followed by potassium permanganate and oxalic acid, then mercuric chlorid solution, 1-1,000.

After a rectal injection the patient was cleansed with soap and hot water, and mercuric chlorid solution. No douches have been used for several years.

External examinations and frequent auscultations were encouraged. One internal examination was allowed after the preparation of the patient and one after the rupture of the membranes. An interne went with the student to every primipara and was sent for in every case of complication. Primary repairs were made in all cases, mostly by the students.

During the winter of 1901-1902 many women were attended as they came off shipboard. One woman was delivered of twins within 24 hours of her arrival in this country. And frequently in these cases labor was ineffectual until nourishment had been supplied by the District Charity Organization. Often one dishpan was the only basin the house afforded and it was used in rapid succession for all purposes of sick-room and culinary department (hence the basins in the obstetric bag).

Occasionally the trained nurses from the Visiting Nurse Society made daily visits, but unless there was some complication they did not care for the work, and the students were interested in any complication, so trained nurse assistance was rare.

The proportion of contracted and deformed pelvis was large and many serious forceps deliveries were made amid the poorest and dirtiest surroundings. One woman who did not send till labor was far progressed was found with the fetal head in the rectum, owing to a cicatricial contraction of the vagina due to sepsis after her previous labor. This band was cut to save the remnant of a sphincter ani, and the child delivered, but the whole rectovaginal septum was ruptured. She was sent to a hospital and made an uninterrupted recovery.

One great difficulty met in the work was the superstitious refusal on the part of patients to acknowledge any previous dystocia, and when it had existed, even if it was acknowledged, to get them to send early. They seemed to hope that by waiting all would end well.

Certain women became well known to the doctors in

charge. Some who had had difficult labors learned at last to notify the hospital early and submitted to the induction of premature labor if necessary, others remained firm in their belief in nature. One little rachitic dwarf of 54 inches, with an external anteroposterior measurement of 16 cm. lost 2 babies through not sending till she had been in labor many hours. One child had to be delivered by craniotomy; the second, a transverse presentation, after version.

A deaf mute illegitimately pregnant, waited 17 hours after the rupture of the membranes, in active labor, and when found the child was dead—a neglected transverse presentation. Decapitation was easily accomplished. Her second labor began the same way but she sent early and after version a living child was delivered. Tight lacing accounted for the presentations, as her pelvis was normal.

During the 15 years and 4 months ended May 1, 1903, when Dr. Anna E. Broomall resigned from the chair of obstetrics, in the Woman's Medical College, and the work passed to other hands, 3,156 patients were attended with 2 maternal deaths. The last death in April, 1897, was due to gonorrheal peritonitis. The woman had been in labor many hours before the arrival of the hospital doctors, and had a high temperature and rapid pulse. The head was on the perineum and fetal heart poor. Forceps were applied and the child delivered. The woman died on the ninth day of peritonitis—no autopsy was allowed but her symptoms and a gonorrheal ophthalmia in the child made the diagnosis clear. She was the third instrumental case for the day; the first, a craniotomy and the second, axis-traction forceps; both did well.

The other death was of a woman who applied for medical help and food after she had been on a drunken spree for a week. The child was presenting by the brow and ether had to be given to correct the presentation. The woman suddenly collapsed and died undelivered.

A woman, an unregistered case, sent for assistance in labor. She was found with a double pneumonia and after a quick delivery was sent to a general hospital. She died 2 weeks later from some heart complication, but as her death did not occur till after the 14 days during which the students attended their cases, and as the short labor was only an incident in the acute disease she was never included in the obstetric mortality.

I have enlarged sufficiently to show that all varieties of abnormal conditions among Russians, Poles, Italians, negroes and poor Americans were met and combated under the most adverse circumstances, and the mortality was .06 of 1%; smaller than any I have seen reported.

CONDEMNATION OF DR. MANSON'S "NEW WAY OF TREATING TUBERCULOSIS."

BY

M. L. STEVENS, M.D.,
of Asheville, N. C.

In the issue of *American Medicine* for November 21 there appeared an article setting forth "A New Way of Treating Tuberculosis." The following comments anent it might be construed as a reflection upon the wellknown intelligence of the readers of *American Medicine*, all of whom I hope are able to see the folly and danger of the plan therein set forth. But if there is one among us so ignorant of the principles underlying the immunizing treatment of infectious diseases with anti-toxins, serums and laboratory extracts of the pathogenic bacteria of these diseases, and with attenuated cultures of these same bacteria—so reckless of the life of those unfortunates entrusted to his care as to inject into their bodies the sputum from tuberculous patients, there may be others, who reading his statement that, "it acted miraculously and restored to health," would be foolishly enough to repeat (if it be a repetition) the experiments. Considerable careful work has been done by scientific men in demonstrating the feasibility of producing immunity to tuberculosis in animals by injecting them with attenuated cultures of tubercle bacilli. But with the practicability of this shown, none of them have had the temerity to inject even a greatly attenuated culture into a fellow man.

And that physician is guilty of more than malpractice who in the present state of our knowledge on this subject, injects into his patient virulent tubercle bacilli such as are present in tuberculous sputum, to say nothing of the constant presence in such sputum of various associated bacteria (diplococci, staphylococci, streptococci, etc.) which in animal experiments are so often productive of fatal sputum septicemia. It is indeed not strange that a slightly turbid solution of this sputum "produced increased temperature and rapid dissolution." It is such articles and such work as this that foster the ill-founded prejudice against properly applied immunizing treatments. If the doctor purposes continuing in the use of this "new treatment" it is hoped that he will, in the interest of his patients, first try it on himself. If he does, and does it thoroughly, his patients will escape the untimely death to which such treatment would expose them.

THE ARMY CANTEN.

BY

EVAN O'NEILL KANE, M.D.,

of Kane, Pa.

To the Editor of *American Medicine*:—A long article filled with statistics, entitled "The Canteen," appears in your journal of December 5. It, like its voluminous statistics, seems characterized by the bias of a preconceived opinion in favor of beer drinking in barracks. Even in its first lines it scores Congress for "curtailing the operation of the army canteen." In other words, for endeavoring to suppress drunkenness in the army. In my opinion, Congress knew what it was about. Every practical physician and every student of human nature knows that vicious habits are formed and grow through an immoral environment and the lack of restraint, moral and physical. If, therefore, we would really wish to do away with drunkenness in the army we must alter the environment and impose effective measures against vicious conduct. If men drink whisky and rum outside the barracks, when they cannot get beer and wine inside of the canteen bar-room (where many have learned the drink habit), then the speakeasies and saloons outside the barracks should be broken up and the men who drink in them peremptorily and suitably dealt with. Thus, those who have not yet formed habits of intemperance, will have no motive nor opportunity for acquiring them. Those who have already acquired a taste, and yet not an ungovernable appetite (as is the case of men, under-officers as well as privates), can without difficulty alter their mode of life, for beside finding the tone of those of higher rank opposed to drinking, liquor being unobtainable the taste will vanish, while the third class, those enthralled wretches who are bound soul and body by the chain of debauchery, must sober up or die and relieve the organization and society of a loathsome and dangerous incubus.

A firm hand and a sober head and an unflinching determination to enforce law and order on the part of the officers and the removal of temptation from under the noses of the men is, in fact, all that is necessary to solve the liquor problem in the army and to insure decency and sobriety.

The feeble argument is urged by the opponents of temperance and the promoters of the canteen bar, that, if liquor is not sold within the post the men will drink unrestrainedly outside. And they admit that with or without the canteen bar-room, drunkenness is of common occurrence.

A little investigation divulges the fact that liquor is commonly found upon officers' tables, even though with them spree-drinking and boozing are usually frowned upon and concealed. If this is the fact, as is shown by statistics, the organization itself supported and perpetuated by us for the protection of society against foes within as well as without, for the enforcement of law and order, cannot restrain its weaker members from drinking and suppress the saloons and brothels outside the barracks within a few miles' limit, what, in the name of public decency, can it do, and what kind of moral tone and backbone have the officers? Every large railroad company recognizes the necessity of sobriety among its employes for the protection of its property and the lives of the public. On

western roads they now have the system of spying with concealed kodaks for taking snapshots of employes found drinking at bars when off duty, and all such employes are severely dealt with. Are lives and property less endangered by a drinking army?

What is the matter with our army officers and their discipline that the only way to prevent men from drinking whisky outside is to furnish them with beer inside? Are they off-leave, lobbying in Washington, or like the men—or a booze? If this is the way our army is conducted, we had better have no standing army, for it will only serve as a means of propagating drunkenness and venereal disease, and will betray us at a pinch like the army of Belshazzar in the hour of need. If our standing army is to degenerate to the level of those in old Europe, with soldiers debauched to a level below the brute, we need not be surprised to find the same degraded tone among the officers, and have enacted again scenes like that of the famous charge of the Light Brigade, where by the blunder of one drunken officer, an army of brave men was sacrificed.

Truly we need not wonder that in the Philippines since our army has taken possession there is an immeasurably larger amount of drinking than before our occupancy. And we exclaim, to quote Hamlet, "Something is rotten in the State of Denmark."

[The reform of the officers themselves, and the breaking up of the speakeasies and saloons outside the barracks are certainly desirable, but the first must be done morally and the second legally. A thoroughgoing attempt may succeed if persistently carried out for several centuries. In the meantime, and in the absence of the best, would it not be well to have the better? The columns of *American Medicine* cannot be spared to continue this controversy.—Editor *American Medicine*.]

MEDICAL TREATMENT SOUGHT BY EDDYITES.

BY

HOWARD CRUTCHER, M.D.,

of Chicago.

To the Editor of *American Medicine*:—The following report is based on personal knowledge:

A young woman of 18, accompanied by her mother, was down town on a shopping tour. About 11.30 in the forenoon mother and daughter entered one of the private rooms of — where the mother applied to the daughter's eyes some drops of a solution prescribed by a regular oculist. They then repaired to another place, took seats at a table, and gave orders for a luncheon. At this point the daughter remembered that she had been directed to take some internal medicine, whereupon she drew from her pocket a vial, concealed in a handkerchief, and swallowed about an ounce of a watery solution, which was almost instantly found to be the wrong vial from the one she intended to empty, and which contained about .26 gm. (4 gr.) of atropin. Both hurried at once to a drug store, thence to the office of a physician. About 20 minutes elapsed from the time the poison was swallowed until they rushed into the office of the physician. The doctor immediately began energetic treatment, in which he was assisted by some colleagues. The mother went to the telephone and calling up "a reader" (eddyite) requested a "treatment" for her daughter. After the notification of "the reader," members of the patient's family were advised of her condition. After 14 hours' active office and hospital treatment on the part of the physicians the girl was convalescent. She recovered fully.

The next day but one the mother coolly informed the medical attendants that the happy and really unexpected recovery was due to the services of "the reader," who was at no time nearer than 5 miles to the scene of action.

Several things about this case puzzle me. The young woman is an epileptic. She is under the care of a physician and also of an eye specialist. The application of eyedrops by the mother, the rush to a drug store, the hurried call upon a physician, the removal to a hospital, and the free consent to the application of recognized antidotal measures are assuredly more than puzzling. If the substantial details of this case were not well known to several reputable physicians I should hesitate to report it; but it is literally true in all essential details. Borrowing a familiar phrase, comment would appear unnecessary.

ORIGINAL ARTICLES

THE EARLY DIAGNOSIS OF ARTERIOSCLEROSIS.¹

BY

ALFRED STENGEL, M.D.,
of Philadelphia.Professor of Clinical Medicine, University of Pennsylvania; Physician
to the Pennsylvania Hospital.

In the processes of involution that occur with advancing years, the primary, and by far the most widespread and important, is the loss of elasticity of the bloodvessels and their hardening. Following this, there is a train of pathologic consequences, any one or any group of which may become conspicuous and dominate the remaining years of life. All the research of physiologists and pathologists has not thus far thrown any definite light on the particular causes which operate to bring about the vascular changes of physiologic senility, but considerable light has been thrown on the factors that are concerned in the premature development of this condition, and there is more than a little evidence to indicate that an early recognition of the development of this condition and a proper regulation of the life and habits of the individual may defer the more advanced stages of the trouble, if indeed they cannot cause a restitution of previous conditions.

Arteriosclerosis may be a localized or a diffuse process. The form that I have in mind is that which approaches the normal or senile type of change. In this the pathologic alterations are found primarily in the smaller bloodvessels, while the lesions of the larger vessels are of comparative unimportance so far at least as the symptomatology and the progress of the condition are concerned.

Von Basch, who has written much on this subject, suggests the term *angiosclerosis* to indicate the alterations in the vascular system as a whole, and particularly the changes in the smaller vessels, and uses the term *arteriosclerosis* as of more restricted applicability. It is quite conceivable, as he maintains, that areas of sclerotic change might occur in the aorta or any other large vessel without influencing the health of the individual very greatly, provided of course the smaller vessels remained in their normal condition. As a matter of fact such a state of affairs does not occur, and when marked arteriosclerosis of the larger vessels is present, the smaller vessels and capillaries have long been affected. From the point of view of diagnosis, therefore, it is important to recognize the involvement of the smaller vessels and not that of the main trunks. Arteriosclerosis in its fully developed stage can be recognized with no great difficulty in most instances, but a positive determination of the existence of the earlier stages is extremely difficult, but most essential if we are to accomplish anything in the way of controlling the progress of the disease. In a strictly pathologic sense I do not believe that von Basch's views regarding the prior onset in the smaller vessels is often justified. With rare exceptions I believe that arteriosclerosis is indeed a general disease as Gull and Sutton claim, and that while slight changes in the smaller vessels are capable of producing serious consequences, and similarly slight alterations in the larger vessels are of comparatively little significance, both the large and the small vessels are as a matter of fact involved simultaneously or nearly so.

From the diagnostic point of view, it is important then to consider involvement of the smaller vessels first, but from the broader pathologic aspect, all evidence would indicate that the disease is more or less uniformly distributed. In the subsequent stages, the changes in the large vessels may increase rapidly, while

those in the smaller vessels remain practically stationary, or the reverse may occur. These peculiarities of subsequent progress may account for the differences in individual cases in the clinical course and in the duration of life. There can be no doubt of the unequal progress of events when the multifarious character of the symptomatic manifestations is recalled. In the later stages, one case presents itself in the aspect of a cerebral disease, another in the form of a cardiac malady, while in others the kidneys seem essentially vulnerable.

The causes that lead to arteriosclerosis may be very briefly discussed, since their recognition has now become practically established. If in a theoretic spirit, we assume that senile changes develop after the wear and tear of life have exhausted the vital forces and the capacity of the tissues to rejuvenate themselves, it might be thought that any habits or conditions of life which increase the stress and strain would lead to a more rapid development of senile changes. As a matter of fact, experience bears out this assumption, and from some slight review of such statistical evidence as is available in the Census Reports of the United States, I was led to believe that cardiovascular diseases have become more common in this country in the last 5 decades, and the opinion of physicians of experience is almost uniformly consonant with this view.¹ It would be difficult to analyze the various features in modern life that contribute toward this result, but one can readily appreciate how the excessive activity resulting from rapid transportation, the use of the telegraph, telephone, and other modern inventions, may play a part. So far as this country is concerned, and to a less extent, in other countries, the complex relations of social and business affairs also play a part.

The result of nervous strain on the vascular system is twofold. Continued anxiety or exhausting mental exercise has undoubtedly much to do with the development of arterial sclerosis, and sudden shocks or emotional stress in many cases seem to be the determining cause of increased activity in the arterial disease, or of rapid failure of the heart and other organs to compensate the vascular condition.

I cannot forbear expressing in this place my conviction that infectious diseases occasion the development of changes in the arterial system that subsequently, under the operation of other causes, become pronounced. Thus the immediate results of a severe attack of typhoid fever may be a disturbance of the heart and bloodvessels that suggests a serious pathologic condition. In the course of time, however, the cardiovascular system seems to recover entirely, and not until some years have elapsed and until other causes have become operative are the evidences of extensive vascular disease evident. I believe that such infectious diseases lay the foundation for the ready development of arteriosclerosis in later years, just as excessive exercise may occasion changes in the heart muscle that during the period of robust manhood are of little consequence, but later increase in degree and seriousness.² I appreciate that much of this must be regarded as theoretic, though practical experience warrants the suggestion, and would justify a careful investigation.

Among the more definite and direct causes are: Laborious work, overuse of alcohol, overfeeding, chronic metallic poisoning, notably lead-poisoning, and some infectious diseases, particularly syphilis. One of these causes deserves particular mention, because it is less frequently considered, and yet in the opinion of many well-qualified physicians, a cause of great importance—I refer to overfeeding. I have myself seen advanced arteriosclerosis in persons who had lived the most correct lives in every respect, excepting this. It could not, of course, be assumed from one case or a few cases that

¹ Read before the Lyncoming County Medical Society, November 13, 1903.

² University Medical Magazine, October and November, 1900.

³ See "The Immediate and Remote Effects of Athletics on the Heart Muscle," American Journal of the Medical Sciences, November, 1899.

this is the operative cause, but accumulative experience is strikingly significant in this direction.

Heredity must not be lost sight of. It is a well-known fact that in certain families diseases which are the result of arteriosclerosis are not infrequently found in one after another generation. Osler speaks of this in the sense that the primary material of which the arterial system is made is of low order, and that its elasticity is soon exhausted. We cannot do any more than speculate on the probable truth of such an hypothesis, but the record of arterial disease in various members of the same family is more than a coincidence, or the result of the operation of the same causes acting in the common environment.

The results of arteriosclerosis are varied as I have said. In the normal and typical senile form there is a gradual failure of organic functions, resulting from inadequate circulation in the important organs. Unless special causes operate to promote the disease in one and retard it in another part, the progress is an orderly and a uniform one, and at last the individual is sans teeth, sans eyes, sans taste, sans everything. In pathologic or premature arteriosclerosis, the causes which have brought about the premature development of the disease also tend to make its progress in one part more rapid than in another, and we find, therefore, that when manifest clinical symptoms develop, the brain, heart or the kidney suffers disproportionately. It is true that in the normal senile change the symptoms may be at last unequally marked in one or another direction, but on the whole, the progress is more or less uniform. In fully developed arteriosclerosis, when the earlier stages have been obscure, the patient may present himself to the physician with symptoms pointing exclusively to one or another organ, though as a rule a careful study of the patient will reveal the underlying vascular cause. It is at this stage that we are usually able to recognize the disease. Unfortunately, the beginnings are obscure and the attempt has not been made with special energy to determine the earlier phenomena. The last few years, however, have witnessed a great improvement in methods of clinical investigation of the cardiovascular apparatus, and I believe the time is now ripe for an active campaign of exploration in this field. I am convinced that the disease could be recognized earlier if the profession were alive to the necessity of determining the very earliest symptoms, and it is not too much to hope that the progress of the disease can be retarded if not completely arrested.

We have learned how very important is the early recognition of tuberculosis, and the timely climatic, dietetic, and medicinal treatment have saved thousands who would inevitably have gone to destruction. The same thing in a lesser degree may be true of this immensely more frequent malady, for it can be said that while the German clinician's dictum that every one has some time or other a little tuberculosis is true, it is still more true that every one who has not been cut off prematurely by some other ailment must come to his end through arteriosclerosis directly or indirectly. The necessity of early recognition stands upon exactly the same ground in this disease as in tuberculosis. If the process has advanced to complete destruction of the tissues affected, the time has gone by when any remedial measures can possibly avail.

Before I turn to the clinical side, let me say a few more words regarding the pathology of the condition. When slight sclerotic changes develop in the small bloodvessels it is easy to see that no material or demonstrable alteration might be discoverable in the general conditions of the circulation, while the diminished supply of blood in important organs might readily occasion derangements of their function, and the widespread though slight impediment to circulation might affect the heart's action injuriously. As a matter of fact, my experience leads me to look in these directions for the earliest evidences of the developing disease, and in

reviewing my early knowledge of cases of arteriosclerosis that eventually terminated with pronounced evidences of the disease, I see how the oncoming of the disease was foreshadowed, or in its early stages, at least vaguely indicated. The solution of the early diagnosis of this disease is the business of the pure clinician. I believe that the pathologist can help us but little. A retrospective investigation of every case that has been under the careful observation of the physician will throw more light on the early indications than the most painstaking pathologic study of dead tissues. The pathologist and physiologist have shown us how and where to direct our attention in this study; the solution is the affair of the physician.

The first effect of loss of elasticity of the bloodvessels must be an impediment to the easy circulation of the blood, an increase in the work of the heart, and a consequent increase of blood-pressure. If the normal blood-pressure were a fixed amount, and if there were no causes of frequent or even habitual increase of peripheral vascular tension, the recognition of this early stage might be easy; but we know that in its infinitely complex system of compensations the circulation is adapted to varying conditions at the periphery or center, and in the very first stages of arteriosclerosis the blood-pressure may be possibly lowered instead of raised by the relaxation of the diseased vessels, either as a result of the direct weakening of their walls or of the action of vasodilator mechanisms. Such a preliminary lowering of blood-pressure is probably quite temporary and rather occasional than constant during the brief term of its existence. Soon the pressure becomes increased and remains so with only occasional depressions. In the late stages of the disease, heart weakness from myocardial degeneration may become pronounced and a durable and serious reduction of pressure may develop. This, however, is a final phase, in which we have no special interest to-day. It may be said, then, that elevation of blood-pressure is an early condition of arteriosclerosis, and in the review of every case that I have been able to study from the beginning this has been an invariable symptom. The means of determining this is the study of the pulse by the finger, the character of the first heart-sound at the apex and the second sound at the aortic area, the sphygmogram, and the results obtained with some instrument for recording arterial pressure. I need not review the features that indicate increased arterial tension to the palpating finger. These are well known to all of us. The character of the first heart-sound is, however, less commonly appreciated. The increased difficulties of the circulation cause an early lengthening and an increased heaviness from augmented muscular action of this sound, and these characters are often sufficiently clear to be readily appreciated by a trained ear. Later the peculiarities of this sound become more manifest, and finally, when the myocardium becomes weakened by disease and its unequal effort, the sound loses muscular tone, becomes vibrating and uncertain, and at last may be attended with or replaced by a murmur.

The second heart-sound is accented early and remains so almost constantly, even to the very latest stages. This is too well known to require further discussion.

The sphygmogram shows a tendency to increase of what is called the tidal wave. The characteristic curve with sloping ascent and delayed decline is significant of late stages of the disease; it is a development of a much later period than that which I believe we should recognize. Even from the first, however, the percussion wave of the sphygmogram is often less sharp and pronounced than in a normal curve, the reason for this being, in my judgment, the more prolonged expressive action of the left ventricle occasioned in arteriosclerosis as it is in aortic stenosis by the *resistentia a fronte*.

The determination of blood-pressure has become more satisfactory in recent years, thanks to the labors of von Basch, Riva-Rocci, and others. The best instru-

ment is that devised by my assistant, Dr. Stanton, which I shall gladly demonstrate to those who are specially interested. In determining blood-pressure we must remember that there is a maximum and a minimum, which respectively correspond with the height of systole and the time just preceding systole. Between these is a mean pressure. It is doubtful if we can ever determine the mean pressure, but a comparison of the highest and the lowest pressures is obtainable, and their comparison gives a working basis for deductions as to the state of the circulation. We have, then, in this instrument a means of determining approximately the condition of blood-pressure, and these results may be utilized in the diagnosis of arterial disease.

If the 4 symptoms I have named were found in arteriosclerosis alone the problem of diagnosis would be greatly simplified, but this is not the case. An eminent authority (v. Basch) does indeed lay great stress on persistent increase of pressure as a symptom of arteriosclerosis, and admits other causes as operative only for short intervals of time. I cannot accept this view as accurate. There are, I believe, numerous and varied conditions of the system, organic and nervous in origin, that elevate pressure nearly constantly, and in which arteriosclerosis has no part except, perhaps, as a consequence. Any one of these conditions may occasion the 4 signs I have discussed.

Aside from this, however, we must further recognize that there is no fixed standard of pressure, and that an arbitrary figure such as 150 mm. of mercury is nothing more than an approximation.

Let me next turn to an aspect of the question that will interest us more directly as physicians. What are the early clinical symptoms that bring the arteriosclerotic patient to his physician? Very often, unfortunately, the beginnings of the disease are so insidious that the patient himself does not realize its presence, any more than the development of advancing age. In other cases the occurrence of arteriosclerosis proclaims itself as a pathologic condition, and differs enough from the gradual physiologic senile arterial hardening to be recognized as a rapidly developing, if not acute, alteration of previous health. Such cases would present themselves to the physician; the other and perhaps larger number would be discovered more or less accidentally.

Among the early symptoms are a change of vigor and of color, and various trivial evidences of reduced vitality. These are especially marked when the myocardium is the first of the organs to suffer. When the patient has been an active man of marked energy and vitality, the change may be pronounced and not rarely it is first noted after some special strain or shock. I cannot forbear recurring again to the importance of the nervous system in the development of the disease. A sudden shock does not, indeed, initiate the malady, but rather renders its effects more pronounced and perhaps hastens its progress, but continued nervous strain, especially when combined with anxiety and irregularities of life, undoubtedly is a contributing cause of arterial disease of greater significance than we usually believe. It is active men of the better class, men who have achieved much and suffered much, though outwardly most successful, that fall early victims to this disease. The easy going, luxurious, and indolent may develop the disease, but not often prematurely and pathologically except as a result of especial excesses.

It would be useless to attempt to detail the many ways in which reduced vigor and lowered vitality may manifest themselves. The friends of the patient or the family may observe the development of these, long before the patient is aware of their existence. Sometimes a supposed nervous breakdown is the form it takes (and I am convinced that neurasthenia is cardiovascular in origin much oftener than is believed); more frequently the symptoms are less pronounced.

With this loss of vigor comes a change of color, a pal-

lor, trifling perhaps at first, but later more and more pronounced. This is most conspicuous about the face, and especially around the mouth, temples, and eyes. In the later stages there is a false appearance of anemia that the experienced readily recognize as the arteriosclerotic facies. Frequently I have examined the blood of such patients and have found no evidence of anemia. The pallor is due to the narrowed arterioles and capillaries, not to impoverished blood.

At this stage, too, the skin is frequently altered in the activity of the sweat glands. While it is as a rule dry, and later becomes persistently so in most cases, in this early stage there may be a marked tendency to occasional sweating, abnormal sweating under exertion, and the like. This may be in part the result of general lowering of vitality. In a measure, however, it is, I believe, a direct vascular and vasomotor phenomenon.

Somewhat of the same sort is the allied renal action seen in many cases of early arteriosclerosis. In the first place, I believe increase in the total amount of urine antedates any actual renal disease, such as we expect, and so frequently find later. This is difficult to prove, but many clinical experiences convince me of its truth. Of greater importance is a disturbance of equilibrium of renal action, a tendency to alterations of polyuria and reduced excretion, and to wide variations in the specific gravity of the urine, with or without marked changes in quantity. The morning urine may show a gravity of 1,025, and the evening urine one of 1,005 to 1,010. I recognize that habits, especially with regard to the drinking of much liquid, play a part in such occurrences, but when arteriosclerosis has begun, it seems to me that the renal permeability is less uniform, and fluctuations are out of proportion to the conditions.

Later, occasional or continuous slight albuminuria makes its appearance and is as a rule significant of quite advanced arterial disease. There are, however, instances in which it occurs before renal changes are marked and in the majority of cases repeated examinations may disclose the occasional appearance of albumin in the urine. Casts are not often found till the kidney has become considerably affected but cylindroids may be discovered much earlier.

When the heart is especially affected symptoms may be in evidence early. I have spoken of the auscultatory phenomena that are found in cases of all sorts and not those alone in which myocardial degeneration is an especial feature. When the heart muscle is affected there may be slight symptoms long before the myocardial disease has become pronounced. Arrhythmia, increased force of the apex impulse and suggestions of dyspnea, are the most important of these. I have elsewhere made allusion to the too common tendency to regard irregularity of the heart in persons of 40, or more, as the result of gastric disturbances, the over-use of tobacco, alcohol, coffee, or tea and of other such causes.¹ It is true that any of these may be the cause of arrhythmia, but much more frequently these causes begin to affect the patient when his arterial system and heart have become diseased and not before. No case should be hastily ascribed to either kind of cause without consideration of the other.

Finally I wish to call attention to the possibility of an early diagnosis by ophthalmoscopic examination. Thickening of the retinal arteries is evidenced by the high light of the arterial image and the compression of the veins where the arteries cross them. Attention has been called to these conditions by de Schweinitz, and in a number of my cases he has found these ophthalmic peculiarities very early in the course of the disease.

It is unnecessary to enter upon any discussion of the late symptoms of arteriosclerosis for the reasons I have given. It is the early stages that need investigation and toward these our thoughts should be directed.

¹ Univ. Med. Mag., October and November, 1900.

A BACTERIOLOGIC INVESTIGATION OF COMMERCIAL VACCINE VIRUS.*

BY

WILLIAM TRAVIS HOWARD, JR., M.D.,
of Cleveland, O.Professor of Pathology, Western Reserve University; City
Bacteriologist;

AND

WILLIAM H. WEIR, M.D.,

Research Assistant, City Bacteriologic Laboratory, Cleveland, O.

(FROM THE SMALLPOX RESEARCH LABORATORY OF THE CITY
OF CLEVELAND AND THE PATHOLOGIC LABORATORY
OF WESTERN RESERVE UNIVERSITY.)

During the year 1902, samples of vaccine virus, offered for purchase by various manufacturers to the Health Department of Cleveland, were submitted to one of us (Dr. Howard) for bacteriologic examination. On account of the occurrence of several cases of tetanus and a number of cases of badly infected arms, ending, in some cases, in gangrene, following the use of certain viruses used by the city vaccinators in the summer and fall of 1901, this step was deemed necessary for the protection of both the public and the Health Department.

The routine method employed was as follows:

Agar petri plate cultures were made from the contents of single tubes or capsules of glycerinated virus. Ivory points grasped in a sterile forceps were rubbed carefully in melted agar, and then dipped into the media, and the whole poured into petri plates. Both aerobic and anaerobic cultures were made. All the cultures were kept several days in body temperature before counting the colonies. Separate colonies of the various organisms were studied for identification. As a further precaution, mice were inoculated with bouillon containing the virus of at least 3 tubes or points.

The purchase of the virus used by the city vaccine physicians was made from the samples approved by the laboratory. After this action there was a noteworthy decrease in badly contaminated vaccinations, and no further cases of tetanus occurred among persons vaccinated by the vaccine physicians. Samples were submitted by 5 manufacturers, as indicated by numbers. Table I, shows the results of these examinations. Most of the samples were remarkably free from microorganisms. Only three showed staphylococci, and one streptococci. These organisms were not pathogenic for laboratory animals. It will be observed that Virus I always contained actinomyces. *B. tetani* was never cultivated from these samples, and no animals died or appeared ill after inoculation with bouillon containing virus.

Table I gives the results of these examinations.

In December, 1902, it was determined to examine routinely, samples of vaccine virus of these 5 producers, purchased in the open market, through a reliable pharmacist. This work was done by Dr. Wm. H. Weir, under the direction of Dr. Howard. The same methods used in the first series were adopted for the second. The samples of virus were received in unbroken and sealed packages, and kept on ice until cultures were made. It will be observed that the number of colonies is uniformly larger in the second series. Staphylococci and streptococci were often present. The virus from each producer contained actinomyces at one time or another. There was, however, a marked variation in the constancy and numbers of their presence in the different viruses. They were found in every sample, though not in every point or tube, of Virus I. They were present 6 times in Virus II; once (19 colonies) in a single sample of Virus III; 5 times in Virus IV, and once in Virus V. Several varieties of actinomyces were found. A detailed description of these organisms will be given in a separate paper.

TABLE I.—VACCINE VIRUS, SUBMITTED AS SAMPLES TO THE HEALTH DEPARTMENT OF CLEVELAND DURING THE YEAR 1902.

VIRUS I, IVORY POINTS.

Date of examination.	To be returned.	No. of colonies per point or tube.	Staphylococci.	Aureus.	Albus.	Streptococci.	Actinomyces.	Remarks.
Oct. 27, 1902...	Dec. 7, 1902...	7 3	0 0	0 0	0 0	0 0	5 colonies. 2 "	

GLYCERINATED TUBES.

Nov. 4, 1902...	6 6	0 0	0 0	0 0	0 0	4 colonies. 4 "	Two tubes used in both cultures
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VIRUS II, IVORY POINTS.

Mar. 6, 1902...	18	+	—	—	+	0	
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GLYCERINATED POINTS.

June 27, 1902.	5	0	0	0	0	0	
July 13, 1902.	Oct. 7, 1902.	0	0	0	0	0	0	
		1	0	0	0	0	0	
Aug. 31, 1902.	Nov. 21, 1902.	7	0	0	0	0	0	
Nov. 15, 1902.	Dec. 1, 1902.	5	0	0	0	0	0	
		2	0	0	0	0	0	
		3	0	0	0	0	0	
		1	0	0	0	0	0	
		2	0	0	0	0	0	

VIRUS III, PARAFFINED IVORY POINTS.

June 6, 1902.	0 83	0 +	0 +	0 0	0 0	0 0	
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VIRUS IV, IVORY POINTS.

May 29, 1902.	0	0	0	0	0	0	
July 2, 1902.	Nov. 17, 1902.	0	0	0	0	0	0	
		7	0	0	0	0	0	
July 2, 1902.	Nov. 23, 1902.	1	0	0	0	0	0	
		9	0	0	0	0	0	
		55	0	0	0	0	0	
Average.....		6.4						

GLYCERINATED LYMPH.

July 2, 1902.	Nov. 17, 1902.	0	0	0	0	0	0	
		7	0	0	0	0	0	
Dec. 16, 1902.	.....	0	0	0	0	0	0	
		4	+	0	0	0	0	
		6	0	0	0	0	0	
Average.....		3.4						

VIRUS V, IVORY POINTS.

June 2, 1902.	.....	18	+	0	+	0	0	
July 2, 1902.	Aug. 10, 1902.	0	0	0	0	0	0	
		1	0	0	0	0	0	

Beside the organisms mentioned, various saprophytic bacilli and cocci, and often diphtheria-like bacilli (pathogenic for guineapigs and previously described by other observers) were isolated, *B. tetani* was not found.

The examination of vaccine virus for bacterial impurity has centered chiefly upon the isolation staphylococci, streptococci, and *B. tetani*. The recognition that vaccinia is often complicated with suppuration due to inoculation with pyogenic organisms, at the time of vaccination, incited the various steps which have been taken to lessen the number of organisms present in such virus. Copeman¹ stated in 1895 that 1 or more of 3 species of microorganisms, namely, *Staphylococcus albus epidermidis*, *Staphylococcus pyogenes aureus*, and *Staphylococcus*

* Read at the meeting of the American Association of Pathologists and Bacteriologists, Washington, D. C., May 13, 1903.

cus cereus flavus, were almost universally present in human and calf vaccine lymph, and that *Streptococcus pyogenes* was occasionally present.

It was the paper of Landmann² in 1896, perhaps, which has stirred up most discussion, and stimulated more careful work in this direction. Landmann pointed out that vaccine lymph from 13 German vaccine establishments contained from 50 to 2,500,000 bacteria per

TABLE II.
VIRUS I, IVORY POINTS.

Date.	To be returned.	No. of colonies per point.	Staphylococci	Aureus.	Albus.	Streptococci.	Actinomyces.	Remarks.
Feb. 13, 1903.	Mar. 8, 1903.	1,200	+	+	+	0	1 col.	
		2,200	+	+	+	0	1 "	
		825	+	+	+	0	2 "	
		3,600	+	+	+	0	0	
		1,200	+	+	+	0	0	
		9 025						
Average.....		1,965						

GLYCERINATED TUBES.

Dec. 19, 1902.	Feb. 8, 1903...	20	0	0	0	0	0	Overgrown by <i>B. subtilis</i> .
Average.....		20	+	+	+	0	0	
		206	+	+	0	0	2 cols.	
		82	+	+	0	0	0	
Jan. 2, 1903...		Innumerable.	+	+	0	0	0	Mostly diphtheria-like bacilli.
Average.....		80	+	+	0	0	0	
		Innumerable.	0	0	0	+	2 "	
		7,500	+	+	+	0	6 "	
Feb. 13, 1903.	Mar. 13, 1903.	400	+	+	0	0	0	
Average.....		1,400	+	+	0	0	0	
		39,300						
		3,100						

VIRUS II, IVORY POINTS.

Jan. 16, 1903.	Feb. 14, 1903.	300	+	+	0	+	0	
Average.....		23	+	+	+	+	0	
		312	+	+	+	+	0	
		212						

GLYCERINATED TUBES OR POINTS.

Dec. 30, 1902.....		6,000	0	0	0	+	2 cols.	All streptococci except 2 colonies of <i>B. subtilis</i> and 2 of actinomyces.
		Innumerable.	+	+	+	+	0	
		"	0	0	0	+	0	
Feb. 7, 1903....	Mar. 31, 1903.	2,500	0	0	0	0	0	All streptococci. All diphtheria-like bacilli.
		9,000	0	0	0	0	0	
		1,875	0	0	0	0	0	But streptococci grew in anaerobic cultures.
Average.....		4,458						
Feb. 5, 1903....	Mar. 31, 1903.	6,000	+	0	0	+	2 cols.	Mostly streptococci and diphtheria-like bacilli.
		4,800	+	+	0	0	1 "	
		12,000	+	+	0	+	2 "	
Average.....		7,333						
April 2, 1903....	Mar. 23, 1902.	14	+	0	+	+	0	Nearly all streptococci.
		6	0	0	0	+	0	All streptococci except 1.
		135	0	0	0	+	1 col.	
Average.....		52						
April 30, 1903.	May 17, 1903..	1	+	0	+	0	0	
		9	0	0	0	0	0	<i>B. subtilis</i> .
		2	0	0	0	0	1 col.	
Average.....		4						

VIRUS III, GLYCERINATED POINTS.

Jan. 26, 1903..	Mar. 5, 1903...	18	+	+	0	0	0	All staphylococci except 3.
Average.....		22	+	+	0	0	0	
		26	+	+	0	3	19 cols.	
		22						

VIRUS IV, IVORY POINTS.

Jan. 28, 1903..	April 12, 1903.	3	0	0	0	0	0	
Average.....		8	+	+	+	0	2 cols.	
		4	+	0	+	0	1 "	
		5						
April 13, 1903.	June 13, 1903.	3	+	0	+	0	0	
Average.....		7	+	+	0	0	2 cols.	
		10	+	+	0	0	0	
		4	+	+	0	0	1 col.	
		6						

GLYCERINATED VIRUS.

Dec. 27, 1903..		60	0	0	0	0	0	All overgrown by <i>B. subtilis</i> .
Average.....		60	0	0	0	0	0	
		92	0	0	0	0	0	
		51						
Jan. 21, 1903..	April 10, 1903.	30	0	0	0	+	0	
Average.....		6	0	0	0	0	0	
		14	+	+	0	0	1 col.	
		16						
April 30, 1903.	June 23, 1903.	0	0	0	0	0	0	
Average.....		1	0	0	0	0	0	
		2	0	0	0	0	0	Streptococci in anaerobic culture.

VIRUS V, GLYCERINATED TUBES AND POINTS.

Dec. 29, 1903..		4	+	0	+	0	0	
Average.....		3	+	+	+	0	0	
		9	+	+	0	+	0	
		5						
Jan. 23, 1903..	Mar. 1, 1903...	3	0	0	0	+	0	
Average.....		8	+	0	+	+	0	
		2	0	0	0	+	0	
		4						
Nov. 25, 1903.	April 10, 1903.	20	0	0	0	0	0	All diphtheria-like bacilli.
Average.....		2	+	0	+	0	0	
		1	+	0	+	0	0	
		7						
April 14, 1903.	June 1, 1903..	10	+	0	+	0	1 col.	
Average.....		3	0	0	0	0	0	
		10	0	0	0	0	0	

cubic centimeter, and in some samples many of these (in one instance all) were pathogenic cocci. Of 16 samples of virus examined, 3 contained streptococci and 8 staphylococci, all of which were pathogenic for laboratory animals. Kirchner,³ in 1897, studied the bacterial content of the glycerinated lymph of the Hanover vaccine station and failed to find streptococci, but did find once a staphylococcus which was not, however, pathogenic for white mice. In 1898, Migula⁴ found *Staphylococcus aureus* and *Staphylococcus albus* and streptococci (nonpathogenic for laboratory animals), in fresh vaccine lymph from calves. He further found that *Staphylococcus aureus* and *Streptococcus pyogenes* were killed in 3 weeks in 50% glycerin, while 75% glycerin killed *Staphylococcus aureus* in 1 week and *Streptococcus pyogenes* in 2 weeks.

In the same year Dreyer⁵ studied 12 samples of vaccine virus of German production. Direct inoculation of these vaccines into animals resulted in the death of 1 mouse with streptococcus peritonitis, and 1 guineapig after subcutaneous inoculation with streptococci. Five viruses caused in mice, subcutaneous abscesses containing streptococci, and in a sixth mouse there was a small abscess containing a white staphylococcus. He further

inoculated mice and human arms with pure cultures of cocci obtained from these viruses with the following results. There were 27 cultures of staphylococci, 22 of which caused abscesses in mice, and 18 more or less severe inflammation of the human arm. Of 7 cultures of streptococci 3 caused abscesses and death in mice, and all caused more or less severe inflammation of the human arm. Copeman quotes the German Government Board, consisting, among others, of Koch, Pfeiffer and Frosch, as finding in 5 out of 18 samples of vaccine virus, staphylococci, pathogenic for rodents.

The most exhaustive and careful study of the bacterial content of vaccine virus offered for sale in the United States, is that of Rosenau⁶, lately published, and of which he was kind enough to send us proof sheets.

He counted the colonies growing upon agar plates inoculated with the virus on ivory points and in glycerinated tubes of 10 manufacturers in 3 series. In Series I (winter, 1901-2) counts from a large number of ivory points averaged 4,809, and from glycerinated tubes 4,698 colonies. In Series II (spring, 1902) dry points averaged 3,458, and glycerinated tubes 1,058 colonies. In Series III (winter, 1902-3) ivory points averaged 4,895, and glycerinated tubes 29 colonies. Some points contained as many as 44,000 organisms, the highest number from a glycerinated tube was 30,080; a very few points and tubes were sterile. Various staphylococci, some of which are classified as "pyogenic cocci," but none of which apparently was proved to be pathogenic for animals, were commonly found. Streptococci were not found. He did not find *B. tetani* in any virus. The 190 dry points examined averaged 4,354 bacteria per point, and the 244 glycerinated tubes examined averaged 1,742 bacteria per tube, showing a very high bacterial impurity. His work demonstrates conclusively the superiority of glycerinated tubes or points, to ivory points made with fresh "lymph." He justly, we think, attributes the large bacterial contamination of American commercial vaccine virus to carelessness, overconfidence in the germicidal action of glycerin and the sale of unripe or green virus, under the pressure of temporary increased demand. A comparison of our results with those of Rosenau is of interest, as they are to a certain degree mutually supplementary. There is a striking difference in the bacterial content of the virus submitted to the city of Cleveland as samples, which, it was known to the manufacturer, were to be tested bacteriologically (see Table I), and the bacterial content of virus bought by Rosenau and ourselves in the open market unknown to the manufacturers (see our Table II and Rosenau's figures given above). It is fair, however, to state that the small bacterial content of the virus of Table I, in part, may be due to the fact that it was obtained mostly in the summer and early fall months, when the demand is generally at its lowest. On the other hand, there was an extensive epidemic of variola at this time in northern Ohio. The work embodied in our Table II, begins where Rosenau left off—the last of December—and brings the knowledge of the bacterial content of some, at least, of the viruses studied by him down to the end of April, 1903. Most of the virus examined by us in December, January, and February, was badly contaminated. Viruses IV and V never showed a large number of colonies, though staphylococci, streptococci, and actinomycetes were isolated from both. Analysis of Table II shows that of 14 examinations of tubes and points of Virus I, 12 showed staphylococci, 2 streptococci, and 7 actinomycetes; of 18 examinations of Virus II, staphylococci were found in 9, streptococci were found in 10, and actinomycetes in 5; in Virus III, of 3 cultures, all showed staphylococci, and 1 each streptococci and actinomycetes; of 16 cultures of Virus IV, 7 showed staphylococci, 1 streptococci, and 5 actinomycetes; while of 12 cultures from Virus V, 7 showed staphylococci, 4 streptococci, and 1 actinomycetes. Out of a total of 63 cultures from separate tubes or points, staphylococci

were isolated in 38, streptococci in 18, and actinomycetes in 20. In a number of cultures streptococci were the most numerous organisms present, and in some all or nearly all the colonies were streptococci. In 1 plate in which the colonies were too numerous to count, there was a pure culture of streptococci. Tubes or points with very low counts (2, 8, 10, 1, 3, 9, etc.) may contain staphylococci, streptococci, or actinomycetes. Actinomycetes may be found in plates with either high or low counts. The percentage of glycerin used is evidently not strong enough to kill the spores. Experiments are now being carried out to determine the strength of glycerin, and the time needed for this.

The 9 varieties of actinomycetes isolated, form the subject of a second paper. Sufficient to say here that few of them conform to the descriptions of previously recognized forms and that none of them causes suppuration or actinomycotic nodules in laboratory animals. The latter point is, however, of little value, for it is well known it is the exception, rather than the rule, for actinomycetes isolated from lesions in man and cattle, to cause lesions in laboratory animals.

On account of the difficulty in obtaining mice, it was not possible to test the pathogenicity of all the strains of streptococci. The few which were tested proved to be pathogenic.

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THE METHYLENE-BLUE EOSIN STAINS.

BY

WALTER BAUMGARTEN, M.D.,

Assistant in Medicine, Johns Hopkins University.

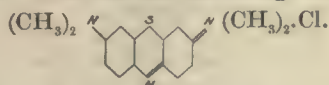
[From the Clinical Laboratory of the Johns Hopkins University. Service of Professor Osler.]

Considering the increasing use of blood stains consisting of methylene-blue and eosin, and the confusing multiplicity of names applied to modifications of what is essentially one method, it has seemed well to describe briefly the development of mixtures of methylene-blue and eosin as stains for blood, and to gather together the various modifications of the combination of these two stains.

As Ehrlich¹ originally demonstrated, mixtures of aqueous solutions of basic and acid staining components of the anilin stains result in the formation of a neutral stain in which the basic stain forms the base, the acid stain the acid portion, these having previously existed respectively as a base combined with an inorganic acid, and as an acid combined with an inorganic base. In staining a cell, such a neutral stain combines with the neutral substances of the cell—substances which are not stained by either component of the neutral stain. The alkaline substances of the cell, however, split up the neutral stain, and combine with its acid component, while the acid substances combine with the basic component. Neutral stains, however, are practically insoluble in water, but soluble in an excess of the acid component, and in at least one instance—methylene-blue²—in an excess of the base. Mixtures, therefore, of methylene-blue and eosin form a neutral stain, which, being insoluble in water must be redissolved in an excess of one or the other. In blood-films stained in such a stain, the red blood-corpuscles and the granules of the eosinophiles take the eosin, the nuclei of the leukocytes and

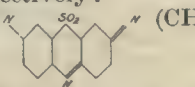
the basophile granules, the methylene-blue, and the neutrophile granules the neutral stain (methylene-blue-eosin).

Methylene-blue is a basic stain, which, in its ordinary commercial form, is combined with hydrochloric acid, forming a neutral salt, the tetra methylthionin hydrochlorate. This has the following formula:

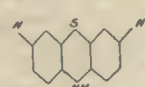


This salt, even in its purer forms, contains traces of its own decomposition products—some sorts containing more than others. These decomposition products were isolated in 1885 by Bernthsen.³ He showed that the stain (the base) itself, and its oxide, were quite unstable, and easily underwent either oxidation, reduction, or hydrolytic splitting, and that in alkaline solution all these processes occurred together. The products of these processes are 3 bases, all of which possess staining properties; they are respectively:

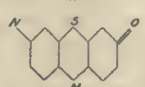
methylene-azure, $(\text{CH}_3)_2 \text{N} \text{---} \text{C}_6\text{H}_4 \text{---} \text{N} \text{---} \text{C}_6\text{H}_4 \text{---} \text{N} \text{---} \text{C}_6\text{H}_4 \text{---} \text{N} \text{---} (\text{CH}_3)_2 \text{---}$,



leuko-methylene-blue, $(\text{CH}_3)_2 \text{N} \text{---} \text{C}_6\text{H}_4 \text{---} \text{N} \text{---} \text{C}_6\text{H}_4 \text{---} \text{N} \text{---} \text{C}_6\text{H}_4 \text{---} \text{N} \text{---} (\text{CH}_3)_2 \text{---}$,



and methylene-violet, $(\text{CH}_3)_2 \text{N} \text{---} \text{C}_6\text{H}_4 \text{---} \text{N} \text{---} \text{C}_6\text{H}_4 \text{---} \text{N} \text{---} \text{C}_6\text{H}_4 \text{---} \text{N} \text{---} (\text{CH}_3)_2 \text{---}$



Of these, methylene-violet plays no part in aqueous solutions on account of its insolubility in water. On the first, methylene-azure, depends the staining picture which is given by most of the recently proposed stains, consisting of methylene-blue and eosin.

The object in view in the older mixtures of methylene-blue and eosin intended for blood-staining, of which the stains of Chenzinky⁴ and of Plehn⁵ are best known, was to obtain a permanent mixture which would not throw down a precipitate. In order to prevent the precipitation of neutral stain which is formed, a sufficient excess of methylene-blue was added to secure its solution. This excess, however, was enough to prevent the staining by the neutral stain. These mixtures stain the red blood-corpuscles, the nuclei of leukocytes, the eosinophile and basophile granules, and malarial parasites, but fail to stain the neutrophile granules.

In 1891 Romanowsky⁶ described, in blood-films of cases of tertian malaria, a distinctive violet stain for chromatin, obtained with a mixture of concentrated aqueous solutions of methylene-blue and eosin. His stain appears to have been devised primarily for the purposes of a general blood stain, in which were followed the principles laid down by Ehrlich in regard to neutral stains. Having, apparently accidentally, used an aqueous solution of methylene-blue old enough to have a mold form upon its surface, he observed that in these films the chromatin material of the leukocytes stained from a dark to a reddish violet, and that similarly (carmin-violet) stained areas appeared in the heretofore non-staining portion of the malarial parasites. Because these areas took up the same stain as the chromatin of the nuclei of leukocytes, and as he frequently observed them (the areas in the nonstaining portions of the parasites) to assume karyokinetic figures, Romanowsky concluded that they represented the chromatin material of the nucleus of the malarial parasite, and that the remainder of the nonstaining portion was the achromatic zone of the nucleus. In addition to this peculiar chromatin staining, a differential staining of the leukocytes took place; the eosinophile granules stained an intense rose-red, the neutrophile granules a dark violet, the protoplasm of mastzellen dark blue, and of lymphocytes a lilac

blue; the blood-platelets stained a dark reddish-violet, and the bodies of the malarial parasite a blue.

The most intense violet stain of chromatin material Romanowsky obtained just at the moment that the precipitate began to appear in the mixture of methylene-blue and eosin. In its original form the mixture consisted of 1 cc. of a concentrated (saturated?) aqueous solution of methylene-blue and 2 cc. of a 1% aqueous solution of eosin. With this he obtained fairly well-stained specimens in from $\frac{1}{2}$ to 1 hour, but much more intense staining in 2 or 3 hours. Later, however, he used a more dilute mixture in which it was necessary to stain for 24 hours; this mixture was made up of equal parts of a half saturated solution of methylene-blue and a 0.5% solution of eosin.

This marked a definite advance in the means of study of the structure of the malarial parasite. Great difficulty was, however, experienced by others in obtaining Romanowsky's results, and his method was subjected to a long series of modifications which were intended to give more certain and more rapid stains, and many of which bear independent names.

Very few (Korolko,⁷ Sacharoff⁸) succeeded in obtaining the violet stain in chromatin by following Romanowsky's technique, and several years elapsed before it was discovered that certain makes of methylene-blue and of eosin give much more uniformly reliable results than others, and that the usual negative results were due to differences in the methylene-blue rather than in the eosin. Gautier,⁹ in 1896, found that with methylene-blue made by the Bädische Soda-Anilinfabrik, marked C or B G N, the staining of the chromatin of both malarial parasites and leukocytes according to Romanowsky could be uniformly obtained. He also specified as necessary an eosin marked A, made by the same firm, but this afterward proved immaterial.

Gautier's observations were originally published in Russian, and remained unrecognized until they were rewritten in French in 1897, and in German in 1898. In the latter year Ziemann¹¹ published the results of an extended examination of various sorts of methylene-blue. He reached the conclusion that none of the methylene-blue, which forms a double salt with zinc chloride, was suitable for Romanowsky's stain, and that methylen-blau med. pur. (Höchst) and methylen-blau rectificat. n. Ehrlich (Grübler), both being simple tetra-methylthionin hydrochlorate, most frequently gave the violet chromatin stain. He further pointed out that, by using dilute solutions, a stain is obtained equally as good as that obtained with Romanowsky's concentrated solutions, but that in using them it was of even greater importance than in using concentrated solutions to adhere to those proportions which were found to give the best stain. He used a 1% aqueous solution of methylene-blue and a 0.1% solution of eosin, and found the best proportion between the two solutions to vary from 1:4 to 1:7.

Little attention has apparently been paid to the fact that soon after Romanowsky's description of his stain, Malachowski¹⁰ (of Breslau) published a method by which, several years previously, he had found in blood-films stained for 24 hours in a preparation of Plehn's stain, the same violet staining of chromatin. He describes a substance in the body of the malarial parasite which takes a reddish-violet stain, and is sharply differentiated from both the red blood-corpuscle and the body of the parasite; he also describes the nuclei of leukocytes as dark violet. As many subsequent workers have done, Malachowski failed to get similar stains when his original preparation had become exhausted. In casting about for suitable methylene-blue he found that it should be employed in dilute alkaline solution. He finally employed a solution made alkaline with borax, and stained first with eosin, then with the alkaline solution of methylene-blue. With this he again obtained the violet chromatin stain.

Ziemann,¹² soon after the original description of his modifications and improvements in Romanowsky's stain, advised the addition of borax to his former solutions of methylene-blue. He was led to make this addition by the fact that Loeffler's alkaline methylene-blue intensifies the methylene-blue stain, and he cites Malachowski's previous use of borax. He supposed the alkali to dissolve the "third stain," and tried, in addition to borax, ammonium carbonate, sodium carbonate, sodium and potassium hydroxide.

Neither Romanowsky, nor the men that followed him, gained any definite knowledge of the substance which gave the violet color to chromatin. The matter remained unsolved until Nocht¹³ suggested that this substance might arise from impurities contained in methylene-blue, as well as from combinations of methylene-blue and eosin, as had hitherto been assumed. Unna's alkaline polychrome methylene-blue was known to contain decomposition products of methylene-blue, usually referred to as methylene-red and methylene-violet. This, after neutralization with acetic acid, Nocht added to a concentrated solution of ordinary methylene-blue in the hope that it would intensify the violet chromatin stain. This conjecture was borne out by subsequent results. He found that with chloroform a substance could be extracted from a solution of polychrome methylene-blue which was dark red in color, was easily soluble in water, becoming reddish-violet in aqueous solution, and decomposed easily in dilute solution and on heating. For want of a more accurate term, he called this "Rot aus methylen-blau." He found that in aqueous solution it stained the chromatin of the younger forms of malarial parasites in the reddish-violet color of Romanowsky's stain, but that it failed to stain the older forms, and the nuclei of the leukocytes. Combined with eosin it stained more actively, and stained best when dissolved in a mixture of methylene-blue and eosin. It stained most intensely, but unevenly, in alkaline solution, though the alkali plays no part in the staining, but is simply a means of increasing the "Rot aus methylen-blau." To Nocht, therefore, belongs the credit of isolating the stain which gives the violet chromatin stain; he described some of its properties and reactions, though he did not determine its chemical structure.

In his original procedure Nocht diluted 3 or 4 drops of a 1% aqueous solution of eosin with 1 cc. or 2 cc. of water (equal to a 0.2% solution), then added neutralized polychrome methylene-blue until the eosin color of the mixture just disappeared. In this mixture staining required several hours, up to 24. Later in the same year he published a method¹⁴ of making polychrome methylene-blue, with which, using the same technique as before, he obtained good stains in 5 to 10 minutes.

The methods of Maurer¹⁵ and Ruge¹⁶ are modifications of Nocht's procedure, which differ from it in the ways of making the polychrome methylene-blue, or in increasing the rapidity or intensity of the stain. Maurer emphasized, and applied to mixtures of alkaline methylene-blue, and eosin, what Ziemann had pointed out for ordinary methylene-blue, that to obtain the most intense violet stain it is most important to adhere accurately to the proper proportions of the two solutions; and also that the more concentrated the original solutions, the more rapidly disappears the power of the mixture to stain intensely. Ruge, starting with the assumption that the appearance of a precipitate in a mixture of alkaline methylene-blue and eosin indicated the point of saturation of the mixture with the "third" or violet chromatin stain, found that the violet stain could be obtained in mixtures to which less than half the eosin had been added which was necessary to produce a precipitate. This gave him a method of avoiding the precipitate. He found that this could be still further improved by using very dilute solutions, in which, however, the eosin had to be added in proportion much nearer the point of

saturation. Ruge obtained the best results with a 0.02% solution of methylene-blue, and by heating the mixture while staining.

Lazear¹⁷ has given directions for carrying out Nocht's method of staining, which, though they contain nothing new, are so precise and clear that they are included in the subsequent outline.

In 1899 Laveran¹⁸ suggested another method of modifying methylene-blue, which, though he does not state it, is apparently designed to increase the decomposition products in an aqueous solution of methylene-blue. He sets free the methylene-blue base by adding to a concentrated solution of methylene-blue (Höchst) a quantity of freshly precipitated silver oxide (Ag_2O). As before stated, commercial methylene-blue is combined with hydrochloric acid; in Laveran's method of preparing the methylene-blue solution a certain proportion of the methylene-blue is decomposed by the silver oxide, so that silver chloride is precipitated and the methylene-blue, which easily breaks down, is left in solution. According to Bernthsen³ the latter decomposes partly into methylene-violet, which is soluble with difficulty in water, and partly into methylene-azure.

In 1901 Michaelis¹⁹ called attention to Bernthsen's³ work on the chemistry of the methylene-blue group, and identified Nocht's "Rot aus methylen-blau," formed in alkaline solutions of methylene-blue, with Bernthsen's methylene-azure. Of the three decomposition products of methylene-blue in alkaline solution—methylene-azure, leukomethylene-blue, and methylene-violet—methylene-violet as a base is insoluble in water and as a salt does not stain, and leukomethylene-blue is further decomposed, so that both these bases may be disregarded as the source of the violet chromatin stain. Furthermore, the red substance extracted with chloroform from alkaline solutions of methylene-blue gives a green color when dissolved in concentrated inorganic acids. This is due to the formation of a triple acid salt of methylene-azure, each nitrogen group, of which there are three in methylene-azure as well as in methylene-blue, combining with an acid group. Derivatives of methylene-blue, on the other hand, which contain only two nitrogen groups, among which are methylene-violet and leukomethylene-blue, give a blue color which dissolves in concentrated inorganic acids. In alkaline aqueous solution methylene-azure is red, in neutral or acid solution blue, just as is "Rot aus methylen-blau."

In describing the staining power of methylene-azure Michaelis confirms Nocht's description of "Rot aus methylen-blau." Methylene-azure alone, in aqueous solution, stains chromatin material only very slowly, and among the malarial parasites only the hyaline forms. With the addition of eosin the power of the stain is greatly increased. Together with Wolff,²⁰ Michaelis showed that methylene-azure combines with eosin to form a neutral stain, just as does methylene-blue; he found this neutral stain sufficiently soluble in hot water to be used as a stain. Michaelis considers it useless to use isolated methylene-azure for staining purposes, as it can be easily prepared in alkaline solutions of methylene-blue. He suggests a modification of Nocht's method of preparation which greatly simplifies the neutralization, and shortens the usually tedious process. He adds a definite quantity of decinormal NaOH to a 1% aqueous solution of methylene-blue; after heating this alkaline solution in order to hasten the formation of methylene-azure, he exactly neutralizes it with a quantity of decinormal H_2SO_4 equal to the NaOH previously added.

Goldhorn²¹ has suggested a modification in which the eosin and polychrome methylene-blue are used one after the other in staining the blood-film. In addition to the separate use of the two stains, the procedure differs from others in the mode of preparation of the polychrome methylene-blue. This is made by heating a dilute aqueous solution of methylene-blue with lithium carbonate, which, according to Goldhorn, gives more sat-

isfactory results than sodium or potassium hydrate, or potassium carbonate. This method gives the results perhaps, more rapidly than any of the other methylene-blue-eosin stains, as the staining with each solution is a matter of seconds, at most of 2 minutes. The polychrome methylene-blue easily decolorizes the eosin.

It appears, therefore, that the substance in mixtures of methylene-blue and eosin which gives to chromatin material the reddish-violet color first described by Romanowsky is methylene-azure, an oxidation product of methylene-blue. It is present as an impurity in most sorts of methylene-blue, in some in greater quantity than in others, but particularly in alkaline solutions in which all the methylene-blue may in time be decomposed. This was discovered empirically before the stain was identified with the substance isolated by Bernthsen. Methylene-azure is a base, as is methylene-blue, and as such forms with eosin a neutral stain (methylene-azure-eosinate?) which is not easily soluble in water, more so, however, than the neutral stain of methylene-blue and eosin. This is split up by acidophile and basophile substances, the basic methylene-azure staining basophile substances a reddish-violet. The ease with which the violet stain is masked depends on the proportion between the methylene-blue and the methylene-azure contained in a mixture with a given amount of eosin. Ziemann demonstrated this very clearly, and on this fact rest the failures in former years.

The modifications of Romanowsky's stain, so far presented, are mixtures of aqueous solutions of methylene-blue and eosin. A second series of stains has arisen out of the solubility of neutral stains in pure alcohols. The solubility of neutral stains in the alcohols was, however, not made use of until 1899. In that year two men, Jenner²² and Rosin,²³ published methods of staining with neutral stains in alcoholic solution, the former describing a method for staining blood, parasites, and bacteria, with the neutral stain formed by ordinary methylene-blue and eosin, the latter suggesting the utility of the method for general histologic purposes, and employing neutral stains formed by methyl green and methyl orange, malachite green and rubin, methylene-blue and picric acid, magenta red and picric acid. Both described the properties of the stains with which they worked. The stain is precipitated out of dilute alcoholic solution as grass green metallic crystals, and out of aqueous solutions as a dark green amorphous powder. It is insoluble in hot or cold water, soluble with a green fluorescence in pure ethyl and methyl alcohol. Jenner adds that it is soluble in chloroform and in anilin oil, and melts at 227°C.; Rosin that its solutions have a neutral reaction, and a characteristic spectrum. Jenner used methyl alcohol as solvent, Rosin ethyl alcohol.

Jenner was the first to employ the solvent of his stain, methyl alcohol, as the fixing agent for blood-films, so that fixing and staining went on at the same time. His whole fixing and staining procedure consumes less than 5 minutes, which is a great saving of time in comparison with the mixtures of aqueous solutions (with the exception of Goldhorn's procedure). In Jenner's stain the red blood-corpuscles stain a rose red, nuclei of leukocytes blue, neutrophile granules pale red, basophile granules dark violet, eosinophile granules an intense red, malarial parasites and bacteria blue. As a differential stain for leukocytes it has proved uncertain in staining neutrophile granules. The staining of the chromatin in the nuclei of malarial parasites is seldom accomplished, rarely satisfactory, and was not among the original purposes of the stain.

Neither Jenner nor Rosin refer to the production of the violet chromatin stain with alcoholic solutions of neutral stains. This application was made almost simultaneously, in 1901, by Reuter²⁴ and Leishman,²⁵ the former following Rosin, the latter Jenner. Both used an alkaline solution of methylene-blue, one, therefore,

which contained much methylene-azure. The precipitate (neutral stain) obtained by mixing this with eosin, was dissolved by Reuter in pure ethyl alcohol, by Leishman in pure methyl alcohol. Reuter prepared the blood-films by previous fixation in absolute alcohol and ether. He then stained for from one-half to three hours in a mixture of 1 or 2 drops of the full strength stain diluted with 1 cc. to 2 cc. of water. In such a mixture a precipitate forms only very slowly, and Reuter found that clearer and more brilliant pictures were obtained in this way than by using the full strength stain. So stained, the red blood-corpuscles assume a pale orange color, the cytoplasm of malarial parasites a blue, and the chromatin of their nuclei a reddish-violet.

Leishman, following Jenner, fixed his blood-films at the same time that he stained. He found, however, that a half a minute was sufficient for fixing, and hit upon the same device as did Reuter. After allowing a half minute for fixation in the full strength stain, he adds water drop by drop until the stain becomes semitranslucent, and its surface becomes covered with a metallic scum. So diluted, he allows the stain to act for about 5 minutes. In this stain the nuclei of leukocytes take a violet color, the neutrophile granules a red, the eosinophiles a dark pink, and the basophile granules a purplish-black, malarial parasites a pale blue, the chromatin in their nuclei a carmin red; the red blood-corpuscles may stain either a pale red, or a greenish color. Leishman has also used his stain for staining bone marrow, spleen pulp and bacteria.

Wright²⁶ modified Leishman's stain in that he simplified the process of making the alkaline methylene-blue, and made changes in the relative amount of time devoted to fixing and staining. With the undiluted stain he fixes for 1 minute, then dilutes with water, and continues the staining for 2 or 3 minutes. The nuclei of lymphocytes stain dark purplish in this stain, the nuclei of the large mononuclears blue, of the polymorphonuclear leukocytes a blue or dark lilac, of myelocytes a blue or purplish. The cytoplasm of malarial parasites stains blue, the chromatin of their nuclei forms a lilac, through a red, to a black, according to the duration of the staining.

The methods of making the alkaline methylene-blue used by Reuter and by Leishman are almost identical. Both add 0.5% Na_2CO_3 to a 1% methylene-blue solution. Reuter then "ripens" his solution by keeping it in a thermostat for 3 days at a temperature of 50° to 60° C.; Leishman, instead, heats for 12 hours at 65° C, and then allows his solution to stand at room temperature for 10 days. Wright uses 0.5% NaHCO_3 in a 1% methylene-blue solution, and shortens Leishman's procedure in that he heats this solution for 1 hour in a sterilizer at 100° C.

Reuter in diluting his alcoholic solution of the stain with water causes a fine precipitate, which sometimes settles on the blood-film. Leishman uses a saturated solution for the fixing of the blood-film, which easily precipitates particles of the stain before it is diluted with water. Wright has avoided this precipitation by making only an 80% solution of his stain. Both Leishman and Wright stain for so short a time that the precipitate formed after dilution with water does not often settle on the blood-film.

It may again be pointed out that those mixtures of methylene-blue and eosin which stain the chromatin material of the cell in varying shades of violet depend for this characteristic not upon methylene-blue, but upon its oxidation product, the methylene-azure of Bernthsen; and that the solutions in alcohol (ethyl or methyl) of neutral stain—Reuter, Leishman, Wright—which has been prepared from polychrome (alkaline) methylene-blue probably contain a large amount of methylene-azure eosin in proportion to the methylene-blue eosin.

In conclusion, I wish to acknowledge my indebtedness to Dr. C. P. Emerson, at whose suggestion this review was made.

Chenzinsky's⁴ stain:

Concentrated aqueous solution of methylene-blue
Distilled water equal parts.
To this is added an equal quantity of 0.5% solution of eosin in 60% alcohol. Stain blood-films 4 to 5 minutes. Red blood-corpuscles stain a rose-red, nuclei of leukocytes, blue, and malarial parasites blue.

Plehn's⁵ stain: (This is a modification of Chenzinsky's stain.)

Concentrated aqueous solution of methylene-blue
Distilled water equal parts.
To this add one-half the equal volume of a 0.5% solution of eosin in 60% alcohol. Filter before use. Fix blood-films in absolute alcohol for 7 to 10 minutes. Stain from a few minutes to 24 hours. Red blood-corpuscles and eosinophile granules stain a rose-red. The nuclei of leukocytes stain a dark-blue, and malarial parasites a light-blue.

Romanowsky's⁶

1. The concentrated stain.
To a saturated aqueous solution of methylene-blue 1 part
Add a 1% aqueous solution of eosin 2 parts
Mix these in a watch crystal, stirring with a glass rod. Prepare the stain only 1 to 2 minutes before use. Float blood-films on the surface of the stain. One-half to one hour is sufficient to give the violet chromatin stain. Two to three hours are necessary to give the most intense stain.

2. A more dilute form of the stain.
A saturated aqueous solution of methylene-blue
Distilled water equal parts.
To this add an equal volume of 0.5% aqueous solution of eosin. Mix in watch crystal as in 1. Stain for 24 hours. Wash in distilled water. Dry.
Romanowsky used a solution of methylene-blue over the surface of which mold had formed.

Fixing of blood-films: Heat for 30 minutes at 105° to 110° C.

Staining reactions:
Red blood-corpuscles stain rose-red.
Leukocytes—nuclei, stain dark violet; those of eosinophiles a reddish-violet; eosinophile granules stain intense red; neutrophile granules stain dark violet; protoplasm lymphocytes stain dark blue; mastzellen stain dark blue.
Blood-platelets stain dark, reddish-violet.
Malarial parasites—body, stains blue; center of achromatic area stains carmin violet.

Korolko's⁷

Solution A.—A saturated aqueous solution of methylene-blue, 3 months old and filtered before use.

Solution B.—A 1% aqueous solution of eosin.
To make up the stain add to 2 cc. or 3 cc. of solution A, from 3 cc. to 5 cc. of solution B until a violet color is obtained, and a fine granular precipitate is formed. Mix the solutions in a narrow cylinder, and stir with a glass rod.

Stain in this mixture 15 to 24 hours, if possible, at a temperature of 30° C.

Fix blood-films by heating for 1 hour at 105° to 110° C.

Staining reactions:
Red blood-corpuscles stain blue.
Leukocytes—nuclei stain dark violet; cytoplasm stains blue.
Blood-platelets stain light violet.
Malarial parasites—nuclei, chromatin portion stains deep violet; cytoplasm stains light blue.

Sacharoff's⁸

Solution A.—Saturated aqueous solution of methylene-blue diluted one-half with water.

Solution B.—A 1% aqueous solution of eosin (Grübler, w. g.)
To Solution A, Sacharoff adds Solution B, constantly stirring the mixture, until a granular precipitate begins to form. (Sacharoff's only reference to the sort of methylene-blue used is, that if no precipitate forms the methylene-blue employed is not suitable for this stain.)

After the precipitate begins to form Solution B is added drop by drop. After each drop a blood-film is covered with a portion of the mixture, and the series of films so obtained is placed in a moist chamber and allowed to stain for 24 hours. Of these usually one or two will be found to be good.

The films are fixed "according to Ehrlich" by heat.

Gautier's⁹

Followed Romanowsky's technic.
Employed for the methylene-blue solution:
Methylen-blau (Badische Soda-anilin fabrik), Marke C or BGN;
For the eosin solution: eosin (Badische Soda-anilin fabrik), Marke A.

Ziemann's¹¹ Original modification:

Solution A.—1% aqueous solution of methylene-blue med. puriss. (Höchst), at least 24 hours old, and containing no undissolved particles.

Solution B.—0.1% aqueous solution of eosin—freshly prepared from an aqueous 1% stock solution of eosin.

To determine the proportion of the two solutions, and the length of time which gives the best results, make mixtures of solutions A and B in proportions ranging from 1:4 to 1:7. For each such mixture prepare three watch crystals each containing a blood-film placed face down. Pour a portion of the mixture into each of the 3 watch crystals, and remove 1 film every 10 minutes. Ziemann obtained the best results from mixtures having the proportion of 1:5 or 1:6 in which he stained for 20 to 40 minutes. It is important to measure out the solutions with the greatest possible accuracy. According to Ziemann, the finding of the correct proportion between the two solutions and the proper staining period requires about 1 hour.
Wash the films in distilled water. They may be decolorized in a 1% or 1% solution of acetic acid or HCl; or in a 1% aqueous solution of methylene-blue.

Subsequent modification:¹²

Solution A.—
Methylene-blue med. puriss. (Höchst) 1 g.
Borax 2 g. to 4 g.
Usually 2.5 g.
Distilled water 100 cc.

Solution B.—
0.1% aqueous solution of eosin ("A. G." Höchst).

To make up the stain, mix: { Solution A . . . 1 part
Solution B . . . 4 parts
Stain blood-films for 5 minutes; 8 to 10 minutes stains the chromatin almost black. Fix films either by passing through the flame, or in absolute alcohol for 20 minutes to 30 minutes.

Malachowski's¹⁰

Stain in an aqueous solution of eosin (percent not stated, time not stated). Then stain in "a very dilute aqueous solution of borax—methylene-blue" (percent not stated, no time stated). Staining is performed rapidly by applying heat; this, however, gives very uneven results. When carried on in the cold, the stain is uniform, but may require 24 hours. Blood-films are fixed in absolute alcohol (time not stated).

Nocht's¹³ Original method:

Unna's polychrome methylene-blue is neutralized with dilute acetic acid.

Solution A.—1 cc. of this neutralized polychrome methylene-blue is mixed in a watch crystal with a saturated aqueous solution of ordinary methylene-blue until its red color disappears, and the solution becomes blue.

Solution B.—Dilute 3 drops to 4 drops of 1% aqueous solution of eosin with 1 cc. or 2 cc. water.

Add solution A drop by drop to solution B until B is dark blue; a precipitate has then formed. In this mixture blood-films are to be stained for several hours up to 24 hours. Fix films in alcohol or by heat.

Subsequent modification:¹⁴

Solution A.—The polychrome methylene-blue solution. To a 1% aqueous solution of methylene-blue add 1.0% or 0.5% Na₂CO₃. Heat at 50° C. to 60° C. for several days.

Solution B.—Dilute 2 or 3 drops of 1% aqueous solution of eosin with 1 cc. or 2 cc. water.

To solution B add solution A drop by drop until the mixture is dark blue and has lost its eosin tint. To stain, float blood-films, face down on this mixture for 5 to 10 minutes.

Lazear's¹⁷ execution of Nocht's modification:

Solution A.—The polychrome methylene-blue solution. To a 1% aqueous solution of methylene-blue add 1% of NaOH. Heat in a water-bath for several hours. Cool, then filter.

To neutralize this solution, add dilute acetic acid until blue litmus paper is turned red above the line which the methylene-blue stains. Then add more alkaline polychrome methylene-blue until the solution just fails to turn blue litmus red. To this neutralized solution add an equal volume of distilled water; then a saturated solution of ordinary methylene-blue until the polychrome methylene-blue has lost its red color—about 1 part of the former to 10 parts of the latter.

Solution B.—A 0.2% aqueous solution of eosin.

With burets determine the proportions of the 2 solutions, on mixing which, a fine slack precipitate is obtained, and a scum forms on the surface of the mixture. This may require 1 part of Solution A to 3 parts of Solution B, or the reverse. Once determined, the proportion remains constant.

Blood-films are fixed for 1 to 2 minutes in a 1% solution of formalin in 95% alcohol.

To stain: Remove scum from the surface of the stain with filter paper. Place the films face down in the stain. Stain for 3 to 24 hours.

Maurer's¹⁵

Solution A.—To a 1% aqueous solution of methylene-blue (med. puriss., Höchst, or Anilin-blau, Merck) add 0.5% Na₂CO₃. Expose to the sun for 2 or 3 days, or keep at room temperature for 8 days. Add 1% formalin to prevent formation of mold.

Solution B.—A 0.1% aqueous solution of eosin (Grübler, w. g.). Maurer gives 2 methods of procedure: (1) With rapid; (2) with slow staining. He also indicates grades of intensity of staining.

I.—Rapid staining. The blood-film is placed at an angle face down on a glass slide, one edge being elevated. Solutions A and B are used in their full strength.

1. Grade of intensity of staining is obtained by mixing 2 parts of Solution A with 20-12 parts Solution B.
2. Grade of intensity of staining is obtained by mixing 2 parts of Solution A with 10-4 parts Solution B.
3. Grade of intensity of staining is obtained by mixing 2 parts of Solution A with 3-2 parts Solution B.
4. Grade of intensity of staining is obtained by mixing 2 parts of Solution A with 2-1 parts Solution B.

As the period of most intense staining lasts only a few seconds after the mixture is made up, it is necessary to stain *immediately*, and the staining need not be carried on for more than a few minutes.

II.—Slow staining. 1 cc. Solution A is mixed with 25 cc. water. 1 cc. Solution B is mixed with 25 cc. water.

These solutions are then mixed in a beaker. Films to be stained are immersed in the stain *immediately*.

1. Grade of intensity of staining is obtained in 10 minutes.
2. Grade of intensity of staining is obtained in 20 minutes.
- 3 and 4. Grades of intensity of staining are obtained in $\frac{1}{2}$ hour to 1 hour at the longest.

In Grade 1 the nuclei of leukocytes stain blue or bluish violet.

Blood-platelets stain pale blue.

Malarial parasites—cytoplasm stains pale blue; chromatin stains ruby red.

In Grade 2 nuclei of leukocytes stain violet red.

Chromatin of malarial parasite stains brilliant red.

In Grade 3, Grade 2, with Schüffner's mottling of infected red blood-corpuscles, in addition.

In Grade 4, Grade 3 and in addition in malarial parasites the achromatic area about the chromatin stains faintly red.

Ruge:

Preparation of the solution of polychrome methylene-blue.

To a 1% aqueous solution of methylene-blue add 0.1% NaOH. Heat this solution—short of boiling—3 or 4 times. Add 0.2% NaOH, and repeat the heating.

To make up the stain: Titrate a 1% aqueous solution of eosin against the solution of polychrome methylene-blue until a precipitate just appears; 1 cc. of the polychrome methylene-blue usually requires from 0.3 to 0.6 eosin solution. Then dilute both solutions to make 0.02% solutions. The best violet stain is obtained when a quantity of eosin is added to the methylene-blue equal to one-half that required to produce a precipitate. This, however, must be determined for each individual solution.

Staining: Blood may be stained on either coverslips or slides.

Coverslips: Place blood-films in watch crystal, cover with the stain. Heat until the fluid steams, and a metallic scum forms on its surface. This requires 1 to $\frac{1}{2}$ minutes. Alternately heat and cool for 6 minutes. Wash in water. Dry.

Slides: Cover the blood-film with the stain. Heat for 2 minutes until this steams, and a scum forms on its surface. Let cool for 2 minutes. Heat again for 2 minutes. Wash in water. Dry.

Laveran:¹¹

In a 150 cc. flask dissolve "some" AgNO_3 in 50 cc. or 60 cc. of water. When dissolved fill the flask with a solution of NaOH (percent not given). Wash the precipitate of AgO with distilled water to remove the excess of NaOH and the NaON s formed. Then add a saturated aqueous solution of methylene-blue medicinale (Höchst) and let the mixture stand for 7 or 8 days, shaking it occasionally. Decant. The product so obtained Laveran terms "bleu Borrel."

To stain Laveran mixes

Methylene-blue (bleu Borrel)	1 cc.
Eosin 0.1% aqueous solution	4 cc.
Distilled water	6 cc.

Stain 12 to 24 hours. Rinse in water. Wash in 5% aqueous solution of tannin for 1 to 2 minutes. Wash in water. Dry. Films are previously fixed in absolute alcohol for 20 minutes.

Michaelis:¹²

Solution A.—The polychrome methylene-blue solution. To 200 cc. of a 1% aqueous solution of methylene-blue, add 10 cc. $\frac{N}{10}$ NaOH solution. Boil the mixture for 15 minutes.

After cooling neutralize with 10 cc. $\frac{N}{10}$ H_2SO_4 solution.

Solution B.—A 0.1% aqueous solution of eosin. To 2 cc. of Solution A, add 10 cc. of Solution B. Stain blood-films in this mixture for 15 minutes. Wash rapidly in running water.

Blood-films must be thin; those in which the cells remain spherical do not take the violet chromatin stain. Fix blood-films for 1 hour in absolute alcohol.

Goldhorn:¹³

Preparation of the solution of polychrome methylene-blue. **Solution A.**—(Merck's medicinal methylene-blue; Grübler's methylene-blue rectified, and methylene-blue [Koch]). Dissolve 2 gm. methylene-blue in 300 cc. warm water. Add to this 4 gm. lithium carbonate, shaking constantly. Heat in an evaporating dish on a water-bath, the water touching the dish. Stir the solution occasionally. Remove in 15 to 20 minutes. Do not filter. Set aside for several days. Then add dilute acetic acid (5%) until the solution is only faintly alkaline.

Solution B.—A 0.1% aqueous solution of eosin. Fix blood-films in methyl alcohol for 15 seconds. Wash in running water. Stain in Solution B for 7 to 30 seconds. Wash. Stain in Solution A for 30 seconds to 2 minutes. Wash thoroughly in running water. Dry by agitating in air, not between filter paper.

The eosin may be added to the methyl alcohol (enough to make a 0.1% solution); or Solution B may be added to Solution A (1:4), but this easily produces a precipitate (the neutral stain). These give good results. Mixtures of methyl alcohol, eosin, and polychrome methylene-blue give poor results.

The depth of the chromatin stain depends on the length of staining. To stain the chromatin of half-grown malarial parasites, 1 to 2 minutes are necessary, while the chromatin of the hyaline forms stain in 10 seconds.

Repeated staining may improve the chromatin violet. To do this the blood-film may be stained with Solution B five seconds, with Solution A ten seconds.

Jenner:¹⁴

Preparation of the neutral stain.

In an open beaker mix equal parts of 1.2 or 1.25% aqueous solution of eosin (Grübler), 1% aqueous solution of methylene-blue med. (Grübler). Let stand for 24 hours. Filter. Dry the precipitate obtained. Wash the precipitate with distilled water and dry again.

The staining solution:

For use dissolve 0.5 gm. of the precipitate in 100 cc. pure methyl alcohol (Merck "for analysis"). Jenner gives no particular method of fixation.

Staining:

Stain in the solution for 1 to 3 minutes, covering with a watch crystal. Pour off stain quickly and rinse in water till film is pink (5 to 10 seconds).

Staining reaction:

Leukocytes—nuclei stain blue; granules, neutrophile stain red; granules, basophile stain dark violet; granules, eosinophile brilliant crimson.

Malarial parasites	} blue
Bacteria	
Filaria	

Reuter:¹⁵

Preparation of the solution of polychrome methylene-blue.

To 100 cc. of 1% aqueous solution of methylene-blue—blue med. puriss. (Höchst) add 0.5 gm. Na_2CO_3 . Keep this solution for 2 or 3 days at 40° to 60° C. Filter.

Preparation of the neutral stain.

Without previously neutralizing the polychrome methylene-blue, add to it a saturated aqueous solution of eosin (Höchst). Filter off the precipitate formed, and wash it with distilled water. Then dry it.

Preparation of the staining solution.

Dissolve the dry precipitate in hot absolute alcohol (ethyl), using 0.2 gm. precipitate to 100 cc. alcohol. Filter. Add 2 cc. anilin oil to 100 cc. staining solution. Of this solution add 1 or 2 drops to 1 cc. distilled water (or 30 drops to 20 cc. water.) In this mixture stain fresh films for 20 minutes to $\frac{1}{2}$ hour; older films from 3 to 4 hours. Fix blood-films for 1 hour in a mixture of equal parts of absolute alcohol and ether.

Staining reactions:

Red blood-corpuscles stain pale orange.
Malarial parasites—nuclei, chromatin stains violet; cytoplasm stains blue.

Leishman:¹⁶

Preparation of the neutral stain.

Solution A.—The solution of polychrome methylene-blue. A 1% aqueous solution of methylene-blue med. (Grübler) is made alkaline with 0.5% Na_2CO_3 . This is heated for 12 hours at 65°C., and then allowed to stand for 10 days before use.

Solution B.—A 0.1% aqueous solution of eosin (extra BA Grübler).

Equal parts of Solutions A and B are mixed in an open vessel and allowed to stand for 5 or 6 hours, with occasional stirring. The precipitate formed is collected on a filter, washed with water, dried, and powdered.

The staining solution:

Dissolve 0.1 gm. of the dry precipitate in 100 cc. pure methyl alcohol (Merck "for analysis").

To stain:

Four drops of the solution are poured on the blood-film, and allowed to stain for $\frac{1}{2}$ minute. Without pouring off the stain, 6 drops to 8 drops of distilled water are added and the mixture is allowed to stain for 5 minutes. Wash gently. Put few drops of water on the blood-film for 1 minute. Then dry, and mount.

Staining reactions:

Red blood-corpuscles stain pale pink or greenish.

Leukocytes:

Lymphocytes—nuclei stain dark ruby red; protoplasm stains pale blue.

Mononuclears—nuclei stain ruby red; protoplasm stains pale blue.

Polymorphonuclear neutrophiles—nuclei stain ruby red; granules stain red.

"Coarse-grained eosinophiles"—nuclei stain ruby red; granules stain pale pink.

Basophiles—nuclei stain red; granules stain purplish black.

Blood-platelets stain deep ruby red.

Malarial parasites—nuclei, chromatin portion stains ruby red; cytoplasm stains blue.

Wright:²⁶

Preparation of the neutral stain.

Solution A.—Make a 0.5% aqueous solution of the NaHCO_3 , being careful to bring all of the salt into solution before going on to the next step. Then add 1% of methylene-blue (Grübler's methylene-blue, "Bx," "Koch," or "Ehrlich's Rectified"). Steam this in an Arnold sterilizer for 1 hour after steam is up. Cool.

Solution B.—0.1% aqueous solution of eosin (Grübler, "yellowish, soluble in water").

Add Solution B to Solution A until the mixture becomes purple, a metallic scum forms on the surface, and a finely granular black precipitate appears in suspension. (About 500 cc. of Solution B to 100 cc. of Solution A.) Filter off the precipitate. Do not wash it. Dry.

Preparation of the staining solution.

Make a saturated solution of the precipitate in pure methyl alcohol (0.3 gm. in 100 cc. methyl alcohol). Filter, and add an additional 25% of the original volume of methyl alcohol used. This prevents precipitation of the stain on the film.

Staining: In staining use the blood-films. Cover the film with the stain for 1 minute. Without pouring off the stain, add water drop by drop until the mixture is translucent at the edges, and a yellowish metallic scum forms on the surface. Stain in this diluted stain for 2 to 3 minutes. Wash in distilled water until the film becomes pink. Dry between filter papers.

Staining reactions:

Lymphocytes—nuclei stain dark purplish-blue cytoplasm stains robin's egg.

Large mononuclears—nuclei stain blue; cytoplasm stains pale blue.

Polymorphonuclear neutrophiles—nuclei stain blue; granules stain reddish-lilac.

Eosinophiles—nuclei stain blue; granules stain blue.

Mastzellen—nuclei stain blue to purplish; granules stain dark blue or purple.

Myelocytes—nuclei stain dark blue or lilac; granules stain dark or reddish-lilac.

Blood-platelets stain blue or purplish.

Malarial parasites—nuclei chromatin portion stains lilac-red to a black; cytoplasm stains blue.

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SOME REMARKS ON THE ETIOLOGY OF HYPERPLASIA OF THE PHARYNGEAL TONSIL IN THE LIGHT OF RECENT INVESTIGATIONS.*

BY

THOMAS J. HARRIS, M.D.,

of New York City.

Professor Adjunct of Laryngology, New York Postgraduate School and Hospital.

A leading rhinologist recently said: "The contributions to the subject of adenoids in the last two decades have been well nigh inexhaustible, and yet little of value has been advanced that was not contained in William Meyer's original paper." After such a sweeping judgment from one who is intimately acquainted with the entire literature of the subject it seems indeed like presumption to add to this accumulated store, especially as I frankly admit that nothing strictly new will be advanced or claimed by me. Whatever may be held, however, regarding the completeness of our knowledge of the diagnosis and therapy of adenoids, it will be generally conceded that the question of their origin is still almost as much of a closed book as it was in Meyer's time. The causal factors in respect not merely to adenoids, but postnasal catarrh as well, are today receiving and deserving of more and more consideration. The pendulum is on the backward swing. For many years the rhinologist has seen causes of catarrh in every spur and turbinal. Today we are recognizing that these are too often only accidents or possible results and the true cause is remote and out of sight. The medicine of the future will not be chiefly therapeutic but prophylactic. No longer will we content ourselves with relieving results, but in preventing them. The subject of the etiology of adenoids is, on account of its importance, deserving then of further brief consideration.

We propose to consider in the following pages the more important views as to their origin, and try in this way to arrive at some reasonable conclusions.

At the outset we are confronted with the difficulties of obtaining a suitable definition of pharyngeal hyperplasia. The presence normally of a certain amount of lymphatic tissue at the vault of the pharynx as well as in the fauces, at the base of the tongue, on the floor of the nose and in the mouth of the eustachian tubes, has long been demonstrated. Histologically, the adenoid growth in most instances differs in no wise from this normal lymphatic tissue, but it is impossible to say where the one ends and the other begins, aside from the symptoms produced by the growth. The writer first quoted, justly remarks that many healthy pharyngeal tonsils have been scraped away through the overzeal of some too ambitious operator. This normal lymphatic tissue has no constant size. It varies decidedly in different individuals, resembling in this particular its analog, Peyer's patches, in the intestines. That the adenoid growth is then a hyperplasia and not a neoplasm, must be borne constantly in mind.

For many years certain *constitutional factors* have been regarded with favor as predisposing causes.

Heredity seems to play a limited role at least. Various observers have reported the presence of adenoids in children at birth. This is, however, rare. Meyer found them most common after 5 years. Certain cases occur in which one or both parents suffered in *childhood* from adenoids. It is true, however, as Brieger observed, that while many parents with pharyngopathies have descendants suffering from adenoids, an equal number of children with adenoids have parents with all these symptoms lacking. Further, the almost universal presence of catarrh in our climate militates against too sweeping conclusions in this particular.

Tuberculosis.—A certain percentage of adenoid cases

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show the presence of tubercle bacilli in the growth. The frequency of their occurrence and the significance vary much according to the individual observer. In the last few years several men have busied themselves with this subject. Dieulafoy, in 1895, published his results which were as high as 20%; Pluder and Fisher, of Hamburg, examined 32 cases of adenoid hypertrophy, with 15% showing tubercle bacilli; McBride and Turner,¹ found only 3%. Clinically the latter figure would seem much nearer correct. Certainly it is open to question that all these are cases of primary tuberculosis. Many cases of pulmonary tuberculosis show no tubercle bacilli in the growth.

Syphilis as a common predisposing cause is of little importance except in an indirect way, just as hygiene, diet, etc. Chappell found 36% of adenoids in 2,000 school children. Harrison Allen found 33%. It is probable that a mean between these two extremes is nearest the truth. Syphilis cannot possibly account for such a number of cases.

Scrofula.—For many years the favorite and certainly most plausible theory has been a direct or indirect association with scrofula or struma. Certain symptoms were recognized as peculiar to both, and the immediate deduction was drawn of a cause and effect. In recent years, however, it has been pointed out that many of these symptoms disappear on the removal of the adenoids. A more exact definition too for struma has been demanded. It is true that we are wont to find hyperplasia of the pharyngeal tonsils in blond children with glandular enlargements. We meet it, however, continually when such enlargements are lacking. Meyer has shown that the Hebrew race is especially predisposed to this hyperplasia. Negroes, on the contrary, frequently the subjects of rickets, are singularly free. This latter fact has been explained on the ground of their flat, open nares, and the character of the palatine arch. Further, it is a fact that while we meet adenoid cases with marked glandular enlargements, this is rare, and it is not found in the vast majority of cases. Masini² has made a number of elaborate experiments to account for some of the most striking of these symptoms. He believes in a process of intoxication as a result of the adenoids, due to insufficiency or failure of a particular secretion of the glands. His line of study was directed: 1. To the consideration of the effect of this pharyngeal secretion upon the cardiovascular system. 2. As to insufficient respiration in adenoid cases. 3. As to hypooxygenation of the blood as a result of corpuscular resistance and alteration in these corpuscles. (a) He found arterial pressure as a result of the injection was raised. There was a slowing of the pulse; the ventricular contraction was lessened. (b) Under *respiratory insufficiency* the question of mouth-breathing was considered. By careful experiment he shows that a man can take up only just so much oxygen for change into oxyhemoglobin. When the nose becomes obstructed the system gradually adapts itself to obtaining the necessary amount of air through the mouth. For an adult, 100 cc. of oxygen is the limit for each respiration, or 516,500 cc. in 24 hours. Now it is demonstrable that a person with nasal stenosis, breathing through the mouth does not take in this amount, although a condition of hypooxygenation of the blood is continually in progress, due to permanent incapacity to introduce air under normal physiologic conditions. The vital capacity (23,220 cc.) of adults is not found proportionately in children with adenoids, due as he shows to insufficient fullness of the thorax and poor development in the muscles of the respiration. By ingeniously devised instruments he registered the expansion of the thorax and the vital capacity in (1) children with adenoids; (2) children with nasal stenosis due to other causes; (3) healthy children. In the first class he found inspiration and expiration were less full than in the healthy children, although as a result of frequency of respiration, the same quantity of air enters the

lungs in the same unit of time. The accompanying tracings showed it is not absolutely impossible to obtain the necessary amount of air by the mouth. Deficient respiration by the mouth is not due to the mouth, but to poor respiratory muscle action. The half-open mouth is intended to prevent too large a quantity of air going in. The lips act as the alæ of the nose and produce the same effect. The great difference in children with adenoids is in the vital capacity. In the second class of cases the vital capacity is fuller, the color is better, and the expansion of the thorax is larger. Respiratory insufficiency, however, is not the principal cause of cachexia according to him, but rather blood changes due to the presence of faulty gland secretion just mentioned. The hemoglobin is less firmly fixed in the red corpuscles and attains its proper color more slowly. He found fewer red corpuscles by a fifth. The presence of macrocytes is noticeable. The resisting power of the red corpuscles is reduced. Poikilocytes representing necrobiotic processes abound. The leukocytes are increased, with many lymphocytes. Such in a few words are Masini's conclusions which are here given as worthy of consideration.

While we are forced to revise our former views as to the relation of scrofula and pharyngeal hyperplasia, it is true, however, that some diathetic condition seems to be at the bottom of a large number of cases. Bosworth,³ with his usual clearness of observation and judgment, has fully stated this many years ago, and his position is still deserving of recognition. There is what he calls a lymphatic habit, or, quoting Potain, "a lymphatismus." This means a particular susceptibility in children for lymphatic tissue to take on inflammation and so increase in size. This peculiar property of lymphatic tissue is further borne out by the marked tendency now well recognized, of the adenoid vegetations to recur after operation. Up to the time of Hopkin's paper, written some 10 years ago, it was generally held that such recurrence did not take place. We know now that it is by no means uncommon. Recently Görke⁴ has discussed the subject in an exhaustive manner, especially from the histologic standpoint. After stating the two commonly held explanations for the recurrence, viz., malignancy and imperfect operation, and giving convincing proof that neither of these reasons can be the cause in the majority of cases, he shows that the structure of the growth resembles in the main that of the ordinary pharyngeal hyperplasia, but differs in this particular, "that a sharp division of the different layers is not possible." This lymphatismus is not a pathologic, but a normal process; it is not scrofula or struma, but carried a step further, it may become so. We shall consider in a few moments the occasion for this physiologic process. We know this tendency to lymphatic enlargement disappears as adult life is reached. Recognizing this property of infant lymphoid tissue to take on enlargement, it follows that any distinct and persisting cause is liable to produce this effect. Mulford,⁵ as a result of observation of many cases and of two cases reported, believes some blood diathesis is always at work, often allied in effect to that of uric acid in the blood, which if not cured will render invalid any operative measures on the throat. Haig, in his book, "Uric Acid in the Causation of Diseases," refers to a communication from Dr. Mackie, of Nottingham, which may be of interest in that there is noted an almost constant connection between catarrhal conditions of the nose and throat, adenoids, etc., and the uric acid diathesis. Mackie has read two papers on the subject before the Medical Society of Nottingham, and he says in a letter to Haig that he has hardly ever seen a case of adenoids, say in a child, except there is arthritic or migrainous parentage, and it is obvious that such conditions may quite easily occur from recurrent uratic irritations. As a further illustration of a remote cause acting on normal lymphatic tissue, Kyle⁶ states "he has frequently met enlargement of the pharyngeal tonsil, which is not a hyperplasia at all,

but a turgescence and cyanotic congestion with watery infiltration of the nasal and postnasal space." This is a result of intestinal irritations, such as constipation, and will disappear at once under appropriate treatment of the bowels. The writer is convinced he has more than once met such cases in which no inquiry was made into the condition of the gastrointestinal canal and in which at operation little, save normal tissue, was discoverable. Climate has been often advanced as an important factor in a causative way, also the dust of cities, but without sufficient reason, save as all unhealthy conditions serve to irritate tissue easily irritated. The distribution of the disease is uniformly widespread, although observers have noted its relative infrequency in savage life.

Inflammation.—Whatever may be correct regarding the importance of a diathetic cause, that of inflammation is generally conceded. Catching cold, whatever that is, is characterized by acute inflammatory swelling of the pharyngeal tonsil. This leads without question to chronic enlargements. Some writers, notably Greville MacDonald¹ have sought to discover a similar result from pronounced nasal stenosis or obstruction. MacDonald states that, "In a large proportion of cases we find at the same time obstruction of the nasal fossas in one form or another. The commonest of these is engorgement of the erectile tissue which in some cases has advanced to actual hyperplasia of the inferior spongy body. Next in point of frequency we find a septum variously deflected and hypertrophied, sufficiently to cause considerable stenosis of one or both sides. So frequently does some other source of obstruction coexist together with the postnasal adenoids, that it is exceptional to find respiration completely restored by removing the adenoids, some further treatment of the anterior region being demanded before the patient will instinctively keep the mouth closed." The total number of MacDonald's cases however was 154. My experience covering a large clinical service for the last 10 years is decidedly at variance with MacDonald's. Hypertrophies of the turbinals are rare, while septal deformities of any considerable degree have scarcely ever been met. Nor has it been my experience to find the majority of patients requiring any postoperative treatment. The most common nasal condition present was a boggy swollen condition of the inferior turbinals, which rapidly subsided after the removal of the adenoid growth. Repeatedly cases have been referred to me in which all previous treatment directed to the nose alone had failed to relieve nasal stenosis, but in which the obstruction at once disappeared after adenotomy. In many cases, however, no pronounced nasal obstruction is discoverable. To my mind the views commonly held that the nasal condition is a result of postnasal obstruction is the much more natural one and in the majority of cases represents the proper relation of cause and effect. The infectious diseases, however, scarlet fever, diphtheria, typhoid, etc., have been generally regarded as common inflammatory causes. That the hyperplasia develops after the attack seems beyond cavil. I have failed, however, to find any series of cases reported in which a previous examination, before the sickness, had been made and the presence of hyperplasia definitely excluded. It seems in many cases the hyperplasia was already present and the inflammation acted as the diathesis already referred to, to excite its further growth.

The most encouraging and promising grounds for explaining these clinical phenomena have been along the line of investigation and study of the tonsil function. Many observers have busied themselves in this direction and certain well-accepted facts have been secured. It is now held by most writers that the tonsil, and here we include the faucial tonsil as well, has a definite function though there is a difference of opinion as to how important this is. Harrison Allen many years ago, called attention to the probability of its sharing as a blood-making organ. How largely this is developed is questionable. That

such is the case seems reasonable when we consider the richness of the blood in lymphocytes in childhood, and their gradual disappearance in adult life. Stöhr has shown a constant migration of leukocytes out of the tonsils to the surface. Metchnikoff definitely proved the function of phagocytosis in the tonsil epithelium. Numerous careful observers have showed the intimate relation of tonsillitis and articular rheumatism in many instances. Recognizing this diapedesis of the lymphocytes, we have to inquire: (1) What effect, if any, does the hyperplasia have on their activity? (2) What does the microscope show to point to an inflammatory origin? (3) What is the end and aim of such diapedesis? Brieger² has exhaustively treated this question in a recent number of Fraenkel's Archives. Brieger and Wex found certain inflammatory changes in the tonsil as follows: (a) In spots the columnar epithelium is replaced by squamous. This occurs independent of the size of the tonsils and of inflammatory changes in the propria. It does not necessarily depend on inflammation, as Wex saw it in a child 5 days old. Diapedesis contrary to the assertion of Hill, goes on as in the normal tonsil though less actively in the squamous areas. Collections of leukocytes were seen beneath the surface resembling a picture of small-cell infiltration. *Lymphocytes* predominate in the epithelium as in the propria. Polynuclear leukocytes are also found in the propria occasionally. Some areas contain leukocytes alone. This does not occur often enough to suggest acute inflammation. The difference in the number of leukocytes in the hyperplastic tissue and in the inflammatory process, is very noticeable. (b) The lymphatic structure is unchanged. The follicles in older children may fail or appear as sharply defined round-cell collections with clear nuclei. (c) Bloodvessel changes are seen which point to inflammatory processes, such as swelling in the endothelium or even complete obliteration, also at times hyaline degeneration. (d) The reticulum shows no change. Now all these inflammatory changes are distinguished by not attacking all layers uniformly. They are found in the hyperplasia of leukemia and are lacking altogether in large adenoid vegetations. This in Brieger's opinion can mean only accidental occurrence taking place on one or several definite occasions. If such hyperplasia takes place without necessary inflammatory changes, attended by undisturbed diapedesis, what deduction has to be drawn as to its origin? It would clearly point to some function the tonsil discharges, which can better be discharged by an increase in size. The phagocytic power of the tonsillar mucous membrane is well established. Equally recognized is the peculiar susceptibility in childhood to infectious diseases. This susceptibility, however, is entirely out of proportion to the constant exposure and the number of bacteria of a virulent nature in the air. Now the lining membrane of the nose possesses a certain protecting power against bacteria. The pharyngeal tonsil is decidedly freer from bacteria than the anterior part of the nose. The ciliated epithelium of the nose assists in affecting this result. This power is, however, limited, and depends on circumstances. In a child with hyperplastic tonsil when mechanical cleansing of the nose through sneezing is impossible, the tonsil is covered with numerous bacteria. Further, as shown by St. Clair Thompson and Hewlett, while usually removed from the nose in a short time, they can occasionally be found there after several hours. They are under normal conditions avirulent, but disturb this normal protecting medium and at once they become virulent. The nose is then not sufficient in its protecting power. What of the tonsils themselves? Their surface presents only apparent defects in its continuity; in reality it is unbroken. The exits in the lacunæ are at once filled with the cement substance of the epithelium. The bacteria do not penetrate to the interior. Experiments to test this resisting power have been carried on by Hendersohn³ and Goodale, independently, which

would seem to discredit the above assertion of Brieger. They employed various coloring powders dusted on the tonsils. Hendersohn found (1) 15 minutes after the application of the powder, fine coal particles in the tonsil inside the epithelium. (2) The longer they remain the deeper they penetrate. (3) They are partially in the cells and partially in the lacunæ. If these experiments were fully established, the tonsillar resisting function would certainly be proved useless. Brieger, however, has carried out some similar investigations which do not at all correspond with these. In certain spots a small amount of coloring matter was found in the propria, but no collections. It is further true that even granted bacteria do penetrate, it is rare in proportion to the innumerable exposures. It is further open to serious doubt whether any such experiments correspond to the actual condition in life. This protection admitted, and it seems reasonable to recognize that it does exist, where in the tonsil does it reside? Most clearly it is in some way associated with the constant, unceasing outward flow of the lymphocytes. The statement that it ceases in certain diseases, as in leukemia, is not correct. It is lacking in spots, but elsewhere it is found undisturbed. It even goes on in pathologic conditions of the tonsil itself, as in tuberculosis. Brieger has further shown that the lymphocytes in themselves are not bactericidal. This must mean that the property resides in the medium in which they reach the surface. This is not capable of demonstration, because the fluid cannot be recovered. We can, however, reason by analogy from the antiseptic quality of the fluid sneezed from the nose. It is possible, too, that in the rapid disappearance of the leukocytes on reaching the surface, this quality is evolved. It is at once apparent that wherever the quality resides, the call for greater activity, which is being continually sent out in childhood, means increased size of the organ producing it, namely, the tonsil itself, and we arrive thus at a reasonable explanation of the hyperplasia. Nor must the seeming relation to the recent view of the nature of inflammation be omitted, viz., that the piling up of numerous small, round cells is really a natural method of erecting a wall against the invasion of the bacteria. If there is truth in this, we can easily see that the two theories as to the origin of hyperplasia are not so far apart.

As regards this and as to many other points in connection with this interesting subject, much work still remains to be done. It is not claimed that the views set forth will explain every possible query. For instance, why, in a family of several children one should have adenoid vegetations and the others be entirely free? It may be that in this case, as in that of different families, the resisting power to excessive lymphatic development (lymphatismus) is less strong through certain embryonic influences in the child affected than in the others. Just as in such a family, one will be weakly while the others are all strong.

Two facts, however, are beyond dispute. 1. The peculiar susceptibility in childhood to infectious diseases. 2. The mode of invasion is by the upper respiratory tract.

Conclusions.—As corollary to these we venture to add as a result of this study, the following conclusions: 1. The pharyngeal tonsil possesses a distinct function or functions. 2. This function is of the nature of a defense against the entrance of bacteria and consists in a certain irrigation of the tonsil surface by a lymph stream loaded with lymphocytes. 3. This protection function carries with it the inherent qualities of the tonsil to enlarge on the slightest irritation for the affording of further power of defense. 4. This inherent tendency of the tonsil to enlarge is further seen in the frequent recurrence of the tonsil after removal. 5. Strictly speaking then, in the great majority of cases such enlargements are not a pathologic, but a physiologic process.

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PERCENTAGE SOLUTIONS, WITH REFERENCE TO THE METRIC SYSTEM.

BY

JOSEPH W. ENGLAND,

of Philadelphia.

Considerable confusion exists both in medical and pharmaceutic circles regarding the exact nature of percentage solutions in prescription work. The difficulty seems to be due, first, to a failure to make a sharp distinction between percentage by weight, and percentage by volume, and, second, to the lack of authoritative rules of practice.

Percentage by weight, and percentage by volume, are by no means identical. In the former, the proportions of ingredients are all by weight; in the latter, the active substances are by weight, and the solvents by volume. When the term percentage alone is used, percentage by weight is understood; when percentage by volume is meant, it is (or should be) always so expressed.

Regarding percentage, or percentage by weight: The mixing of different weights of different solids, or of different liquids, to obtain certain percentage mixtures, presents no especial difficulties. It is simply a matter of relative proportions. But the determination of the amount of a solid or solids necessary to dissolve in a liquid to make a certain percentage solution is not so easy, especially when it is desired to find the quantity of a solid necessary for a fluidounce, pint, etc., of the solution.

The weight of a fluidounce of water—the universal solvent of solids—at the ordinary temperature is 455.7 grains, and of each pint 7,291 grains, and *not* 480 grains and 7,680 grains, respectively, as often assumed.

In the making, for example, of a fluidounce of a 4% solution of cocaine hydrochlorate in water, several methods may be followed. One method is to assume that the weight of a fluidounce of water is 96%, and then ascertain the 4% of alkaloidal salt by simple proportion as follows:

$$96 : 4 :: 455.7 : 18.9$$

Thus, 18.9 grains of the salt dissolved in 1 fluidounce of water will give a 4% solution, slightly more than a fluidounce (by reason of the increase in volume resulting from the solution of the salt).

Another method is to assume that 455.7 is 100%, and then ascertain the 4% of alkaloidal salt by proportion as follows:

$$100 : 4 :: 455.7 : 18.2$$

Thus, 18.2 grains of the salt dissolved in sufficient water to make the solution weigh 455.7 grains, yields a 4% solution. The volume of the solution, however, is slightly less than a fluidounce.

Solids on solution increase the volume of the solution according to the nature of the solid dissolved, and to obtain exactly a fluidounce or a pint of a certain percentage solution of a compound, correction must be made for the relative expansion in volume of each solid on solution.

Practically, the best method and the one very generally followed by pharmacists is to take the weight in grains of a fluidounce or a pint of water as the basis of calculation, multiply this by the percentage desired, and dissolve the salt in sufficient water to measure one fluidounce or one pint, as the case may be. Scientifically, this

procedure is not exact; practically, it answers the purpose.

By this method one fluidounce of water would require 18.2 grains of cocain hydrochlorate to make a 4% solution, and if we wished to make a 1-1,000, 1-1,500, or 1-2,000 solution of mercuric chlorid, we would divide 7,291 by 1,000, 1,500, or 2,000, as the case may be, to ascertain the number of grains needed for each pint, and then dissolve in sufficient water to make the pint. With solutions of carbolic acid (1-20, 1-40, or 1-60, etc.), we would divide 7,291 by 20, 40, and 60, respectively, and then dissolve the necessary number of grains of acid in sufficient water to make the final volume measure one pint. Gallon quantities would require, of course, eight times the quantities necessary for pints.

When a liquid other than water is used as the solvent, the weight in grains of a fluidounce or pint must first be obtained by multiplying 455.7 or 7,291 by the specific gravity of the liquid, and with this factor the quantity of solid necessary can be ascertained. If the specific gravity of a liquid be 0.820, then 455.7 multiplied by the gravity will give its weight in grains. Or, if instead of alcohol (with its gravity of 0.820), ether, with a gravity of 0.725, or glycerin, with a gravity of 1.25, or chloroform with a gravity of 1.485 be employed, a similar course of action can be followed. As a matter of fact, however, these solvents are very rarely used in percentage solutions in prescription writing.

Several months ago I called the attention of the Revision Committee of the U. S. Pharmacopeia to the question of percentage solutions in prescription work, and urged that there be given in the forthcoming edition of the national standard, authoritative rules of procedure for determining percentage, and the question is being considered by the committee.

It would be a much simpler procedure, however, if physicians generally would write for percentage solutions in the metric system of weights and measures. This system is essentially a percentage system, and calculations can be made most easily with it. Instead of using 18 grains of cocain hydrochlorate in a fluidounce of water (to make a 4% solution), how much simpler it would be to use 1 gm. in 25 cc., or in place of 7.3 grains of mercuric chlorid in a pint of water (to make a 1-1,000 solution), to use 1 gm. in 1,000 cc., or instead of dissolving 365 grains of carbolic acid in a pint of water (to make a 1-20 solution), to use 50 gm. in 1,000 cc.

If this were done the real merits of the metric system would become much more apparent than at present, and its use in American medical practice much more general. The adoption of the metric system by the Anglo-Saxon has been handicapped by the employment of a needless multiplicity of terms and an unnecessary use of scientifically exact equivalents.

The United States Government adopted, a century ago, its decimal or metric system of money—with its mills, dimes, cents, and dollars—but popular usage, in writing, at least, has reduced the terms in number to dollars and cents.

Similarly, if the metric system of weights and measures for the writing of prescriptions is ever going to be generally employed it will only be after it has been decided to use as few terms as possible. For prescription work there is no need of more than three terms for solids and one for liquids, and one or two for linear measurements (the centimeter [cm.], and possibly the meter).

If the German practice of weighing both solids and liquids were to obtain in this country, weights only would be necessary, but it is most improbable that the Anglo-Saxon will weigh liquids. With him it is, always has been, and probably always will be "solids by weight and liquids by measure."

The three terms necessary for metric weights are the gram (gm., or 1.), the centigram (cg., or 0.01), and the

milligram (mg., or 0.001); for volumetric measure, one term only need be used—the cubic centimeter (cc.).

Objection has been made to the use of the metric system in prescription-writing on the ground that the employment of the metric decimal point or dividing line opens the door to very serious possibilities of error in prescribing, errors of one point resulting in ten times too much of a substance being given or ten times too little. These possibilities could be obviated, if desired, by writing the terms gm., cg., mg., or cc. in place of using the period or dividing line. This would be an improvement also, so far as the number of terms is concerned, over the use of the terms grain, dram, ounce, pound, minim, fluidram, fluidounce, or pint.

In speaking or writing metrically, the quantities of solid drugs for which the doses are 1 grain or less, could be expressed in milligrams; those for which doses are less than 15 grains, in centigrams, and larger doses in grams. It would also greatly simplify calculations if the usual custom of ordering six or eight or multiple doses in prescriptions for internal use, was entirely abolished, and in its place five or ten or multiple doses were prescribed. By this means the quantities of ingredients to be used could be more readily made into even amounts.

When the metric system was first proposed for American medical practice, the mistake was made of giving absolutely exact equivalents of the metric weights and measures in the old form of weights and measures, of carrying the equivalents out to three or four decimal places. Such a procedure fell by its own weight. No one would prescribe, for example, 10-grain doses of potassium iodid in its exact metric equivalent of 0.648 gm., and multiply this by the number of doses required, nor 20-grain doses of potassium bromid in its exact metrical equivalent of 1.296 gm., nor $\frac{1}{2}$ -grain doses of potassium cyanid in its exact metrical equivalent of 0.0081 gm. Life was too short, and the use of scientifically exact equivalents "died a bornin'."

The unwisdom of such a method of introduction is obvious. The only right way to use the metric system is to think in metric terms. Not to think in one system and then laboriously translate into another. If medicine was an exact science, or, expressing the thought differently, if drugs and human beings were both of exact and uniform composition, there might be reason in requiring punctiliously exact dosage; but since both are very variable factors, and since the dose of a drug is "enough to produce physiologic results," it follows that doses must vary within rather wide limits relatively. Practically, what therapeutic difference does it make whether one gives 0.65 gm. (10.03 gr.) or 0.648 gm. (10 gr.) of potassium iodid; 1.25 gm. (19.29 gr.), or 1.296 gm. (20 gr.) of potassium bromid; or 0.01 gm. ($\frac{1}{2}$ gr.) or 0.0081 gm. ($\frac{1}{2}$ gr.) of potassium cyanid?

The differences are immaterial and far less than obtain, for example, with the common household spoons that are generally used to measure doses for the sick. Some of these utensils hold 25% more liquid than they are assumed to hold.

It is only by thinking, in terms of the metric system, that its beautiful simplicity becomes most evident, but this cannot be done in prescription work until there is fixed in the mind reasonably exact equivalents in seven numbers as possible of the usual doses, as basic principles, and then ordering quantities of five or ten doses or multiples.

It will be of value, in this connection, to know that comprehensive investigations have shown that the usual teaspoon holds 5 cc. of liquid, the dessertspoon 10 cc., and the tablespoon 15 cc. A minim is practically 0.06 cc.; a grain is practically 0.065 gm.

If the metric system is ever going to find common usage among the English speaking people, multiplicity of terms must be avoided and a clear simple and rational method of use must be followed, just as has been done with the monetary system of the United States.

SEASICKNESS : ETIOLOGY AND PROPHYLAXIS

BY

E. KIRKLAND SHELMEKDINE, M.D.,

of Philadelphia.

Surgeon to Philadelphia Rapid Transit Company.

From time immemorial those who travel in ships have suffered from *mal de mer*. To appreciate thoroughly the misery accompanying this malady, one has only to experience the agony of being a victim of Neptune's wrath; oft-repeated voyages are not always a preventive against this complaint; there are cases on record of sea captains who become sick at the beginning of each ocean trip, the longer the interval between sailings the more apt are they to suffer from qualms of the stomach; on the other hand, some people are never sick; and again, there are others who will be sick one trip, and the next, with the ocean equally rough, will not be at all inconvenienced. There must be some factor, some state of the body which renders an individual susceptible to the waves and not the mere motion of the ship itself which causes nausea.

From observations of fellow passengers made during 6 ocean trips, one of 30 days' duration, I draw the following conclusion: Seasickness is the result of 3 factors, acting together or independently—mechanical, mental, and the irritating influence of the bile in the stomach.

Mechanical.—To maintain the equilibrium on board ship requires a constant change in the angle described by the long axis of the body and the deck of the vessel. This constant change of position necessitates action on the part of antagonistic muscles necessary for the maintenance of the center of gravity in the upright body; this action is voluntary, or not according to whether the individual has accustomed himself to the motion of the ship or not. When in nautical language, the "land-lubber" has acquired his "sea-legs," the alternate contraction and relaxation of the muscles governing the erect position are involuntary, the balancing of the body requires no more direct effort of the will than is necessary on terra firma. On the other hand, lack of the abnegation of the mind in the consciousness of a changing base, is responsible for the extreme gait and frequent overbalancing on the part of the novice. Not having learned just how much muscular effort is essential to overcome the tendency to fall, there is too much muscular contraction, and the individual throws himself too far to the opposite side, immediately there is another muscular contraction antagonistic in character to the last, an effort to regain the perpendicular. These alternate muscular efforts may be repeated several times in succession before the requisite tension necessary for the upright position is acquired. Indeed, on shipboard it is a source of amusement to watch the oscillating efforts of those who have not acquired their "sea-legs."

Muscular sense and dexterity are easily lost through lack of practice; for example, an expert tennis player, after several years' absence from the courts, will suffer defeat from players who are his inferiors when in practice. The uninitiated and those who have forgotten how to balance on board ship can be compared to children learning to draw. Here, also, the muscular system, which is not necessary for the act of drawing, is also in a state of tension; the child's face works while the stroke is being made showing that the nervous force emanating from the brain centers, is also causing other muscles to contract; there is apparently an excess of stimuli overflowing into groups of muscles not necessary for the consummation of the act of drawing. Observations of the tottering victims show that there are spasmodic contractions of the whole body, especially when there is fear that overbalancing will take place. Not only do the muscles of the trunk and legs undergo excessive activity, but the diaphragm is also elevated by the muscles of the chest during inspiration; in other

words, there is a "catching of the breath," an act which is present in all individuals who try to "catch themselves from falling."

Bile.—Many go on board ship in a bilious condition, the bile ducts as well as the gallbladder being overfilled with bile. From the spasmodic muscular contractions of the abdominal muscles pressing on the liver and gallbladder and the general shaking up people get on shipboard, the bile is forced out into an intestinal tract which is possibly suffering from constipation. The spasmodic elevation of the diaphragm causes a negative pressure in the stomach, and the abdominal pressure accompanied by constipation and possibly slight reversed intestinal peristalsis cause the bile to flow in the direction of least resistance. These combined forces are sufficient to overcome the resistance of the pylorus, and the bile gains entrance to the stomach, often in enormous quantities. During one experience of seasickness through which I passed, I vomited in the course of 3 days in the neighborhood of a pint of bile, and what is more to the point, when the bile ceased to come up, the nausea disappeared.

Mental.—The nervous element which is also a part of seasickness, prevents that speedy confidence in one's ability to navigate, and hinders that loss of consciousness of voluntary effort, the absence of which would enable one to acquire a freedom of movement and relieve the muscular tension so that the rise and fall of the vessel would be met by an involuntary action of the human guy-ropes pulling the trunk into an upright position and the excessive over-production of energy would be reduced to the minimum force required.

To summarize: In seasickness there is considerable bile in the vomitus. In ordinary attacks of biliousness there is bile present in the stomach, and in bilious headaches there is always a feeling of nausea present. Bile is a foreign body in the stomach, it is repugnant to the mucous membrane, and in sufficient quantities excites vomiting, which is nature's effort to get rid of undesirable material.

There are unnatural, spasmodic, muscular contractions in seasickness, excessive spasmodic elevations of the chest and diaphragm, and compression of the contents of the abdomen all causing a negative pressure in the stomach.

Nervousness hinders the acquirement of proper balancing powers.

Observation of a number of individuals has made prominent the fact that in the vast majority of cases when the bile ceases to be vomited the seasickness disappears.

Treatment.—Prevention of seasickness is easier than cure. The prophylactic treatment is simple, and in the few cases in which it has been tried, was marked with decided success. For example, in 1 case, the patient, Miss S., on 2 previous trips had to be carried ashore, so completely prostrated was she from the effects of seasickness. On the third trip she was only slightly nauseated, and then only for a day and a half. She did not vomit, and she missed but one meal. The treatment in her case did not start as soon as it should have, and she did not have the full benefit of a prolonged cleaning out; medicine was taken 3 days before sailing.

Treatment should start 10 days before sailing. Podophyllin 3 mg. ($\frac{1}{20}$ gr.) 4 times daily. Third, sixth, and the day before sailing, give calomel .13 gm. (2 grs.) in divided doses. The night before sailing, a bottle of magnesium citrate should be given. Five days before sailing give sodium bromid .32 gm. (5 grs.) twice daily, and continue this until the patient has acquired "sea-legs." On board ship great care must be taken to keep the bowels in a loose condition until all danger of nausea has passed away. According to the individual the doses may have to be increased or diminished. The main object is to cleanse the bowels thoroughly and thus get rid of as much bile as possible. In many cases this

treatment will prevent seasickness and if a person becomes sick who has followed this method, he will have a very light case and will not suffer so much as he would have suffered had he gone aboard without having had a good cleaning out.

The individual who goes on board in a bilious state has plenty of excitement ahead, for it is almost impossible to administer medicines by the mouth owing to the irritability of the stomach. When medicine can be retained, calomel is the sheet-anchor of faith and should be given in large doses followed by a stiff saline. Bromids should also be given if they will stay down. For nausea, champagne is the best, but in some cases lemon juice and cracked ice have a very soothing effect. In all cases the bile must be worked off either through the upper or lower end of the intestinal canal; and sad for the victim is the fact that most have to experience the disagreeable sensation of frequent periodic evacuations through the oral cavity. In cases in which vomiting is so persistent that nothing will stay down, benefit may be derived by washing out the stomach and lower bowel. Strapping the chest with adhesive plaster so as to restrict the expansion will tend to quiet an irritable nervous stomach. When possible, seaskick persons should be placed in their steamer chairs on deck where there is plenty of fresh air. A very simple rule to learn for acquiring "sea-legs" is as follows: When the ship rises, do not make yourself stiff and hold back in nervous fear, but rise with the deck, endeavoring, if possible, to go a little farther and higher than the excursion of the deck would have taken you. On the other hand, when the deck sinks do not hold back but accept the situation gracefully and incline your body with as much freedom of movement as possible. It is the resistance and the muscular rigidity which cause much of the trouble, and one should appreciate early the fact that the erect position on a rolling deck is brought about by a series of graduated contractions and relaxations of the muscles concerned in maintaining the perpendicular, and not by a series of jerks which are simply stubborn antagonistic muscular movements. The swaying of the body, therefore, should be easy, a rising and falling synchronous with the movement of the ship, not a series of jerks but an involuntary act. *Sea-legs and seasickness are incompatible.*

Seasickness will be of short duration in an individual whose liver and gallbladder are comparatively free from bile.

Prejudiced against Ambidexterity.—"Professor Lombroso has a curious prejudice against ambidexterity," says *Amateur Work*. "In last month's *North American Review* he gives the results of his observations on left-handed and left-sided people. They are of such a character to make people hesitate even to stretch out the left hand, and it is small consolation for him to make the closing qualification: 'I do not dream of saying that all left-handed people are wicked, but that left-handedness, united to many other traits, may contribute to form one of the worst characters among species.' . . . The professor finds that among 1,000 soldiers and operatives, the proportion of left-handed people is 4% among the men, and 5% and 8% among the women. Among criminals the quota of left-handed was found more than tripled in men and more than quintupled among women."

Better Tenements in New York.—According to the report of Commissioner Robert W. De Forrest, the most interesting change brought about in the department was that evidenced in the "New Building Bureau," where it was shown that in past years 24,000 tenements were approved without correction. Only 527 were passed without alteration during the last year. This shows a decided improvement in tenement houses. Where formerly inspectors were employed to cover certain territory, and told to daily visit all new buildings in that section, now a record of every tenement in the course of erection in Manhattan is kept, and at any hour, information as to the stage of its erection can be obtained. Inspectors are only instructed to visit such places at the times when their presence is required. This has cut down the roll from 60 inspectors to a division, to 8. Under the present regime a permit to build cannot be obtained until the plans have been approved by the plan bureau of the Tenement House Department. Records of the plans are kept, and these are referred to regularly by the inspectors.

SPECIAL ARTICLES

THE MORBID ANATOMY AND HISTOLOGY OF PULMONARY TUBERCULOSIS IN RELATION TO ITS GENERAL PATHOLOGY AND CLINICAL MANIFESTATIONS.

BY

G. SIMS WOODHEAD, M.A. (CANTAB.), M.D. (EDIN.),
Professor of Pathology in the University of Cambridge, England.

Ladies and Gentlemen:—When the Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis did me the honor to invite me to give one of this series of lectures, I felt that I had little time in which to prepare any lecture worthy of the occasion. I was just in the midst of the work of our term, and as I had to start for your shores as soon as the term ended, I knew that until I got onto the Atlantic (whose vagaries at this time of the year have to be reckoned with) I should be able to give but little time or attention to the thinking out of the details of my address.

The opportunity of visiting your great country thus presented to me was, however, so tempting and the prospect of meeting my many valued friends on this side so attractive that I determined to give you the results of some of my own work on the relation of the morbid anatomy and histology of phthisis to its general pathology and clinical manifestations. I was all the more tempted to follow this line of thought from the fact that in recent years the pessimistic views of the physician—based on the pessimistic foundation laid by the earlier pathologists—though gradually giving way before the evidence afforded by more recent research, are hard to scotch and still more difficult to kill. It will, of course, be understood that the advancing and advanced lesions found in cases of pulmonary tuberculosis that had succumbed could not but prove fatal. The presence of Virchow's caseous tubercle in all its fearful and destructive simplicity seemed to leave no hope for the recovery of any patient affected; and what the pathologist found one day, the physician accepted the next. It was perhaps natural that this should be the case, but the evil wrought by this pessimism was incalculable, and I think that most of those of you here tonight, who have given even a small amount of attention to the subject will agree with me that this view as to the incurability of tuberculosis had more influence than any other single factor with which we are at present acquainted, in interfering with the successful treatment of a disease that should, I venture to say, now be looked upon as among the most curable—when taken early enough, treated under proper conditions, and for a sufficiently long period.

If modern pathology had been responsible for nothing beyond the effect that its findings have had on our ideas concerning the course of the tuberculous processes, especially in the lung, it would have more than justified its claim to be one of the most important, if not the most important, of all the sciences ancillary to medicine.

I am here to speak as a pathologist, and it is possible, nay, even probable, that some of you may be of opinion that I claim too much for my subject; but of this I am convinced—that the more closely the pathology (including morbid anatomy and histology as read in the light of recent bacteriologic discoveries) of tuberculosis is studied in the cases that come under the observation of your physicians, the greater will be the influence of the work ultimately done in this institute. The cure of the individual must, naturally, be the most pressing and important claim on all those engaging in this work, but it must be remembered that there are far wider reaching questions behind and beyond this—the early detection of the disease, if treatment is to be most successful; and the prevention of the disease, if the community is to derive the greatest benefit from the warfare now being carried on; and these must be worked out, not in the ward merely, but also in the side-room and in the laboratory.

I have said that it is only during recent years that much has been heard of the curability of pulmonary tuberculosis, but it must be borne in mind that after the first shock produced by the observations recorded by Rokitsanski and by Virchow had

lost some of its force, a number of observers drew attention to the fact that in the lungs of old people who had succumbed to diseases other than those of tuberculous origin there could often be found local apical thickening of the pleura or, still more frequently, deeply pigmented irregular scars which were evidently the result of some considerable loss of tissue at an early period of life. My attention having been drawn to this fact, I took the opportunity, after I had been appointed pathologist to the Edinburgh Royal Infirmary, to make a careful search for evidence of what I might speak of as healed tuberculous lesions, and I found that in old people such evidence was to be found in at least one out of every three who came to the post-mortem table. Nay, more, I soon became firmly convinced that even in those cases that succumbed to tuberculous disease there was usually more or less marked evidence of a sturdy war waged by the tissues against the invading tuberculous process, and that in most cases the tissues failed in their endeavor to check the advancing process simply because they were placed under disadvantageous conditions, not as the result of the action of the specific *materies morbi*, but as the result of interference with their nutrition. The cod-liver oil treatment, so long the most successful of all, had its foundation in the belief that this substance served some special nutrient or therapeutic purpose, as a result of which the tissues were strengthened and were thus enabled to resist the attacks of the disease-producing factor; while the present day treatment of tuberculosis is founded on a similar belief that fresh air, good food, efficient excretion of waste products, rest (opportunity for building up the tissues, food that will supply energy with least draft on the tissues), will enable these tissues to withstand the attacks of the tubercle bacillus in the first place; to kill it in the second, or at any rate to render it harmless; and finally, to assist in the removal not only of the bacillus, but of the dead or degenerated tissue in which it had managed to effect a lodgement.

It is perhaps superfluous at this stage to show slides of the tubercle bacillus, but some few of you may not have seen these microbes—low vegetable parasites—so fully studied by Robert Koch in his epoch-making work sent out from the Royal and Imperial Institute of Public Health in Berlin. (A series of slides illustrating the form and relative size of the tubercle bacilli as found in experimentally produced tuberculosis, in the tuberculosis of the human subject, and in phthisical sputa was then thrown on the screen.) For some time after the appearance of Koch's wonderfully lucid and convincing paper a certain number of sceptics—perfectly justifiably, no doubt, on account of the extreme novelty of the ideas so promulgated—attempted to throw doubt first on the accuracy of the observations and then on the reliability of his conclusions, but it may now be fairly claimed that Koch's work has, in the main, withstood the attacks even of the ablest of his critics. There seems to be no manner of doubt that we may accept Koch's tubercle bacillus as the *causa causans* of tuberculosis. Here, however, let me put you on your guard, as I guard myself, against a mistake into which it is very easy to fall, *i. e.*, that because a tubercle bacillus comes near, or even into contact with the human or brute body, an attack of tuberculosis necessarily results. This bacillus must make its way not merely onto a free surface, but into the tissues of the body, before it can do any harm; nay, more, it seems that, in the human body at any rate, the tissues must be damaged or weakened and a special mode of entrance into these damaged tissues must be prepared for the tubercle bacillus before it can work its dire effects. During the course of my work my hands have for weeks, months, or even years, been almost daily soiled with tubercle bacilli; I have no doubt that I have swallowed many, and that some have made their way into my respiratory tract; but none of these have done me much, if any, harm, because while I have been working with them I have carefully protected any cuts on my hands and have refrained from working when I have been run down in any way, and especially when I have been suffering from any catarrhal processes in the respiratory or alimentary tracts.

From my experiments on animals I am satisfied, as are all experimenters, that tuberculosis is never produced without the presence and action of the tubercle bacillus, but my own observations on human patients, especially on children, confirm

those of many others, that unless the tissues are weakened or damaged—*i. e.*, the soil is prepared—there can be no reaction between the bacillus and the tissues which can end in the production of a tuberculous lesion. The exciting cause must be present, but in the human subject at any rate there must also be one or more predisposing causes. In the lung this predisposing cause appears to be catarrh; that is, a congestion of the vessels of the mucous membrane, accompanied by some slight proliferation of the epithelial cells lining the air vesicles, with an increased pouring out of fluid and an emigration of a larger number of white blood cells. In the air vesicles of the lung, especially when expansion and contraction are weak or imperfect—*i. e.*, at the pulmonary apices in adults, near the root of the lung in children (and in monkeys), beneath areas of adhesion between the pulmonary and costal pleuras, and at the base of the lung when there is adhesion of the pleuras in this position, especially if the liver be adherent to the under surface of the diaphragm—there is usually an accumulation of catarrhal products in which, if bacilli gain entrance and are allowed, undisturbed by any great amount of movement, to multiply, to produce their special products, and to cause those degenerative changes with which they are found to be associated causally. Once give them a footing under these conditions, and they are in a favorable position to produce tuberculosis.

It is evident from what has already been said that the tubercle bacillus may reach the lungs by way of the air passages; that they make their way to those points at which there is least movement and in which, as a rule, there is some degree of collapse, often associated with a condition of catarrh—*i. e.*, a condition in which the protecting layer of epithelium has been damaged, the lung tissue then being in the same position as the hand on which the epithelium has been damaged. From this coign of vantage they may be distributed, still by the air channels, to almost every part of the lung, setting up a condition of tuberculous catarrhal pneumonia characteristic of the later stages of the so-called acute phthisis. In many cases this acute phthisis is nothing but an acute secondary pneumonic tuberculosis following a rapid distribution of tubercle bacilli imbedded in the caseous material derived from a chronic primary focus. It should be noted that in these cases caseation of the epithelial tissues usually takes place at a comparatively early stage of the process.

So much for the distribution by the air passages. We now come to a second system of distributing or infection channels, which appears to play a prominent part in every case of tuberculosis, chronic or acute—the lymphatic system. Between the cells of the tissues, and especially around such structures as the blood vessels, even the smallest of them, there is a kind of network of channels or spaces (the lymph spaces) that has sometimes been compared to the system of pores seen in a sponge. Such terminal spaces gradually lead into small definite channels, and finally into tubes or vessels of considerable size and with distinct walls—the lymphatic vessels. These tubes lead to little filters known as lymphatic glands. Much of the fluid that in the process of nutrition passes from the blood vessels passes into these lymphatic spaces, and from this fluid the tissues take up their nutrient material, throwing back into it their waste or effete products. The fluid throws some of these waste materials back into the blood, but certain of the more solid particles pass to the lymphatic vessels, and by them are carried to the lymphatic glands, where the coarser particles are filtered out, and where, too, certain changes appear to be effected even in the composition of the fluid lymph.

Let me give you an illustration. If a patient tattooed on the forearm could be examined within a few days of the operation, small particles of pigment would be found in the tissues (cells in and lining the lymph spaces) at various points between the tattooed patch and the elbow, and even above the elbow. If the patient were to live for some months and then were to die, it would be found that, except at the tattooed patch and in some little hard nodules in front or at the side of the elbow or under the armpit, there is no pigment, but in these latter positions black, red, or blue pigment, according to the material used by the artist, has accumulated, often in considerable quantities, so that it can be seen with the naked eye.

Most of you know how the glands under the arm swell

after vaccination. This is because the lymphatics of the arm carry the vaccine virus to the glands, they are irritated by the vaccine matter, there is proliferation of cells, swelling of fibers, an accumulation of fluid, and enlargement of the whole gland.

Exactly the same arrangement of lymph spaces, lymph channels and lymphatic glands is met with in the lung. There are spaces around every vessel and bronchus and between the finer tissue elements; these open into lymph vessels which in turn convey the fluid to the lymphatic glands situated at the root of the lungs. It is important to bear this arrangement of the lymphatics in mind; for we find that in tuberculosis of the lung the tuberculous virus is carried from the air vesicles by the lymphatics to the lymphatic glands. The tubercle bacillus or its products appears to exert some irritant effect directly upon the cells lining the lymph spaces, as a result of which, just as in the air vesicles, we have a proliferation of the cells and a formation of new tissue sometimes resulting in caseation, or the formation of a soft pulaceous mass which is supposed to resemble cheese; at others—and this is a point to be especially borne in mind—in the formation of fibrous tissue.

As regards this formation of fibrous tissue, it may be well to point out that the most marked feature in chronic tuberculosis is the formation of fibrous tissue in the pleura immediately above it; and it is an easy matter in most cases to determine roughly the comparative duration of the disease at any part of the lung by noting the thickness of the pleura and of the interlobular septa; so that in a chronic phthisis in which the patient succumbs rapidly as the result of an acute consolidation, there is usually wellmarked thickening at the apex; this gradually shading off to the lower part of the upper lobe and being represented merely by a thin film of fibrin over the lower lobe.

Where the tuberculous process specially affects the adventitia or outer coat of the bloodvessels and bronchi, this fibrous tissue formation is often exceedingly well marked. In some cases it would appear almost as though the tuberculous tissue, at first of a type which may be compared to an irregular granulation tissue, may become converted into fibrous tissue directly; but it may be accepted as a general statement that where the tubercle bacillus manages to obtain a footing, it brings about a certain degree of caseation; but that in the immediate neighborhood of this caseous material which in some sense appears to act as a foreign body, the fibrous tissue is partly at any rate the result of the action of this foreign body upon endothelial cells or connective tissue cells, which after all, must be looked upon as cells of an endothelial type.

Wherever this fibrous tissue is formed, it affords evidence of a good reaction on the part of the tissues and therefore of the powers of resistance; it is by the formation of this fibrous tissue around the areas of caseation that they are cut off and the lesion localized. Where this localization is incomplete, as it often is, the bacilli pass along by them to the lymphatic glands, here giving rise to proliferation, caseous degeneration or fibrous tissue formation, just as is the case along the lines of the lymphatics. Having once reached the glands at the root of the lung, the process may, for a time, be localized; but unless the conditions are favorable and what we may call the reaction of the tissues is good, the tuberculous virus may be carried from point to point, successive glands in the neighborhood localizing the disease for a time, but ultimately allowing of the passage of the virus to other organs.

In connection with the invasion of lymphatic glands by the tubercle bacillus, it should be noted that once a lymphatic gland is affected, the course of the lymph circulation may be diverted; and again that any area usually drained into a lymphatic gland becomes much more readily affected when that gland becomes tuberculous than before this takes place; I think I have seen cases in which the lymphatic gland appears to have become caseous or cheesy before the area drained by it has become tuberculous. It is somewhat difficult to prove this, but I show you a specimen in which we have an exact localization of tuberculous area to that part apparently drained by a small gland at the root of the lung.

The third method of transportation of the tubercle bacillus from one point of the body to others is by way of the bloodvessels. For some time it was supposed that the acute miliary

tuberculosis that so frequently supervenes on the more chronic processes, was something essentially different from the larger primary lesions; but the identity of the two sets of lesions had been accepted even before Koch had pointed out that the exciting cause of the two processes was the same. It was difficult to determine, however, how the tubercle bacillus made its way from the primary lesion to every organ and tissue of the body. Weigert was able to point out that in a case where there was tuberculosis of the wall of the thoracic duct, the bacilli were carried from this lesion to the veins, from which they passed through the heart, and thence were distributed to the capillaries of every part of the body. In these capillaries, blocking them and becoming attached to the endothelial lining, they again set up a proliferation in and around the capillary vessel, as a result of which the minute tubercles met with in this condition soon became manifest to the naked eye. (Section shown.)

It must be remembered that these different methods of spread of the virus seldom occur alone. Whenever the air passages are affected we find, invariably, that the tubercle bacilli make their way into the surrounding lymph spaces, there giving rise to the proliferative and regenerative changes already described. Similarly, we find that in acute miliary tuberculosis there is, in each nodule, evidence of the invasion of the lymphatics by the tubercle bacillus, and it is because we have this affection of the lymphatics that the various lesions ultimately become localized. It is only through them that we can have a stimulation and proliferation of the connective tissue cells, new formation of fibrous tissue, and localization and absorption of the diseased tissues. I mention these methods of spread of the disease because in the various kinds of tuberculosis met with by the clinician, we have ample evidence that one or other predominates at different stages of the disease.

It may be well here to indicate, briefly, the history of a case of pulmonary tuberculosis, especially as by referring to this history in its various phases we may be able to gather how it is that at one stage the disease may be perfectly curable, but how it is that, as the disease advances, the chances of permanent or even partial cure are more or less rapidly diminished. I wish you to pay special attention to the periods at which the various processes come on; and also the times during which they are prolonged; otherwise it may be difficult to understand why a patient who has had phthisis for perhaps 2 years or 3 years and appears to have lost very little ground indeed, should suddenly begin to go down hill rapidly and die within a few months.

It has already been mentioned that in a case of phthisis apical catarrh is the first condition noticed, this being accompanied by congestion and followed by some consolidation, the result of proliferation of the epithelial cells, such cells gradually accumulating and coming to fill the air vesicle. This breeding-ground for the tubercle bacillus may gradually spread in area; but it will be found that the bacilli causing degeneration of the epithelium make their way into the surrounding lymph-spaces, there, especially if the tissues are well nourished, giving rise to the formation of fibrous tissue.

If at this stage the patient be placed under favorable conditions, of nutriment, of rest, so that the waste products of the body may be carried away regularly and systematically, the reaction of the tissues is so complete that the dead patch is practically surrounded and cut off; the bacilli remain inactive in the dead mass; or they may even be killed. The degenerated tissue is absorbed very gradually and there may be complete "cure," especially when the initial lesion has not reached any very great size. The loss of respiratory surface is so slight and the reserve so great that the patient may be considered to be practically normal again.

If, however, the patient be not placed under favorable conditions, or if after a short period of treatment he returns to his old life and habits, this focus of dead material may ultimately break through the surrounding layer of limiting tissue and a further considerable patch of tuberculous consolidation may be the result. (Slide.)

In most cases, especially if there be intermittent congestion of the surrounding tissues, the degenerated or caseous material may become softened, and it is during this stage of softening that secondary infection goes on perhaps most readily.

Let us suppose that this mass cut off from the bronchus with which the air vesicles were originally associated, extends to the wall, perhaps of another bronchus; as it advances in this wall it cuts off the vascular supply, first that of the peribronchial tissue, and then that of the submucous tissue, until at last by destroying the vitality of the bronchial wall, it brings about a process of ulceration; then the tuberculous material with its contained bacillus may immediately be carried into the air passages, whence it may be expectorated almost entirely, though in most cases a certain proportion of the softened material along with the bacilli is carried to other areas, where fresh tuberculous catarrhal pneumonia is induced, and the whole process may be repeated, but upon a more extensive scale. This process may be again repeated—at each repetition larger and larger areas being affected. It is evident that in such cases as those just described, the loss of lung tissue may be very great indeed, whether it be broken down or not—*i. e.*, whether the lung be merely consolidated or whether it be cavitated. Even the great reserve mentioned above is unequal to the draft made on it, and even should the patient be patched up for a time, he must face the fact that he is not cured, and never can be, though under proper treatment and with great care he may continue to lead a useful if not very active life.

It is sometimes difficult to understand why the small hemorrhages so characteristic of the early stage of phthisis should occur so frequently, especially when we remember that in the tuberculous areas themselves the bloodvessels are practically obliterated. It must be remembered, however, that around each tuberculous area the conditions of the vascular circulation are somewhat altered, owing to the fact that some of the vessels are closed; as a result of all this, a collateral circulation must be set up and maintained. Moreover, an increased quantity of blood is required to meet the wants of the proliferating tissues; but we find that the hemorrhages usually take place as the result of some extra temporary strain, and are an indication of local changes. It will be noted that in some of the specimens I show that we have a systematic invasion of the lung commencing at the apex and gradually working toward the base. It will be noted, moreover, that the basal processes are always more extensive, that the consolidation is more diffuse, and the degeneration more rapid than at the apex; that we have in fact a more markedly caseating catarrhal type in this position than at the apex. The whole of the lower lobe of the lung may be invaded in a few weeks, especially when the resisting powers of the tissues have been gradually broken down by overwork, general ill health, want of sufficient nutriment, imperfect oxidation of the blood and accumulation of waste products in the tissues.

These factors do not act at once; but at work over considerable periods they gradually wear down the resistance of the tissues, with the result that the tubercle bacillus finds an easy prey wherever it finds lodgement.

In addition to the catarrhal process, there is in most of these rapid cases of basal phthisis a more acute pneumonic condition, the air vesicles in the spaces between the catarrhal pneumonic patches in such cases being filled with a fibrinous exudate. This process seems to be associated with the alterations in the circulation, but partly to be the result of a secondary infection; wherever it occurs, however, it is a serious factor in the production of consolidation, and always accelerates the rapidity of the process, patients so affected, as a rule, dying quickly.

It will be seen at once from this rough description that a physician has a considerable period during which he may hope to treat his patient successfully, but that at any moment almost, a series of more acute changes may supervene, after which he has no right to expect recovery; though it must be acknowledged that in a few cases patients do recover even after such expectation is no longer justifiable. Nature is always more powerful than we give her credit for, and often helps us when we have given up all hope. This, however, is something we should never presume on, and the importance of the early diagnosis of tuberculosis can scarcely be too keenly appreciated, nor that of early treatment.

We now come to a phase of the question that has been recognized by many physicians, but one that is not so generally recognized by the patient. A patient who has once suffered

from tuberculosis must remember that although he may be partially protected (though of that, however, we as yet know nothing), he does not enjoy any definite immunity against future attacks of the disease; and it is absurd for any one to decry a system of treatment because it does not confer a lifelong immunity to the disease against which it is directed. I show you a specimen in which there is an old scar in the lung, from which all tuberculous material had disappeared leaving a little nodule of pigmented fibrous tissue surrounding a few particles of calcareous matter. That patient suffered from phthisis many years ago and had recovered, but you will see that throughout the remainder of the lung we have now the lesions of an acute miliary tuberculosis; the patient succumbed to an infection in all probability of entirely new origin, though it is possible that it may have been the outcome of some old but latent lesion, either in the lung or in some other part of the body, from which tuberculous virus has made its way into the bloodvessels, and thence has been distributed throughout the body.

Such a case as this, to my mind, though exceedingly encouraging in many ways, should lead us to insist that patients even after discharge from sanatoriums where the treatment has been successful, should continue the treatment, perhaps in a modified form, throughout their whole life; as it is impossible to state when a patient can come back to the old conditions of life with impunity; in fact, one may lay it down as a general proposition that it is only as we insist on the improvement of the conditions of life wherever such improvement is possible, that we shall be able to diminish the morbidity as apart from the mortality of tuberculosis. It is here that the medical officers of health, and sanitary officers can play so large a part; and that an institution of this kind can do so much to spread a knowledge of the importance of light and air in the home and in the workshop, of sufficient food even though plain, of the danger of prolonged periods of overwork, except in the case of the very strongest; and of the importance of periods of rest during which the organs and tissues of the body may not only be built up, but may get rid of the waste material that accumulates so rapidly during periods of active exertion.

This brings us to a very important question indeed. Although I have every faith in sending patients who can afford it, to places where they can comfortably remain in the open air and where there is plenty of light, I think there is a danger, and a very great danger, of overlooking the fact that the open-air treatment may be carried out at the patient's home, and that so far as this branch of the treatment is concerned, it is not so much a matter of getting a good climate as of getting pure, fresh air for the patient.

There can be no doubt that the sanatorium treatment has been successful, not because of any special climatic conditions associated with each institution, but because whatever the climate the patient has been encouraged to live practically in the open; diet, exercise, and rest, of course, being carefully attended to. All acknowledge that a sanatorium treatment is of inestimable value in tiding over the difficult and dangerous early period of the disease; but it will be still more valuable just in so far as it teaches the patient to carry out in his own home the principles and methods adopted in the sanatorium. It always seems to me that a patient will be much more likely to have faith in the efficacy of the methods used, if they are carried on in familiar surroundings and under conditions of climate, etc., to which he is usually exposed. If he is sent to a special climate resort, he is apt to think that the success of his treatment depends on something special in the climate, and while this is of course the case to some extent, in so far that in a bright, dry, bracing climate the open-air treatment is more agreeable and a cure effected somewhat more quickly perhaps, there are no fundamental differences between the two, the closer you can bring your patient to his every-day manner of life during treatment the more likely he will be to carry out your instructions after discharge from the sanatorium.

I may say that at Cambridge, a place little above the sea-level, situated in the fen district, where fogs are frequent and sometimes very dense, great success has been attained in the open-air treatment of phthisical patients in the Addenbrookes Hospital. I mention this fact for what it is worth; but I think

that it bears out the contention of those that the method of treatment is in most cases more important than the exact place in which it is carried on.

(Lantern slides were shown to illustrate a number of the points mentioned. Most of the sections were made through the whole lung, and were thin enough for examination under a quarter-inch objective.)

Ladies and gentlemen, those who are responsible for the inception, organization, and working of this institution, have undertaken what most of us consider to be one of the most beneficent works on which men can engage. The endowment is munificent; and as the workers are both capable and enthusiastic, I think that we may look forward with very bright hope to the outcome of the work carried on. But the work to be done cannot all be undertaken even under the favorable conditions that here obtain; and I would ask you not to be disappointed should you not attain all that you hope in the immediate future. There is much quiet and steady spade work to be done. You will, I know, relieve and cure many patients; but you have then touched but the fringe of a great problem. You have to determine the exact pathologic conditions met with in individual patients and in groups; you have still much to learn concerning the condition of nutrition, of waste, and of repair; you have physical problems, chemic problems, bacteriologic problems, and others of the greatest complexity; these can be undertaken only by men skilled in methods and trained in accurate observation. They may have to work for years before they are able to gain results that can be utilized, or that can be brought into a great scheme of knowledge, from which further advances can be made; but we may all entertain the hope, and one well founded, that under honest, persevering, patient investigation even the most difficult problems may be compelled to give up their solution. While working for the benefit of the individual, we must keep our mental vision fixed on a point beyond: on the possibility of preventing the invasion of the tissues by the tubercle bacillus; of studying the life-history of this organism, so that in time, as we gain the knowledge of the conditions under which it exists, both outside and in the body, we may gradually so circumscribe its sphere of operations that it may no longer remain a factor of disease, especially when we are wise enough to insist on those improved sanitary and social conditions without whose aid the tubercle bacillus even today would lose much of the terror attached to its name. I congratulate the Henry Phipps Institute on what it has already achieved; but I hope for it and those associated with it a still more useful, beneficent, and brilliant future.

Condition of Lepers in the Philippines.—After having spent the last 11 years caring for the children of the lepers of the Hawaiian Islands, Sister Albana, of the Franciscan Order, who was formerly Miss Miriam Sluder, of St. Louis, has arrived in that city on a visit to her parents. She said that the common belief that children of lepers inherit the disease is erroneous. "We take the children when they are 2 days old, and we have never had a case where leprosy has developed in after years. The children mostly all come from the Island of Molokai, where the leper colony is located."

Too Much Loss of Life by Railway Collisions.—The *Public Ledger*, Philadelphia, says, editorially: "The Interstate Commerce Commission declares, in its annual report just made public, that the most prominent feature in the year's record of train accidents is the loss of life in collisions. The record is not materially worse than that of last year, but the Commission says that the exhibit shows continuing conditions which demand serious consideration. It is noted that fatalities from collisions are due to causes which have never been adequately and comprehensively considered by any department of the Federal or State Governments, and but slightly by State Railroad Commissions. The Interstate Commerce Commission offers no remedial suggestion. The number of passengers killed in this class of accidents is not large relatively to the number of passengers safely carried, but the Commission well says that the killing of any large number of passengers in the course of a year in a single class of accidents deserves attention. If the number of persons thus sacrificed were diminishing from year to year, the situation would be more hopeful. It is gathered from the tenor of the Commission's report that collisions would not be so frequent if Legislatures or railway Commissions would investigate the causes more thoroughly than any of them have yet done. If such 'accidents' are avoidable, it is time that preventive legislation were enacted."

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

December 26, 1903. [Vol. XLI, No. 26.]

1. The Causes of the Occasional Failure of Operation to Cure Gallstone Disease. WILLIAM J. MAYO.
2. Intestinal Antiseptics; Their Uses and Limitations. J. A. STORCK.
3. Notes on Pulp Technic. MARTHA ANDERSON.
4. A Simple Method of Treatment of Hemangioma. CARL BECK.

1.—Failure to Cure Gallstone Disease.—W. J. Mayo reports that in 631 operations but 3% required a secondary operation. These were complicated cases due to delay in seeking surgical relief. Some patients have colic following a cholecystostomy, sometimes accompanied by transient jaundice, due probably to a crippled gallbladder becoming filled, and on account of recent adhesions, not emptying properly. A second operation may not be necessary unless there are other evidences of trouble. The most common cause of future symptoms is incomplete removal of stones. By using the finger even a small calculus will rarely be overlooked. Before the development of Robson's technic it was not easy to locate a stone in the cystic duct. When impacted, cholecystectomy is generally indicated. When cholecystostomy fails it is often due to obstruction in the duct from stricture caused by the irritation of a stone. In septic cases severe symptoms, especially in colon infections, may result from too early closure of the fistula. A calculus in the common duct may be overlooked if the cystic duct also is obstructed. The ducts should be explored with the finger in every case before opening the gallbladder. The condition of the pancreas should be ascertained at the same time, and if pancreatitis is present drainage should be kept up a long time, or a cholecystenterostomy with a Murphy button should be performed. Cancer may be mistaken for inflammatory disease. A thick-walled gallbladder is suspicious, and as it is useless, should be removed. In cholecystostomy the bladder should be attached as high up in the incision as possible to prevent the bile gravitating away from the duct. Persistent biliary fistula usually means obstruction of the common duct. Postoperative adhesions are not always avoidable. Secondary separation may be necessary with the use of Cargile's membrane. [H.M.]

2.—See *American Medicine*, Vol. V, No. 20, p. 781.

3.—Pulp Technic.—M. Anderson in preparing pulps for demonstration of nerve tissue has hardened them in formalin, Müller's and Ehrlich's fluids, and in Urigert's chrome alum solution. Sections cut after freezing were then stained by one of the following methods: Urigert's method for medullated nerves, osmic acid and hematoxylin, Mummery's iron and tannin, iron and hematoxylin, Freund's gold, Underwood's gold, lemon juice and gold. With iron and hematoxylin the fibers in some places could be traced to the apex of the pulp. [H.M.]

4.—A Simple Method of Treatment of Hemangioma.—Carl Beck reports a case pronounced by some surgeons inoperable which was cured and with good cosmetic results by gradually transforming the masses of vessels into connective tissue by means of a subcutaneous suture. He passes catgut in a zigzag manner, first below the skin, then underneath the base of the tumor, then again under the skin, and so on, until the tumor mass is included in this continuous suture, which is then drawn tight and closed at the point of entrance of the needle. The circulation is thus shut off, though some blood can still reach the tumor, preventing gangrene. After a week the tumor seems smaller, the normal epidermis, tense at first, becomes soft and elastic, and grows. This procedure is repeated until the tumor has been diminished to the smallest possible nodules of connective tissue. These are excised, and the borders approximated in fine linear union. The islands of normal skin enlarge within a few weeks to 2 or 3 times their size. In the arterial and mixed varieties of hemangioma it is necessary to ligate the largest afferent vessels also. [H.M.]

Boston Medical and Surgical Journal.

December 24, 1903. [Vol. CXLIX, No. 26.]

1. Diffuse (Combined) Degeneration of the Spinal Cord. E. W. TAYLOR and G. A. WATERMAN. (From the Department of Neurology, Long Island Hospital, Boston Harbor).

2. Historical Notes on the Laws Governing Civil Malpractice in the Ancient Times and Middle Ages. CHARLES GREENE CUMSTON.
3. The Bitzer Homicides. GEORGE P. TWITCHELL.
4. Malaria and Mosquitos of Worcester: A Year's Observations on the Habits of *Culex* and *Anopheles*. WM. W. MCKIBBEN. (Continued.)

1.—Diffuse (Combined) Degeneration of the Spinal Cord.—E. W. Taylor and G. A. Waterman report 2 cases of this lesion—1 patient having shown no anemia or other cachexia; the second being a person suffering from pernicious anemia. In the first there was marked arteriosclerosis of the circle of Willis and the arteries of the internal portions of the brain—internal capsule. In the second, the cord lesions were sharply limited to the dorsal and lateral columns, but not anatomically confined to neuron systems. The lesions of the first case, though in general similar, were much more diffuse in character than those in the second, and more widespread, though less compact. This fact is worth noting, as a number of prominent writers have maintained that the converse is apt to be the case. The writers, after brief review of recent papers, see no reason for changing their previous statement that no fundamental characteristics of the lesion have been found depending on different causes. For the present "diffuse combined degeneration" is a sufficiently exact designation of the usual anatomic alterations. [A.G.E.]

2.—Laws Governing Civil Malpractice.—C. G. Cumston shows that medical liability has been sustained by all the courts of former times, and cites cases and refers to laws of the Egyptians, Greeks, Romans, and ancient German and French peoples to illustrate this fact. [H.M.]

3.—The Bitzer Homicides.—G. P. Twitchell gives the history of the case in which the accused claimed that the first shooting was accidental. The hair was singed. Experts for the prosecution experimented on cadavers with the revolver used, and at 6 inches the hair was not singed. Between 3 and 4 inches, the results were the same as on the head of the victim. Experts for the defense who used wigs in their experiments found they could singe the hair at a greater distance. [H.M.]

4.—The Habits of *Culex* and *Anopheles*.—W. W. McKibben describes the development of malaria in Worcester, infection being carried there by returning soldiers and cheap Italian labor. The increase in cases in the last 5 years has become serious. By locating the cases on the city map it was seen that Worcester was completely surrounded by a malarial band, the center of the city being practically free. The number of cases was found to be in proportion to the number of inhabitants and the proximity of anopheles. The condition most favorable to anopheles flying a great distance is a gentle breeze. *Culex* is much more local in its habits. The female anopheles attacks the hand viciously, striking hard without hesitation or song. It does not secrete so much poison as the *culex*, producing no wheal. Males of neither species could be made to bite. These live only a day or two after copulation. The females live a couple of months, some possibly surviving till the next season. The *culex* has a shrill song, the anopheles a low-voiced hum. The two species do not get along well together; the *culex* is so prolific it soon kills out the anopheles. The larvae and pupas develop into the adult form very rapidly under certain conditions. It is rare that anopheles larvae are found in accidental receptacles, such as tin cans. The writer describes minutely the biting apparatus and the effect of petroleum on the breathing tubes of the larvae, and ends by discussing methods of prophylaxis. [H.M.]

Medical Record.

December 26, 1903. [Vol. 64, No. 26.]

1. Tumors of the Pontomedullo cerebellar Space. Acoustic Neuromas. (Central Neurofibromatosis). JOSEPH FRAENKEL and J. RAMSAY HUNT.
2. The Present Status of the Treatment of Lateral Curvature. JACOB TESCHNER.
3. Intestinal Fermentation, as it Interests the Surgeon. ROBERT T. MORRIS.
4. The Submucous Resection of the Nasal Septum. FELIX COHN.

1.—Acoustic Neuromas.—J. Fraenkel and J. R. Hunt consider under this title, or that of "Tumors of the pontomedullo cerebellar space," a group of cases characterized by the formation of tumors (single or multiple) on one or more

cranial nerves. The acoustic nerve is most frequently affected, the second in order being the trigeminus. The writers give notes of 5 cases, 3 being tumors of the acoustic nerve, one a bilateral tumor of the acoustic, one a tumor of the trigeminus. Four were personal cases. The underlying causative factor is a teratologic one. The tumors are histologically neurofibromas. Very commonly they undergo sarcomatous change. They are often classified under the various headings of intracranial tumors. The clinical picture of these growths is that of tumors of the posterior fossa of the skull. They are distinguished from growths originating within the brain by the early appearance of symptoms referable to a single cranial nerve. The certainty of localization, the essentially benign nature of the growths, and their loose attachment to the meninges and nerve trunks make this group of tumors a favorable one for surgical interference. [A.G.E.]

2.—The Treatment of Lateral Curvature.—J. Teschner adduces evidence corroborating his views advanced some years ago, regarding the efficacy of gymnastics in the treatment of lateral curvature of the spine. He criticises rather severely other writers for their statements, and for advocating other methods of treatment, even though his be mentioned. Several figures accompanying the paper illustrate the good results of muscular efforts in the correction of marked deformity of the spine. The point most strongly emphasized is the necessity of the personal supervision of a physician who understands the method. Sending patients to ordinary gymnasiums is almost always of no practical benefit. [A.G.E.]

3.—Intestinal Fermentation as it Interests the Surgeon.—R. T. Morris writes briefly of cases in which there is an evident surgical factor in the production of an undue amount of intestinal fermentation. In them the surgical cause is so often overlooked and the case treated by medical means, that the writer believes it is well to classify some of them. The symptoms must not alone be noted, but they should be arranged in such order that they point toward the primary and fundamental cause of the disturbance. Among the peripheral irritators are peritoneal adhesions, those about the appendix and cecum causing more disturbance than those in the pelvis. The former, though, are less disturbing than adhesions about the gallbladder. This region has been a comparatively little discussed one, the recent article by Musser being of the greatest importance in this connection. An appendix undergoing normal involution is a frequent cause of intestinal disturbance. Cases due to loose kidney or general enteroptosis are more easily recognized. A large group of cases is dependent on eyestrain. Many cases marked by "chronic constipation since childhood," depend upon the presence of hypertrophic rectal valves. Many obscure cases clear up when the ganglia of the bowel wall are freed from irritation due to surgical disorders. [A.G.E.]

4.—Submucous Resection of the Nasal Septum.—Felix Cohn speaks of Krieg's method of performing the above operation and briefly describes the technic he has personally evolved since first employing the operation in 1888. For most cases local anesthesia with weak cocaine and adrenalin solutions is employed. The patient is placed on a table with his head slightly raised and turned away from the deviated side. Those laryngologists, who believe that perforations are a detriment and a subsequent annoyance to the patient had best not perform the operation, as perforation is a frequent accompaniment. Cohn is absolutely convinced that perforation is harmless. The results of submucous resection are uniformly excellent, after-treatment is entirely unnecessary, and the cure is permanent. Cohn recommends the operation because it has not been so widely adopted as it deserves. [A.G.E.]

New York Medical Journal.

December 19, 1903. [Vol. LXXVIII, No. 25.]

1. On the Etiology of Pulmonary Tuberculosis in its Relation to Diseases of the Nose and Throat. W. FREUDENTHAL.
2. Remarks on Mechanotherapy. Massage, Bone-Setting, and Osteopathy. JOHN MADISON TAYLOR.
3. On the Natural Habitat of the Tubercle Bacillus. J. W. KIME.
4. A Method of Rapid Extirpation of Nasopharyngeal Fibromas, with Report of Cases. GORDON KING.

5. Things Every Tuberculous Patient Should Know. MARTIN L. STEVENS.
 6. The Genesis and Nature of Medicinal Dioxids. FRIEDERICH ELIAS.

1.—The etiology of pulmonary tuberculosis in its relation to diseases of the nose and throat is discussed by W. Freudenthal. He takes up first the nasopharynx and points out its predisposing conditions of an anatomic or physiologic nature that influence favorably the settling and development of bacteria. The wider the nasal passages and the drier the nasal mucosa, the more bacteria will settle in the nasopharynx, and vice versa. He believes that a rhinitis sicca, and even more an atrophic rhinitis, unfits the nose entirely for respiration. As a rule the bacilli penetrate the deeper tissues and enter the lymph current. Swelling and suppuration of the glands of the neck are not unusual, and are evidences of the path taken by the tubercle bacilli. Tables are appended showing the results of examination of the nose and teeth of a large number of individuals. In some cases the diagnosis of the pulmonary condition is also recorded. The author says that to him it is a matter of conviction that the dry and atrophic condition of the nose and throat produced by our unhygienic system of heating is one important factor in laying the foundation for tuberculosis and that if we wish to treat the tuberculous rationally, we must begin with the upper air tract. If we eliminate this factor we shall find it easier in many cases to reach the deeper seated lesions. [C.A.O.]

2.—Mechanotherapy, Massage, Bone-setting, and Osteopathy.—J. M. Taylor calls attention to the fact that masseurs, bone-setters, and osteopaths with good mechanical abilities and shrewd observation, have often gained renown for their power to set bones, readjust structures, and restore elasticity to shrunken or stiffened tissues, thus relieving disabilities large or small, or pain, or both. He calls attention to the fact that by massage or bodily manipulations much good can be accomplished. It is not to be expected that the physician could devote the time required by some of the more laborious and continuous or routine procedures. He might not be endowed with the strength or dexterity for these, but for the more scientific part he should at least direct and supervise knowingly. He could and should make use of the more delicate manipulations which are of far greater value. He says it is a most promising field for research for the experimental physiologist, and especially for the neurologist. The sphere of manual therapy lies in the ability of medical practitioners to influence centers of organic activity by mechanical stimulation through the vasomotor nerves, whereby less or more blood can be sent to parts according to their need. [C.A.O.]

3.—Habitat of Tubercle Bacillus.—J. W. Kime believes that all tuberculosis, whether of man or beast, were originally of bovine origin, and that in the cow is found the natural habitat of the disease. He believes that the cow furnishes the type of soil and tissue best adapted to the production of virile tubercle bacilli; also that the more immediate the transference of tuberculosis from the cow to man, the more deadly it becomes and the more readily it may be transferred back to the cow again; while cultures many generations removed from the cow lose much in virulency, are comparatively innocent in their effects, and are with great difficulty carried back to the source from which they took their origin. [C.A.O.]

4.—Nasopharyngeal Fibromas.—The method of rapid extirpation of these tumors is as follows: Under chloroform anesthesia a high tracheotomy is performed and a tube inserted. With the patient in the Rose position, the head supported by an assistant, and a mouth-gag in place, the index and little finger of the left hand are introduced in the nasopharynx to ascertain carefully the outlines of the tumor and the position and extent of its base of implantation. This step in the operation is of great importance, for as soon as the size and point of origin of the pedicle are made out, the fingers are to serve as a guide for the operation of a pair of scissors introduced through the nose on the side where the pedicle is more accessible. The scissors to be used for this purpose are a strong pair with long handles and short blunt blades, slightly curved on the flat. The closed blades are introduced carefully along the septum until the point can be felt in the nasopharynx. The instrument is then guided by the fingers to the pedicle

and with the convexity of the blade uppermost the pedicle is divided. The tumor can then be removed through the mouth and the hemorrhage checked. In this manner the bulk of the growth at least can be removed, and if the hemorrhage has been copious, the patient should be allowed a few days to recuperate before being subjected to further operation for the complete removal of what may remain behind. The cases reported demonstrate the practicability of the method of extirpation by the bucconasal route alone, whether aided or not by the precautionary measures of tracheotomy and carotid ligation. [C.A.O.]

5.—Maxims for the Tuberculous.—The article by M. L. Stevens is made up of maxims which every tuberculous patient should know—principles that should be repeated until they are so fixed in his mind that he cannot forget them. He takes up first the subject of cough and expectoration, then exercise and rest, open air, diet, medicines, clothing, bathing, alcohol, tobacco, etc., and finally maintains that the patient's cooperation with his physician must be full, honest, and complete. [C.A.O.]

Medical News.

December 26, 1903. [Vol. 83, No. 26.]

1. Predispositions to Tuberculosis. JOHN B. HUBER.
2. The Indications for the Ligation of the Internal Jugular Vein in Lateral Sinus Thrombosis. SEYMOUR OPPENHEIMER.
3. Chorda Venerea. G. S. PETERKIN.
4. On the Reflex Eruptions of the Skin from Morbid Alterations in the Male Urethra. A. RAYOGLI.
5. The Treatment of Some Diseases of the Eye by Warm Medicated Sprays. DAVID T. MARSHALL.

1.—Predispositions to Tuberculosis.—J. B. Huber discusses hereditary, congenital, and postnatal predispositions. Hereditary tendency manifests itself in the scrofulous temperament, thoracic malformations, with defective development of the respiratory and circulatory systems, infantilism, etc. Functional modifications may be unaccompanied by anatomic stigmas, and give no hint of their existence until trauma or intoxication brings them to light. Tuberculous parents often impart a pernicious nutritive habit, making a fruitful soil for microbic growth. Congenital infection by Koch's bacillus undoubtedly exists. Bodily or psychic disorders in the parents, fatigue, convalescence after a serious disease, advanced age at the time of conception, causes accidental, or perhaps so slight as to escape notice, or such as may be transitional in the parents, may induce a vicious nutrition, making the organism receptive to infection. Tuberculosis at the beginning is purely local. The bacilli are not inhaled. The lung tissues are invaded through the alimentary canal and the bronchial glands. The frequency of the disease in the apex is due to immobility of the first rib in many persons, narrowed bronchial tubes, and pressure on the bronchi by inflamed glands. The anemia caused by exposure to cold means diminished resistance to the bacilli of the venous blood brought to the lungs from the thoracic duct before the blood is sent into the general circulation. Faulty metabolism plays an enormous part in predisposition. Alcohol stands in a causative relation, and also its accompaniments, unsanitary habits, poverty, bad food, and overwork. Insanity holds a subtle relation to it. Farmers are predisposed through their execrable diet, intermarriage, morphinism, constipation habit induced by cold outhouses, etc. Other diseases and certain trades predispose, also acute shock from trauma and chronic shock from nerve exhaustion. [H.M.]

2.—Ligation of the Internal Jugular Vein in Lateral Sinus Thrombosis.—S. Oppenheimer says that when there are the least evidences of septic changes in the walls of the vessel or the contained thrombus, with extension to the jugular, that vein should be ligated and the affected portion excised. The most difficult question to decide is that of preliminary ligation before exposing the sinus. The indications for the latter operation are septicemia or neuroretinitis. After exposure of the sinus, ligation of the jugular before further procedure with the sinus itself is dependent on one of two indications: 1. Disintegration of the lower portion of the clot as shown by aspiration. 2. The transmission of respiratory movements to the sinus. After the sinus has been opened, two conditions call for ligation of the vein: 1. Extension into it of a thrombus becoming

purulent. 2. A large firm thrombus filling the sinus and extending well into the vein. Personal experience of the writer indicates that the vein should be ligated whenever local symptoms indicating its involvement are present. [A.G.E.]

3.—**Chorda Venerea.**—G. S. Peterkin discusses the etiology, symptomatology, preventive and active treatment of this condition. In addition to the general management of the condition, he emphasizes a hygienic detail, the value of which is as yet only partly recognized by the profession. That detail is the massage of the prostate and seminal vesicles during acute gonorrhea. This is efficient in preventing erections, congestion of the parts is lessened, and a beneficial psychologic effect upon the patient is produced. It obviates the necessity of disordering the systemic condition with bromids, camphor, codein, etc. Involvement of the prostate will thus be early detected. The technic of the procedure is given, the main points being thorough irrigation of the anterior urethra, followed by filling the bladder with solution, this being retained during massage and aiding manipulation, as well as preventing involvement of the posterior urethra. [A.G.E.]

4.—**Reflex Eruptions of the Skin from Urethral Disease.**—A. Ravogli says that these eruptions may be reduced to two, herpes and pruritus. An important question is whether the excoriations resulting from herpes may favor venereal infection. In all cases of herpes progenitalis Ravogli has found a chronic posterior urethritis. The presence of mucus in this condition is believed to cause irritation of the filaments of the internal pudendi and thus produce herpes. In the same way the cause of pruritus must be looked for in the condition of the urethra. Treatment must be applied to the urethra and perhaps the prostate as well as locally to the eruption. Ichthyol has given the best results in the latter condition. [A.G.E.]

5.—**Treatment of the Eye by Warm Sprays.**—D. T. Marshall uses a steam atomizer, with the patient seated close in front, looking directly into the tube while the lower lid is pulled down. After spraying, applications may be made. Cases of marginal blepharitis heal with surprising rapidity after spraying, followed by yellow oxid or other ointment. It is difficult to get such patients to remove the crusts from their lids. It is indicated in all diseases of the conjunctiva, in corneal ulcer infiltration and interstitial keratitis, and in iritis. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Erythromelalgia and Raynaud's Disease.—As all our readers know, the declining years of the past century added to our previous overstock of interesting, although approximately unmanageable diseases, two curiously contrasted ones of comparatively rare occurrence. We allude to *erythromelalgia* and *Raynaud's disease*. The former, which is by far the more uncommon, owes its birth and baptism into clinical and scientific history to Dr. Weir Mitchell, who in his original description informs his readers that: "Erythromelalgia is a chronic disease, in which a part or parts of the body, usually one or more extremities, suffer with pain, flushing, and local fever, made far worse if the parts hang down." The less rare condition of Raynaud's disease is one in which the extremities present *asymmetric* display of evidences of profound vascular and nutritional derangement, in which pallor, congestion with lividity, and local gangrene are the characteristic features—in effect, "a local syncope, a local asphyxia, or a local death." Dr. Skirving, of New South Wales, recently exhibited to his medical society a case of this latter condition, in a miner, aged 36. The patient was of distinctly neurotic temperament, and had lived a life of physical hardship and exposure; but had no specific history, and presented no discoverable organic lesion. He attributed his condition to the fact that he had "worked in wet claims." Eighteen months before, he began to notice that at times both his feet "went dead." They

became pale, sodden-looking, and cold to the touch. At the same time, tactile, painful, and thermal sensations were equally blunted. There was never any dissociation of sensibility, such as is met with in some cases of other neurotrophic lesions, of which syringomyelia is a notable example. There had never been much pain, seldom any cyanotic lividity, and never any approach to actual gangrene. A patient suffering from erythromelalgia was simultaneously exhibited for the purpose of demonstrating and emphasizing the contrast. The patient, also a male, was 40 years old. He was also of neurotic temperament; was perfectly temperate in his habits, and had no specific history. His physical trouble commenced about 6 months before—after a long period of worry and physical overexertion. He first noticed pain and throbbing in the left fingers; then uncomfortable sensations developed themselves by degrees in the hands of both sides. Tactile sensibility appeared somewhat heightened; the other sensations had continued normal. The fingers had grown red and hot; at the time of exhibition they were "somewhat swollen," and they "show at times a tense, rosy glossiness." All the conditions and feelings are intensified when the hand hangs down. Stress was laid on the fact that no stage of pallor had preceded the development of the heated and flushed condition of the left digits. There was some loss of muscular power, and there was diminished response to both forms of the electric current, and more especially to the faradic. When the affected fingers develop their full tint of rosy redness, they proceed to sweat profusely. The symptoms are least troublesome in the morning, and increase markedly toward night. Those two cases of rare and but recently recognized disease are indeed curiously contrasted. The symmetry of the one and the asymmetry of the other are almost as definitely opposed as the vasoconstriction of the former and the vasodilatation of the latter. With regard to the primal etiology of the respective conditions, it is probable that in the case of Raynaud's disease, the view first propounded by the discoverer still holds its own, viz., that the vasomotor centers are unduly irritable, and that the causal stimulus is usually peripheral—such as the application of cold, and the efferent impulses reflected back from the neural centers lead to paroxysmal contraction of the arterioles. In the case of erythromelalgia, the nearest approach to a satisfactory explanation of the conditions which present themselves—although by no means a satisfactory one—is offered by the suggestion of the existence of a peripheral neuritis which affects the vasomotor fibers only.

REVIEW OF LITERATURE

Lathyrism.—This is a disease that has been noted, especially in India, as being due to poisoning with various kinds of the family *Papilionaceæ lathyrus*, or common pulse. A. G. Hendley¹ has had the opportunity of studying this disease. It comes on suddenly with stiffness, weakness, and heaviness in the legs, constituting a sort of spastic paralysis. The weakness rapidly progresses, until progression becomes difficult or impossible. No other parts of the body are affected, and the patient feels perfectly well otherwise. The gait is of a peculiar, spastic character, termed by the author a "paralytic goose-step." There is no wasting, loss of muscular tone, or loss of sensation. The tendon reflexes are much exaggerated. Investigation has shown that only certain kinds of lathyrus are poisonous, and that the poison is probably contained in the skin or husk of the seed. Exposure to severe wet and cold seems to be required to precipitate an attack. No typical pathologic condition is found after death. The disease does not seem to cause death directly, but the paralysis is incurable. [B.K.]

Distribution of the Nitrogen in Urine in Pathologic Conditions.—M. Halpern² finds a diminution in the percentage of

¹ British Med. Jour., September 28, 1903, p. 707.

² Zeit. für klin. Med., Bd. I, p. 355.

urea nitrogen in cases of nephritis, carcinoma and inanition. This diminution, however, is not constant. Replacing this diminished quantity of urea there is an increase of the ammonia and extractives. There is no relation between the nitrogen of the urea and that of the so-called amido acids. The distribution of nitrogenous bodies in the urine was normal in cases of lymphatic anemia, severe essential anemia, splenic anemia, pulmonary tuberculosis, and gallstone disease. [B.K.]

The Shiga Bacillus and Dysentery.—The etiology of dysentery is still an unsettled question. There are undoubtedly 2 varieties of the disease—one caused by amebas and another due to bacterial agents. Since Shiga has demonstrated his bacillus in the dysenteric epidemics of Japan, others have succeeded in finding the same organism in European countries. Moreover, Shiga has been anticipated by Chantemesse and Widal, who 10 years before him discovered the same bacillus. G. N. Kasarinoff¹ has made a series of experiments on guinea-pigs and rabbits. He succeeded in producing artificial dysentery in these animals, and concludes that the bacillus described by Shiga in 1898 (though known for several years before this date) is the etiologic factor in the dysentery of moderate climates, while the same disease occurring in the tropics is due to amebas. [L.J.]

Bacteriologic Examination of the Blood in Scarlet Fever.—The investigations of G. Jochmann,² show that in 15.5% of his cases streptococci were found in the blood during life. They were never found at the height of the exanthem or in the first 2 days. The symptoms were no different in those showing streptococci than in those not showing them. The organisms were never found during life in foudroyant cases, but those in which they were found almost always ended fatally. The number of streptococci found in the blood during life is small compared to that found after death. Excluding those that died from scarlatinal nephritis, about one-half of the fatal cases showed organisms in the blood shortly before death. Of 70 cases examined postmortem, the results were negative in 16. As the organisms are much more likely to flourish in the dead body than in the living, these results show that the presence of streptococci in the blood is not a necessary factor in the picture of scarlatina. Cases were found in which all internal organs were sterile, but in which streptococci were found in and around the tonsils; and in a few cases the organisms could not even be demonstrated in these portals of infection. Hence, the author concludes that streptococci may play an important part in the disease, but that they cannot be positively assumed to be the cause of the disease. [B.K.]

The Frequency of Joint Affections in Hereditary Syphilis.—E. Hippel³ has found joint affections in hereditary syphilis frequent, especially in cases which during their first years were insufficiently treated with antiluetic remedies. Individuals with parenchymatous keratitis usually belong to this class. Of 77 such patients, 56% presented joint lesions; in most of them the ocular and joint diseases existed either simultaneously, or the arthritis preceded the ocular disease. The knee-joint was oftenest the seat of the disease, and in nearly all cases both joints were the seat of a serous effusion of long standing. As the lesion usually occurs between the fifth and twentieth year, and is often unassociated with other signs of syphilis, the diagnosis may be almost impossible. Subjective symptoms are very rare. A positive diagnosis can always be made with antiluetic treatment, which produces a cure in most every instance. [E.L.]

Influence of Infectious Diseases on Leukemia.—W. Neutra⁴ reports 2 cases of lymphatic leukemia, in both of which a streptococcal infection caused a fall of the leukocytes to normal or even below. The author collects 19 other cases from the literature. Malignant neoplasms are regarded by some as being of infectious nature, and the author has found a case in which a tumor had a similar influence on the course of leukemia. The intercurrent infection is almost always one which would produce leukocytosis in an otherwise healthy person. No other disease has been known to influence the

leukemic process. Various substances have been known to influence the leukocytosis of leukemia, such as quinin, cinchonic acid, tuberculin, etc. The probabilities are, however, that the fundamental cause of leukemia has not been affected, the diminution in leukocytes being merely symptomatic. The theories as to the nature of this influence are various. The author believes the most probable to be one of leukolysis. This is supported by the demonstration of increased uric acid excretion at the time of the diminution in leukocytes, and also by the occurrence of finely granular masses in the blood. [B.K.]

Tardy Hereditary Syphilis.—Jordan¹ publishes the details of 2 cases of hereditary syphilis: 1. An officer with an effusion into both knee-joints, which had been treated unsuccessfully for a long while; it yielded to mixed treatment. Other reasons for considering the condition syphilitic were the simultaneous appearance of the affection in both joints, the absence of pain, the slight disturbance of function and the failure of all usual methods. 2. A boy of 5 with effusion into both knee-joints and parenchymatous keratitis; no other symptoms existed, nor could a history of syphilis be obtained. Mercurial inunctions produced a cure. Jordan advises in all cases of bilateral knee affections which have not yielded to ordinary treatment, the institution of antiluetic procedures which must be carried through energetically. [E.L.]

Blood and Urine in Bilharzia Disease.—S. R. Douglas and F. W. Hardy² give a brief review of the symptoms and other characteristics of Bilharzia disease. In the blood they find a considerable increase in the percentage of eosinophiles, and a proportional diminution in the number of polymorphonuclear leukocytes. A large proportion of eosinophiles was also found in the urinary sediment. [B.K.]

Spinal Puncture in Uremia.—D. C. McVail³ reports in abstract 2 cases of uremic convulsions with coma, in which the symptoms were relieved by spinal puncture, the cerebrospinal fluid being allowed to drain away. The author believes that these cases prove that the convulsions and coma are due to sudden increase of intracranial pressure, and not to uremic poisoning of the nerve centers. He therefore recommends spinal puncture as a therapeutic measure in such cases. [B.K.]

Primary Tuberculosis of the Tonsil.—Emil Glas⁴ reported 2 cases of primary tuberculosis of the tonsils. In one case there was a milary tuberculosis of the tonsils which produced, by continuity as well as through the lymph and blood channels, an infection of the other organs. In all 3 cases the tonsils were hypertrophied. In 1 case milary foci appeared in the tonsils and velum. Tuberculosis of the lymph-glands was associated with tuberculosis of the tonsils in 2 cases, and in one retropharyngeal abscess was observed. Bacilli were found in all cases, and in 2 cases, masses of tubercle bacilli were found. In 1 case, beside a unilateral tonsillar disease, there was a tuberculous infiltration of the corresponding vocal cord, which was probably secondary. Histologically (a) the chronic nonulcerative form, and (b) the milary type were represented. [J.H.W.R.]

Vaccination in Cuba, under Centralized Direction.—V. de la Guardia⁵ recalls the epidemic of variola in Havana of 1887 and 1888, when 2,255 deaths occurred among 20,000 cases. At the present time there is no case in the whole island. Successful vaccination, to the number of 300,000 have been attended to by the central bureau of vaccinations, and there is yet to hear of an instance of injury resulting from them. Special circulars have been drawn up addressed to "fathers of families." These, with a pamphlet, or set of sheets, explaining the value of vaccination done in youth, and at regular intervals thereafter, are freely distributed throughout the Republic. Glycerinated, animal lymph is employed by preference, and given without charge to any responsible person making request. No failures to "take" are reported in first instances. Conditions in other countries are cited, especially those of England and Germany, where compulsory vaccination is required. [T.H.E.]

¹ Russki Vrach, October 11, 1903.

² Deut. Archiv f. klin. Med., Bd. lxxviii, p. 211.

³ Münchener medizinische Wochenschrift, No. 31, 1903.

⁴ Zeit. f. Heilkunde, Bd. xxiv, Heft 11; Abth. f. Int. Med., Heft 4.

¹ Münchener medizinische Wochenschrift, No. 31, 1903.

² Lancet, October 10, 1903, p. 1009.

³ British Medical Journal, October 24, 1903.

⁴ Wiener klin. Wochenschrift 1903, No. 36.

⁵ Revista de Medicina y Cirugia, Havana, October 10, 1903.

GENERAL SURGERY

A. B. CRAIG MARTIN B. TINKER
C. A. ORR

EDITORIAL COMMENT

Epidural Injections.—In connection with the subject of the subarachnoid injection of cocain as a means of causing anesthesia, we recently took occasion to point out that the dangers of this method are sufficient to condemn it in the minds of cautious people, or of those, at least, who have not a strong craving for scenic effect. But there is a similar operation, sprung directly from the first, which is thought to be tolerably free from objectionable features, and indeed to have some distinct advantages. By its originator, Professor Cathelin, of Paris, it is called the epidural injection, the solution of cocain being placed exterior to the dura mater or around it.¹ Thus the injection might be better called peridural. The point for its introduction is in the median line of the sacrum just above the level of the sacrococcygeal ligament. As the spot is obviously not easy to find, a specialist gives us minute directions in this particular: The crest of the coccyx is followed till we reach the level of the sacrococcygeal ligament aforesaid; then "continuing the course upward we suddenly feel a hard, osseous protuberance, formed by the terminal portion of the crest of the coccyx below which the needle is to be inserted." The needle is first inserted on a line perpendicular to the integument, then on reaching the sacrococcygeal ligament, its direction is changed to a parallel with the sacral canal; the point of injection is attained when the resistance of the ligament is passed. All this requires considerable skill. The patient should be placed on the left side, with the thighs drawn up upon the abdomen to bring into view the bony protuberances. A preliminary injection of cocain is given to render less painful the complete insertion of the needle. Nevertheless the anatomic difficulties are formidable. If it were not for the evident practical difficulties, this operation would be a commendable innovation in the cases for which it is specially designed, *e. g.*, in sciatica, multiple neuritis, the pains of rheumatism and of tabes, etc. Giving all due importance to these difficulties of awkwardness and delay, it must be admitted the anesthesia produced is eminently satisfactory, since the solution of cocain comes in immediate contact both with the anterior and posterior roots of the sacral nerves, inducing as a secondary effect a state of insensibility, or diminished sensibility, in the extension of those nerves, and consequently a condition of painlessness throughout the lower extremities. A result thus obtained without any symptoms of meningitis or cocainism is certainly worthy of some degree of attention, if not approbation, from the medical profession. But it must be noted that the sensibility of the skin is little, if at all, impaired, and, that for purposes of major surgery, this kind of anesthesia is not sufficiently profound. On the other hand, its prolonged duration, which seems well established by the evidence, should make it a remedy of distinct advantage in that tedious and troublesome malady, sciatica, and possibly in other painful affections of the lower segment of the body. For procuring a painless "accouchement"—the dream of French surgeons—its claims must seem somewhat preposterous, as it is in itself a complicated and painful proceeding.

REVIEW OF LITERATURE

Excision of the Scapula for Progressive Chronic Interstitial Myositis, Associated with Obliterating Endarteritis.—W. B. Hopkins² reports the case. A colored boy 8 years of age, 2 months before admission to the hospital had fallen on his left shoulder. An abscess followed the con-

tusion, and pointed near the summit of the shoulder. It reopened a few days after healing and a sinus persisted which discharged freely and communicated with what appeared to be a carious scapula. A month later a mass of almost bony hardness began to develop over the body of the scapula and a skiagraph taken at that time indicated that the mass was in part at least composed of bone. Four months later, the mass having continued to grow, the child was etherized and the scapula excised. Preparatory to the excision an exploratory incision was made, a fragment of the mass removed and the histologic examination of the frozen section led to the conclusion that the growth was sarcoma. Operation was done after the method of Ollier. All of the tissues overlying the bone, except the integument, being removed. The only detail of the procedure that may be mentioned, was the easy arrest of hemorrhage obtained by getting perfect control of the bone with heavy lion-jaw forceps. The child made an uneventful recovery, there being moderate suppuration for a time and the wound closed permanently. An examination of the growth subsequently made, proved that it was not sarcoma but a progressive chronic interstitial myositis associated with obliterating endarteritis. An extensive bibliography is appended to the report. [A.B.C.]

Surgical Treatment of Diseases of the Stomach.—A. VanderVeer,¹ from the study of a number and variety of operations upon the stomach, reaches the following conclusions: 1. Gastroenterostomy can be applied to all kinds and conditions of stenosis at the pyloric end of the stomach. 2. In many cases it is an operation preferable to that of resection of the stomach, the immediate mortality being less and the possibility of extension of life being quite as great, with as much comfort. 3. Next to gastroenterostomy the most reasonable and satisfactory operation is gastrectomy, but this procedure must necessarily be limited to a few cases. When it is done, great attention should be paid to the removal of the lymphatic glands as in this rests much of the permanent success of the operation and nonreturn of the malignant growth. [A.G.E.]

I. Tubage of the Pharynx for Facilitating Anesthesia and Preventing the Inhalation of Blood in Operations on the Mouth and Face. II. Hot-water Bed for the Operating Table.—George W. Crile² states that 2 difficulties are encountered in operations about the mouth and face—the prevention of the inhalation of blood, and the even administration of the anesthetic. He has practised the following plan with success. The patient is completely anesthetized, the pharynx is then cocaineized, 2 drainage-tubes as large as possible are passed through the nares to the level of the epiglottis. The tubes are then severed at an equal distance from the nose. The mouth is well opened and the tongue drawn out, and the entire pharynx is then packed with rather large pieces of gauze. If thoroughly done, the base of the tongue is carried well forward and an air chamber, with which the rubber tubes and pharynx communicate, is thereby formed, the anesthetic is administered entirely away from the field of operation. Patient may be placed in any position desired without interfering with the anesthetic, and all blood prevented from passing backward in the pharynx and gaining access to the air passages. It is particularly adapted for operations of cleft palate and any other operations about the nose, face, and mouth. The author, in the same article, describes a hot-water bed which he has devised for the operating table, to prevent undue exposure to cold on the part of the patient. It is so arranged that it may be directly connected with the hot-water faucet, and the water allowed to flow through at any temperature desired. He has found, however, that one thorough heating of the table with the hot-water bed left in position, will answer for any ordinary operation. [A.B.C.]

Pathology and Treatment of Prostatic Obstruction.—W. B. Clarke³ recounts 33 operations for the removal of the hypertrophied prostate. He again raises the question as to whether in the so-called extirpation of the prostate the entire gland is removed. He believes that in certain instances he has removed the entire organ. He was convinced of this, because after having shelled out the enlarged mass by the suprapubic

¹ E. Marquès: Injections épidurales de cocaïne, Bull. de la Soc. Sc. et Méd. de l'ouest, t. xii, No. 1.

² Annals of Surgery, June, 1903.

¹ Albany Medical Annals, October, 1903.

² Annals of Surgery, June, 1903.

³ British Medical Journal, July 4, 1903.

route, he found he could get his finger down as far as the triangular ligament and no trace of prostatic tissue could be detected, and further when the patient was restored to health a digital rectal examination failed to discover any remains of the organ. He details at some length his 33 cases, and says there are 2 main propositions to which he directs attention. The first of these is in relation to the varieties of prostatic obstruction, and the second is about the indications to be laid down for operative procedures. With the reduced mortality there is no reason why the operation should not be more general. In his 33 cases he lost but 3, or a mortality of 9% from the operation, and these were among his earlier cases. He believes the mortality will be still further reduced; if so, there is no reason why the condition known as catheter life should not in the main disappear. To some it is only an inconvenience, but these are few compared with the number who would gladly return to the more youthful habits of micturition, even could it be done as the result of an operation. [A.B.C.]

Primary Typhoidal Perforation of the Gallbladder.—J. F. Erdmann¹ reports the case of a woman of 46. The author states that primary in the sense here used has reference to cases in which it is positively demonstrable that the ulceration and perforation began within the gallbladder. She passed through a typhoid prodrome, which was followed by a 5 weeks' course of unquestionable typhoid fever. On the second day of the sixth week she was allowed to sit up in bed. On the night following she was seized with severe pain in the abdomen, pulse rose to 120, respiration became rapid, and the temperature 102°. There was some abdominal distention, tenderness, and the general symptoms of perforation. Exploration was done by a median incision through the right rectus. Fully a pint of bile-stained fluid was sponged out of the abdominal cavity and the intestine thoroughly inspected. When the gallbladder was exposed there was found an opening, irregularly circular, $\frac{3}{4}$ cm. ($\frac{1}{2}$ in.) in diameter. This was in the lower and inner aspect of the viscus near the cystic duct. There were no inflammatory manifestations on the external aspect of the gallbladder. Cholecystectomy was done, and the abdominal wall closed with drainage. A perfect recovery was recorded within 3 weeks. Upon opening the gallbladder 2 very small stones were found, the mucous membrane presented numerous small ulcerations. The opening passed obliquely through the gallbladder wall and gave a reverse picture of the funnel-shaped perforating ulcer usually seen. Cultures taken showed colon and typhoid bacilli. The author was able to find in literature 33 other cases of perforation of the gallbladder. He states there can be no question as to the wisdom of operative procedure in such cases. Of the 7 cases operated upon, 4 recovered, while in 27 cases not operated upon all died. The treatment in perforation of the gallbladder may be summed up in one word—cholecystectomy. [A.B.C.]

Desirability of Operating for Chronic Pancreatitis.—W. Hale White² says chronic pancreatitis with enlargement may arise from longstanding venous congestion, such as we see in nutmeg liver and in the large, tough kidney associated with cardiac disease; from alcoholic drinks, according to Kippel, Lefas, and Opie; from obstruction to the ducts of the organ, which may arise from pancreatic or biliary calculi or a tumor; rarely from tuberculosis and syphilis. None of these, at least so far as pertains to the pancreas, can be diagnosed with any degree of certainty. There is a form of chronic pancreatitis associated with jaundice, concerning the diagnosis of which we are not so completely at sea. It may possibly owe its existence to previous gallstones, but it is now generally believed to arise from an infection and inflammation extending by way of the ducts, to the pancreas; or it may, in certain cases, be due to a local peritonitis over the head of the pancreas. Robson and Moynihan mention the symptoms briefly, as deep jaundice, pain, tenderness, vomiting, and wasting; and the same authorities state that chronic pancreatitis must be treated by drainage of the gallbladder. White does not wholly agree to this method of treatment, and mentions a case which completely recovered after mere laparotomy. He believes the condition must be very rarely fatal, even without operation. [A.B.C.]

¹ Annals of Surgery, June, 1903.

² British Medical Journal, July 18, 1903.

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

EDITORIAL COMMENT

The Influence of Growth on Late Hereditary Syphilis.—Leaving aside the influence exercised by growth on syphilitic infection and on hereditary syphilis appearing shortly after birth, we would consider particularly a certain form of the disease, whose study is most delicate and difficult, while its evolution is intimately related to growth; we refer to late hereditary syphilis.

The influence of late hereditary syphilis consists in these singular delays, or arrests of physical development. The subjects, who are hereditary syphilitics, are oftentimes remarkable from the fact that all the acts of organic evolution and of growth appear in them to be accomplished slowly and with difficulty, often remaining incomplete. They grow slowly and only develop insufficiently, remaining more or less inferior to the normal standard. In them virility is slow in becoming accentuated, the testicles remaining small for a long time; menstruation only appears at about the age of 17 or later, so that by the exiguous condition of their build, by the general delay occurring in their development, sometimes also by their stunted growth, the subjects in question deceive us as to their age.

Thus Fournier expresses himself on this subject, and it seems impossible to better or more concisely depict the reciprocal influence of growth and syphilis. Considered in its relation to nutrition in general, the part played by syphilis becomes preponderant in the hierarchy of causes modifying the individual and his descendants. Syphilis has a very powerful action on the organism, not only in producing denutrition, but it is also capable of causing an arrest in the development, a dystrophy, in other words, a complete degeneracy of the individual, as well as a degeneration of his race. And still more, syphilis does not simply produce its proper lesions, but it also causes a general perturbation in the organism, and this influence frequently shows itself in the form of divers organic changes, which are in no manner specific. This is one proof more which tends to show that, beside the specific action, which may only be transitory, there is still another dependent upon this cause, but which has a more powerful and durable action, because it is quite capable of changing the temperament, and even the constitution, not merely of those whom it directly strikes, but also those who are derived from the former. This cause is essentially a change in the modality of nutrition, although it cannot be denied that the means which are at our disposal at the present time are insufficient to allow one to chemically qualify it, but clinically it possesses its individual anatomy, for it always makes itself known by the same manifestations. Thus from syphilis, we frequently meet with those varied constitutional conditions, derived from specific infection, such as anemia, asthenia, neurasthenia, and various neuroses. In other instances, syphilis is the undeniable source of various affections, having very different pictures, such as scrofula, lupus, tuberculosis, and rickets; it also produces divers dystrophies, malformations, and arrests in the general development of the individual. Although of utmost interest, it would require too long consideration were we to study each system and each organ attacked and influenced by syphilis and growth. The former has a very marked predilection, for the skeleton, and the osseous tissue receives the first favors of the disease. The tibia, more especially, is given the trade-mark of specific infection, and is, by all odds, the guiding stone of hereditary syphilis. The development and growth of this bone is completely abnormal, presenting hyperostoses and bosses on its surface while an apparent pseudorachitic curve takes place. When one takes into consideration the hereditary syphilitic lesions of the bones, one cannot help being struck by their resemblance to those observed in rickets. Parrot upheld that both diseases originated from the same cause, and he distinctly formulated his thought when he said that rickets was only a manner by which hereditary syphilis made its presence known

at about the second year of life. This doctrine has been attacked with violence and injustice, and although Fournier has not admitted Parrot's views, he believes that rickets is far more frequently met in subjects of hereditary syphilis, while Taylor and Cazin admit that syphilis produces rickets by causing a disturbance of the nutrition, but deny its specific action. From a fairly large number of personal cases we would unhesitatingly admit the intimate relationship between syphilis and rickets, according to the latter views, in that it produces a dyscrasic nativity which predisposes the subject to morbid processes, which result from an insufficient vitality. Growth is a tributary to syphilis in a large number of the latter's manifestations, but to enter into a detailed account would extend beyond the intended limits of this notice, and we have consequently limited ourselves to these few considerations of general pathology.

REVIEW OF LITERATURE

Gummatous Affection of the Female Urethra.—G. Löwenbach¹ details 28 cases of this affection. It is unusually chronic and refractory to treatment. It starts in the region of the urethral orifice in the form of an ulcer of variable size, with hard, infiltrated, circumscribed edges, and a smooth, shining base. Later the ulcer may become serpiginous and be surrounded by edematous tissue. This stage may be of long duration. A more or less permanent hypertrophy usually results, amounting often to a tumor of considerable size, or a condition of elephantiasis. The mucous membrane of the urethra may be involved in the ulcerative process, with resulting strictures. The process may extend to other parts of the genitalia. This gummatous affection is a late manifestation of syphilis, coming on usually about 5 to 7 years after the primary infection. Subjective symptoms are very slight. The histologic picture is that of gummatous new formation, syphilitic vascular disease, and consecutive ulceration or fibrous metamorphosis. This affection has frequently been described under other names, such as chronic or elephantastic ulcer, rodent ulcer, ulcerative elephantiasis, lupus of the vulva, etc. The author gives a complete review of this literature. [B.K.]

Occurrence of Typhoid During Pregnancy.—A noteworthy increase of enteric fever is recorded in Rome, especially among pregnant women. Pic Masetti² writes on the management of this complication, and reports an instance in which artificial abortion was indicated, after alarming rise of temperature, weakness and rapidity of pulse, and uncontrollable continued vomiting. He quotes from a recent contribution to this subject by Tito Gualdi.³ Observers agree that pregnancy is no bar to typhoid infection, but apparently may predispose to it. Rokitsansky and Niemeyer dissent; yet their views were expressed before collation of recent information. Until the present time little attention has been given to microorganismal infection of the fetus. However, it is known that the placenta is no effective bar. Chantemesse, Widal, and Eberth have discovered the specific bacilli in blood derived from a fetus taken from a typhoid patient. Transmission may be vascular, or may have origin in fecal or urinary discharge at the vaginal orifice and ascent of the germ through the genital tract to where the seclusion of the fetus gives but imperfect safety. Masetti unites with Gualdi in bearing testimony to the frequency of fetal infection. Death of the fetus may occur from simple elevation of maternal temperature, or from the specific fever. Doléris and Doré find this a source of premature uterine contraction. In addition, toxic materials circulating in the blood, especially if of typhoid origin, increase the danger of abortion and relatively darken the general prognosis. Abortion takes place most frequently during the second week of the fever, and occurs in about two-thirds of the cases. Its occurrence is not necessarily of unfavorable effect on the febrile attack. After an initial rise the temperature may break. Treatment of enteric fever complicated by pregnancy will follow accepted lines, even to the regular Brand procedure. The reduction of tem-

perature will lessen the danger of abortion, and the cold baths are of advantage in their effect on the nervous system. One constant danger of typhoid complication is the appearance of pernicious vomiting, as in the case above quoted. When abortion occurs, or is induced, extreme care must be taken to remove the entire fetal membranes. Abortion is a necessity if renal involvement supervenes, or in the event of very difficult nutrition of the patient, or the occurrence of pernicious vomiting to which the typhoid infection seems to predispose. Finally, the general opinion as to the frequency of typhoid infection of those pregnant is determined, but Niemeyer and Rokitsansky believe it due to the lowered lymphatic and vascular resistance, and especially a reduction in hemoglobin. [T.H.E.]

Maternal Pelvis and Fetus.—C. A. Lane,¹ of London, makes a clinical comparison of the maternal pelvis and of the pelvis in Europeans, Eurasians and Bengalis, gives 7 tables showing various comparative measurements of fetal heads, maternal pelvis, etc., and sums up his conclusions in the form of a law stated thus: "The child grows in utero in such a manner and at such a rate that at full term his size is proportional to that of the mother's pelvis through which he has to pass in order to be born." This hereditary influence appears to have a far greater share in determining the size of the child than any of the causes commonly recognized. [W.K.]

Tumefactions of the Climacteric Breast.—T. A. McGraw² says that for many years he advised his students to operate at once on all tumefactions of doubtful character in the breasts of women over 30. This advice was prompted by the many cases of neglected, and hence incurable, cancers brought to his notice. He has during later years become convinced that this teaching needs to be materially modified. His experience seems rather unusual, though none the less gratifying, as he states that of late years the experience of his earlier professional life has been so reversed that where formerly he mourned over lives lost from delay he is now more often obliged to dissent from the advice of physicians who send cases of benign conditions diagnosed as cancer. McGraw sees an evil in the too unfavorable diagnoses in doubtful cases in that the growth may be benign and the patient will be relieved by a quack who gets, or takes, the credit for curing a cancer. The use of the exploring needle in doubtful cases is believed to be far less frequent than it should be. Involution cysts usually disappear after puncture but McGraw has seen 1 or 2 cases which have been the forerunners of cancer. [A.G.E.]

Spontaneous Healing of a Vesicocervical Fistula.—Gallatin³ reports the case of a woman who had given birth to 7 children, the first delivery alone being normal; the other 6 were all dead—1 through craniotomy, 2 by perforation, the rest dying during forceps delivery. At the end of the eighth pregnancy the patient entered a hospital, hoping to have a living child. It was, however, found necessary to deliver the child with forceps, and it was asphyxiated with the navel cord wound twice around its neck. Resuscitation was found impossible. Subsequent examination of the patient proved the existence of a cervicovesical fistula which allowed the urine to pass out through the vagina. Severe hemorrhage prevented the suturing of the fistula at the time, and Gallatin had to be satisfied with an injection of ergotin followed by daily irrigation with boracic acid solution. In about 10 days the patient emptied the bladder normally, showing the spontaneous healing of the fistula. A subsequent pregnancy ended with uterine rupture, laparotomy, and final recovery. [W.K.]

The Present Position of Hysterectomy for Fibroids.—Skene Keith⁴ believes that the real reduction in the death-rate has been obtained by the systematic discarding of the clamp and serre-nœud, the extraperitoneal operation, and the adoption of the intraperitoneal treatment of the neck of the uterus or complete hysterectomy. His practice is at present rather in favor of leaving the cervix, perhaps because he has done it more frequently, and also because it appears to him to be more quickly and easily performed. The operation of election may come to

¹ Zeit. für Heilkunde, 1903, Bd. xxiv, Heft 1 and 4; Abth. f. Path., Heft 1 and 2.

² Il Policlinico, Rome, October 10, 1903.

³ Typhoid Fever in Rome, Rome, 1901.

¹ Lancet, October 26, 1903.

² Journal Michigan State Medical Society, July, 1903.

³ Zentralblatt für Gynäkologie, October 17, 1903.

⁴ American Gynecology, June, 1903.

be complete removal. In a patient of 50, the symptoms must be severe to justify hysterectomy. In the following cases hysterectomy ought to be the rule: In all fibrocysts, in all edematous tumors when accompanied by profuse watery discharge, in all large tumors causing symptoms, and when the patient is under 50. Even when a patient is over 50, it may be advisable to remove a tumor of 30 pounds or 40 pounds. In small tumors extending as high as the umbilicus or so, fibrocysts and edematous tumors excepted, as a general rule he advises Apostoli's treatment. [F.C.H.]

Operation for Cervical Myoma.—Gottschalk¹ describes with illustrations an operation for myoma of the cervix. The operation avoids all danger of injury to the ureters or much loss of blood. Because of the maximum inversion of the external coat of the mucous membrane and the exact suturing of the incision in the collum, the raw surface is reduced to small proportions, and through the firm internal and external tamponade of the uterus is brought to the minimum. Thus the danger of infection is lessened. The mucous membrane of the uterine cavity remains untouched and not only the body, but also the neck, of the uterus retains its functions. Since the operator does not come in contact with the bed of the tumor its asepsis is assured. [W.K.]

The Treatment of Uterine Fibroids.—A. H. G. Doran² discusses at some length the present position of our knowledge regarding the above question. He holds that a fibroid demands no immediate treatment when its sole symptom is its own existence, but the most quiescent fibroid requires watching. The physician must be very wary about the opinions of others, however authoritative they may seem. The experienced physician and the successful operator are never wholly free from bias, and hence tend to oppose each other. The surgeon rightly urges that the patient who has submitted to operation feels free from the burden of mental worry caused by the presence of a tumor. This burden is no fiction, but a successful operation means more than the restoration of mental comfort to the patient. The impossibility of calculating the future growth of a fibroid is put too much in the background by the advocates of hysterectomy. The gravest possibility from this operation is the advent of psychic disturbance. When a fibroid uterus is to be removed, the retroperitoneal variety of supravaginal hysterectomy is the best and simplest operation. Doran finds that the saving of a portion of the endometrium, that is to say, amputation above the level of the os internum, distinctly, though not very markedly influences in a favorable sense the catamenial functions. It is better to leave one ovary if it be healthy, but the advantages of conservative treatment of the ovaries has been exaggerated. [A.G.E.]

The Risks of Allowing Lactation and Pregnancy to Overlap.—H. M. Church³ has noted this overlapping in 3% of his private cases. Were a systematic investigation made, he believes it would be found that the suckling was or became a delicate child, that at some stage of his development he suffered from some affection of the nervous system, and that he was the mentally weak one of the family; that during lactation the embryo was prematurely expelled, or if it reached full time, that it in many cases did so with lowered vitality; and that the mother's health was generally undermined for a longer or shorter time. Cases in which the nursing suddenly and unaccountably declines the breast probably are those in which the mother has again conceived. Menstruation may have a similar but less marked effect. The lowering of the mother's health is the explanation of many a bad case of rickets, dwarfed stature, and bad teeth. The primitive dental groove forms about the sixth week of intrauterine life. Marked changes in the osseous and dental systems in the lower animals have followed simple change of diet in the mother during pregnancy. According to Daris, the milk in pregnancy assumes the nature of colostrum. In choosing a wet-nurse, one should be selected whose child is about the same age as the suckling with which she is to be entrusted, as from month to month the sugar steadily increases and the butter decreases. The author reports 9 cases illustrating the risks of the double drain. [H.M.]

TREATMENT

SOLOMON SOLIS COHEN
H. C. WOOD, JR. L. F. APPLEMAN

REVIEW OF LITERATURE

Another Salicylic Preparation.—Pfeiffer¹ reports favorable results with a new salicylic ester intended for external use, known as esterdermasan, its chemic composition not being clearly stated. He has found it of value as an anodyne in many painful conditions, including various forms of rheumatism, tabes dorsalis, arthritis deformans, etc. It is used in the following manner: 5 gm. to 10 gm. (1 dr. to 2 dr.) are painted on the affected region and covered with a dressing which is not fat absorbing. He believes that the local application is useful because of its stimulant effect on the skin and because it causes the action of the salicylate directly at the needed point. [H.C.W.]

The Results of Organotherapy in Addison's Disease.—E. W. Adams² tabulates the results in 105 cases of Addison's disease treated by organotherapy. The cases have been arranged in 4 groups: 1. Cases in which alarming or fatal results were presumably or possibly due to the treatment—7. 2. Cases uninfluenced by, or deriving but doubtful benefit from the organotherapy—49. 3. Cases in which marked improvement was coincident with treatment—33. 4. Cases in which permanent benefit (? cures) accrued apparently as a result of the suprarenal feeding—16. Tables are also given to show the progress of a number of the cases during the several methods of treatment, and the coincident progress of cardinal symptoms during the treatment. A table also gives the postmortem findings in the adrenals from 17 cases, in relation with the previous reaction of the disease to organotherapy. From a study of these cases Adams draws the following deductions: 1. There appears to be a certain class of cases of Addison's disease which derives indubitable benefit from the exhibition of some form of suprarenal substance, though in any given case it remains impossible to determine the probable response to the treatment. 2. In any given case of the disease, selected haphazard, the probability obtains that disappointment will follow the institution of organotherapy but that probability is very distinctly less than that attaching to any alternative method of treatment at present known. 3. The last word upon the preparation to be used and its method of administration remains to be said. The problem seems to be to get a sufficient and continuous dose of the pure and active principle unchanged into the blood stream. Intravenous injection is impracticable. [A.G.E.]

Empyroform.—Empyroform is a condensation product from tar and formaldehyd, occurring as a brown, nonhygroscopic powder with a peculiar odor, somewhat reminding one of tar. It is insoluble in water, but soluble in caustic alkalies and chloroform; on heating it liberates formaldehyd. Skarlek³ has found it useful in eczema. It lessens the itching, has marked drying properties, and is nonirritant. Unlike tar, it is useful also in the acute stages of eczema. He employs the following prescription:

Empyroform	} of each 25 gm. (6 dr.)
Starch	
Purified petrolatum	. . . . . 50 gm. (12 dr.)

In psoriasis or prurigo, it exercises no beneficial effect. [H.C.W.]

The Temperature of Nurslings.—In considering the superiority of breast-feeding over artificial feeding, M. Weill⁴ calls attention to the fact that in infants nourished from the breast the temperature remains at 98.6° F., without oscillation. On the contrary, in infants fed on cows' milk the temperature curve shows variations of .3° or .4° between morning and evening, the evening temperature being the higher. When the child is fed on asses' milk the temperature varies to a lesser degree. When a child who has been nourished on the breast is given feculents or asses' milk, the temperature oscillates slightly. This demonstrates that the nutritive changes are perfect in a child nourished at the breast, and defective in children nourished artificially. [L.F.A.]

¹ Ther. Gegenwart, 1903, v. 284.

² The Practitioner, October, 1903.

³ Therapeutische Monatshefte, 1903, xvii, 419.

⁴ Journal des Praticiens, Vol. xvii, No. 43, 1903, p. 680.

¹ Deutsche medicinische Wochenschrift, October 22, 1903.

² The Practitioner, November, 1903.

³ Edinburgh Medical Journal, September, 1903.

Citarin.¹—Citarin is a new formaldehyd preparation formed by the action of formaldehyd on sodium citrate. It is recommended as a uric acid solvent. The dose is 2 gm. (30 gr.) 3 or 4 times a day. [H.C.W.]

The Nature and Treatment of Hay-fever.—Dunbar has isolated a toxin from the pollen of the graminaceae, which he recognized as the cause of hay-fever. It is an albuminoid contained in the innermost part of the starch grain of the pollen. The pollen is dissolved with ether, and the toxin precipitated with alcohol. When injected into the arm of an individual predisposed to the disease even in winter time, the typical symptom-complex of hay-fever was produced, while others not predisposed were not affected. A. Thost² injected the toxin into animals, producing a serum in the usual manner, which acted as an antidote to the poison; when a mixture of the two was injected into ordinarily susceptible people no symptoms were produced. The serum also acted as an immediate curative agent in people affected with the symptoms brought on by the prepared toxin. It will be employed at the earliest opportunity in cases of true hay-fever. In the meantime it will serve to differentiate true and false hay-fever. [E.L.] [Since this abstract was prepared, experience has shown Dunbar's serum to have a limited and uncertain value in controlling and relieving various forms of hay fever, but the method merits development. S.S.C.]

Treatment of Osteitis Deformans and Osteoarthritis.—Peckham³ has had very surprising results in the treatment of this disease by blistering around the diseased joints. He reports 5 patients almost cured by the treatment. [H.C.W.]

Method of Removing Collargol Spots.—H. Robert⁴ gives the following means of removing collargol spots from white cloth: First dip the stained cloth in the following solution until the spot disappears:

Bromin	5 gm. (80 grs.)
Water	500 gm. (1 pint)

The cloth should then be rinsed in pure water. After this procedure, the black spot is often replaced by one of pale yellowish-green color, due to the formation of silver bromid. In order to make this second spot disappear, it is necessary to dip it in a solution of:

Sodium hyposulfite	150 gm. (5 oz.)
Water	500 cc. (1 pint)

This dissolves the silver bromid, and the cloth is then rinsed in pure water. [L.F.A.]

Intravenous Injection of Colloidal Silver in Puerperal Septicemia.—Rosenstein⁵ has had good results with the use of soluble metallic silver (collargol) by its intravenous administration. This medicament was originally recommended by Credé in the form of an ointment, the idea being that the silver would be absorbed through the skin and exercise an antiseptic action. It has been abundantly shown that colloidal silver as ordinarily employed in septicemia cannot do good through its antiseptic influence, since it has practically none. Rosenstein points out that good results in various forms of septic infections have been obtained both in human and veterinary medicine by the use of this remedy. He believes that its intravenous injection is the more rational mode of administration, since the ointment must be absorbed through the skin slowly and in uncertain quantities, and since the hypodermic use is too painful for ordinary application. He injects by means of a special syringe, 5 gm. (75 gr.) of colloidal silver in 2% solution in a vein of the arm. [H.C.W.]

Antistreptococcal Serum and Its Use in Man.—Menzer's⁶ experiments lead to the following conclusions: 1. As in animals, so in man, the antistreptococcal serum acts by producing phagocytosis; therefore, the human organism must do the major part of the work in the fight with streptococci. If the organism is too weak, the employment of the serum is useless. 2. The organism must destroy the bacteria and absorb them, as well as the destroyed cells. In encapsulated pus collections the

serum is counterindicated without surgical assistance; it increases the absorption of pus toxins. 3. In acute streptococemia it is very useful, if given in large doses; in chronic streptococemia if given in doses suitable to the individual case. 4. Only such serums are useful in human streptococcemias, which have been derived from human streptococci. 5. The curative effect on man cannot be proved by trying the serum on animals. Its action on man is the only criterion. [E.L.]

Poisoning Due to the Chemic Decomposition of Bromoform.—A. L. Oberdorfer¹ relates the history of a child of 4½ years, who was under treatment for pertussis. Five drops of bromoform had been given 3 times daily for a week, and the order repeated for the second week. On the second day of that week, just after a dose of the bromoform, the child rather suddenly became comatose with rapid and feeble pulse and stertorous breathing. The breath smelled of bromin, and an attempt was made to wash out the stomach. The introduction of the tube was followed by such failure of the pulse and cyanosis that it had to be abandoned. Symptoms, especially cyanosis, were alarming at times, but consciousness began 15 hours after the attack. In a few days the child was in its usual health. Examination of the bottle from which the bromoform had been taken, showed the remaining fluid to consist of 2 well-defined layers. The lower one was of a muddy color, the upper one more transparent and of an oily, viscid consistency. A chemic analysis showed it to consist of free bromin and hydrochloric acid. As an overdose had not been given, it is supposed that the decomposition was responsible for the effect. Even then the explanation is not entirely satisfactory on account of the small dose and the obscure chemistry, but the case is of importance as indicating a possible danger from the drug. [A.G.E.]

Emulsion of Brain in the Treatment of Tetanus.—Krokiewicz² reports 4 cases of tetanus treated by the injection of an emulsion of rabbits' brain. He has collected 12 cases beside his own, in which this method was employed. Out of these 16 cases there were but 3 fatal results, although at least 8 of them could be reckoned as severe infections. In this treatment an emulsion of the entire brain of 1 rabbit is injected subcutaneously at intervals of one or more days, the highest number of injections given in any individual case being six. Other treatment need not be interrupted. [H.C.W.]

FORMULAS, ORIGINAL AND SELECTED.

Local Application for Ivy Poisoning.—

Sodium hyposulfite	30 gm. (1 oz.)
Menthol	0.3 gm. (5 gr.)
Alcohol	4 cc. (1 dr.)
Spirit nitrous ether	30 cc. (1 oz.)
Distilled water, enough to make	500 cc. (1 pt.)

Dissolve the soda salt in the water and the menthol in the alcohol. Mix the 2 solutions and filter. Apply freely to affected parts with soft sponge.—[Med. Pharm. Critic and Guide.]

Alopecia Areata.—Herxheimer³ recommends:

Oil of cotton root	2 gm. (30 gr.)
Tincture of benzoin	20 cc. (5 dr.)
Spirit of lavender	40 cc. (10 dr.)
Alcohol	40 cc. (10 dr.)

[H.C.W.]

Local Application for Gouty Joints.—

Sodium carbonate	12 gm. (3 dr.)
Tincture of opium	60 cc. (2 oz.)
Belladonna liniment	60 cc. (2 oz.)
Water, to make	250 cc. (8 oz.)

Mix with equal parts of hot water, and saturate a cloth with the mixture; apply while warm over the affected joint, and cover with oiled silk. [H.C.W.]

Sodium Ethylate for Warts.—This is said to be quite effective. It should be applied with a glass rod and reapplied when the scab that has formed falls off. Care must be taken not to bring the sodium ethylate in contact with water, as it may take fire with disastrous consequences.—[Med. Pharm. Critic and Guide.]

¹ Therapeutische Monatshefte, 1903, xvii, 420.

² Münchener medicinische Wochenschrift, June 9, 1903.

³ Ther. Gazette, 1903, 27, p. 577.

⁴ Journal des Praticiens, Vol. xvii, No. 43, 1903, p. 680.

⁵ Therapeutische Monatshefte, 1903, 17, 313.

⁶ Münchener medicinische Wochenschrift, June 23 and 30, 1903.

¹ Archives of Pediatrics, November, 1903.

² Klin. therapeutische Wochenschrift, 1903, 10, 162.

³ Ther. Monatsb., xvii, 287.

⁴ Clemens, Merck's Archives, 1903, 265.

Acute Gout.¹—

Magnesium sulfate	6 gm. (1½ dr.)
Magnesium carbonate	2 gm. (30 gr.)
Potassium citrate	2 gm. (30 gr.)
Tincture of colchicum seeds	0.6 cc. (10 m.)
Peppermint water, to make	30 cc. (1 oz.)

Repeat every 3 hours until the bowels become loose.

[H.C.W.]

Ewald's Laxative Powder.—

Pulv. rhubarb	20 parts
Sodii sulf. exsic.	10 "
Sodii bicarbonatis	5 "

—[Med. Pharm. Critic and Guide.]

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended December 26, 1903:

SMALLPOX—UNITED STATES.			Cases	Deaths
California:	San Francisco.....Dec. 6-13.....	2		
Illinois:	Belleville.....Dec. 12-19.....	2		
	Danville.....Dec. 12-19.....	1		
Indiana:	Evansville.....Dec. 12-19.....	3		
Louisiana:	New Orleans.....Dec. 12-19.....	3		
Maine:	Biddeford.....Dec. 12-19.....	1		
Massachusetts:	Haverhill.....Dec. 12-19.....	1		
Michigan:	Detroit.....Dec. 12-19.....	2		
	Flint.....Dec. 6-19.....	2		
	Port Huron.....Dec. 12-19.....	2		
Mississippi:	Natchez.....Dec. 6-13.....	26		
New Hampshire:	Manchester.....Dec. 12-19.....	1		
New Jersey:	Camden.....Dec. 12-19.....	2		
Ohio:	Cincinnati.....Dec. 11-18.....	5	1	
Pennsylvania:	Erie.....Dec. 12-19.....	5	1	
	Johnstown.....Dec. 14-21.....	1	1	
	McKeesport.....Dec. 12-19.....	1		
	Philadelphia.....Dec. 12-19.....	90	22	
	Pittsburg.....Dec. 12-19.....	27	8	
Tennessee:	Memphis.....Dec. 12-19.....	17		
Wisconsin:	Milwaukee.....Dec. 12-19.....	2		

Imported.

Two imported.

SMALLPOX—FOREIGN.			Cases	Deaths
Austria-Hungary:	Prague.....Nov. 21-28.....	7		
	Trieste.....Nov. 21-28.....	2		
Belgium:	Antwerp.....Nov. 21-28.....	2	2	
Brazil:	Rio de Janeiro.....Nov. 15-29.....	99	59	
France:	Paris.....Nov. 28-Dec. 5.....	12		
Great Britain:	Birmingham.....Nov. 21-Dec. 5.....	9		
	Glasgow.....Dec. 4-11.....	26	2	
	London.....Nov. 28-Dec. 5.....	3		
	Manchester.....Nov. 28-Dec. 5.....		1	
	Nottingham.....Nov. 28-Dec. 5.....	3		
	Southampton.....Nov. 28-Dec. 5.....	1		
India:	Bombay.....Nov. 17-24.....		1	
Italy:	Catania.....Nov. 26-Dec. 10.....		6	
	Palermo.....Nov. 14-21.....	1		
Java:	Batavia.....Oct. 21-Nov. 7.....	16	5	
Mexico:	City of Mexico.....Nov. 22-29.....	1	1	
Russia:	Warsaw.....Nov. 14-21.....		6	
Spain:	Corunna.....Nov. 21-28.....		1	
Turkey:	Constantinople.....Nov. 22-29.....		7	
	Smyrna.....Nov. 15-22.....		14	

YELLOW FEVER—UNITED STATES.			Cases	Deaths
Texas:	Cannel.....Dec. 13.....	1		
	Laredo.....Dec. 15-18.....	6		

YELLOW FEVER—FOREIGN.			Cases	Deaths
Brazil:	Rio de Janeiro.....Nov. 22-29.....	1	1	
Mexico:	Vera Cruz.....Nov. 28-Dec. 19.....	22	7	

CHOLERA—FOREIGN.			Cases	Deaths
India:	Calcutta.....Oct. 31-Nov. 21.....		49	
Straits Settlements:	Singapore.....Oct. 31-Nov. 7.....		24	
Turkey in Asia:	.....Nov. 16.....	116	114	

PLAGUE—FOREIGN.			Cases	Deaths
Brazil:	Rio de Janeiro.....Nov. 15-29.....	85	43	
India:	Bombay.....Nov. 17-24.....		55	
	Karachi.....Nov. 8-22.....	15	14	

Changes in the Medical Corps of the U. S. Army for the week ended December 26, 1903:

PAGE, Captain HENRY, assistant surgeon, will report to the commanding general, department of Luzon, for assignment to duty.

RICH, First Lieutenant EDWIN W., assistant surgeon, will report to the commanding general, department of Luzon, for assignment to duty.

ARWINE, JAMES T., contract surgeon, leave granted, is extended ten days.

HOLLORAN, First Lieutenant PAUL S., assistant surgeon, is relieved from duty at Lucena, Tayabas, and will report at Convalescent Hospital, Corregidor Island, for duty, relieving First Lieutenant Robert L. Carswell, assistant surgeon, who will proceed to Zamboanga, Mindanao, reporting to the commanding general, department of Mindanao, for assignment to duty.

PATTERSON, First Lieutenant ROBERT U., assistant surgeon, is relieved from duty at Camp Vicars, Mindanao, and will proceed to Manila, reporting to the commanding officer, First Reserve Hospital, for duty.

BAILY, HOWARD H., contract surgeon, is granted leave for one month, with permission to visit the United States, and apply for an extension of two months.

QUINTON, Captain WILLIAM, assistant surgeon, is relieved from duty at Lucena, Tayabas, and will proceed to Iloilo, Panay, for assignment to duty.

STONE, FRANK P., contract dental surgeon, is granted leave for one month, upon surgeon's certificate, with permission to leave the limits of the department of California.

CHAMBERS, WILLIAM H., contract dental surgeon, is granted leave for twelve days, to take effect from December 22.

USHER, First Lieutenant FRANCIS M. C., assistant surgeon, is granted leave for one month.

JOHNSON, Major RICHARD W., surgeon, will proceed from Washington, D. C., to St. Louis, Mo., and take station for duty pertaining to the exhibit of the medical department of the Army at the Louisiana Purchase Exposition.

CARROLL, First Lieutenant JAMES, assistant surgeon, is detailed to represent the medical department of the Army at the meeting of the Society of American Bacteriologists to be held in Philadelphia, Pa., December 9 and 30.

SNYDER, CALVIN D., contract surgeon, now at Baltimore, Md., will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands.

So much of orders of November 21 as directs the commanding officer, company of instruction No. 2, hospital corps, Fort McDowell, to send Sergeant First Class Gustav Knapp to the Philippine Islands is revoked. Sergeant First Class Knapp will proceed to Ord Barracks, Monterey, Cal., for temporary duty.

ALLEN, First Lieutenant JOHN H., assistant surgeon, having reported his arrival at San Francisco, Cal., is relieved from further duty in the division of the Philippines, and will report for duty at the United States General Hospital, Presidio, to relieve First Lieutenant W. C. Chidester, assistant surgeon. Lieutenant Chidester will proceed to Fort Lawton for duty, to relieve Contract Surgeon Wallace E. Sabin. Contract Surgeon Sabin will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands on transport to sail from San Francisco about February 1.

WILLIAMS, ADRIAN D., contract surgeon, now at Brooklyn, N. Y., will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands.

HARTNETT, First Lieutenant EUGENE H., assistant surgeon, is granted leave for fourteen days.

FORD, Captain JOSEPH H., assistant surgeon, is relieved from duty at the United States General Hospital, Washington Barracks, to take effect upon the arrival of First Lieutenant William H. Brooks, assistant surgeon, at that hospital, and will then proceed to Fort Reno to relieve First Lieutenant Charles W. Farr, assistant surgeon. Lieutenant Farr will proceed to Fort Mason for duty.

EKWURZEL, First Lieutenant GEORGE M., assistant surgeon, is relieved from temporary duty at New Haven, Conn., to take effect upon the return to duty at that place of First Lieutenant Wallace De Witt, assistant surgeon, and will then proceed to Fort Trumbull, to relieve Captain James R. Church, assistant surgeon. Captain Church will proceed to Fort Brown to relieve Contract Surgeon Jos. K. Combe.

PASCOE, JAMES B., contract surgeon, now at San Francisco, Cal., will report to the commanding general, department of California, for transportation to the Philippine Islands.

MILLER, DANIEL R., sergeant first class, now at the Army General Hospital, Presidio, will proceed to Fort Trumbull for duty.

HARTSOCK, First Lieutenant FREDERICK M., assistant surgeon, is granted leave for ten days from December 23.

HICKS, GEORGE W., sergeant first class, Alcatraz Island, Cal., will proceed to Manila, P. I., on the government transport sailing from San Francisco, Cal., about January 1.

BAIRD, JAMES W., sergeant first class, Presidio, will proceed to Alcatraz Island, Cal., for duty.

WAGNITZ, EDWARD J., sergeant first class, office of the chief surgeon, department of California, San Francisco, Cal., will proceed to the Presidio for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended December 26, 1903:

McCLURG W. A., medical inspector, ordered to the Bureau of Medicine and Surgery, Navy Department—December 18.

JOHNSON, M. K., surgeon, detached from the Naval Hospital, New York, N. Y., and ordered to the Tacoma—December 18.

SCHWERIN, L. H., acting assistant surgeon, detached from the Southern and ordered to the Abarenda—December 19.

SPRATLING, L. W., surgeon, detached from the Hancock and ordered to the Navy Yard, New York, for special temporary duty at the Naval Laboratory—December 21.

CARPENTER, D. N., surgeon, detached from the Naval Hospital, Washington, D. C., and ordered to the Dixie, for duty with the Panama marine brigade—December 23.

SPRATLING, L. W., surgeon, detached from the Naval Laboratory, Brooklyn, N. Y., and ordered to the Dixie, for duty with the Panama marine brigade—December 23.

ANGERY, G. L., passed assistant surgeon, detached from the Naval Hospital, Philadelphia, Pa., and ordered to the Dixie, for duty with the Panama marine brigade—December 23.

¹ Clemens, Merck's Archives, 1903, 265.

American Medicine

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False Vaccination Scars: A Vile Crime Encouraged.—In the latest issue of *Medical Talk for the Home*—an organ said to be maintained by the Peruna Company—there is an article which deserves the careful consideration of legislators, the profession, and the community. The writer and the publisher should be prosecuted to the full extent of the law if there is any law in Ohio that will authorize such prosecution. If none exists it should be enacted. The writer of this incitation to crime tells "how to produce a scar resembling vaccination," by means of nitric acid. The most nauseating part is that which advises against lying and making any pretense that the child has been vaccinated:

If a doctor wants to know whether the child has been vaccinated or not, simply show him the scar, and if he is satisfied with the scar well and good. I would not advise any physician to give a certificate of vaccination after having performed this imitation, because the deception would be simply a lie, and lying is not to be approved of even to escape the necessity of being vaccinated. My own children have been treated in this way, and have been examined a great many times in school for vaccination and the scars have always been regarded as genuine vaccination scars. Other children have been vaccinated in the same way, but I have always refused to grant a certificate to any one on account of this vaccination.

Here is a liar (and an editor who publishes the criminal's lie) who advises others to evade the law by committing lying and useless vivisection, and who then confesses that by it he has enacted the lie of deception many times and yet who in doing so counsels against lying and deception! All of which is an illustration of anti-vaccination ethics. These fellows need sharp looking after if the community is ever to be protected from the ravages of smallpox. One wonders how much of the vogue of the heresy has been due to the falsified statistics and the spread of the disease through the makers of "scars resembling vaccination."

The Conservation of Medicinal Plants.—The rapid destruction of the forests of the United States, especially in the eastern portions, with the consequent interference with the water supply, change in climate, etc., has for some years been a matter of serious concern to the thoughtful citizen. A recent article by Dr. Henry Kraemer¹ emphasizes an aspect of this question that is

of particular interest to the medical profession. This writer states that if the present rate of gathering of native herbs and drugs continues for ten years it is probable that our principal medicinal plants will be well nigh exterminated unless measures are taken either to conserve or cultivate them. Inquiries indicate that some of our wellknown plants are already nearly exterminated. Among these are spigelia, serpentaria, senega, and cyripedium. The possibility of improving plants by selection and cultivation, as has been done with coca and cinchona, is an incentive to their study, but of greater importance is a knowledge of the peculiar requirements of each, in order that they may be cultivated, if this should be necessary to ensure their perpetuity. The following classification is given: Cultivated medicinal plants in the United States, 190; wild indigenous or neutralized, 178; foreign plants that might be cultivated, 56; foreign plants uncertain as to cultivation, 75. This shows that approximately three-fourths of all medicinal plants are growing wild or in cultivation in this country, and that of the remaining one-fourth probably one-half could be grown here. The article in question is very pertinent and timely, and should be brought to the attention of not only physicians, but also nurserymen and the laity, who primarily must take the matter in hand.

"The Practice of Medicine," Again.—In criticism of the legal definition of the term a practitioner of medicine, recently given in *American Medicine*, several of the best class lay journals have shown a failure to understand the true bearings of the question at issue, and as the enactment and execution of all laws depends entirely upon the cooperation of the lay world, we feel a further word of explanation is necessary. That "the practice of medicine is the treatment of diseases, deformities, and injuries," is beyond question, but our lay critics say that this would debar help in emergency cases, the bandaging of a finger, the giving of household remedies, etc. The interest that every man, woman, and child must feel in health, limb, and life, forces the question as to whom the responsibilities of treating these belongs. To whose care are they to consign the diseased, deformed, and injured? The logical and only answer must be, to those "qualified." Can any one ignorant of the causes, nature, and natural history of human ills, treat intelligently any of these by any means whatso-

¹ American Journal of Pharmacy, December, 1903.

ever unless well grounded in the medical sciences? An answer is superfluous.

What then constitutes a legal practitioner of medicine? It is anyone licensed by any State to treat deformities, diseases, and injuries. Who are these? Only those whom statutory law compels by process of examination before the properly appointed officials, to *prove qualification*. No right minded citizen opposes this just requirement. Has anyone the right to assume the responsibilities attaching to so important a role who is not qualified? Whether one familiar with ills believes that prayer alone, or prayer with other means, is proper in a given condition, is not the right nor purpose of any law to govern. Exception is mistakenly made that a parent, grandmother, or preacher furnishing relief for any ill would be amenable to these statutes. Not at all so. All these emergencies can, under the definition, be met in ways best known to those to whom the conditions offer. A man run over in the street, or falling in an epileptic fit, or awakening in the night in pain, may be attended by any one at hand. This is a totally different matter from posing before the public as one *qualified to treat*, by any means whatsoever, diseases, deformities, and injuries. Such, as law very properly requires, must prove knowledge of the structure and function of the human body; of the causes, symptoms, processes, and consequences of diseases; of the disturbed relations of parts when dislocated, fractured and otherwise injured; of the signs and symptoms of these; of the physical principles involved in their readjustment and maintenance by proper apparatus; of the nature, physiologic actions, powers, and doses of drugs; of the unalterable law of cause and effect in epidemic and pestilential and contagious diseases; of the causes of these and the methods of prevention. To be "qualified" is to be learned in all this involves, and requires what the laws now demand—first, a liberal and general education, particularly in science; second, a well grounded and adequate knowledge of the art and science of medicine. These being possessed by every one who has the right to treat by "any means whatsoever" is what the definition of "the practice of medicine" vouchsafes. A legal practitioner is one whom the State licenses, and one who *assumes* the responsibilities to treat diseases, deformities, and injuries by offering his or her services so to do, unless *qualified*, should very properly, for the highest interests of fellow-man and community, be held responsible and amenable to that law which protects the health, life, and limb of fellow-beings from the fearful consequences of treatment, no matter by what means by those *not* qualified.

Mr. Bell's vindication of his proposed Congress on Tuberculosis, as was foreseen, follows promptly upon the criticism of the leading members of the profession, and their resolution to have nothing to do with it. It is characteristic, especially as regards grammatical, or rather ungrammatical usages, and must please—those whom it pleases. Very naturally the circular says that: "The only opposition that has thus far developed of any note has been from medical sources outside the membership of the body. The exception

has been so small as not to be noticeable, and to only verify the truth of the statement that the occasional exception seems only to prove the rule." "The supineness and inactivity of the medical profession in our country to grapple with the subject," is said to be the reason of "the urgent, immediate, and the paramount duty" of the great "lawyers, jurists, medical men, scientists, legislators," etc., to organize the International Congress—as they have done—"under the presidency of that Nestor of sanitation, Dr. A. N. Bell," etc. "It was most natural that our government should continue this splendid, this superb work along the same lines." The manufacture of vice-presidents and the gathering of political names and influences has been most zealously prosecuted, as is duly set forth in glowing and wonderful English. The appeal of inflamed vanity to hungry egotism by means of bombastic and ludicrous asseverations of the love of humanity and the awful self-sacrificing exertions of the faithful (to offset the negligence of the supine medical profession) would be amusing were it not for other considerations. Mr. Bell expressly emphasizes the fact that the medical profession is in no way responsible for his congress. For this the profession should evince proper appreciation.

A Novel Christmas Gift.—Every physician who has been in practice several years finds that many of his patients could not, or would not, at least, have not paid his bills for professional services. He remains undecided after many attempts to collect whether it is of any use to continue efforts, and to waste further postage stamps. One of our subscribers last Christmas day decided upon a unique method of therapeutics for this endemic financial disease. It seems a commendable plan at least of ending an irritating trouble in bookkeeping. Will it encourage the dilatory to seek for future holiday gifts by a method they have found effective? Our correspondent does not appear solicitous. He sent out about 500 letters worded as follows:

— — — — —, December 24, 1903.

— — — — —:—
The amount on my books against you is \$—, and, as you know, has been standing a long time. I have given you every opportunity to pay the account honorably, and, since I am unwilling to believe that you mean to be dishonest, I must conclude that you have failed to settle because you were unable to do so. This being the case, I take pleasure in informing you that I have this day forgiven the debt, and will ask you to consider it as a Christmas Gift!

Wishing you the compliments of the season, I remain,
Yours truly,
— — — — —.

The Eyes of School Children.—At the last annual meeting of the American Medical Association, the House of Representatives, on the recommendation of the Ophthalmologic Section, passed the following:

Resolved, That it is advised by the American Medical Association that measures be taken by the various school authorities and Boards of Education, Boards of Health, and if possible, State legislators, to secure examinations of the eyes and ears of all school children in this country, with a view to the suitable treatment for the relief of the ophthalmologic and otologic imperfections.

In accordance with this excellent advice, a leaflet (the first of its kind, if we mistake not) has been pre-

pared by the superintendent of public schools of Los Angeles, California, for the purpose of instructing teachers concerning errors of refraction, methods of examining the eyes, etc. The plan should be imitated in all of our schools, and be followed by measures looking to the actual carrying out of the suggestions made. There should be no attempt, of course, to make the teacher or the optician replace the oculist, but all the instructions to teachers should enable them to detect the subtle and easily overlooked causes of eyestrain and the varied and pernicious influence it has upon the pupil's general health, school attendance, and ability to study. It is strange how slow is the community, and especially the teacher, to recognize the importance of this factor in school life. It is not difficult for the teacher to learn the signs of eyestrain, and to make the few tests necessary to urge children and parents to consult the specialist.

"**Cereopathy**" is the latest addition to the pathic -pathies. According to the D. S. T. ("Doctor of Suggestive Therapeutics," under whose care a child in Philadelphia recently died of pneumonia), it is just like a multitude of other illustrations of the one disease called by as many different names. "Doctor" Brown, in answer to the Coroner's questions, said that he was a graduate of "the American College of Science," located in Philadelphia, and of the "College of Physicians and Surgeons of Rochester." Because he "gave no medicines," he did not know that he had to pass the State Board. He had been practising for two and a half or three years, but before that he was a carpenter by trade. Cereopathy, he explained, "is the new science of health, being a combination of nature's forces into one great system, to cure and to remain cured. It is that God-given element given to all people on earth to cure, when all other remedies fail, without drugs or the knife." When the carpenter studied his God-given new science, why the "colleges" that "graduated" him are allowed to sell diplomas, why these "graduates" are allowed to practise, and why treating the sick to death because not giving drugs is not practice of medicine—here are questions for the people and their law-makers to answer.

A Quack Compelled to "Move On."—Dr. J. A. Andrews, of Santa Barbara, Cal., has set an example to the citizens of quack-pestered cities which should be followed. In Davenport, Ia., the migrant's name was Dr. J. B. Palmer, but when he settled in Santa Barbara he became Dr. D. D. Palmer, and he filled the newspapers with reading notices, and sent to every house a seemingly limitless amount of wild trash concerning his world-redeeming and medical-profession killing new system, called "Cheiropactic." The silliness of this stuff was unimaginable, but the worse, apparently, such claptrap is, the more foolish people and money it seems to bring the advertiser. The enormous sum spent by Palmer in advertising demonstrates the vogue he was gaining. The fellow's secret of practice was that all diseases were due to dislocated vertebræ, and so ignorant and bold had he become that he was especially curing all drunkenness by manipulations of the spine and reducing its luxations. Myopia of 13 dioptries was cured in the

same way. And yet he denounced osteopathy! By astute perseverance and great self-sacrificing labor, Dr. Andrews was able to secure facts that even a lax medical law and a quack-loving jury could not resist, and the bogus doctor suddenly found it best to move his "school" to Chicago. Five hundred dollars is the price asked by Palmer for teaching "the science," and the allurements of certain wealth is held out to the gullible. If Chicago wishes to get information of use in compelling another move on the part of Palmer, Dr. Andrews can doubtless be of service in supplying it.

Therapeutics of Formic Acid, and of the Ant and Anthill.—Every philosophic student of the history of human progress in general, and of the practice of the art of healing in particular, must be cognizant of the fact that the craving for novelty, which is so prominent a characteristic of *homo sapiens*—and especially in the most progressive communities—has been the principal cause of our neglect of many important therapeutic agents. Some of these are resuscitated when their former fame has become so completely forgotten that a renewal of the acquaintance furnishes a new item of (antiquarian) novelty. This fact is exemplified by a recent communication to the *Lyon Médical* by M. Clement on the action of formic acid. Although formic aldehyd had of recent years obtained recognition in scientific therapeutics, the corresponding acid was ignored in that department. Yet in the seventeenth century—when animal therapeutics were much in vogue—a preparation of ants formed the principal ingredient of Hoffmann's "Vinegar of Magnanimity," which enjoyed a European reputation as a stimulating cordial, stomachic and diuretic. M. Clement experimented on himself by taking ten drops of formic acid (in vichy water) four times a day. A sodium formate was, of course, thus formed. After 24 hours he experienced a distinct feeling of muscular excitement, with an increased capability of performing violent and fatiguing muscular exertions of all kinds. Those feelings were tested by ergographic records, which gave the most satisfactory corroboration. The sensations of muscular weakness and heaviness after severe exertion were to a great extent removed. Under the influence of the drug, the increase of arterial tension produced by severe effort was also markedly less. It is suggested that the enormous capacity for exertion, in proportion to individual bulk, which ants notably possess, may be in some way dependent on this fact. Their unparalleled energy did not escape the observation of the all-knowing Jewish monarch: "Go to the ant, thou sluggard, consider her ways, and be wise." Full evidence of the popularity of ants as an item of British *Materia Medica* is to be found in *The New London Dispensatory*, which received the *imprimatur* in 1676. One section of this quaint old volume is worth reading in this connection: "*Formica, Murmos, Μύρμηξ*. The Pismire, or Ant. It is a small, but a wise Creature, gathering its food in Summer in the full Moons, and resting in the new Moons. They are like a Commonwealth, and gather Corn, which they dry, and bite at both ends that they may not grow; they wear away Stones of their assiduity, and make beaten Roadways;

they help one another in drawing their burthens, dam out water, and bury their dead. The greater lead the way, and the lesser drag the corn; and when dirty, they cleanse themselves before they enter into their habitations. They teach their young to labour, but expel the idle, and when they carry their grain, it's said to be a sign of foul weather. They cast up the Earth over the mouths of their Caves (that the water may not enter in), wherein they have cells; in the one they live, in another they breed and bury, and in the third they keep their Corn. They generate in Winter, bring forth Eggs, which in Spring are Ants; when old, they grow winged, and then suddenly after die. 1. *The Ants* are hot and dry, excite Lust, and by their sharp scent, wonderfully refresh the spirits; the greater and winged, with a little salt, cure the *Psora*, or Scab, and Leprosie. 2. *Their Eggs* help thickness of hearing and deafness; being rub'd on the skin, make it smooth; and taken inwardly, expel wind; their Eggs with Bats' blood is a depilatory, used three or four times a day. 3. *The Acervus*, or Ant-hill, strengthens the Nerves, is Anodyne, and helps Gouts, Palsies, Convulsions, and Suffocation of the Wombs being applied. 4. *The Oyl of winged Ants, by infusion for 40 days*, provokes Lust, and helps the Gout and Palsie. 5. *Liquor Formicarum. Take them cleansed, put them into a narrow-mouth'd Glass, stop it, set it in brown bread in an Oven, and take it out therewith, which filter and keep for use.* Inwardly it causeth magnanimity, and cures the stone; outwardly, it helps suffusion of the Eyes, cures the Itch, and dissipates Corns and Warts."

The Hygiene of Kissing.—Any one reading the article on the "Hygiene of Kissing," by Féré,¹ must be surprised at the large number of essays on kissing that have been written by scientific men, quotations from which are scattered through Féré's paper. According to Féré kissing is a manifestation of sentiment, and also a means of evoking and exalting it. Among certain savage tribes, such as those of New Zealand and Lapland, the act of kissing is unknown, its place being taken by the rubbing of noses. The danger of kissing with respect to the transmitting of contagious and infectious diseases is now well known, and the author refers to the osculatory ordinance introduced into the legislature of Virginia by a Mr. Ware. Aside from the danger of contagion certain traumatic lesions may also be produced by the act of kissing; and in some neuropathic natures the kiss may constitute a harmful nervous shock. Féré cites a case in which an enforced kiss produced epilepsy; and another in which kissing caused a sensation of intense anxiety and inhibited the sexual act.

More about Pneumonia.—Chicago's Bulletin of the Health Department for the week ended December 26, 1903, says: "The total 139 deaths from pneumonia are the highest for any December week on record. They form 27% of the total mortality from all causes, while 49 deaths from tuberculosis are less than one-tenth the total deaths of the week. Since the forecast in the Bulletin of October 24—that there would be, between November 1, 1903, and May 31, 1904, 'upward of 2,100 deaths from pneumonia and hardly more than 1,300 from tuberculosis' in this city—there have already been 740 deaths from pneumonia and 338 from tuberculosis—and the worst 4 months of the pneumonia season are yet to come."

BOOK REVIEWS

Principles and Practice of Surgery.—By GEORGE TULLY VAUGHAN. Published by J. B. Lippincott Company, Philadelphia and London.

This is a volume of more than 500 pages, in which the author presents and discusses the various subjects which are ordinarily included in the textbooks on surgery. All the specialties which were formerly classified as belonging to surgery have been omitted by the author and he has confined himself exclusively to work in the purely surgical field. A commendable feature of the work is in the number and appropriateness of the illustrations. A considerable portion of the work is devoted to operative procedures and more than the usual space is devoted to fractures and dislocations. The subject of venereal disease has received rather limited attention, while tumors have been somewhat more amply discussed. The work is not intended as an exhaustive treatise in surgery, but rather as an endeavor to present in concise form the subject which will come more properly before the student and busy practitioner. The work is well written and the wide experience of the author as a clinician has enabled him to succeed effectually in presenting the work within the scope mentioned.

Textbook of Operative Surgery.—By THEODORE KOCHER. Fourth Edition, translated by HAROLD J. STILES. Published by Adam and Charles Black, London; The Macmillan Company, 66 Fifth avenue, New York.

A work from the pen of this wellknown surgeon with international fame cannot but attract the attention of the profession in general. The remarkable and varied experience of Kocher, of Berlin, cannot but be instructive to all surgeons, and especially the parts of his work devoted to the subject of goiter, in which he recounts more than 2,000 operations; and that devoted to hernia, in which he explains his operation, which has been widely employed, together with that devoted to operative treatment of the tongue for malignant diseases. All of these are embodied in the work under consideration. The illustrations are especially good and he devotes considerable space to the subject of local anesthesia. Much of the work is devoted to operative procedures, such as would be performed in the ordinary surgical laboratory, and on this account it is especially adapted to the use of students. The work should be in every surgeon's library.

Anatomy.—By HENRY A. HALE; edited by V. C. PEDERSON. Published by Lea Brothers & Co., Philadelphia and New York.

This work is a manual of about 375 pages, which presents the essential and important features of anatomy in a manner suited for ready reference by the student and practitioner. It consists of numerous illustrations, and each major division of the book is followed by a series of questions, which makes it especially valuable for any one desiring to briefly review the subject of anatomy. The work is well written, and will prove of value, especially for those for whom it is intended.

Johns Hopkins Hospital Reports. Volume xi. Baltimore: The Johns Hopkins Press. 1903.

This volume of the Johns Hopkins Hospital reports contains 3 articles. C. P. Emerson contributes an exhaustive paper on "Pneumothorax: A Historical, Clinical, and Experimental Study," which fills 450 pages of the volume. This article will surely be a classic reference on the subject, as mention is made of 358 contributions to the literature, and instead of simply mentioning the author's name and the place his paper appeared, an abstract of each is given, this feature occupying 197 pages of the text. Notes on some 50 cases and numerous experiments on dogs complete the article. "Clinical Observations on Blood-pressure," by H. W. Cook and J. B. Briggs, form the second article in the report. The third paper is by Martin B. Tinker on "The Value of Tuberculin in Surgical Diagnosis." The paper is based on a study of the results of injections in 400 cases and is of very great practical value to the physician as well as to the surgeon.

¹ *Rev. de Med.*, June 10, 1903, No. 6.

A Manual on the Practice of Medicine.—By A. A. STEVENS. Sixth edition, revised and enlarged. Published by W. B. Saunders & Co., Philadelphia, New York, and London.

This volume of somewhat over 500 pages, needs no comment from the reviewer, save to call attention to the fact that a new edition has appeared. The sections on diseases of the digestive system, diseases of the blood, gout, diseases of the spinal cord, and hernias, have been entirely rewritten, thus bringing the work entirely up to date. The popularity which this manual has heretofore enjoyed will be augmented by the excellence of the present edition.

A Manual of Bacteriology.—By HERBERT U. WILLIAMS, M.D. Third edition. Philadelphia: P. Blakiston's Son & Co., 1903.

The latest edition of this manual is brought down to date, and forms a book of 351 pages. A short historic sketch has been inserted, and an increased number of references to literature is given. Many of the illustrations are new. An appendix contains brief notes on the pathogenic protozoa, including trypanosomes. This work remains one of the best of the shorter treatises on the subject.

Consumption a Curable and Preventable Disease.—By LAWRENCE F. FLICK, M.D. Philadelphia: David McKay, Publisher. 1903.

The sub-title of this book on pulmonary tuberculosis is "What a layman should know about it," and the author states in the preface that the recent rapid growth of knowledge regarding tuberculosis has been disquieting to those who have obtained but little. To allay unnecessary fear regarding the contagiousness of the disease and to restore a sense of propriety and responsibility toward the poor tuberculous, is the purpose of the writer. We believe that he has accomplished much toward his aim. While the style of the book is of necessity popular in character, we do not find constant misstatements of small scientific truths as are found in so many books of this class. Facts regarding the cause and spread of tuberculosis are set forth in plain words and directions for the tuberculous and those around him are tersely supplied. That the process of arrest or healing in favorable cases is of slow development is rightly emphasized. The book should have a wide circulation among the laity, and physicians will do well to so advise.

Transactions of the Congress of American Physicians and Surgeons.—Sixth Triennial Session held at Washington, D.C., May 12-14, 1903. Published by the Congress, New Haven, Conn., 1903.

This volume of 243 pages contains the papers read at the scientific sessions of the Congress which were devoted to the consideration of 2 topics: "The Pancreas and Pancreatic Diseases," and "The Medical and Surgical Aspects of the Diseases of the Gallbladder and Bile Ducts." Those authorities contributing papers on the former subject are Opie, Chittenden, Flexner, Fitz, von Mikulicz-Radecki, and Park. Papers on the latter topic are by Ewald, Musser, Brewer, Herter, Mayo, and Kehr. Discussion of these questions by members of the Congress is also included. It is almost needless to add that these papers collectively present in a concise manner the present status of our knowledge regarding the subjects in question. The Transactions also contains President Keen's masterly address on "The Duties and Responsibilities of Trustees of Public Medical Institutions."

A Surgical Handbook: Twelfth Edition.—By FRANCIS M. CAIRD and CHARLES W. CATHCART. Published by Charles Griffin & Co., London, and W. T. Keener & Co., of Chicago.

This little work of something more than 300 pages is devoted to a discussion of the principal surgical ailments which come under observation in the hospital and clinic. It of necessity discusses these subjects very briefly but clearly and to the point. A valuable feature consists in presenting numerous illustrations and short descriptions of apparatus used in surgical clinic and in connection with surgical cases. These are most excellent and the little work is eminently practical and convenient for ready reference.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Blood-Pressure in Surgery: An Experimental and Clinical Research. The Cartwright Prize Essay for 1903.—By GEORGE W. CRILE, A.M., M.D., Professor of General Surgery, Western Reserve Medical College; Visiting Surgeon to St. Alexis Hospital; Associate Surgeon to Lakeside Hospital, Cleveland. J. B. Lippincott Company, Philadelphia and London, 1903.

The Treatment of Fractures: With Notes Upon a Few Common Dislocations.—By CHAS. L. SCUDDER, M.D., Surgeon to the Massachusetts General Hospital. Fourth edition, thoroughly revised, enlarged and reset. Octavo volume of 534 pages, with nearly 700 original illustrations. Philadelphia, New York, London. W. B. Saunders & Co., 1903. Polished buckram, \$5.00 net; sheep or half morocco, \$6.00 net.

Organic and Physiologic Chemistry: A Manual for Students and Practitioners.—By ALEXIUS MCGLANNAN, M.D., Associate Professor of Physiologic Chemistry, Instructor in Clinical Laboratory, College of Physicians and Surgeons, Baltimore, Md. Series edited by V. C. PEDERSEN, A.M., M.D., Instructor in Surgery and Anesthetist and Instructor in Anesthesia at the New York Polyclinic Medical School and Hospital; Deputy Genitourinary Surgeon to the Out-Patient Department of the New York Hospital; Physician-in-Charge St. Chrysostom's Dispensary; Anesthetist to the Roosevelt Hospital (First Surgical Division). Illustrated with 9 engravings. Lea Brothers & Co., Philadelphia and New York.

A Compend of Pathology: General and Surgical. A Students' Manual in one volume.—By ALFRED EDWARD THAYER, M.D., Professor of Pathology, University of Texas. Second edition, containing 131 illustrations. P. Blakiston's Son & Co., Philadelphia, 1903.

Progressive Medicine, Vol. IV, December, 1903: A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences.—Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth, 434 pp., 46 illustrations. Lea Brothers & Co., Publishers, Philadelphia and New York.

First Report of the Trypanosomiasis Expedition to Senegambia (1902), of the Liverpool School of Tropical Medicine and Medical Parasitology.—By J. EVERETT DUTTON, M.B., B.Ch., Vict.; WALTER MYERS, Fellow the University, Liverpool; and JOHN L. TODD, B.A., M.D.; C.M., MCGILL. With notes by H. E. ANNETT, M.D., D.P.H., and an appendix by F. V. THEOBALD, M.A. Published for the University Press of Liverpool by Longmans, Green & Co., London, New York and Bombay, 1903.

Fourth Annual Report of the Work of the Cancer Laboratory of the New York State Board of Health. Conducted at the Gratwick Research Laboratory, University of Buffalo. For the year 1902-1903.

Description of Brain and Spinal Cord in Hereditary Ataxia.—By LEWELLYS F. BARKER, M.D., Professor and Head of the Department of Anatomy, University of Chicago. The decennial publications of the University of Chicago, first series, Vol. x, 38 pp. with three heliotype plates and 40 figures. Net, \$2.00; postpaid, \$2.08. The University of Chicago Press, Chicago, Illinois.

Philadelphia Hospital Reports: Vol. v, 1902.—Edited by HERMAN B. ALLYN, M.D. Printed by Maurice H. Power, Philadelphia, 1903.

The Practical Care of the Baby.—By THERON WENDELL KILMER, M.D., Associate Professor of Diseases of Children in the New York School of Clinical Medicine; Assistant Physician to the Out-Patient Department of the Babies' Hospital, New York; Attending Physician to the Children's Department of the West Side German Dispensary, New York. With 68 illustrations. Extra cloth, \$1.00 net, delivered. Philadelphia: F. A. Davis Company, Publishers.

The Treatment of Neurasthenia.—By A. PROUST, M.D., Professor of the Faculty of Medicine, Paris; Inspector-General of the Sanitary Service; Member of the Academy of Medicine, etc.; and GILBERT BALLEZ, M.D., Fellow of the Faculty of Medicine, Paris. Translated by PETER CAMPBELL SMITH, L.R.C.P., L.R.C.S., Edin., L.F.P.S., Glasgow. New York: Edward R. Pelton, 1903.

Anatomy Applied to Medicine and Surgery.—By D. E. MUNDALL, B.A., M.D., Professor of Applied Anatomy, Faculty of Medicine, Queen's University; Ex-Examiner Practice of Medicine, Ontario Medical Council; Surgeon to Kingston General Hospital, Kingston. Printed at the British Whig, 1903.

Quiz Compend: Diseases of the Ear, Nose and Throat.—By JOHN JOHNSON KYLE, B.S., M.D., Lecturer on Otolaryngology and Laryngology, and Assistant to the Chair of Surgical Pathology in the Medical College of Indiana; Oculist and Aurist to St. Vincent Hospital and City Dispensary; Aurist and Laryngologist to City Hospital, Indianapolis, etc. With 85 illustrations. P. Blakiston's Son & Co., Philadelphia, 1903. Price, 80 cents net.

A Non-surgical Treatise on Diseases of the Prostate Gland and Adnexa.—By GEORGE WHITFIELD OVERALL, A.B., M.D., Formerly Professor of Physiology in the Memphis Hospital Medical College. Rowe Publishing Company, Chicago, Ill.

Portfolio of Dermochromes.—By PROFESSOR JACOB. English adaptation of text by J. J. PRINGLE, M.B., F.R.C.P., Physician to the Department for Diseases of the Skin at the Middlesex Hospital, London. Rebman Company, New York, 1903.

Mt. Sinai Hospital Reports: Vol. III, for 1901 and 1902.—Edited for the Medical Board by N. E. BRILL, A.M., M.D., 1903.

The Principles of Open-Air Treatment of Phthisis and of Sanatorium Construction.—By ARTHUR RANSOME, M.D., M.A., (CANTAB.), F.R.C.P., F.R.S., Honorary Fellow of Gonville and Caius College, Cambridge; Consulting Physician to the Manchester Hospital for Consumption and Diseases of the Chest and Throat; Late Examiner in Public Health at Cambridge and Victoria Universities. Smith, Elder & Co., London, 1903.

Special Report on Diseases of the Horse.—By DRS. PEARSON, MICHENER, LAW, HARBAUGH, TRUMBOWER, LIANTORD, HOLCOMBE, HUIDEKOPPE, STILES and ADAMS. Revised edition. Government Printing Office, Washington, D. C., 1903.

AMERICAN NEWS AND NOTES.

GENERAL.

Requests to Charity.—CHICAGO: According to the will of the late Leopold Mayer, charity bequests are: Jewish Training School of Chicago, \$1,000; Chicago Home for Jewish Orphans, \$2,000; the Uhlich's Orphan Asylum, \$500; German Catholic Orphan Asylum, \$500; the Jewish Orphan Asylum, Cleveland, \$500; the German Altenheim, \$500; Harmonia Lodge, Odd Fellows, \$500; Michael Reese Hospital, \$500; Home for Aged Jews of Chicago, \$500; Hebrew Union College of Cincinnati, \$500. PHILADELPHIA: By the will of Cordelia A. Brown, \$5,000 is given to the Methodist Episcopal Hospital to endow a free bed in the memory of William Brown, her husband.

Deathrate in Cities of 200,000 and Over.—From the census of 1900, it appears that the deathrate in the cities named below was as follows: Boston, 20.1; Buffalo, 14.8; Detroit, 17.1; Jersey City, 20.7; Newark, N. J., 19.8; Washington, D. C., 22.8; Baltimore, Md., 21; Chicago, Ill., 16.2; Cincinnati, 19.1; Cleveland, 17.1; Louisville, 20; Milwaukee, 15.9; Minneapolis, 10.8; New Orleans, 28.9; Philadelphia, 21.2; Pittsburgh, 20; St. Louis, 17.9; San Francisco, 20.5. An encouraging feature is that in a number of these cities the deathrate has been materially reduced since the above date. For example, in New York, where the deathrate for 1903 is estimated at but 18.15 per 1,000, and in Chicago it is materially lower.

Miscellaneous.—NEW JERSEY: Dr. Ellen L. Lowell, of New York, has been appointed chief bacteriologist at the Graves Pathological Laboratory of the Orange (N. J.) Memorial Hospital. She will have entire charge. She is a graduate of Leland Stanford University, and received her degree of M.D. from Johns Hopkins University. COPENHAGEN: A meeting was held on December 10 at the Phototherapeutic Institute, Copenhagen, in celebration of Professor Finsen's success in obtaining the Nobel prize for medicine. It was announced that Professor Finsen had decided to give 50,000 kroner from the amount awarded to him to the institute, and that 2 members of the governing body would each present it with a like sum.

Favors the Metric System.—The following bill has been introduced into the House of Representatives and referred to the Committee on Coinage, Weights, and Measures. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That on and after the first day of January, 1905, all the departments of the Government of the United States, in the transaction of all business requiring the use of weight and measure, except in completing the survey of public lands, shall employ and use only the weights and measures of the metric system; and on and after the first day of January, 1906, the weights and measures of the metric system shall be the legal standard weights and measures of and in the United States.

Salicylic Acid Harmful.—The food test at the Department of Agriculture, which has been going on for several months past, to test the effect of salicylic acid on human health, has brought out some queer results. The general fact is established that salicylic acid seriously injures health. One man, however, has reason to rejoice in the salicylic acid treatment. It has cured his rheumatism. The experiments have been abandoned to save the subjects, but will be resumed when the men have recovered somewhat from the effects of the past 2 months' diet on prepared foods into which salicylic acid enters as a preservative. Dr. Wylie says that he expected this result. This experiment has turned out just as did that with foods preserved with borax. That made the men all sick.

Tuberculosis in Hens.—Now that his experiments with diseased fowls in California have demonstrated the fact that tuberculosis is one of the most widely prevalent diseases in the poultry ranches of the State, Dr. Archibald R. Ward, veterinarian of the University of California Agricultural Department, is pursuing investigations to discover whether there is any relationship between this and bovine or human tuberculosis. Furthermore, the consideration of the possible significance of fowl tuberculosis has awakened the desire to know whether or not the deadly organisms are present in the egg. Both these points are vitally important, and the Animal Industries Department, in conjunction with the recently established Poultry Experiment Station, will make a careful study of the cases that are brought to their attention.

Important Gifts during 1903.—One hundred million dollars has been mentioned as a low estimate of the aggregate gifts made to religion, education, and charity during the year 1903. Some of the important gifts to medical science and to charitable purposes are as follows: John D. Rockefeller, to Rush Medical Institute of Chicago, \$7,000,000; Andrew Carnegie, for the endowment of a fund for the relief of injured men of the steel works at Homestead, \$4,000,000; the Phipps Consumptive Hospital Fund of Philadelphia, \$1,250,000; the Jeanes gift for a Home for Aged Quakers, in Germantown, Philadelphia, \$1,000,000; the Maxwell additions to Long Island Hospital, \$600,000; Mrs. Appleby's gift of \$2,500,000 to be invested for

the benefit of the poor of St. Paul, Minn. It is an interesting fact, says the *Public Ledger* of Philadelphia, that, while many of these gifts are to causes outside all churches, the funds for them are given in fully 75% of the total by persons inside of the churches. The *Church Economist* estimates the cost of maintenance of all churches in America to be \$60,000,000 a year. Not only do Christian people give almost all of this vast sum, but they also give fully \$75,000,000 of the \$100,000,000 going to causes outside of the churches each year.

EASTERN STATES.

Large Fund to Erect and Maintain a Hospital.—The will of the late Peter B. Brigham of Boston, who left \$5,000,000 toward founding a hospital to bear his name, is sustained by a decision handed down by Justice Colt in the United States Circuit Court. The heirs at law contested the bequest.

Epileptic Children.—The report of the trustees of the Massachusetts Hospital for Epileptics at Palmer, states that at various times during the past 2 years it has been brought to the attention of members of the board that no adequate provision is made for the large number of epileptic children now in the State. The matter has been placed in the hands of a committee of the trustees, in order that it may be carefully considered from all sides. It seems probable, however, that it will be deemed advisable that this institution should make provision for epileptic children, and in this case, steps will be taken in this direction in the near future. This is a subject of the most serious importance, and special attention is now directed to it.

NEW YORK.

To Prevent the Spread of Tuberculosis.—Resolutions have been adopted by the Board of Health of New York City that no member of the police or fire departments is to remain on duty when suffering from tuberculosis in its infectious stage. This action was the outcome of an investigation which disclosed the fact that 17 members of the police are afflicted with the disease.

New York Academy of Medicine.—A stated meeting was held in Hosack Hall, Thursday evening, January 7, 1904. William P. Spratling, superintendent of Craig Colony for Epileptics, presented a paper on "Guides to the Prognosis in Epilepsy, with Remarks on the Curability of the Disease." The paper was discussed by Drs. M. Allen Starr, Charles L. Dana, L. Pierce Clark, Pearce Bailey, Frederick Peterson, and others.

Lowest Deathrate Since 1800.—Health Commissioner Lederle recently sent to the then Mayor Low a preliminary report of the work done by his department during the year. Despite the normal increase in the population, Dr. Lederle reports that up to December 21 last year there were 470 fewer deaths than in the corresponding period of the previous year. With the exception of diphtheria, there has been a decrease in the number of deaths caused by strictly contagious diseases. There were 9,460 more births this year than last. The deathrate was 18.11 in the 1,000, as compared with 18.77 in 1902, and 20 in 1901. In the old city of New York the deathrate was 19.10, the lowest since 1800. It was 19.49 in 1902, which was the next lowest. Dr. Lederle says: "Another evidence of increasing healthfulness of the city is found in the fact that the only increase in the number of deaths is found in those of persons 65 years and over, which would indicate that preventive health measures have a marked effect in preserving life during the period in which the living are most useful members of society."

PHILADELPHIA, PENNSYLVANIA, ETC.

Licensed to Practise Medicine.—The State Board of Medical Examiners for Pennsylvania has made public the list of successful applicants for license to practise medicine in this State. Of 103 applicants who took the examinations but 57 passed, the failures reaching 42.20%. This large percentage of failures is due to the severe examinations, which were a great deal more difficult this year than ever before.

Butler Epidemic under Control.—According to the latest reports, it is indicated that the hospital improvised by the relief committee in caring for the stricken victims of Butler epidemic, will be dispensed with about the middle of January. Some of the nurses and physicians who have been sent from Philadelphia and other places are returning, all of which indicates that the epidemic, though still serious, is at least under control.

Improved Health Records in Camden.—The Camden Board of Health instructed its solicitor recently to meet the Ordinance Committee for the purpose of framing an ordinance governing the use of soft coal within the city limits. It was decided to enforce a recent resolution requiring physicians to report cases of chickenpox to the Board as a contagious disease. The report of Health Officer Leavitt showed the city entirely free of smallpox, the last 2 patients having left the isolation hospital. Other cases of contagious diseases were reported as follows: Diphtheria, 18; membranous croup, 1; scarlet fever, 33; and tuberculosis, 4. There has not been a case of typhoid fever since October 22. The health officer's report stated that the city is in a healthier condition than has been known for many months.

Pneumonia and other Diseases in Philadelphia.—For the week ended January 2, there was no abatement of the smallpox and typhoid epidemics in the city, there being reported 74 new cases of the former and 150 new cases of the latter; and the deathrate for the week from all causes numbered 602 as compared to 554 for the previous week and 532 for the corresponding week last year. Pneumonia prevails to a great extent and there were 95 deaths from this disease during the week, comprising almost one-sixth of the total number of deaths from all causes.

Meeting of Scientific Societies at University of Pennsylvania.—Recently 5 affiliated scientific societies have held simultaneous meetings at the University of Pennsylvania. A large number of scientists, many of them of national reputation were present and engaged in scientific discussion. The affiliated societies are the Society of American Bacteriology, the Society for Plant Morphology and Physiology, the American Society of Zoologists, the Association of American Anatomists, and the American Physiological Society. A number of important papers were presented and discussed.

College of Physicians, Philadelphia.—The section on general medicine, announces the following program for its next meeting, to be held in the upper hall of the college, Monday evening, January 11, 1904, at 8.15 o'clock.

SYMPOSIUM ON THE EARLY MANIFESTATIONS OF CIRRHOSIS OF THE LIVER.

1. Pathologic Anatomy, Dr. W. W. Ford, of Baltimore.
2. Clinical Chemistry, Dr. David L. Edsall, of Philadelphia.
3. Clinical Manifestations, Dr. Charles G. Stockton, of Buffalo.

The papers will be discussed by Doctors Tyson, Musser, and Hare.

Foreign Immigrants Arriving in Philadelphia.—According to the report of Commissioner of Immigration, there arrived in the port of Philadelphia during 1903, 53,092 aliens, an increase of 34,165 over the previous year, and 4½ times the number which arrived during 1901. The largest number of immigrants were from the following countries in the order named: Russian Empire, Austria-Hungary, England, Ireland, Germany and Italy. More than 5% were illiterate and 71 were deported on account of being afflicted with contagious or loathsome diseases. During the year 1,120 aliens were relieved in hospitals.

SOUTHERN STATES.

Mortality in Baltimore.—During the week which ended at noon January 2, there were 194 deaths in Baltimore, as against 214 for the corresponding week last year, 183 in 1902 and 186 in 1901. The annual deathrate per 1,000 was: Whole population, 18.26; white, 17.18; colored, 24.44.

Smallpox Epidemic Reported in Texas.—Information from Sour Lake, Texas, under date of December 31, says: The outbreak of smallpox here has become a very serious matter. One physician states that there are fully 200 cases and there have been 5 deaths in the past few days. The State health authorities were asked to take the matter in charge, but so far nothing has been done in that direction. There is no municipal government, and matters may grow much worse.

Alcohol and Insanity.—The *Baltimore Herald* says: The attention of those who take a little something for their appetite and of those who have not yet reached the stage in which the hideous things of nature become visible is respectfully called to the report of Dr. J. Percy Wade, superintendent of the Maryland Hospital for the Insane, who declares that there is an alarming increase in the number of men who are afflicted with insanity caused by the use of alcohol. Dr. Wade also says that the number of alcoholic patients is constantly multiplying. Most people are inclined to look upon the delirium tremens as something amusing, but the aspect of the case pointed out has nothing comical about it. Its extreme gravity should cause people to stop and think. The alcohol habit is growing. Possibly much of it is due to the nervous tension of the times, but whatever the cause, the effect should be remembered when confronted by the foolish persuasion that the high pressure of an unnatural life can be relieved by over-stimulation.

WESTERN STATES.

No Leprosy in Nebraska.—The scare occasioned in Lincoln by the report that 25 cases of leprosy had been discovered in the Russian colony, has been dispelled by the report of the Health Commissioner, who made a thorough investigation of the suspected cases. Instead of being leprosy, the disease is a harmless skin affection.

Does Radium Exist in Colorado?—According to reports from Denver, not long ago it was alleged that a certain spot in Utah was more or less stocked with radium, the new and wonderful element. Colorado now makes the same claim. Professor W. D. Engle, of the University of Denver, and Justin H. Haynes, a chemist, say they have discovered that radium exists in the mines of Colorado, and declare that it can be procured here in larger quantities than in any other part of the world.

FOREIGN NEWS AND NOTES

GENERAL.

Enteric Fever in London Watercress.—In June, July and August, a period of the year when enteric fever cases are usually below the average, the disease broke out with such severity in London, as to cause Dr. King Warry, the medical officer of health, to make a special investigation into the causes. Localization of the disease led Dr. Warry to seek for a special cause for the outbreaks, and while examining the known media, i. e., water, milk, shellfish, ice cream, fried fish, and sanitary defects—he was struck by the large number of watercress eaters among those affected. Bacteriologic examination of the watercress submitted for sale in the locality showed many specimens teeming with typhoid bacilli. Much of the watercress had grown in the almost undiluted sewage from portions of the city.

Leprosy in Colombia.—M. Beaupre, United States Minister to Colombia has transmitted to the State Department a copy of a law enacted by the Colombian Congress providing for the isolation of lepers in each department of the republic. "One of the gravest questions confronting Colombia in these days," says Mr. Beaupre, "is the terrible one of leprosy. This awful disease has invaded the country to an alarming extent, and extraordinary measures have been found necessary to check its spread." The act provides that leper asylums are to be established in each department of the republic, the central idea being isolation. For the Department of Antioquia there already is conducted a leper asylum, at an expense of more than 3,000,000 pesos.

Brain Work Does not Kill.—In the lecture on longevity delivered recently before the Royal College of Physicians, Sir Hermann Weber, himself an octogenarian, gave official support to the doctrine that brain work does not kill, but rather the reverse says the *London Chronicle*. A few of his instances are Sophocles, Plato, Galen, Cicero, Moltke, Bismarck, Mommson, and Gladstone, to whom we might add Hobbes, Carlyle, and with Kelvin still living. The facts are that brain work increases the supply of blood to the nerve cells, and promotes their nutrition and health. Mosso, an Italian, laid a man on a delicately balanced table, and showed that the head end sank whenever the subject did a mental sum or any other brain work. The increased weight of his head was due to the life-giving blood. The truth is that brain work, as such, never killed anybody.

CONTINENTAL EUROPE.

Röntgen Ray Congress.—A special Röntgen Congress and Exhibition is to be held at Berlin during the spring to celebrate the tenth anniversary of the discovery of the Röntgen rays. Professor Röntgen is expected to be present at the Congress. Further information can be obtained from Dr. Immelmann, Lützowstr, 72, Berlin, W., Germany.

OBITUARIES.

Frances E. White, one of the most widely known women physicians in the United States, recently at Jamaica Plain, Mass. She was for many years professor of physiology and hygiene at the Woman's Medical College of Pennsylvania, and was graduated from that college in 1872. She resigned her chair last May on account of ill health. At that time she was elected an emeritus professor. Dr. White was one of the first women to lecture before the Franklin Institute, and was a delegate to the International Medical Congress held in Berlin, being the first woman to act in that capacity. Shortly after her graduation she was made demonstrator in anatomy and an instructor in physiology. She was one of the founders of the Alumni Society of the college.

Hamilton A. West, at his home in Galveston, Tex., December 30, after a brief illness. Dr. West was secretary of the Board of Health in Galveston at the time of the great flood. For many years also he was secretary of the State Medical Society of Texas. Dr. West was born in Russell's Cave, Ky., on March 31, 1859. He was graduated with the honors in Louisville, Ky., where he took his degree of M.D. He became a professor in the University of Texas, and it was largely due to his efforts that the medical department of that university was founded. He made a special study of typhoid, yellow, and dengue fevers. He also wrote on the subject, pointing out the distinctions in the diagnosis of the two latter fevers which have often been confounded.

Byron Hiram Daggett, at his home in Buffalo, N. Y., December 30; a graduate of the medical department of the University of Buffalo in 1887. He was known in the surgical world as the inventor of a surgical table which is in general use among surgeons throughout the country. He was a former health physician and police surgeon of Buffalo, a member of all the Buffalo medical societies, an editor of the *Buffalo Medical and Surgical Journal*, a writer for the *New York Medical*

Journal and the New York Medical Record, and a member of the staffs of the Emergency, Sisters' and Riverside Hospitals of Buffalo.

J. H. Vastine, at his home in Catawissa, Pa., of Bright's disease, January 3, aged 68; a graduate of Jefferson Medical College, and an army surgeon during the Civil war, in which he served with the One Hundred and Thirtieth Pennsylvania Volunteers. He was one of the oldest practising physicians in his section of the State, and at the time of his death was president of the First National Bank of Catawissa and a director of the First National Bank of Bloomsburg.

Anton Eldenbenz, at St. Luke's Hospital, N. Y., of pneumonia, January 1, aged 88. He was born in Germany and graduated in medicine from the University of Giessen, Germany, in 1846, but practised in New York City for more than 50 years. He was surgeon to the Eleventh New York Regiment during the Civil war, and for many years was visiting surgeon to St. Luke's Hospital.

T. G. Birchett, at his home in Vicksburg, Miss., January 2, aged 68; a graduate of the University of Pennsylvania in 1856. He was twice mayor of Vicksburg, served several terms in the city council and the Mississippi Legislature, and was for years superintendent of the Mississippi State Hospital at Vicksburg.

Harry C. Hume, at his home in New Harmony, Ind., December 17, of consumption, aged 30; a graduate of the Kentucky School of Medicine, Louisville, in 1892; member of the American Medical Association and Greene County Medical Society.

William S. B. Henry, at his home in Falls Church, Va., December 12, aged 76; a graduate of Jefferson Medical College; surgeon to the Fortieth Virginia Infantry, C. S. A., and formerly physician to the Omaha and Winnebago Agency in Nebraska.

E. M. Hardcastle, at his home in Easton, Md., December 27, aged 85; a graduate of Jefferson Medical College in 1884. For 55 years he practised his profession in Trappe, Talbot county, Md., but for the past 7 years had lived in Easton.

Gustavus Adolphus Haefner, formerly of Baltimore, January 3, at his home in Hurloch, Md., aged 59; a graduate of the University of Maryland in 1866. He served as medical officer in the Federal army during the Civil war.

Thomas B. Welch, at his home in Vineland, N. J., December 29, where he had resided for many years. He was an active prohibitionist and the originator of prepared grape juice for communion purposes.

Horace Clifton Taylor, at his home in Brockton, N. Y., December 27, aged 90; a graduate of the Eclectic Medical Institute, Cincinnati, in 1849. He was known as an author of works on the care of the indigent.

Samuel B. Howell, at Atlantic City, N. J., December 12. He was one time secretary of the College of Physicians, Philadelphia, and one of the founders of the Medico-Chirurgical College, Philadelphia.

Frank S. Jackson, at his home in Dunkirk, N. Y., January 1, aged 52; a graduate of the University of New York, from which place he went to Dunkirk, where he practised for more than 30 years.

William H. A. Young was killed by the accidental discharge of a rifle at his home in Springfield, Mass., December 26; a graduate of the Eclectic Medical College of the City of New York in 1912.

Leopoldo Bertini, in Rome, Italy, December 10, 1903. He was chief surgeon to the hospital of San Giacomo for many years, and noted for the introduction of many surgical appliances.

Francis A. Kitchen, at his home in Toledo, December 18, of pneumonia, aged 83; a graduate of the University of Pennsylvania in 1856, and an army surgeon during the Civil war.

J. Reynolds Tillinghast, Jr., of Saranac Lake, N. Y., at Colorado Springs, December 13, of consumption; a graduate of the College of Physicians and Surgeons, N. Y., in 1895.

J. W. Hamilton committed suicide in his room in San Francisco, December 14, aged 66; a graduate of Bennett College of Eclectic Medicine and Surgery, Chicago, 1870.

John M. Otto, in the New York Hospital, as the result of fracture of the skull from an accidental fall, December 20; a graduate of the University of New York in 1899.

Z. T. Scott, at his home in Hazlehurst, Miss., December 23, aged 75. He was a prominent citizen of the locality and had practised in that vicinity for many years.

Michael O'Malley, on December 26, at St. Agnes Hospital, Philadelphia, of pneumonia, aged 78. He was a retired army surgeon and veteran of the Civil war.

Charles A. Moran, at St. Joseph Infirmary, in Atlanta, Ga., December 20, aged 45; a graduate of the Southern Medical College, Atlanta, in 1885.

Henry J. Bowers, at his home in Myerstown, Pa., December 31, of diabetes, aged 62; a graduate of Jefferson Medical College in 1862.

Elias H. Frantz, at his home in Reading, December 30, aged 56; a graduate of Jefferson Medical College in 1873.

Silas J. Damon, at his home in Bridgeport, Conn., January 1, aged 58. He was a wellknown eclectic physician.

Robert Boocock, at his home in Brooklyn, December 28. He was a wellknown Homeopathic physician.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

TUBISM—LAVAGE HABIT.¹

BY

C. D. SPIVAK, M.D.,
of Denver, Col.

During the first years of my professional life—and they did not begin until many years after the Civil war—patients came to me who never heard of the stomach tube, and who were "scared to death" when I explained to them the harmless and painless procedure of swallowing a small piece of rubber tubing. I used to show them only a few inches of the tube, hiding its full length from their gaze, never daring to expose the funnel end. Experience taught me that many patients believe that everything in sight is to go into the stomach—tube, funnel, and pitcher. Sometimes it took considerable persuasive eloquence, combined with a popular lecture on anatomy, supplemented by a glowing description of the untold benefits derived from its use to induce a patient to undergo this trifling operation. And then, oh, what hard times followed when the tube touched the incisors, the patient commenced to struggle for breath; when it touched the palate there was cyanosis, and when it reached the pharynx, respiration was completely suspended, and the tube, together with the operator, were roughly handled by the dazed and crazed patient. What a coughing, hawking, spitting, groaning, sneezing, struggling, and occasionally swearing there were!

Those horrid days are gone, and it is all different now. Even he from the backwoods has heard of the tube, has seen it used by his dyspeptic neighbor, nay, the majority of those who come to me now have already had "a taste of the hose." The suggestion of using the tube, which by an old habit, I always make in a rather subdued and trembling tone, no longer surprises anybody. The number of those who need coaxing is diminishing rapidly, and will soon entirely disappear. Most of the symptom-complex which accompanied the exhibition of the tube are entirely absent, and those that manifest themselves are of a mild type. The spread of knowledge has lightened the labor of the gastroenterologist, and another proof has been added to the assertion that the mind exerts a powerful influence over the body.

But the beneficent effect of diffused knowledge is not an unmixed blessing. Patients now-a-days go to the other extreme; their timidity has turned into reckless daring; they begin to use the tube without even consulting a physician, and having secured, or imagined they secured some relief from its use, they go on using it frequently, and injudiciously—they become slaves to this habit—tubomaniacs. The number of such patients is as yet insignificant. The greatest number of victims, however, is found among those who have at one time received treatment at the hands of physicians, and who were encouraged or at least permitted to use the tube themselves. They use the tube morning, noon, and evening; they use it under the slightest provocation—for a little heartburn, slight heaviness at the pit of the stomach, headache, backache, dysmenorrhea, impotence, and what not. There are unfortunates who carry in their traveling grips a stomach tube alongside of their fountain syringe, and then treat both ends of the digestive tract by hydraulic pressure. Now and then such *waxy-tube-outcasts* come to me who, instead of being coaxed into swallowing the stomach tube, seek relief from complaints induced by its abuse, and who have to undergo a systematic course of weaning from "tubism."

Now cases of gastric disturbances that need lavage are very limited, not more than 20%—rather less than more. It is seldom necessary to wash a stomach daily. The majority of cases in which lavage is indicated, 2 or 3 times a week is sufficient for all purposes. I use the stomach tube in all gastropaths for pur-

¹Read before the Medical Society of the City and County of Denver, November 3, 1903, as one of six "five minute talks" given by members of the Society, following the alphabetic order of the membership roll, after the regular program of the meeting.

poses of gastric analysis, and find after considerable experience, that 80% will do well on a treatment of regulated diet, medicine, massage, physical culture, outdoor life, and hydrotherapy.

I need not tire you with a recital of a series of cases of "tubism" that came under my observation. As an illustration a case will suffice.

M. B., a physician, was referred to me by Dr. Gildea, of Colorado Springs. The patient's health began to fail in 1896-97 while an interne in a hospital in New York. She ascribed her condition to hard work, poor food, and close confinement. The chief symptoms were poor appetite, frequent eructation of gas, borborygmus, and the passage of small, soft, sour-smelling stools 2 or 3 times a day. She was treated for endometritis, which was thought to have been the cause of her ill health. In November, 1898, she commenced to cough. In 1899 tubercle bacilli were found in her sputum, when she went to Colorado. Although she gained somewhat in weight, and her pulmonary symptoms disappeared, her gastrointestinal symptoms did not improve. She had frequent evacuations from her bowels, especially after meals. In 1900 she noticed mucus in the stools. She flushed the colon daily with salt solution, but noticed no improvement. During the warm weather diarrhea set in, complete anorexia, and she lost 20 pounds in weight. In 1901 she went to California, where she remained for 6 months. In June of that year she commenced to wash her stomach daily, and continued to do so until she came under my observation March, 1902—10 months of daily lavage! She complained of pain in the lower part of the abdomen, worse toward evening and after exercise. She suffered a great deal from flatulence and occasional eructation of gas. Appetite was poor. Stools were irregular and musty. Physical examination of the abdominal viscera revealed tenderness over the ascending and descending colon. Stomach contents showed normal quantity of hydrochloric acid; gastric motility normal, digestion good. Examination of feces showed fermentation, mucus, white blood corpuscles, numerous starch granules, and vegetable cells. A diagnosis was made of chronic enterocolitis. Treatment consisted of an antidiarrhetic diet, rest in bed, intestinal antiseptics, use of lavage was interdicted. Patient got rid of her intestinal symptoms in 4 weeks. No relapse during 20 months. She weighs now 175 pounds.

From the study of my cases I make the following deductions:

1. Lavage of the stomach is used by physicians without due discrimination.
2. The stomach tube should never be allowed to be used by the patients themselves.
3. That the dictum, "Physician heal thyself!" in so far as it least as it concerns gastric troubles is not tenable.
4. That to the many acquired vicious habits must now be added that of "tubism."

NEED OF WARD IN GENERAL HOSPITALS FOR TREATMENT OF MENTAL DISORDERS.

BY

FREDERICK PETERSON, M.D.,
of New York City.

To the Editor of *American Medicine*:—I was glad to see in *American Medicine* for December 19, Dr. Rhein's article on the need of a ward in general hospitals for the treatment of mental disorders, and I hope it will lead to a general recrudescence of a scheme which has been advocated for many years. In January, 1890, a committee of the New York Neurological Society, consisting of Drs. Dana, Parsons, and myself, appointed to comment upon some pending lunacy laws, added to its report the following paragraph:

A clause should be introduced into the bill providing that nothing in the lunacy laws of the State shall be construed to interfere with the reception and treatment of acute cases of insanity in chartered general hospitals, in the same manner and under the same conditions as patients suffering from other diseases are there received and treated, provided such hospitals have suitable accommodations approved by the State Commission in Lunacy.

The *New York Medical Journal* spoke editorially in its issue of February 22, 1890, as follows in relation to this committee's report:

We cannot speak too favorably of the action of the committee of the New York Neurological Society. Their proposition to place it in the power of the 63 chartered general hospitals of this State to open special wards for the reception of the acutely insane, under the same conditions precisely as other

classes of patients are received, would lead to vast improvement in the early and efficient treatment of the nutritive disorders of the brain. It would create a number of reception wards in various parts of the city and State, where there is now absolutely no place for such purpose.

Dr. Rhein states that he knows of "no ward of this kind in the United States, England, or France." Such wards have been quite common on the continent, especially in Germany and Austria, where they are now being replaced to a great extent by the "psychiatrische klinik" of the German universities. That in the Charité in Berlin, is now a separate pavilion of the rejuvenated Charité. Ureywert's old wards for the insane in the general hospital at Vienna still exist. The Solfèrièrè in Paris is a general hospital which has had a department for the insane since time immemorial. Many similar examples could be cited abroad. In this country the city of New York has maintained a division for mental diseases in the Bellevue Hospital for 20 or 30 years, and vastly improved quarters for such patients are to be a feature of the new Bellevue Hospital about to be constructed. It is possible that the trustees may, as they have been advised to do, create similar departments in the two large city general hospitals in course of erection in Harlem and the Borough of Bronx. The insane department of the Albany General Hospital, established within a few years, has had a notable success.

THROMBOSIS OF THE LEFT FEMORAL VEIN FOLLOWING ASEPTIC LAPAROTOMY.

BY

JOHN G. SHELDON, M.D.,
of Telluride, Colo.

Thrombosis of the femoral vein following aseptic laparotomy, is a rare occurrence. One case has occurred in my practice, and I have personal knowledge of a similar case that occurred in the practice of a neighboring surgeon. The condition is one that comes without warning and without prodromes that would lead one to suspicion its occurrence. For these reasons it is of importance, and warrants careful study. So far I have been unable to satisfy myself as to the immediate or remote causes of the condition, or how we can prevent or guard against its occurrence.

The following is the report of a case that occurred in my practice over 2 years ago:

Mrs. T., aged 38, was operated on in the following manner: A median incision was made. The left ovary was found to be cystic and as large as a man's fist. The pedicle of the ovary was clamped and ligated with catgut and the ovary removed. The adhesions were very slight. The cut surface of pedicle was small and was not covered by suturing, neither was any chemic substance dusted upon the stump, or used to cauterize it. The appendix showed evidences of a chronic inflammation and was removed, and the stump treated according to Doyen's method. The right ovary contained a cyst about 2 cm. in diameter. This was excised and the wound in the ovary approximated with catgut. The uterus was retroverted and somewhat prolapsed, and a ventrosuspension was done by Kelley's method. The abdominal wound was closed by a figure eight of silkwormgut tied over a roll of gauze. Before the deep sutures were tied the skin was approximated with a subcutaneous suture of silkwormgut. The patient made a rapid and uneventful recovery. On the ninth day the sutures were removed, and the wound was found united and clean. On the thirteenth day she was awakened by a quite severe pain in the left groin. This continued, and about 4 hours later the entire extremity began to swell. The limb was elevated and hot applications applied. The pain gradually extended to the knee, and then to the calf of the leg. It was not severe, and in 36 hours had disappeared. There was no change at any time in the pulse-rate or temperature—both remained normal. I was at a loss to explain the cause of the thrombosis. Physical examination revealed nothing abnormal. The heart, lungs, and kidneys were found to be in the same condition as they were before the operation. Vaginal examination was negative. The patient's right kidney was very movable, and we had decided to anchor it about 10 days after performing the first operation. This plan was now abandoned. The subsequent history of the case is as follows:

On the twentieth day following the operation the limb had returned to its natural size. On the twenty-second day the patient got out of bed and sat in a chair. From this time she began to walk about. The limb still swells and becomes painful when used. The patient wears a rubber stocking and gets along very well, but there has been no improvement in the leg during the last 18 months. The patient's general health has

remained good. I anchored the right kidney 9 months after the first operation. Since that time the only complaint that the patient has is of the leg—this does not improve.

I have personal knowledge of a thrombosis of the left femoral vein following an interval operation for appendicitis in a man of 33. The wound healed by primary intention. This patient was operated upon about a year ago, and the symptoms correspond to the case herewith reported.

E. R. Secord reports in the *Montreal Medical Journal* a case of double inguinal hernia in which the symptoms of thrombosis of the left femoral vein occurred on the twelfth day following the operation. Both operation wounds were clean. Secord has arrived at the following conclusions concerning the condition:

1. That no one etiologic factor is alone responsible for the occurrence of this complication.
2. That the rate of infection in otherwise noninfective cases does not appear to be an important one.
3. Conditions of sudden decrease of pressure dependent on the operation probably have a causative influence.
4. Treatment should be prophylactic, as by avoidance of unnecessary traumatism, or hemorrhage, or of suddenly decreased tension, as by having the wound area well supported by firmly applied dressings.
5. So far as the author is aware, there has been no mortality in the reported cases, but the occurrence of pulmonary embolism in a certain proportion warns us that this termination is not an impossible one.

I am in accordance with Secord's views in regard to this condition; but, so far as I can determine, we know absolutely nothing concerning the cause or nature of this complication. If a mild infection was present in these cases, we have no proof of it; if the iliac or femoral vein was injured, the injury was certainly slight. Injury to the vessels would seem improbable in the case that I have reported and in the one following the operation for appendicitis.

I believe that no advice can be given concerning the etiology, prophylaxis, or treatment of thrombosis in noninfected patients until a larger number of cases has been reported and the conditions studied more closely from both a clinical and pathologic standpoint.

FORMATION OF THE RED BLOOD CORPUSCLES IN THE SPLEEN AND LYMPHATIC GLANDS.

BY

EPHRAIM CUTTER, M.D.,

of New York City.

To my knowledge, the first successful researches were made by Salisbary in 1850 on living birds, cats, dogs, fishes, horses, opossums, oxen, pigs, raccoons, reptiles, sheep, and other species. See paper published in the *Journal of the American Medical Association*, April, 1866. The writer then studied the living spleens of frogs and turtles, in all cases verifying the formation of the red blood corpuscles. He also found red corpuscles in the blood of the trout, and with Dr. G. B. Harriman photographed it, and in 1877 demonstrated them to the American Medical Association.

The matter to be settled is as to the human spleen. When Guiteau was sentenced to death, I proposed that his spleen might be used to settle this question, as his sin was so great in killing President Garfield. For this I was abused.

Dr. H. O. Marcy, ex-president of the American Medical Association, will vouch that I have asked him to examine the blood of a living human spleen or send it for examination dried in a film on a slide. I would hence cordially endorse the plea of Dr. E. T. Williams that this be done. In the multiplicity of laparotomy cases and in the present fearlessness of opening the peritoneal cavity, that surgeons might gratify this plea and complete the history.

Lymphatic Gland.—The nearest I have come to the formation of the red corpuscle in living man was in a case of lymphatic gland abscess at the right angle of the lower jaw. Here in the discharge were found at different times white corpuscles with red corpuscles inside.

NEW DEVICE FOR ADMINISTERING ETHER.

BY

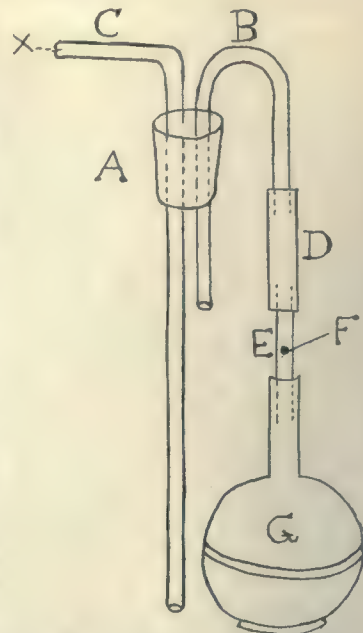
ALFRED HEINEBERG, M.D.,

of Philadelphia.

Many of us have experienced inconvenience while etherizing during operations on the neck, head, kidney, etc., in which the patient's head is turned to one side. This is particularly true if an ether cone like the Allis' is used.

Without removing the cone from the patient's face and perhaps disturbing the operator it is almost impossible to deliver the ether upon the cone in such a manner as to prevent a large portion of the anesthetic being lost by escaping from the lower surface of the cone. The apparatus here illustrated obviates this difficulty. It embodies no new principle, is simple, easy of construction and manipulation. Its use in the Jefferson Hospital during the last year has demonstrated its value.

The apparatus is manipulated by one hand as an atomizer, and ether in any quantity can be directed from a bottle upon any part of the cone desired.



A, a rubber stopper to fit an ordinary 58 ounce bottle. It has 2 perforations to admit the glass tubing B and C, $\frac{1}{2}$ inch in diameter. The long arm of C should reach to the bottom of the bottle. The bore at the tip X must be narrowed to the diameter of a pin, which is easily accomplished by holding the short arm of C almost vertically over a Bunsen flame. D, a piece of rubber tubing connecting B and E, a section of a quill, which in turn is inserted into the nozzle of a soft rubber ear syringe, G. At F the quill has a pin-point perforation which is very important for without it the stream of ether cannot be controlled by pressure on the bulb.

FINGER INJURIES AND EPILEPSY.

BY

W. P. SPATLING, M.D.,

of Sonyea, N. Y.

To the Editor of *American Medicine*:—In the December 19, 1903, issue of *American Medicine*, page 947, you mention "Epilepsy from Bruise of Finger." It appears that an employee of a manufacturing company who had a finger injured in a stamping machine, developed "traumatic epilepsy," and sued the company for \$5,000. It also appears that "a nerve running from the end of the finger to the brain was lacerated."

About 5 years ago, a man—an eddyite, by the way—consulted me about his son, a boy of 9, who was said to be a victim of epilepsy, being accustomed to have 6 to 8 mild attacks every day. I never saw the boy while he was in a seizure, and cannot vouch for the correctness of the diagnosis made by the father in the case. I advised that the boy be sent to the country to live on a farm. This was done, and a month later I received, in response to an inquiry, a letter from the father as follows:

"I followed your advice, and brought my son up here and put him on a farm. I am happy to state that he has entirely got rid of his attacks. He has had none since the day he was playing with a lawn-mower and accidentally cut off one of his fingers."

So far as finger injuries in "causing" and "curing" epilepsy are concerned, it seems a poor rule that won't work equally as well both ways.

ORIGINAL ARTICLES

AMPUTATION AT THE HIP-JOINT FOR SARCOMA, WITH A REPORT OF SEVEN CASES, WITHOUT MORTALITY; SUBSEQUENT HISTORY OF PATIENTS.*

BY

WILLIAM B. COLEY, M.D.,

of New York City.

During the past 14 years I have observed 17 cases of sarcoma of the femur, and 22 cases of sarcoma of the thigh. The majority of these cases were hopelessly inoperable when they came under my care, but in 11 cases I performed high amputation. In 7 instances the amputation was made through the hip-joint, and in 4 cases just below the trochanter. It is to the results, immediate and remote, in these cases that I would especially call your attention.

In my 7 cases of hip-joint amputation the sarcoma started in the bone or periosteum in 5 cases, and in the muscles or fascia in 2 cases. The ages of the patients ranged from 6 years to 60.

FEMUR CASES.

Male.....	6 years.
Female.....	11 "
Female.....	13 "
Male.....	45 "
Female.....	60 "

THIGH CASES.

Female.....	24 years.
Male.....	49 "

CASE I.—*Small round-celled sarcoma of the femur, periosteal; hip-joint amputation.* E. S., male, aged 6. No history of trauma. In February, 1898, the patient's mother noticed a small lump in the right femur. This increased in size slowly for 3 months, and then grew very rapidly. I first saw the patient in May, 1898, with Dr. W. R. Townsend. There was a wellmarked fusiform swelling, involving the lower third of the thigh, and undoubtedly connected with the femur. The skin was normal in appearance, and freely movable over the swelling. The joint was not involved; no enlarged glands of any size in groin; no signs of metastasis. The general character of the tumor with the history of rapid growth, made the diagnosis of sarcoma clear. Amputation was strongly advised, but the parents refused to consent. Six weeks later I again saw the patient in consultation, and at this time the parents consented to operation, although the tumor had increased so greatly in size that the prognosis was much more grave. Operation was done September 6, 1898, 7 months after the tumor was first noticed. Dr. Wyeth's pins were used with greatest satisfaction; scarcely a dram of blood was lost. The patient suffered little from shock, and made an excellent recovery. Four months later the patient died of generalization with metastases in the lungs.

CASE II.—*Round-celled sarcoma of femur, periosteal; hip-joint amputation.* F. N., aged 11, a female. Family history good. In February, 1897, the patient fell down a flight of steps and injured the right knee; a slight swelling developed accompanied by pain which continued and increased. Three months later a wellmarked swelling was noticed on the inside of the knee. This grew very rapidly; still the patient continued to get about. She visited various hospitals, and was treated for various diseases, *e. g.*, tuberculosis and syphilis. She came under my observation on July 28, 1897, 5 months after the injury. At this time the clinical diagnosis of periosteal sarcoma was beyond question. The circumference of the left femur over the most prominent part of the tumor was 6 inches greater than that of the opposite side. Hip-joint operation was immediately performed at the Post-Graduate Hospital with the assistance of Wyeth's pins. The patient suffered very little from shock, and made an uninterrupted recovery. She returned to her home in New Jersey, and has since been lost sight of, although the utmost efforts were made to trace the subsequent history.

CASE III.—*Osteochondrosarcoma of the lower end of the femur; hip-joint amputation.* L. Z., aged 13, a female, was admitted to the New York Cancer Hospital, May 30, 1898. Family history good. There was no history of trauma. Intermittent pains in the lower end of the femur were the first symptoms; supposed to be an attack of rheumatism. Shortly afterward a small swelling was noticed in the region of the pain. There was no interference with the movements of the joint, the swelling being situated just above the condyle. The patient was referred to me by Dr. W. R. Townsend in May, 1896. Although

the patient was at that time under treatment for possible specific disease, the diagnosis of sarcoma of the femur was made and amputation at the hip-joint advised. The family seriously objected to so severe an operation, and only consented after a small portion of the tumor had been removed by a Mixer punch, under cocaine, and proved to be chondrosarcoma by microscopic examination. Amputation at the hip-joint was performed in June, 1898, less than 6 months from the time the disease was first noticed. Wyeth's method was used also in this case. The patient lost little blood, and made an excellent recovery. She remained perfectly well for nearly a year, when she began to fail in health, losing in weight, and slowly becoming cachectic. There was no local return of the disease, but evidently generalization in the internal organs had taken place. She continued to fail, and died in May, 1900, 2 years after the operation.

CASE IV.—*Osteosarcoma of the femur; hip-joint amputation.* T. B., a male, aged 45, blacksmith. Family history good. January 29, 1900, he received a fracture of the lower end of the left femur from the kick of a horse. The fracture was a simple one, and was treated with extension and weights for 6 weeks, with apparently good union. Two to three months later the patient noticed what he thought was an unusual enlargement at the site of the fracture. This was regarded by the physician attending him as callus. It, however, slowly increased in size, and finally became painful. The patient came under my observation on August 21, 1900. At this time examination showed the lower end of the femur the site of a tumor the size of a child's head, with smooth outlines, firmly fixed to the bones; the joint was not involved; skin was freely movable and normal in appearance. The tumor was firm in consistence. The diagnosis of sarcoma was made, and amputation at the hip-joint advised. This was performed on August 29, 1900. I made use of Wyeth's method with most satisfactory result. The patient made an uninterrupted recovery, but 6 months later returned with unmistakable evidence of metastases in the lung; he continued to grow worse, and died within a year.

CASE V.—*Periosteal sarcoma of the femur; periosteal hip-joint amputation.* Mrs. D., aged 56. Family history good. She had no previous trauma. Toward the end of 1900 the patient first noticed a hard lump about the middle of the left thigh. She was not sure whether the tumor was movable or not. About 1½ years ago the growth was removed at the Mt. Sinai Hospital. It recurred about 6 months later. The patient was admitted to the General Memorial Hospital in January, 1903, and at this time there was a large tumor occupying the anterior aspect of the upper portion of the left thigh. The tumor was in 2 sections, nearly coalescing at the base, the lower portion being about the size of a fist, the upper considerably larger, slightly movable, and apparently attached to the periosteum; the skin was normal. The patient was treated with the mixed toxins and Röntgen ray for 3 months, without any appreciable effect upon the size of the tumor. She returned to her home, and in October the tumor had increased considerably in size, and extended to, and beyond Poupert's ligament. Her general condition was bad; she was markedly anemic, and had lost considerable weight. Pulse was rapid—120, and weak. In view of the fact that the tumor extended so high up, and her general condition was so bad, the prognosis after hip-joint amputation was considered very grave, and operation was not urged. After a consultation it was, however, decided to operate, and hip-joint amputation was performed on October 20, 1903. Preliminary ligature of the external iliac was done, and amputation performed with almost no loss of blood. The wound was closed by a long posterior flap. The patient made an excellent recovery, with the exception of some sloughing of the distal portion of the long flap.

CASE VI.—*Spindle-celled sarcoma of the thigh; hip-joint amputation.* M. L., female, aged 24. Family history good. For some years she worked many hours a day on a sewing machine, during which time her right thigh rested upon the edge of a hard chair. In the fall of 1898, she noticed a hard lump apparently in the muscles of the right thigh, just at the point where the thigh had rested upon the chair. This lump grew rather rapidly, and she was operated upon by Dr. Bull at the New York Hospital, on December 29, 1898, 2 to 3 months after the tumor had first been noticed. Microscopic examination showed the growth to be a mixed-celled sarcoma, spindle and round. The tumor recurred quickly after operation, and the patient was referred to me by Dr. Bull on January 25, 1899, with a diffuse local recurrence, 3 in. by 5 in. in diameter. She was put on the treatment with the mixed toxins with the result that the tumor and induration entirely disappeared. It, however, soon returned, and again began to increase in size in spite of continued treatment with the toxins. I advised amputation at the hip-joint, and performed the operation in September, 1899. Wyeth's pins were used. The patient suffered very little from shock, and made an excellent recovery. No further treatment with the toxins was given after the operation. The patient remains well up to the present time, over 4 years since operation.

CASE VII.—*Spindle-celled sarcoma of the left thigh; hip-joint amputation.* W. V., a male, aged 49. His mother died of cancer of the uterus 25 years ago. The tumor was first noticed in the anterior portion of the left thigh, in the summer of 1896. There was no history of trauma. The tumor gradually increased in size. On August 31, 1897, an extensive operation was per-

* Read before the Southern Surgical and Gynecological Association, at Atlanta, December 16, 1903.

formed by Dr. J. D. Bloom, in New Orleans. Microscopic examination showed it to be a spindle-celled sarcoma. The tumor recurred in May 1898, 9 months after the operation. The patient was referred to me by Dr. Bloom for the toxin treatment, which was tried very thoroughly from July to October 1898. At first there was marked improvement and considerable diminution in size. Improvement then ceased, and after remaining stationary for a time, the growth began to increase again. High amputation at the hip-joint by Wyeth's method was done in October, 1898. The patient remained well until the summer of 1900, when he had a recurrence, which proved fatal in the latter part of 1900, 2 years after the hip-joint amputation. The entire duration of the disease in this case was about 4 years.

Method of Operation.—Wyeth's method of wire pins was used in all but the fifth case, in which the tumor extended up to Poupart's ligament, making it impossible to use the pins. In this case I first tied the external iliac artery above Poupart's ligament and then disarticulated. No anterior flap could be made, and it was necessary to depend upon a long posterior flap. The patient, though 56 years of age and very weak and anemic, stood the operation very well, and suffered a minimum of shock. She lost practically no blood at the operation, and made an excellent recovery. A portion of the long flap sloughed, but did not become infected. The time of operation in this case was 35 minutes, not materially different from the length of time required when Wyeth's pins were used. One advantage noticed in this case was the absence of oozing, so often seen when the thigh has been tightly constricted by rubber tubes or bandages.

In addition to the foregoing 7 cases of hip-joint or high amputation, I have done 4 amputations below the trochanter, as follows:

CASE I.—*Periosteal round-celled sarcoma of the lower end of the femur.* Mrs. S. R., aged 26; family history good. She was well until the spring of 1895, when she fell and dislocated the right patella. The knee remained more or less stiff afterward. Several futile attempts were made to break up the adhesions, under ether. In December, 1896, a swelling was noticed on the inner side of the thigh just above the condyle, accompanied by slight pain. The tumor increased slowly in size and 2 months later an exploratory incision was made by Dr. George A. Plimpton, under ether, and a portion of the tumor removed for microscopic examination. The latter was made by Dr. H. T. Brooks, of the Post-Graduate Hospital, and showed the growth to be a mixed-celled sarcoma, very rich in cells and apparently highly malignant. A specimen was also examined by Dr. B. H. Buxton, of the Loomis Laboratory, who pronounced it an alveolar sarcoma, composed principally of round cells, very malignant.

In April, 1897, the patient was referred to my service at the General Memorial Hospital, at which time the exploratory incision had not yet healed and there was free discharge of pus coming from the bottom of the wound; there were several enlarged glands in the groin. One of these was removed under cocaine, and proved to be nothing but hyperplasia.

April 5, 1897, amputation at the middle of the thigh was performed and all the glands in the groin were removed. Examination showed them not to be involved. Examination of the tumor showed it to be of periosteal origin, the central portion of the bone not being invaded. There was considerable suppuration in the end of the stump, but as the leg was infected at the time of the operation, this was not surprising. The patient made a good recovery, but died 4 months later, of internal metastasis, chiefly in the lungs.

CASE II.—*Melanotic, round-celled sarcoma of the thigh; amputation just below the trochanter.* Mr. W., aged 55; family history good; no specific or tuberculous history; for a number of years he had a small, pigmented mole on the inner aspect of the right thigh, just above the knee. In January, 1901, the mole became irritated by his clothing and occasionally bled. Shortly afterward it began slowly to increase in size. A few weeks later he noticed enlarged nodules in the groin, but little attention was paid to them. They increased gradually in size, and early in July, a mass of glands, the largest the size of a goose egg, was removed from the groin by his physician, Dr. Stuart, of Pittsburg. Macroscopic as well as microscopic examination showed the mass to be typical melanotic, round-celled sarcoma. Two smaller masses removed from the inner aspect of the thigh, about midway between knee and groin, showed the same type of growth. In July, the patient was referred to me by Dr. Stuart, for the toxin treatment, and from July to October received daily injections of the mixed toxins. At the time the treatment was begun, there were numerous small nodules, varying from the size of a No. 8 shot to that of a split pea, almost entirely encircling the lower portion of the thigh just above the knee and scattered about the various areas nearly up to the groin. At first there was some decrease in the

size of the small tumors, but later they began to increase in size and in number. The patient also began to lose flesh and appetite. On October 10, after consultation with Drs. Bull, Bryant, and Hartley, it was decided to amputate just below the hip, not with any hope of getting rid of the trouble, but expecting that, by taking away the largest focus of the disease the end might be more comfortable. Amputation just below the trochanter was done, Wyeth's pins being used. The patient made a good recovery and gained considerably in weight until the latter part of November, when a small tumor appeared in the skin of the abdomen. The patient again began to lose flesh and weight and showed evidence of general metastases. His condition became worse rapidly and he died 4 months later.

CASE III.—*Sarcoma of the thigh; amputation just below the trochanter.* Mr. I. N. S., aged 41, was referred to me on June 28, 1899, for sarcoma in the middle of the right thigh. The patient was a large, powerfully built man, 6 feet tall, weighing about 200 pounds; he had been in perfect health up to a few months prior to this time; there was no history of trauma.

Physical examination showed a fusiform swelling, deeply seated, apparently attached to the bone, but not a part of it; not movable. I made an incision under ether, and found a tumor of about the size of a goose egg, situated beneath the muscles, apparently arising from the periosteum; it did not involve the bone proper, and was easily separated from the femur. All the tumor tissue was apparently removed, and the patient was put upon the toxins to prevent a recurrence, if possible. However, in September, 1899, there was unmistakable evidence of a local return, and on October 3, 1899, I performed amputation just below the trochanter, making use of Wyeth's pins. The wound healed by primary union, and the patient made an excellent recovery. The toxins were given after he returned to his home in New Orleans, and he remained fairly well for about a year. In December, 1900, there was a recurrence in the stump and sciatic nerve. For this, further amputation was performed with disarticulation of the small fragment of bone remaining from the first operation, by Dr. Bloom, of New Orleans. The patient remained well, and had no local recurrence, but in May, 1902, I received a letter from Dr. Bloom, stating that the patient was confined to his bed with left pleural metastasis. He died shortly after this. The entire duration of life since the beginning of the disease was 3½ years.

CASE IV.—*Spindle-celled sarcoma of the thigh, recurrent, after primary sarcoma of the metatarsal bone; amputation just below the trochanter.* F. K., female, aged 16, had a fall in 1888, injuring her right foot. Shortly afterward 2 lumps appeared at the site of the injury; the following year the tumors were removed by Dr. William T. Bull, at the New York Hospital, with excision of the third and fourth metatarsal bones. She remained well for 3 years after that when she received another injury to the foot, followed by local recurrence. Syme's amputation was performed by Dr. Bull. In 1893 she fell downstairs again, injuring the stump and almost immediately afterward a tumor appeared on the site of the injury; this slowly increased in size; shortly after this a large tumor, the size of a child's head, developed in the popliteal space. This was removed in 1894 by Dr. Bull. Microscopic examination of all these growths showed them to be spindle-celled sarcoma. At the time the popliteal tumor was removed, the small tumor in the stump was left behind and treated with the mixed toxins, with the result that it entirely disappeared. About 1½ years later there was a local return and also a return in the lower part of the thigh, for which I performed high amputation just below the trochanter in 1896. Shortly after there was an extensive recurrence in the gluteal region, which was partially removed by operation, and the patient was put upon the mixed toxin treatment, which was kept up at intervals for 3 years.

I examined the patient in June, 1903, and as she was very anxious to get a false leg, I decided to remove the small tumor that had remained since the last operation, and which had shown no tendency to increase in size. This was believed to be merely fibrous tissue, and such it proved to be on examination after removal.

The patient is in perfect health at present, 9 years since the beginning of the treatment, and 7 years after the last operation.

The question of the curability of sarcoma of the femur by operation is one that is still more or less unsettled. Butlin, in his wellknown book upon sarcoma, states that of 68 cases in which treatment consisted of hip-joint or high amputation, only one patient was known to live more than 3 years.

My own observation bears out his opinion that sarcoma in this locality represents one of the most malignant forms of tumor with which we have to deal.

Of my 5 patients with sarcoma of the femur treated by hip-joint amputation, two died within a year, one lived two years, one was not traced, and the last, a recent case, is the only one in which the patient is known to be alive.

The 4 patients with sarcoma treated by high amputation just below the trochanter, one with sarcoma of the

femur, died 4 months afterward of lung metastases; the second, with sarcoma of the femur, had a local recurrence at the end of 1½ years; disarticulation was then performed, and the patient lived for 2 years longer, when he died of generalization of the disease; the third case in which amputation below the trochanter was performed, was a multiple melanotic sarcoma of the skin of the thigh, the patient died 4 months later of generalization and internal metastases; the fourth case was a recurrent sarcoma of the thigh, primary in the tarsus; there was a local return in the gluteal region, which disappeared under the use of the mixed toxins. The patient is alive and well at present, 6 years after amputation.

The cure of sarcoma of the femur (by high amputation) is so rare that every success should be reported. The only successful cases that have come within my immediate knowledge, are the following, six in number:

CASE I.—*Osteosarcoma of the femur; amputation at the hip-joint by Dr. Wm. T. Bull, at the New York Hospital.* Amputation was done 16 years ago. The patient contracted septic infection of the stump. There was continued high temperature—probably streptococcus infection—from which, however, he recovered and was well six years afterward.

CASE II.—*Sarcoma of the femur; amputation at the hip-joint by Dr. W. L. Robinson of Danville, Va.* The patient was put upon a course of the mixed toxins immediately after the operation in the spring of 1898. He remained well for more than three years, when he developed a recurrence in the iliac fossa, which broke down and disappeared under the resumption of the toxins.

CASE III.—*Periosteal sarcoma of the lower end of the femur; amputation at the hip-joint by Dr. J. D. Rushmore of Brooklyn.* The operation was done 6 years ago and the patient was well when last heard from, over 5 years after operation.

CASE IV.—*Giant-celled sarcoma of the femur; patient of Dr. A. Gerster of New York.* The microscopic examination was made by Dr. Mandelbaum, Pathologist to Mt. Sinai Hospital and the diagnosis confirmed by Professor T. M. Prudden, but the case was considered too far advanced by Dr. Gerster for hip-joint amputation. The toxins were, therefore, decided upon and after prolonged treatment at the Montefiore Home for Incurables, the tumor disappeared. The patient was exhibited before the New York Surgical Society in November 1903, by Dr. John Rogers, more than 4 years after the treatment. The patient was in perfect health and there was no sign of either local or general recurrence.

CASE V.—*Osteosarcoma of lower end of the femur; amputation at hip-joint by Dr. D. Hayes Agnew of Philadelphia, 16 years ago.* The patient, a prominent physician of Philadelphia, is still alive and well.

CASE VI.—*Periosteal sarcoma of the femur; amputation at the hip-joint by Dr. George W. Shrady of New York.* The patient is alive today, 21 years after amputation.

It is interesting to note that in one of these 6 cases no amputation was done, as the disease was considered too far advanced for amputation by Dr. Gerster, and the patient was treated for some months with the mixed toxins of erysipelas and *Bacillus prodigiosus*, with the result that the tumor finally disappeared and the patient is at present quite well with perfect use of the leg, 5 years afterward. In this case the diagnosis was made by Dr. Mandelbaum, pathologist to the Mt. Sinai Hospital, and confirmed by Dr. T. Mitchell Prudden of the College of Physicians and Surgeons.

In another case (Dr. Bull's) in 1886, the patient had severe septic infection following operation, with continued high temperature for some time. In this case there was probably a streptococcus infection which, I believe, had much to do in destroying any sarcomatous cells that might have been left behind and caused a recurrence. It is worthy of special note that also in one of my own cases of sarcoma of the thigh, the patient who is still alive more than 6 years after operation, the mixed toxins were used for several months prior to amputation. I believe the malignancy in this case was much modified by the toxins, and hence, recurrence was prevented.

In the discussion of Dr. Wyeth's¹ paper on "Hip-joint Amputation for Sarcoma," at the Philadelphia Academy of Surgery, in 1901, I stated that the end results of operation for sarcoma of the femur and of the

long bones in general in the preantiseptic days, as shown in the classic papers of Gross,² were much superior to those obtained today. The explanation that I then offered, and the only one that seems plausible is that the streptococcus infections that not infrequently occurred in the earlier period, destroyed the sarcoma cells that were left behind and prevented a recurrence.

If this be the true explanation we have rational ground for advising a thorough course of erysipelas toxin treatment, as a prophylactic after all cases of primary amputation. The prophylactic value of the mixed toxins is proved by the case of Dr. Robinson and by several of my own cases. In one case I removed, under cocain, a tumor of the finger. The clinical diagnosis was uncertain, but the microscopic diagnosis by Professor William H. Welch and three other pathologists proved it to be a mixed-celled sarcoma of periosteal origin. The question of the removal of the finger was carefully discussed, as it was practically certain that some of the diseased tissue had been left behind. It was finally decided to put the patient upon a course of toxin treatment which was continued with intervals for more than a year. The patient is still well and free from a return, 3½ years later.

To return to the question of operation for sarcoma of the femur, there is a difference of opinion as to what is the best method. While the weight of surgical opinion has long been in favor of high amputation or amputation through the hip-joint, at the discussion in Philadelphia referred to, Dr. Bloodgood, of Baltimore, spoke in favor of resection of the bone instead of amputation and cited the experience of Mikulicz³ in support of this view.

I have carefully gone over the cases reported by Mikulicz and I do not believe they warrant us in giving up amputation.

Mikulicz refers to one case of von Bergmann, of resection of 15 cm. of tibia and fibula. The patient recovered, with very fair use of his leg. As to the later history of this case, nothing is stated.

One case of Bramann, of resection of 10 cm. of the head of the tibia for myeloid sarcoma, with patient well 3 years later.

Mikulicz's own cases of resection of long bones for sarcoma were 7 in number:

Two of the radius; time of observations, 1½ year in one; 4 months in the other case.

One of ulna; well 2 months after operation.

One of tibia; well six months.

Two cases of spindle-celled sarcoma of femur, periosteal.

1. Resection of 20 cm., patient well, can walk without cane, over a year after resection.

2. Resection of 20 cm. for periosteal spindle-celled sarcoma of femur. Resection unsatisfactory to patient and amputation preferred 5 months later. (Amputated leg shows no trace of recurrence; at both bony ends, copious new formations of bone.)

Mikulicz's concluding remarks are briefly as follows: "In view of the foregoing I can recommend to you, in future, to try resection instead of amputation in malignant disease of the long bones; of course, with the necessary limitations and precautions."

He further mentions as an important advantage of resection over amputation the fact that patients may be easily persuaded to have such an operation done at a time when they would refuse amputation which, when finally consented to, may be too late.

While the cases reported by Mikulicz may prove that it is possible to resect the femur in many cases of sarcoma, and in some instances to give the patient a fairly useful limb, they are very far from proving that the patients can be cured of the disease by such an operation.

The procedure might, perhaps, be worthy of a trial in slowly-growing myeloid sarcoma of the tibia, the radius and ulna, but to extend it to periosteal sarcoma of the femur, I believe would be most unwise. In the

*An unpublished case communicated to me by Dr. S.

latter case the disease is so highly malignant and extends so far beyond the macroscopic limits, that it would be almost impossible to be sure of its entire removal by resection.

One of the cases of sarcoma of the lower end of the femur, in which Dr. Bull performed hip-joint amputation, the bone at first was sawed through about 6 inches below the trochanter, then feeling doubt lest the disease had extended higher, disarticulation was performed. A careful examination of the upper end of the bone was made by Dr. B. H. Buxton, and it was found that the sarcoma cells had extended upward to the head of the bone, although the gross appearance was normal.

In such cases, resection would prove of little value.

The chief danger in sarcoma of the femur lies in the remarkable tendency to early metastasis. This is especially true of periosteal growths. In many cases, I believe, a generalization of the disease has already taken place before the operation. Hence the importance of making a very careful physical examination of the entire body, especially of the lungs. It is often recommended to make an exploratory incision into the tumor prior to an operation for the sake of diagnosis. This custom, I believe to be attended with grave peril to the patient. Such incisions into sarcoma of any locality may cause the infectious sarcoma cells to enter the blood-current and be carried to remote parts of the body to be the starting point of metastatic tumors. In sarcoma of the femur the risk is, I believe, especially grave. In none of my own cases have I felt this necessity of such exploratory incisions, and I believe that a careful history of the case and a careful physical examination of the tumor will almost invariably make the diagnosis clear. In cases of doubt I would have the patient prepared for operation, an Esmarch bandage applied, ready for amputation, and then cut into the tumor. The gross appearance will, as a rule, dissipate the doubts, but if not, a frozen section can be examined.

The Value and Place of the Röntgen Ray or Toxins in Sarcoma of the Femur.—An important question comes up as to the propriety of trying the Röntgen rays or toxins before advising such a serious operation as hip-joint amputation.

Personally, I do not think we are justified in allowing the patient to run the risk of a generalization of the disease, which may easily take place during the few weeks necessary to determine the success or failure of such treatment. I have never advocated the use of the toxins in sarcoma of the femur, always advising immediate amputation, and yet, in sarcoma of other long bones, I think a preliminary course of toxin treatment might be justifiable. In support of this opinion, I would cite a case of recurrent sarcoma of the tibia, in which microscopic examination was made and the diagnosis confirmed by Professor John Caven, of the University of Toronto. In this case, before amputating, I treated the patient for 3 months with the mixed toxins, in large doses, with the result that the large tumor entirely disappeared. The patient is today in perfect health, working on a farm in Canada, 6 years after treatment.

In regard to the Röntgen ray, we are not justified with our present knowledge, in assuming that an osteosarcoma of any kind, much less a sarcoma of such rapid growth and high malignancy as sarcoma of the femur, can be permanently cured with the Röntgen rays. On the other hand, it would be unfair and unscientific, not to mention one remarkable result obtained by myself in a case of sarcoma of the femur.

The Röntgen rays were begun in February, 1902, after the patient and his family had absolutely refused considering an operation.† Almost two-thirds of the lower end of the left femur was occupied by a typical round-celled sarcoma of rapid growth. The diagnosis was confirmed by microscopic examination. The patient has had almost continuous Röntgen ray treatment from February, 1902, to the present time. After a few months the circumference of the left leg became practically normal and the patient regained his normal weight. At the end of nearly a

year he developed extensive metastases in the left pectoral region, which was partially removed by operation, and afterward treated with the Röntgen ray. A little later, or a year ago, he developed a very large metastatic tumor in the right lumbar region, filling up a good part of the iliac fossa. The patient was put upon large doses of the toxins in addition to the Röntgen ray, with the result that the lumbar tumor broke down and was evacuated through a posterior incision. At present, December 4, 1903, the patient weighs 106 pounds, and his general condition is good. There is still some thickening of the left femur; the sinus remains open and there is slight discharge. There is no recurrence apparent, either in the pectoral or lumbar region. Nearly 2 years have elapsed since the Röntgen ray treatment was begun and 1 year since the toxins were added. He is at present taking the Röntgen ray 3 times a week.

In this case it is impossible to deny, that the Röntgen ray alone and unaided, almost destroyed the primary local sarcoma in the femur. It, however, did not prevent, and possibly may have aided generalization of the disease in the formation of metastases referred to. Although the boy's present condition is fairly good, we cannot regard him as cured, and in all probability further metastases will occur and prove fatal.

CONCLUSIONS.

1. Sarcoma of the femur is a malady so dangerous to life, so prone to early metastasis, that only the most radical operation should be performed, and that at the earliest possible moment.
2. Hip-joint amputation is to be preferred to resection or to amputation through the shaft.
3. Recurrence being the almost invariable rule after all methods of operation, a thorough course of mixed toxin treatment after operation, as a prophylactic, offers the best hope of permanent cure.

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CAN OUR PROCEDURES FOR THE JUDICIAL DETERMINATION OF THE CAUSE OF DEATH BE BETTERED?*

BY

SOLOMON SOLIS COHEN, M.D.,
of Philadelphia.

The cause of the death of a certain person may assume great importance in a judicial procedure. Such procedure may be either civil or criminal. Among civil issues may be mentioned suits against insurance companies, suits for damages against employers, and litigation over inheritances. Criminal procedures involve the question of homicide in its various degrees, together with the possibilities of suicide. No one who has been consulted, or has testified, in such cases can feel satisfied that the method for the judicial determination of the cause of death pursued in the Courts of Pennsylvania, and probably in most other Courts of the United States, is that best calculated to elicit or to elucidate the truth; or that a jury selected in the ordinary manner, and having the issue presented to it according to the customary method, can be expected to arrive at an intelligent decision in a case of any degree of obscurity. I have, indeed, in a number of civil causes advised attorneys to counsel their clients to settle out of court rather than attempt to make plain to a jury what seemed to me to be the true facts involved. It will be observed that I do not assert that juries cannot arrive at a correct verdict. It is quite possible that they often guess right. On the doctrine of chances they will, indeed, guess right in 50% of the cases—and guess wrong in the other half. The same chances, however, pertain to the flipping of coins, or the drawing of straws. Our civilization should be able to find some method with larger possibilities of arriving at the truth. A certain degree of difficulty is,

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indeed, inherent in the subject itself, and to that degree the possibility of error is irremediable. Our present possibilities of error, however, are not due solely, or even chiefly, to this essential obscurity, but in greater part arise out of antiquated and cumbrous forms of procedure. The development of the law has not kept pace with that of the medical sciences, and its present methods, while probably fairly adequate to the ordinary transactions of life, cannot be applied to issues in which questions of advanced science must be considered.

In order to simplify this paper, I shall not discuss the subject from the viewpoint of legal principles or of constitutional guarantees. It is quite possible, therefore, that what I shall say is, from such points of view, subject to qualification and modification. Nevertheless, a certain familiarity with the methods of courts, and that acquaintance with constitutional principles which belongs to the ordinary American citizen have, I think, prevented me from falling into any gross error in this respect; so that the modifications and qualifications required will probably concern matters of detail rather than questions of fundamental principle. I am compelled to assume, however, an hypothesis, which I am afraid does not always conform to the facts in the concrete case, namely, that it is the object of the court, and of all its officers, including therein the counsel upon both sides, to bring out the truth. Accordingly, the method herein to be proposed for the determination by judicial procedure of the cause of death in a given case, is confessedly subject to the criticism that it will restrict the opportunities of counsel on either side to exclude from consideration relevant facts unfavorable to the view he may advocate, or, on the other hand, to introduce irrelevant testimony, which may have the effect either of favorably inclining the jury toward his contention, or of so beclouding the issue as to leave the jury in a state of doubt, that it may be his object to produce. If it be the unalienable right of the plaintiff or of the defendant to withhold and to distort material evidence, then the defects of our present methods are incurable, and every proposition for a remedy will have to be withdrawn.

The most important procedure in which the cause of death becomes the subject of judicial inquiry is, of course, a trial for murder; and perhaps, if we select this for illustration and discussion, other causes may be dismissed with a few words. First let us review briefly, and with incidental comment, present methods. Let us assume that a death has occurred in the city of Philadelphia under circumstances leading to an investigation by the coroner. The coroner sends his physician to make a postmortem examination. The coroner's physician, in certain cases—certainly when there is a suspicion of poisoning—removes certain portions of the body, including, as a rule the stomach, so tied as to retain its contents, and these are submitted to a chemist for further study. The coroner holds an inquest, at which such witnesses as he deems fit to summon, with or without the advice and assistance of the police officials and of the district attorney, are examined in such manner as he deems proper. A verdict expressing the belief of the coroner's jury as to the cause of death and as to the person or persons responsible for the death is rendered; and any person accused of complicity in the death is committed for action by the grand jury. Before the grand jury, the district attorney conducts an examination, presenting such evidence as he deems fit to make out a *prima facie* case, and the accused is then held for trial before a petit jury. Before the petit jury, begins the grand struggle on the part of the Commonwealth to establish the guilt of the accused person, and on the part of the defendant's counsel either to establish the innocence of his client, or to show to the satisfaction of the jury that there is a reasonable doubt of his client's guilt. Necessarily, the Commonwealth is called upon to establish affirmatively the cause of the death of the person supposed to have been murdered. In support of this

theory, the physician who made the postmortem examination, and any other physician or chemist who may have made other investigations of the body, or of the contents of the stomach, or of other articles having a bearing upon the case—for example, garments or weapons said to be blood-stained, or substances said to be poisonous—are placed upon the stand and examined by the district attorney in order to bring out affirmatively such facts or opinions as he desires to place before the jury. After this, they are cross-examined by the opposing counsel in order to elicit facts or opinions which may seem to contradict the theory of the Commonwealth, or to test their memory, or their qualifications, or their accuracy, or their methods, or to bring out the possibilities of error involved in their methods. Within due bounds, such cross-examination is necessary and proper. It often happens, however, that the cross-examination is permitted by the Court, and no doubt under present rules, must be permitted by the Court, to assume a very wide range and to cover matters irrelevant to the case in hand and serving to obscure rather than to elucidate the truth. This remark applies with still greater force to the examination and cross-examination of witnesses introduced purely as experts to give testimony on matters of opinion and of scientific knowledge, but not in any part upon matters of fact directly concerned in the case.

Even at the risk of reiterating matters with which we are all familiar, it will be well to take time here to emphasize the important difference between one who comes into court to give expression to an opinion, or to scientific knowledge, and one who comes into court to testify to a matter of fact in the case. The physician who makes the postmortem examination testifies partly to facts and partly to opinions. This is so even though he may not be called as an expert, and his testimony may apparently refer to fact only. For example, such a physician may testify that the kidneys were, or were not, inflamed; or that the lungs were, or were not, tuberculous. Apparently, he is testifying to a fact; in reality, he is testifying to an inference. To give testimony as to fact, he should be required to state the appearances presented to the naked eye or under the microscope, or the results of other methods of examination; and then he would be in position to add that in his opinion these appearances or these results indicated the presence or the absence of inflammation or of tuberculosis, as the case might be. This opinion might properly be questioned, criticised, or opposed by other competent opinion.

On the other hand, the chemist who examines tissues and other substances for the presence or absence of poisons, is often put into the position of apparently testifying to an opinion, when in reality he is testifying to a fact. For example, he may say that having performed such and such manipulations he obtained as the result a certain quantity of a given poison—let us say morphin, or arsenic, or strychnin. This testimony is commonly treated by Court, and counsel, and jury, as the expression of an expert opinion; and from that viewpoint, cross-examination is permitted, which might be perfectly proper were this merely an expression of opinion, but is obviously improper if it be the recital of a fact. Chemistry is one of the definite sciences; and if certain definite manipulations are performed by a chemist and certain definite results obtained, it is not a matter of opinion on the part of any individual chemist, but an absolute conclusion of chemical science, and, therefore, a fact as definite as any other within the range of human observation, that the chemist has obtained some definite substance—arsenic, or strychnin, or antimony, or morphin, or whatever it may be. The chemist is therefore testifying purely to a matter of fact, and not to a matter of opinion or inference, when he states, for example, that he has performed certain chemical manipulations and as a result thereof has recovered from suspected tissues a given quantity of arsenic sulfid or of morphin sul-

fate. His manipulations are more complex than that of the police official who takes out a box from a closet, picks or breaks the lock, removes a false bottom, and finds a revolver or an incriminating paper; but they do not differ from these in any essential particular. Acids and gases, heat and electric currents, are used instead of hatchets and knives and screw-drivers, to remove the substances in which the incriminating material is hidden; but when discovered that material is no less definite than is any other material, and its finding is a fact, not an inference. It is true that special skill and care, and above all, accuracy, are required for the manipulations leading to this discovery; and, therefore, the skill, and care and accuracy of the chemist who has performed the manipulations, the wisdom and the necessity of the manipulations, and the identity of the substances that he has recovered as a result thereof, are properly subject to doubt and to test by orderly judicial method. Of this, more hereafter.

A chemist who testifies as to the methods and results of his examinations of suspected tissues and substances, is usually called upon, however, to give in addition, testimony as to his opinions upon certain hypothetic aspects of the case, and upon such opinions is properly subject to relevant cross-examination. In the case of physicians or chemists who have not examined the body or the tissues or the suspected substances, and who are called upon therefore to testify for the Commonwealth in support of its view, or for the defense in opposition to the Commonwealth's view or to the opinions of the Commonwealth's witnesses, the testimony in so far as it bears directly upon the case is entirely of opinion and not at all of fact. Such witnesses, however, are often questioned as to facts of scientific knowledge, as to cases of which they have heard or read, or as to relevant, and sometimes irrelevant, facts within their own professional experience and observation. Testimony of this character should be clearly differentiated from testimony given in answer to hypothetic questions; or in answer to questions calling for opinions upon the case under trial. In their answers to the latter class of questions, expert witnesses must assume that the facts upon which these questions are predicated are true and their opinions are rendered accordingly. The answers to certain questions, therefore, may not have any real bearing upon the issue, whether as to the cause of death or any subsidiary question related therewith, or as to the opinions of witnesses on the other side. It is in this manner that expert witnesses as to opinions or as to scientific facts only, are frequently made to appear to contradict each other, when in reality there is no conflict of opinion or of testimony. Let us suppose that expert A testifies for prosecution and gives a certain opinion based upon the facts submitted to him, he having no knowledge of the facts other than this. Expert B is called to the stand for the defense. The question submitted to him either includes something that was not included in the question submitted to expert A, or, more frequently, omits some vital datum, or may indeed refer to a different phase of the question, and in consequence his answer differs from that of the former witness. When exactly the same question is submitted to two truthful and well-informed experts, even upon opposite sides, they will usually give the same answer. Differences can honestly exist only upon unsettled questions, or on matters of pure theory, or upon inferences from partial and incomplete data. When, therefore, the question involves settled facts of science, or the status of newly advanced opinions, or the scope of new or old discoveries, the experts can and should be compelled to give the same answer. Suppose, for example, the question relates to the possibility of arsenic occurring as a normal constituent of the human body. Every competent physiologist, every competent pathologist, every competent toxicologist, every competent medical chemist knows the facts, and can by suitably framed questions be made to give a correct answer

—or to stand exposed as a pettifogger. Stated in a general way the facts are these: Gautier states that he has obtained by a certain series of chemical manipulations indications that very minute traces of arsenic are sometimes present in some form in normal tissues, especially the thyroid gland. Two or three other chemists have confirmed these observations; still other chemists have repeated the processes of Gautier and obtained contradictory results. The consensus of professional opinion is as yet against the correctness of Gautier's conclusion and in any event—even should it become demonstrated beyond doubt—it has no bearing upon a given case in which weighable quantities of arsenic have been recovered from the tissues other than the thyroid gland. To give this dubious contention an artificial and unwarranted importance may be legitimate tactics upon the part of counsel for a defendant; it is not exactly scientific treatment of a grave question by a medical expert.

It must be admitted, however, and this is a fact for which blame rests alike upon counsel and upon experts, that expert witnesses are frequently placed, either willingly or unwittingly in the position of advocates, and in their testimony magnify the importance of trivialities, evade direct answers to questions that will bring out opinions contrary to the contention of the counsel in behalf of whose client they are testifying, or seek to qualify their answers in such a way as to obscure the force of their admissions. Furthermore, the cross-examination of expert witnesses is often of such a nature, either from its acrimonious tone or from its wide range, as to excite passion, to consume time unnecessarily and to introduce a multitude of theories and possibilities having little or no relevancy to the facts in the case at issue. All this tends to obscure truth and to make it extremely difficult for even a jury whose members possess more than the average knowledge and intelligence to sift out the relevant from the irrelevant testimony; or to gain a clear conception of what are really the important points in the case; or even to understand what is the actual opinion advanced by any expert witness, or whether the criticism of such opinion has been weighty or captious.

I have often tried mentally to put myself in the position of a juror before whom a battle of counsel, with medical experts as their thundering artillery, has taken place. I confess that I have been compelled to conclude in many such cases that in the absence of my own professional knowledge I should be unable to form an opinion of any kind upon the matters in dispute, except, perhaps, that expert testimony was inexact, uncertain, purchasable, or otherwise untrustworthy. I should therefore, in a murder trial in which the cause of death as alleged by the Commonwealth was an important link in the chain of evidence be compelled to vote for the acquittal of the prisoner. I should, of course, be doing grave injustice to the majority—perhaps to all—of the expert witnesses on both sides; but I should be unable to discriminate. My verdict might be right or wrong, but I would be in such a state of doubt that I could not under my oath and the instructions of the court, convict. Such a trial, therefore, is not fair and impartial, but gives an undue advantage to the prisoner. This may in the long run inure to the benefit of society. As to this, I have here no view to express. It does not, however, make for the discovery of truth or the repression of crime.

On the other hand, cases cannot only be imagined, but have actually occurred, in which an innocent person may be in danger of conviction for homicide, because of the difficulty of making clear to a jury the scientific principle upon which the defense rests. Indeed, I have been associated in such a case, in which it is true the testimony was appreciated by the judge, and as a result of his clear charge, a verdict of acquittal was rendered; but I have always been in doubt as to whether the prosecuting attorney realized the force of the scientific

evidence prior to the judge's exposition of it. At all events I could not reconcile his argument with such understanding on his part.

The safeguards that English and American practice throw around a person accused of crime, in counterdistinction to the Continental methods which seem to assume his guilt and to call upon him to prove his innocence affirmatively, ought not to be weakened. Rather should they be strengthened, as by condemnation of the atrocious and un-English, un-American, unjust, unmanly "sweatbox" system of police inquisition. Nevertheless, it should be perfectly possible to devise a system of judicial inquiry into the cause of death which shall be subject only to those drawbacks inherent in the obscurity of the subject—a method of trial that shall at least be free from the worst of those hindrances and possibilities of error and of miscarriage of justice which this mere recital of the wellknown facts of our present procedure in such cases has made evident. The more certain acquittal of the innocent, as well as the surer conviction of the guilty, demands some attempt at such method.

Any proposition to introduce changes or innovations in judicial procedure ought to be received with distrust and suspicion. It should be severely criticised and made to prove its worth and its justice. I, therefore, expect and welcome the most searching criticism of the propositions to be made in this paper. To save time, I shall omit references to literature or to forms of practice now in vogue either in this country or abroad; but I make no claim to originality. Whether my proposals have been anticipated or not, is beside the question. The question is whether they are worth considering. Moreover, they are tentative in form and suggestive in purpose; hence stated in outline only and not elaborated. Even if received favorably by this society, that would be but a very slight step toward their incorporation into the law of the State or the practice of the courts. Nevertheless, it is useless to point out defects unless we can at least suggest a remedy. Without especial reference to any particular method in vogue in Pennsylvania or elsewhere, now or formerly, we may, perhaps, by taking up the subject *de novo* be able to see what are the necessary requirements of an orderly procedure, and thus to indicate the lines along which modification of present methods should proceed—even if we cannot immediately arrive at a method entirely free from criticism.

Let us consider (1) what are the points necessary to be brought out in order to determine the cause of a given death; (2) what are the tests of accuracy to be applied to evidence upon these matters; (3) in what manner should this evidence be presented; and, finally, (4) what are the qualifications for judgment upon it?

1. *Points Necessary to be Brought Out.*—The problem of the cause of death in a given case is, in the first instance, purely scientific. It has nothing to do with the presence or absence of felony in the case; nor, in a case with which felony may be associated, with the motive of the criminal. Its relation to these begins only after it has been decided. Obviously, an examination in which several unrelated subjects are inquired into at the same time, and a decision reached upon all combined, is entirely unsatisfactory from a scientific viewpoint, both as to method of inquiry, and as to form of decision. Yet such is our present practice. The first proposition then, that I would make, is that in a murder trial, the question of the cause of death should, when possible—and I find it difficult to imagine cases in which this would not be possible—be determined apart from, and in advance of, the question of the guilt or innocence of any individual. Such determination would thus be removed from the atmosphere of passion that must attend the trial of an individual; and also be undisturbed by the extraneous testimony that must, at the least, interfere with the logical presentation of the testimony bearing upon the question to be decided.

What then are the facts upon which a decision as to the cause of death in a given instance can be based, and as to which testimony should be restricted in an inquiry of the nature proposed? They are:

1. Relevant circumstances preceding and attending the death; including, but not confined to, the symptoms, if any, manifested by the person whose death is under investigation, and the results of any special examination made during life.

2. The manner of death.

3. The results of postmortem examination; including therein microscopic studies, and in certain cases bacteriologic and chemical studies of portions of tissue, of secretions or of other materials taken from the body, or of cultures made from the blood or tissues, and in some cases, tests upon animals. In cases in which certain relevant facts can be shown, for instance, that a certain substance was administered, or a certain weapon used, or that certain stains were found upon the body or upon the clothing, the results of tests bearing upon these facts, *i. e.*, as to the nature of the substance, the character of the stains, the sort of wound the weapon would be likely to make, etc., would likewise be admissible.

Upon naked eye postmortem appearance alone, a diagnosis of the cause of death is impossible in many cases; hence the necessity in such cases for microscopic and bacteriologic studies, if only to exclude certain of the possibilities that may be suggested by the circumstances of a given case; but even upon thorough postmortem studies of the tissues, including bacteriologic research, the cause of death may not yet be apparent, and hence the necessity for chemical studies to detect poisons of any kind, whether formed within the body or introduced from without. But chemical evidence alone does not indicate the cause of death. Pathologic evidence—that is to say, tissue changes, apparent to the eye, or revealed by the microscope, must also be present in the case of agents known to produce such changes. Conversely, tissue changes must be absent or explainable in the case of agents known not to produce them. Moreover, even should chemical studies, bacteriologic studies, and tissue studies all be thoroughly made and tend to the supposition that death has occurred from the administration of a certain poison, this conclusion cannot be said to be beyond doubt in every case, unless the symptoms observed during life or the circumstances attending death have also been such as are known to result from the administration of the poison in question. The same remarks, modified according to the special circumstances, apply to cases of death from violence—in which I include, of course, both accidental violence and intentional violence—and to deaths from those causes which physicians denominate "disease," and which, in the language of the law, are termed "natural causes." To warrant a positive opinion, there must be a concurrence of evidence, relating the symptoms shown during life, the manner of death and the results of investigation after death, with one and the same cause of death; and some portion of this evidence must be sufficient to exclude any other cause. It may be pointed out here, in passing, that evidence of the presence of disease does not necessarily exclude death from accident or felony. A man with kidney disease or with heart disease may be stabbed to death, or a child with tuberculosis or scarlet fever, may be poisoned. Moreover, even the evidence of death from disease will not exclude felony. I do not refer to miscarriage of felonious attempts, but to the fact that modern science offers to criminal ingenuity, a new method of assassination—which has indeed already been treated of in certain works of fiction.

In some cases positive conclusions as to the cause of death are impossible. The evidence of symptoms during life and of the manner of death are wanting or indefinite, or other data are insufficient. Depending upon the nature of the case and the nature of the avail-

able evidence, the cause of death may thus be subject only to a more or less probable determination, to reach which, other than scientific questions may have to be taken into consideration. For example, a stranger is found dead in bed in a room tightly closed and filled with illuminating gas from an open and unlighted burner. Without postmortem investigation and without any history of symptoms, the apparent conclusion is that the cause of death has been the inhalation of illuminating gas, and this may be true. Yet it might be possible that a murder has been committed and an attempt made to conceal the evidence of it in this manner. A sufficient postmortem investigation, then, might reveal evidence pointing to death by some other form of poisoning or to death by violence, and this might or might not be attended by such pathologic alterations in the body as might be consistent with exposure to the fumes of illuminating gas before death. In such an extreme instance as this, a judicial determination in the manner to be suggested might arrive at either a definite or a probable conclusion that death was caused—let us say—by the action of morphin or of a pistol bullet, or by the combined action of one of these and of illuminating gas; and the question of suicide or murder, which would thus be raised, might have to be determined not only from the scientific evidence, but also with the help of evidence of a different order. But one thing is very clear, whether in a case like this or in any other case in which felonious death is suspected, or in a case in which the liability of an insurance company depends upon the exact cause of death, namely, that thorough and sufficient postmortem investigation and not mere section and perfunctory examination of the body by the naked eye, may be a prime necessity. Whatever tribunal is called upon to make the decision, and in whatever manner the evidence may be presented and tested, that evidence should be as complete and as free from flaw as possible.

The greatest obstacle under present conditions to the presentment of this complete and flawless evidence is the existence of the office of coroner—and this need not arise from any fault or dereliction of any individual incumbent of this office; but from the nature and traditions of the office itself, is inevitable under the best possible administration. That the office of coroner once served a useful purpose, and was necessary and adequate to its purpose, may freely be admitted. That now it is a worse than useless survival is equally certain. For one thing, the public "coroner's inquest," with its summoning of witnesses and taking of testimony *pro* and *con*, not only as to the cause of death, but as to the possible guilt of any individual or as to the possible motives for felony or suicide, is open to all the objections that apply to such a method for the final trial in court; and without the excuses that apply to such a trial, where the liberty, or perhaps the life of some person accused, is in jeopardy and must therefore be surrounded by constitutional safeguards. Furthermore, the scientific examination which as we have seen, ought to be thorough and sufficient, is often unavoidably hurried or scantied or made in a manner open to attack, because of the supposed necessity to be ready with certain parts of the evidence before the coroner. It is quite possible, too, that a scientific study made under the direction of the public prosecutor would be made with greater attention to the necessities of judicial evidence in that special instance than is possible otherwise. For example, if a stomach supposed to contain poison is given to a chemist for examination, it should be opened by the chemist in the presence of the coroner's physician, or medical examiner, or other expert pathologist, in order that a competent examination be made of its condition from the viewpoint of pathology. Similar competent inspection should be made of all tissues before the chemist is permitted to destroy them in his tests. Chemists are not necessarily good pathologists, very often they are not physicians. Sometimes they do not even observe the gross appear-

ances of the viscera handled by them for purposes of chemical analysis, and in this way important links in the testimony as to the cause of death are lost beyond recovery; a circumstance that may be hurtful to the defense in some cases, or may hinder the prosecution in others. In any event, facts necessary to a true understanding of the case may be lost. A prosecuting officer, experienced or well advised, would provide for a conjoint examination that would preserve such facts. Without going further into this phase of the subject, the Massachusetts practice of preliminary investigation by an official medical examiner may be suggested as offering a basis for a practicable and satisfactory substitute for the coroner's inquest; or the preliminary inquiry before a commission of experts, suggested later in this paper, may be utilized for the purpose.

2. *What are the tests of accuracy to be applied to the evidence submitted upon the heads just discussed?* This is perhaps the most important portion of our inquiry.

In a case of suspected murder, the results of the examination of the body and other substances, and the verbal accounts of those who have observed the death and its attendant circumstances are usually presented as portions of the evidence for the prosecution. The examination, moreover, is in the hands of state officials, or of special experts appointed by the public prosecutor. In view of the known fallibility of all men, it is not to be expected that an accused person should accept without question the findings thus obtained. But how shall these findings be challenged? The method of unrestricted cross-examination and production of expert opinion in contradiction with further cross-examination and possibly rebuttal and surrebuttal, has been weighed and found wanting. It tends neither to the discovery of truth, to the establishment of justice, nor to the good repute of the professions of medicine and chemistry—to say nothing of the science of law. Is there any substitute? Several are possible, all, it is true, open to objection. Let us, however, pass some of them in review, and perhaps we shall find them less objectionable than present methods, and to that extent, an improvement. The object is to guard the rights of the defendant while not hampering unduly the preparation of the Commonwealth's case.

A. *Examinations may be made conjointly* by experts for the State and experts for the defense. The details of such a plan while attended with some difficulties, could be satisfactorily arranged in most cases. The 2 experts at work upon a given investigation should be required either to agree upon the findings at each step, or to record their differences; a third expert previously agreed upon by both sides, to be called in when any such difference occurred, whose finding would also be recorded.

This, of course, presumes that there is a specific defendant. Now the prosecution may not be in position to accuse a definite individual until its examinations are completed; while it would be suicidal for anyone to volunteer to play the part of defendant in advance. Still there are cases in which such conjoint examination is possible either in a first study or in a supplemental study, and it deserves to be put to the test of practicality in every such instance.

A'. In the *absence of a specific defendant* the court can constitute itself representative of all possible defendants and appoint an expert to be associated, on behalf of the court, with the expert for the prosecution. This is a method also deserving to be tested sufficiently to determine its value.

Neither of these methods (A and A') involves any decided change in existing law. It is my impression, though I speak subject to correction, that the matter is, under existing law, wholly within the discretion of courts or prosecutors.

B. In the *absence of conjoint examinations* the experts for the prosecution can be required to make complete investigations with a portion of their materials only,

and to reserve, at each critical stage, a sufficient portion to allow the tests to be repeated by experts for the defendant whenever some one shall have been made defendant. This is possible in many cases, and with many tests; not in all cases or with all tests. But when and where applicable, the practice should be made obligatory. Here it is only fair to say that the question of skill comes in; for it might be possible for the defense to get honestly negative results by selecting an unskilful person as expert. It might be necessary therefore to have a State's expert himself repeat the manipulations in the presence of the representative of the defense. This of course is merely a matter of detail. The principle of conjoint or supervised examination I consider of great importance. The 3 methods suggested are not mutually exclusive but mutually supplemental.

C. Experts, whether for the prosecution or for the defense should be required to *preserve and to present in court* the important material results of their investigations, be these positive or negative. The organs and tissues said to be inflamed, or to be normal; the bacterial cultures, the chemical precipitates, the microscopic slides, said to be demonstrative of the presence or absence of disease, injury, or poison, should, whenever possible—and to some degree at least this is possible in the vast majority of cases—be exhibited and offered for scientific criticism. Such exhibition, in the absence of conjoint or supervised examinations as previously suggested, should be accorded to the defense in advance of trial, in order that its experts may be qualified to pass truthful and intelligent opinions. The exhibition of negative results and the revelation to the defense of the results of the prosecution's examinations may be objected to as depriving the State of a tactical advantage. Such objection might be worth considering in an academic debate or a game of chess, but scarcely when the object is not the winning of a contest, but the discovery of truth; when the stake is not reputation, prize or title, but a human life.

D. The tests previously suggested refer to objective results, and also in part to methods; for methods can be criticised both in conjoint examinations, and upon exhibition of results with narration of methods. There is another factor, however, to be considered, and that is the *knowledge, competency and skill of experts*. This is a matter offering extreme difficulties. When oral testimony before an ordinary jury is giving, the most competent man may make, from the attorney's viewpoint, the worst witness. He knows his subject, its doubts, its difficulties; and whether he testify for prosecution or for defense, his direct testimony is conservative and limited to facts and opinions that he can maintain before a learned society. His answers upon cross-examination are frank and direct. The unqualified witness knows so little that he is dogmatic and positive upon matters not admitting either of dogmatism or positiveness, and hence he often makes a stronger impression upon the jury than does his competent opponent or colleague—while the great or little knowledge of the unscrupulous man affects his testimony as little as do the facts in the case, or the principles of science.

The years of study, or experience, or the number or importance of the official positions or titles of the expert witness amount to little as a test of qualification. Men who have achieved eminence sometimes let science outstrip them; responsible positions are sometimes held by men who are careless in work or reckless in statement. On the other hand, many careful and accurate workers are young men known only to their colleagues; or older men who have failed to receive the professional distinction that is their due. To attack the competency of witnesses would be as futile as ungracious. There is but one way to discriminate between the competent men forming the great majority of those who are placed upon the stand as medical expert witnesses,

and the very small minority of ignorant, inaccurate or untruthful men who may occupy a similar relation to a trial; and that is to have their testimony judged by an expert jury.

3. *How shall the evidence be presented?*

4. *By whom shall it be judged?*

The answer to these queries has just been suggested. The only persons competent to pass upon the qualifications of expert witnesses, are likewise the only persons competent to judge the relevancy and weight of the medical evidence, expert or ordinary, and to draw correct conclusions therefrom.

A jury (or commission) of experts, not necessarily 12 in number—better, probably, 5 or 7—to be constituted in a manner to be agreed upon, should be empaneled, to try the cause of death, and that issue only. To this jury the evidence should be submitted in open court, with presiding judge, with counsel for defense, with public prosecutor, as now in the ordinary trial. There should be every opportunity given for relevant cross-examination, and for the production of relevant testimony by the defense, as well as by the prosecution. No mere opinions should, however, be submitted as evidence; only the facts and the exhibits—with such opinions as might be necessary to bring out the bearing of the facts and the exhibits. If the methods of conjoint or supervised examination previously suggested have been adopted, the evidence would be simpler and more conclusive. Experts frankly appearing in the capacity of advocates, could assist counsel upon each side in examining witnesses, and in arguing to the jury. In such arguments would be the proper place for the expressions of opinion, and the opinions thus expressed would not only be clearer than those given by experts testifying in the customary manner, but they would be judged by a more competent tribunal. It is probable that counsel might be content to leave the argument entirely to the medical advocates. This is a question that experience only could settle.

Before such a jury as has been suggested, no irrelevant testimony, no captious criticism, no extravagant statements, no reckless assertions, no badgering of witnesses, no dragging out of cases, no attempts at confusion of witness or jury, no placing of words not uttered into witnesses' mouths—in short none of the tricks of pettifoggers, none of the blunders of mistaken zeal would avail, and before long all attempts at such methods would be abandoned. The truth would be brought out, or it would become manifest that the truth could not be reached. Those charged with the duty of making examinations would be extremely careful about their methods, knowing that they would be called upon to defend these before a body of competent and unbiased critics. The court would see that only legal evidence was introduced.

As to the composition of such a jury or commission of experts, it would vary with the nature of the case to be tried. Should poison be alleged as the cause of death, physicians, chemists, and pathologists would be required. Should violence be the theory, surgeons would be substituted for the chemists. They could be chosen by the court, or appointed from lists agreed upon by the prosecution and the defense, or in any other manner deemed fair and practicable, and prescribed by law. The cost to the State, presuming that the members of the jury or commission were paid expert fees, would probably be much less in the long run, owing to the saving of time and the greater certainty of justice, than is the cost of trials as at the present conducted.

The jury, or commission, should not be required to reach a unanimous verdict, but a majority and minority report, or even several minority reports, or in an extreme case, as many reports as there are jurors, might be handed in. It is obvious, however, that only a unanimous report would have, or ought to have, conclusive weight with the petit jury, selected in the usual way, that

would then have to pass upon the guilt of the accused individual, and before whom the finding or findings of the expert jury would be merely an item or items in the evidence. The report or reports might assign a definite cause or causes of death; or state that the cause of death could be only probably assigned; or that it could not be determined at all from the evidence. In other words, instead of submitting to the petit jury having final decision in the case, the detailed scientific testimony and the opinions of opposing experts, there would be submitted to that jury authoritative and unbiased expert opinion, concurrent or discrepant, based upon the testimony. A concurrent opinion having been arrived at in open court, and by both scientific and legal methods, might well be presumed to be correct; but it would not be binding. Discrepant opinions—which are possible, but must in any event be rare—would bring into full relief all legitimate elements of difficulty or obscurity in the case; and while the jury would still have to pass upon them, the issue would be clear cut. The difference between reasonable and unreasonable doubts would be made apparent. It is conceivable that in certain cases the prosecution might be abandoned in consequence of the expert jury's report; but whatever effect or value it might have or lack, no right of the prosecution or of the defendant would be lost. Many opportunities for obscuring the issue would, however, be denied to both sides. Pettifogging would be discouraged. Truth would have a chance. Justice would be furthered.

SUMMARY.

The chief topics submitted for discussion are:

1. The necessity for thorough postmortem investigations.
2. The principle of conjoint or supervised investigation, and the 3 methods suggested for carrying it into effect.
3. The principle of material exhibits.
4. The principle of a jury or commission of experts to determine the cause of death apart from the question of the guilt of any accused person.

It is obvious that no one of these proposed remedies for present difficulties excludes any of the others; they are mutually supplemental. Should the proposition for an expert jury be rejected, the other propositions gain, rather than lose, in force and necessity. They could probably be introduced as a matter of practice, without alteration of statute law. In any event, they involve no constitutional departure. The principles accepted, with such modification of detail as might be necessary, could be applied to civil suits as well as to criminal trials.

OBSERVATIONS ON UNCINARIASIS.

BY

LOUIS M. WARFIELD, A.B., M.D.,

of Savannah, Ga.

It has been only recently that the attention of the medical profession has been called to the prevalence and wide distribution of human intestinal parasites in this country. Up to 3 years ago cases other than of tape-worm, pin-worm, and round-worm were classed as uncommon occurrences, and put on record in medical literature. The impetus given by our acquisition of tropical lands, and the untiring efforts of Stiles have materially changed our views as to the frequency of diseases due to intestinal worms. The more systematic examination of the stools of patients has also added much to our knowledge. The dissemination of parasitic diseases by troops returning from the tropics has been emphasized also by Ashford and Stiles at various times, and the profession has been urged to be on the watch for various tropical parasitic diseases. But that we had here in our midst a hot-bed of a grave form of parasitic infection was not imagined until Stiles reasoned from isolated widely scattered

cases that uncinariasis must be a condition endemic in our southern States. His trip through the South in 1902 amply justified his view, and, moreover, led to the discovery by him of a new species peculiar to our country, *Uncinaria americana*.

Cases reported from practically all the southern States show how widespread is this affection, and observations recently made by Smith and Harris, of Atlanta, Ga., show to what extent hookworm disease is a factor in the economics of the South. Whole communities are infected, and the consequent suffering and loss of the labor of infected individuals keep sections unproductive and have given rise only too justly to the opprobrium with which northern communities look on the southern "cracker."

The cause of this suffering being definitely settled, it becomes a vital question to find why so many individuals are infected, and what is the mode of infection. The eggs are deposited outside the body; they have to reach a certain stage of development into free embryos before they can infect man, hence it becomes necessary to find out how the worms enter the human intestine. The startling view advanced by Loos (1901) that worms reach the intestine after infection of the skin, has certainly seemed to receive confirmation from his experiments. Bentley (1902) succeeded in finding in water-sores on the feet, larvae which he identified as those of *Ankylostoma duodenale*. He does not accept the view of Loos, however, as to infection through the skin. Recently Smith accepted this view of Loos and urged the frequency of antecedent ground-itch in support of his view. He laid comparatively little stress on infection through the mouth. It is well known that the ground-itch season coincides with the period of greatest prevalence of uncinaria larvae. Warm wet weather is the condition most favorable to both. No ground-itch occurs in dry weather, and only children who play barefoot around puddles contract the disease. It is also a popular idea, borne out by the experience of many generations, that ground-itch is contracted even in dry weather if one plays barefoot in grass wet with the dew. All slight lesions on the foot seem to predispose to the infection. One attack of the disease confers no immunity. On the contrary, it appears to favor a second attack. While large numbers of children, both of the better and lower classes, go barefoot throughout the entire summer in the South, not all have ground-itch, although playing side by side. That uncinaria eggs are found in the stools of children who have never had ground-itch shows that they must have been infected from without, or by the hands of the individual.

Anemia with a sallow, washed-out, muddy parchment complexion, is one of the most prevalent conditions throughout the country districts of the South. These cases were always thought to be a consequence of malaria, and it is only quite recently that Harris threw doubt on this long-held idea, by stating that in his opinion these cases were due to uncinaria, and not to malaria. Such a malarial hypothesis has existed for years in this locality, the expression, "a touch of malaria," being used to cover the ignorance of the true condition.

Having examined the blood and stools of a number of patients, the subject of anemia, and finding in all cases uncinaria eggs, and in no case malarial parasites, except when the history and temperature left no doubt that one was dealing with malaria even before the organisms were found in the blood, it was determined to make an investigation in this locality.

Through the kindness of Mr. Chaplin, I was able to examine a number of boys at an orphan asylum about 7 miles from Savannah.¹

¹ This asylum, The Bethesda Home for Boys, is situated on a bluff on the mainland, about 12 feet above high-water mark. The salt marshes bound one side, and a small salt-water creek comes up to the bluff, which at low tide contains no water. In this creek at high tide

It proved rather a difficult task, as the boys are constantly at work in the fields, and occasionally are off in the woods. However, 60 of the 100 boys were examined, the ages varying from 6 to 16 years. As these were not selected cases it is safe to conclude that the results of these examinations may be applied to the whole school. More than half were born in or around Savannah. The others came from Montgomery, Ala.; Atlanta, Effingham Co., Brunswick, Milledgeville, Liberty City, Bulloch Co., and Tarville, Ga. Still others were born in New York, Philadelphia, Baltimore, 1 in Denmark, and 1 in Germany, the last 2 had been in this locality for 5 or more years. All these born in the North had lived in Georgia for several years. The boys, with very few exceptions, go barefoot from April until cool weather, usually October. A glance at the inmates shows an apparently sturdy, sunburned crowd of boys, but close inspection reveals the fact that very many have sallow, muddy complexions, while some show marked grades of anemia. Although many of the boys were evidently somewhat under size, there was no dwarfism with the "potbelly" so characteristic of the very severe grades of infection with uncinaria. The eye-symptoms described by Stiles were not seen in a single case, although looked for carefully. Possibly the infections were not sufficiently severe. As almost all the boys were below the age of puberty, no opportunity was furnished of seeing the effect of the anemia on the sexual development. There can be no doubt, however, that were the boys to grow up untreated, many would show lack of physical and sexual growth. What was noticed in many cases was a curious lack of expression, amounting in some cases almost to a mask, which seemed to be drawn over the features, giving the patients a very stupid appearance. The pupils were dilated in some cases, normal in others. No uniformity was noticed. In 1 case in a freshly passed stool, a free embryo was found along with numerous uncinaria eggs in all stages of segmentation. Probably this was an embryo of uncinaria, and not of *Strongylus intestinalis*. Although it is very rare to find a free embryo of uncinaria in freshly passed feces, it nevertheless occurs occasionally.

Forty-eight or 80% of the boys were infected. All grades were found except the very severe type. In some it was very difficult to find one egg after looking over 10 slides; in others, the first slide showed 2 to 6 eggs. The size of the eggs corresponded to the size of those of *Uncinaria americana*. No adult worms were obtained. In one case, eggs of *Ascaris lumbricoides* were found, in 2 cases, eggs of *Trichuris trichiura*. Twenty-three boys were under 10 years, 37 between 10 and 16 years. The youngest positive case was in a boy of 7. As said before all the boys who harbored uncinaria were the subjects of more or less anemia. Twelve boys gave a history of having had 1, or at most 3 attacks of chills and fever. Five gave an indefinite and doubtful history of previous malaria. All had been treated with quinin and had recovered completely.

The healthy out-of-door life the boys are obliged to lead should make them strong and anything but anemic. The fact that they are anemic, tired, and show lack of application in study can be due to only one cause, uncinaria infection. Malaria is out of the question. Two boys during the past summer had short attacks of malaria.

So much stress of late has been given to the question of ground-itch in relation to uncinariasis that this was especially noted in the cases. The results are exceedingly interesting. Forty-five of the 48 positive cases gave a

the boys bathe. In the Home, which is one large building, are about 100 boys, who sleep in dormitories and are much crowded for room. The drinking water is of the best, from artesian wells sunk 100 to 200 feet below the surface. The water is conducted up to the surface by pipes, and is flowing constantly. On the grounds are 4 open privies, each one having about 6 seats. An investigation showed numerous traces of barnyard fowls behind the boxes. These boxes were easily accessible to the fowls, and no doubt the infection is kept alive by dissemination of material by means of the fowls, as the boys invariably make use of the privies to defecate.

history of 1 or more attacks of ground-itch. In 3 positive cases the patients were sure that they had never had ground-itch. In 2 negative cases the patients had had the disease and in 10 negative cases they had never had it. Two of the 10 patients mentioned, said they always wore shoes as they did not want to get ground-itch. The 3 positive cases mentioned were as follow:

CASE L.—The patient, 13 years old, had been at Bethesda 7 years. No ground-itch. Went barefoot all summer.

CASE XXIX.—Patient, 7 years old had been at Bethesda 1 year. No ground-itch. Always went barefoot.

CASE I.—The patient, 9 years old, had been at Bethesda 3 years. No ground-itch. Went barefoot all summer.

This agrees with my personal experience that not all exposed to the same conditions contract the disease.

Smith states that the number of eggs to the stool is in proportion to the severity and number of attacks of ground-itch. This was not the case in the series presented. In the case which showed the greatest number of eggs there had been only one moderately severe attack of ground-itch, while in several cases in which there had been repeated and fairly severe attacks, eggs were found only after long and careful search. That the embryos can reach the intestines by any other route than through the mouth seems scarcely credible. The possibility cannot be absolutely denied, since so accurate an observer as Loos is authority for the statement. Yet it would seem strange that an organism 0.65 mm. to 0.7 mm. in length by 25 microns to 27 microns in breadth should be able to travel either by way of the lymph-channels or bloodvessels, and pick out the small intestine, through the wall of which it would have to bore. We know that dogs can be readily infected by feeding them with larvae, and it would appear more likely that man is infected in a similar manner. Loos' experiments, in which he rubbed larvae on the backs of puppies and after killing them found worms in the intestines, are remarkable to say the least. Further experiments eliminating all possible chance of infection through the mouth seem necessary before one can accept this idea.

That ground-itch and uncinariasis are related, in that one predisposes to the other is, in my opinion, beyond doubt. The mode of infection I believe is as follows: Children are not any too cleanly about their person. Nails are long, full of dirt, and the hands are carried to the mouth constantly. Ground-itch well deserves its name as there is probably no skin disease in which the patient feels more like tearing his flesh out than this. The itching is constant but worse at night. Children literally do tear their flesh, breaking the vesicles, and scratching the raw flesh. I believe that the embryos get on the fingers, beneath the nails, and in that way are carried to the mouth. The habit, too, of drinking water in the hollows of the hands is an easily conceivable mode of infection. The children in such cases infect the water with their hands. Finally, some certainly are infected by drinking water containing embryos that have been washed in from the soil, as is shown by the 3 patients, who, although having eggs in the stools yet never had ground-itch.

So certain am I that ground-itch in children is the precursor of uncinariasis, that in cases of anemia with an antecedent history of ground-itch I always expect to find, and almost invariably do find, eggs in the stools. I fully agree with Harris that the vast majority of anemias through the South are due, not to malaria, but to uncinariasis, and I feel that the more men make routine stool and blood examinations in cases of anemia, the greater will be the number who come to a similar conclusion. It is uncinariasis that is sapping the life-blood in the country districts and the sooner this is realized the better. It is a burning economic question with us, for as Smith remarks, those who now can only do a portion of a day's work in an indolent fashion will be able to do a full hard day's work with a consequent increase in the productiveness of the family.

The prophylaxis of uncinariasis is unquestionably a difficult problem in consequence of the wide distribution of the disease, and the extreme aversion that country people have to any outside interference. I doubt if any class of people are more suspicious than the average "cracker." An amelioration of the condition could be brought about in a short time by building proper latrines as urged by Stiles, and seeing that children use them. As the embryos of uncinaria do not survive frosty weather such a measure would, in the course of a short time, certainly better the condition. The problem is one for the country doctor, the man who above all has the confidence of the community. Outside interference almost invariably meets dogged opposition, so it is to the country professional man that we must look to educate the people to the full realization of their lamentable condition. No sane man could long entertain the idea that the children should be made to wear shoes and stockings and be made cleanly. Such propositions would defeat at the outset all our good intentions and make our best efforts of no avail. State Boards of Health and legislative measures in general would be productive of more harm than good. The inevitable conclusion is forced upon us that we must first educate the profession in the country districts to the realization of the role played by uncinarias and beg for their hearty and untiring support in this problem. No need, really, to examine stools in the country in cases of anemia when we know now that the uncinarias are causing the anemia. Thymol and castor-oil for the individuals, and education for the masses, are what are imperatively needed. Briefly to summarize, it is believed that uncinariasis is one of the commonest diseases in the South. It is the chief cause of anemia in children especially, as they are the ones most liable to infection. Adults, if not too badly infected, seem to outgrow it, presumably through death of the worms. Ground-itch is intimately associated with uncinariasis, and infection most probably arises from contamination of the hands and later swallowing the embryos. Infection other than through the mouth is thought to be very improbable. While no adult worms were found in the cases mentioned herein, the size of the eggs left no doubt that the infecting agent was *U. americana*. Prophylaxis rests with the country physicians who should urge the building of latrines or privies that can be easily cleaned and disinfected, and which are closed below, so that barnyard fowls cannot get at the discharges, and so protected that rain cannot wash the discharges over the adjacent soil. Parents should then see that children use the privies, and do not defecate wherever they happen to be when they feel the desire. As it has repeatedly been shown to be impossible to infect man with the uncinarias of dogs or of other animals, the problem of prophylaxis is simpler than it would otherwise be. Here man is his own worst enemy.

To an optimistic mind a glowing future can be pictured for the southern country communities so soon as we are able to control the worst foe of labor that we have. Once we rid our communities of this vampire, this blood-sucker, a new era will dawn for the southern country districts.

NOTE.—Since writing the foregoing, I have had opportunity to examine a number of cases of anemia in young adults who have come from the surrounding country districts. In all cases which gave an antecedent history of ground-itch, eggs were found in the stools. In 1 case worms without doubt have lived in the intestine for at least 13 years. The patient, now aged 22, had not lived in the country since she was a child. She had had at that period several attacks of ground-itch. So far as could be learned, the chances of infection since childhood are infinitesimal. Stiles' longest case was 6 years and 7 months. With such longlived parasites, it behooves all sections of the country to be on the watch when patients from the South with anemia present them-

selves for treatment. Careful inquiry as to ground-itch will, in such cases, put one on the right track.

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RESULTS OF AN EXPERIMENTAL TREATMENT OF EPILEPTIC INSANITY.

BY

J. W. WHERRY, M.D.,
 of Clarinda, Iowa.

Assistant Physician, Clarinda State Hospital.

When the average human mind surveys the various and diversified conditions assigned as causes of epilepsy, it is in great doubt whether or not to regard them as the product of serious consideration; for the enumeration includes almost every disability to which human flesh is heir, and every anatomic lesion which the most active mind can conceive, or the wildest imagination suggest; and if we have advanced so little that we cannot, as yet, expunge, with safety, the earliest and most trivial conceptions of the disease, then do we indeed occupy a most unpromising situation.

In a textbook recently issued the following conditions, 75 in number, were given as causes of epilepsy:

Heredity,	Pregnancy,
Application of forceps,	Puerperium,
Lying always on the same side,	Alcoholism,
Wearing a close-fitting cap,	Plumbism,
Defective hygiene,	Chloroform,
Alcoholism of nurse,	Ether,
Traumatism,	Morphin,
Menopause,	Opium,
Menstrual disturbances,	Tobacco,
Imperforate hymen,	Cocain,
Ergot,	Scarlatina,
Uremia,	Typhoid fever,
Syphilis,	Neuromas,
Dentition,	Toothache,
Worms in the nares,	Irritation of epileptogenic zones,
Foreign bodies in frontal sinus,	Impaired nasal respiration,
Irritation of auditory nerve,	Inflammation of eustachian tube,
Chronic otitis,	Eruption of wisdom tooth,
Errors of refraction,	Laryngitis,
Pleuritis,	Pleurotomy,
Indigestion,	Enteritis,
Worms in the intestines,	Tapeworm,
Hepatic colic,	Orchitis,
Uterine disease,	Cerebral tumors,
Intracranial effusion of blood,	Compression of spinal cord,
Fistula,	Shock,
Grief,	Fear,
Prolonged anxiety,	Sexual excitement,
Cholera,	Pneumonia,
Meningitis,	Renal lithiasis,
Stricture of urethra,	Excessive length of prepuce,
Ménière's disease,	Encephalitis,
General paralysis,	Lesions of cortical motor zone,
Lesions of frontal lobe,	Lesion of parietooccipital lobe,
Lesion of sphenoidal lobe,	Lesion of pyramidal tract,
Irritation of medulla,	Irritation of cortex,
Anemia of brain,	Hyperemia of brain,
	Autointoxication.

All of which would indicate that we either have an unusually clear and comprehensive knowledge of the disease, or that we know nothing whatever about it. The latter view would be gloomy indeed, and admitting the meagerness of positive knowledge, I, for one, am disposed to be more optimistic than this.

It is useless to contend that the foregoing are all causes of epilepsy, for the list itself is ample evidence of the fact that in seeking for the cause, each man found just what he was looking for, and no more. It is true that each of these may affect, more or less, the epileptic condition, and possibly, seriously aggravate it, but this is incidental, not causative. Certain physical conditions may precipitate an attack of pulmonary tuberculosis, but the real cause of that disease is too well known to

permit of any errors regarding its etiology. To accept the list quoted as actual causes of epilepsy is to paralyze research, for it would be a waste of time to seek for another progenitor of a disease already provided with such a diversified and numerous parentage. It would be much better to stimulate research by admitting freely, however disagreeable it may be, that the cause of epilepsy is absolutely unknown, and that the whole field is open and courting investigation, for in the face of all this vast array of assumed causes, it is very doubtful if any one seriously believes that the real cause of epilepsy has yet been definitely named, and the following remarks regarding a new method of treating epilepsy are not offered as a demonstration of another cause, or as a solution of the whole problem, but merely with the hope that it may be of some service in solving the first equation, by endeavoring to establish some relationship between the known effects of this disease and an unknown cause—this connection, if any exists, being formulated as a physiologic condition, namely, a vasomotor spasm.

In State hospitals for insane, epileptics form a class by themselves. They are unique in many ways, and stand solitary and alone, having nothing in common with other patients so far as care and treatment are concerned. Ever since their first admission into these hospitals they have been the source of the greatest anxiety and concern, and questions regarding their management and control have ever called for the gravest consideration. They are the most disagreeable patients in the institution. They are irritable, quarrelsome, violent, and vicious, and disorderly in every conceivable manner. Many of them, either preceding or subsequent to the convulsion, become dangerously violent and make most vicious attacks upon friend and foe alike, regardless of the consequences to others or to themselves. Two-thirds of the troubles occurring in the institution have their origin in the epileptic ward, and their influence on other patients is uniformly harmful, not because of the convulsion alone, but because of the dangerous and disagreeable qualities enumerated, and which seem to be characteristic of the great majority of the epileptic insane.

For years their segregation has been recommended, and superintendents of State hospitals for insane have ever stood ready to welcome any proposition which provided for their removal from these institutions. Their recovery was practically hopeless, their improvement doubtful, and their presence inimical to the best interests of the hospital. This was the situation at the Clarinda State Hospital in July, 1901, when after due consideration, it was decided to adopt some form of treatment which might give hope of relief. There was no expectation of curing epilepsy, nor of even controlling the convulsion; in fact, the convulsion was eliminated from all consideration. The chief object and desire was to alleviate the irritable and quarrelsome tendencies and, as a result, secure immunity in a measure from violence and disorderly conduct. We had tried the bromid treatment, and Flechsigs's treatment, and a period of rest without any special treatment, all without avail. While we were beating the brain into insensibility with the bromids, there was some abatement in the frequency and severity of the convulsions, but the irritability and disorderly conduct increased and the situation was worse than before. While the patients were stupefied with opium, there was some relief from the violent and vicious tendencies, but the limit was soon reached, the disagreeable features returned, and the treatment was abandoned.

The theory which holds that epilepsy is a condition of autointoxication, producing a vasomotor spasm, from which the convulsion follows, was thought to be worthy some small amount, at least, of investigation and experimentation, and it was decided to adopt a course of treatment directed toward the vasomotor system instead of toward the brain. It was to be a combination of drugs,

which would, if possible, prevent excessive vascular constriction and at the same time improve the general health. It was based upon the nitrites instead of upon the bromids, and its object was vasodilation rather than brain stupefaction.

The proper treatment of any disease is to launch the remedy straight at the cause; but in the absence of all knowledge of the cause, experimental measures must be employed. It was believed that the prime cause of epilepsy was a self-eliminated toxin, whose presence produced excessive constriction of the arterioles, and that the unconsciousness and the convulsion were the legitimate physiologic offspring of this unusual vascular spasm. If this were true, the prevention of this vasomotor spasm would afford the epileptic temporary relief, at least, until such a time as the identity of the prime cause could be discovered and attacked, and indeed, might throw some light upon this cause so long and so assiduously sought. Whether or not the remedies introduced would produce vasodilation under these peculiar circumstances, or, if produced, whether the vasodilation would have any effect on the epileptic condition, were matters to be determined only by experimentation. The asphyxial idea of epilepsy had, at this time, been scarcely born, or, if born, was still in swaddling clothes, and the results of this experiment had much to do with the formulation and publication of that theory.

This treatment was inaugurated in July, 1901, and is still in use. No real or assumed recoveries can be reported, and none was expected, but the object sought has been accomplished, and the improvement in conduct and in the patients' general, physical, and mental condition has been all that could be desired, and much more than was hoped for. These patients have not been transformed into "angels in disguise" by any means, but they have become quiet, orderly, more pleasant and agreeable, and their conduct, as a rule, is above reproach.

Those who have had the care of epileptics in hospitals for the insane will appreciate fully what this change means. They know what a disturbing element this class of patients has been, and can realize what a sense of relief would come from this calm and comparative degree of quiet, succeeding, as it did, the reign of disorder and confusion incident to the epileptic ward. Prior to July, 1901, 4 nurses were required on the epileptic ward under consideration, and it was deemed unsafe for it to be left, even temporarily, with a less number; at present, with the same number of patients and practically the same individuals, 2 nurses are all that are necessary; chairs, which previously could not have been used with safety, have taken the place of settees; muslin and lace curtains have been added; center-tables, flowers, and various pieces of bric-a-brac have been introduced, and instead of 1 or 2 daily calls, in addition to his regular rounds, for a physician to quell some disturbance, this ward is now less in evidence than others containing no epileptics. The quarrelsome and irritable disposition has practically been eliminated, and with its exclusion the violent, vicious, and disorderly tendencies have disappeared.

The change, indeed, has been so remarkable that I regret my inability to reduce it to a tabulated form, or to present it in a more graphic manner. To the epileptics themselves it has meant a condition of comparative comfort and a widening of their mental horizon; to the nurses it has meant the reduction of an environment filled with commotion, tumult, and confusion, to one of ordinary, routine ward duties, and to the management it has meant the removal of an almost constant source of worry and anxiety.

During this course of treatment no change was made in the diet of these patients, because of its being impracticable, nor in their daily habits, and whatever benefits were derived must have come from the treatment itself.

It is also gratifying to be able to say, in connection

with the good results enumerated, that, while this treatment was not directed toward the convulsion, the improvement in the frequency and severity of this symptom was so marked as to attract attention. I append tables illustrating this feature. The 7 patients selected for these tables were considered the most disorderly and intractable of all on the ward, and, at the same time, their epilepsy was of the longest standing and their attacks the most frequent and severe. The months of May, June, and July, 1901, are included, as an indication of the number of convulsions occurring prior to the beginning of treatment, which was instituted during the second week in July. These patients are all women.

TREATMENT DURING FIRST YEAR.

Record No.	Age.	Duration of Epilepsy.	Number of convulsions each month.											
			1901.								1902.			
			May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
2142	42	8 years.	51	47	41	35	20	35	35	17	28	24	18	6
1629	23	14 years.	13	14	16	16	10	12	5	9	8	9	12	11
1962	26	16 years.	17	16	12	9	10	9	11	5	3	2	5	6
F. 69	29	18 years.	64	49	52	11	7	15	14	4	4	8	10	3
F. 181	36	25 years.	30	32	31	21	27	32	5	3	7	7	10	5
2357	35	30 years.	78	76	53	23	13	16	15	12	19	16	14	24
2660	46	32 years.	30	30	16	14	21	13	18	7	7	14	22	14
Total for month...			281	264	221	134	108	132	103	57	76	80	91	70

TREATMENT DURING SECOND YEAR.

Record No.	Age.	Duration of Epilepsy.	Number of convulsions each month.											
			1902.								1903.			
			May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
2142	43	9 years.	9	8	7	7	6	6	6	3	2	3	3	0
1629	24	15 years.	9	10	14	9	15	13	11	9	2	8	8	4
1962	27	17 years.	6	7	10	8	7	3	2	2	3	10	3	1
F. 69	30	19 years.	7	9	10	11	Transf. to Cherokee State Hosp.							
F. 181	37	26 years.	17	18	32	19	15	15	15	3	4	3	3	5
2357	36	31 years.	19	24	21	16	Transf. to Cherokee State Hosp.							
2660	47	33 years.	7	9	16	15	10	17	17	5	6	2	9	5
Total for month...			74	85	110	85	53	54	51	21	17	26	26	15

In the first column is the patient's number taken from our statistical record, followed by the age and the duration of epilepsy. The duration of insanity in each case was from 3 to 20 years. Following the duration of epilepsy is the number of convulsions of each patient occurring during the month, and at the bottom of the column the total convulsions for the month. In August, 1902, two of these were transferred to the Cherokee

RELATIVE NUMBER OF CONVULSIONS EACH MONTH.

	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280
May															281
June														264	
July													221		
Aug.															
Sept.							108								
Oct.								132							
Nov.									103						
Dec.						57									
Jan.							76								
Feb.								80							
March									91						
April										70					
May											74				
June												85			
July													110		
Aug.														85	
Sept.															53
Oct.															54
Nov.															51
Dec.															
Jan.															21
Feb.															17
March															26
April															26
															15

State Hospital with other patients belonging to that district.

Attention is called particularly to the steady decrease in the number of convulsions, extending over a period of 2 years, showing a reduction from an average of 40 convulsions per month for each patient in May, 1901, to an average of 3 convulsions per month for each patient in April, 1903.

The preceding table shows rather more graphically the variation in the number of convulsions from month to month.

The 3 tables following will give an idea of the distribution of convulsions throughout the month, and it will be observed, in the first table especially, that they occur with marked regularity, and there was no unusually large number on any one day. To give a table for each month during the 2 years would consume too much space and, consequently, I give but the first, the middle and the last months of the period for purposes of comparison. During the month of May, 1901, there were as many as 13 convulsions from these 7 patients in a single day, while in May, 1902, the highest number for a single day was 8, and in April, 1903, only 3, while there were 18 days in this month without any convulsions. One patient, No. 2,142, had 51 convulsions in May, 1901, only 9 in May, 1902, and in April, 1903, none.

It might be well to say in this connection that the improvement in the condition of the other epileptics on the same ward, 18 in number, was more marked if anything than that of those given in the tables. One patient, for instance, who had attacks only once or twice a month, has now had none for 6 months. Quoting these exceptional cases, however, might lead to erroneous conclusions, and for that reason only the most pronounced and confirmed epileptics were selected as illustrations.

This is the record and these are the facts, stated simply as they occurred, uncolored and unadorned. The decrease in the number of convulsions is plainly evident; the decrease in their severity cannot be made a matter of statistics, but it is quite marked, though not to the same extent in all cases as the reduction in number. The one great object sought and accomplished, however, cannot be reduced to figures, namely, the disappearance of the violent, vicious, and disorderly tendencies, and the improvement in general bodily comfort.

What the effect of this treatment would be on the mildly epileptic, or those not insane, I cannot say, for I have had no opportunities for making observations, but the results of its use here have been so satisfactory that I have been led to believe that its further employment may be of some slight service in the future solution of that great problem of epilepsy, even though it be but a solitary finger pointing the way.

I have given no formula for the reason that I am not sure that the drugs used by me have been the best to be had. The one basic principle of vasodilation, however, has been ever kept in view, though the combination of drugs has been changed several times, and, indeed, may undergo still further modification. Consequently, I believe, if the fundamental principles are retained, namely: A combination of vasodilating drugs with a saline cathartic and an alterative, the particular ingredients to be used in each case can be safely left to the judgment and discretion of the attending physician.

With reference to the theory of epilepsy which regards this disease as a condition resulting from vasomotor spasm, the foregoing results are significant. But, whether these results are regarded as supporting this theory or are explainable by means of some other hypothesis, this treatment has much to recommend it, and I believe its use will do much for the epileptic condition.

In the very nature of things no man can hope so to illuminate the darkness surrounding epilepsy as to

No. 1.—RECORD OF CONVULSIONS FOR THE MONTH.—MAY, 1901.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
2142	2	1	2	2	2	1	2	1	1	2	2	2	1	.....	2	1	2	1	1	1	4	2	2	3	1	2	2	2	2	1	1	51
1629	1	1	.....	1	.....	.....	.....	1	1	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	13
1962	.....	.....	.....	1	1	.....	.....	1	1	1	1	.....	.....	.....	.....	1	.....	.....	.....	1	2	.....	.....	.....	1	.....	.....	.....	.....	1	1	17
F. 69	2	1	2	1	2	2	3	2	2	3	2	2	3	2	3	2	2	1	2	2	2	2	2	2	2	2	2	1	.....	1	2	64
F. 181	1	3	.....	.....	1	1	2	1	1	2	2	2	1	.....	.....	.....	1	2	1	1	1	.....	1	1	1	1	1	2	.....	1	.....	30
2357	2	1	4	2	2	3	2	4	3	3	3	5	2	3	2	2	2	3	2	3	3	3	.....	4	1	2	2	3	1	2	2	76
2660	1	.....	2	.....	1	.....	.....	1	1	2	1	2	2	1	2	2	.....	.....	.....	.....	.....	1	.....	1	1	1	2	1	2	1	2	30
Total....	9	7	10	7	9	7	9	11	16	13	12	13	10	6	10	8	8	7	7	9	11	9	6	11	6	8	10	9	9	9	11	281

No. 2.—RECORD OF CONVULSIONS FOR THE MONTH.—MAY, 1902.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
2142	.....	.....	.....	1	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1	.....	.....	1	1	.....	.....	1	.....	9
1629	.....	1	2	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	2	1	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	1	9
1962	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	1	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	6
F. 69	.....	.....	1	.....	1	.....	.....	.....	1	.....	.....	.....	1	.....	1	.....	.....	1	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	7
F. 181	.....	.....	1	2	.....	1	.....	.....	.....	.....	1	1	1	1	1	.....	.....	.....	1	.....	1	1	1	.....	.....	.....	1	1	1	1	1	17
2357	1	.....	1	1	1	1	1	1	.....	.....	2	1	.....	3	1	1	.....	.....	1	1	1	1	1	.....	1	.....	.....	.....	.....	1	.....	19
2660	1	1	.....	.....	1	1	.....	.....	.....	.....	1	.....	.....	.....	.....	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7
Total....	1	2	4	4	3	3	1	1	2	1	2	3	2	2	8	5	4	1	1	1	2	3	3	4	1	2	1	1	1	3	2	74

No. 3.—RECORD OF CONVULSIONS FOR THE MONTH.—APRIL, 1903.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total.
2142	0
1629	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	4
1962	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
F. 69
F. 181	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	5
2357
2660	1	.....	.....	1	.....	1	.....	1	1	.....	.....	.....	.....	.....	.....	.....	5
Total.....	1	1	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	1	2	.....	3	1	.....	.....	.....	.....	.....	1	.....	15

stand that disease in the foreground, solitary and alone, with every feature clear-cut and luminous and every lineament distinctly revealed. Epilepsy cannot be lifted bodily from its hiding place and held up for public inspection. Its solution will never spring fully grown and completely developed from the womb of knowledge, nor will it appear in its entirety through any sudden flash of intuition or unexpected process of revelation. It will come, when it does come, in the form of single and isolated facts, which must be correlated and laid in their respective places, awaiting the day when all the solitary facts will have been discovered, and recognized, and arranged in their proper positions; then the grand mosaic will take on definite form and figure, and epilepsy as an entity stand revealed. In the present status of our knowledge of this disease no fact, however isolated or disconnected it may seem, can be rejected without serious reflection, and this paper, recording the experimental treatment of epilepsy, based on the theory of autointoxication and its resulting vasomotor spasm, is offered as one of these facts, and nothing is asked for it but honest and thoughtful consideration.

CARE OF SPUTUM OF TUBERCULOUS PATIENTS.

BY

J. W. KIME, M.D.,

of Denver.

Superintendent Boulder Lodge Sanatorium for Tuberculosis, Fort Dodge, Iowa, etc.

The sputum of the tuberculous is the one source of danger and of contagion in the home or in the sanatorium, and too much cannot be said of the necessity of every precaution being taken that all sputa be immediately destroyed by fire. I do not believe that any attempt should be made to destroy the activity of the tubercle bacillus by means of antiseptic solutions; they are uncleanly, are inefficient, and are much more inconvenient in every way than the institution of measures for the destruction of the bacilli by fire. Tuberculous sputum should always be destroyed before it dries, not that it is more dangerous

when dry, but that proper cleanliness demands it. In fact, I do not believe that the dried bacilli are often a source of infection. They rapidly lose in virility on exposure to light and air, and I think too much has been said about the danger of dust as a carrier of contagion in this disease. This does not imply that less care should be taken in this direction, but it should be urged everywhere that the fresh sputum should be burned at once. There can be no question that the tubercle bacillus is most dangerous in its fresh, moist state when first expelled from its host. Were this not so, and were it true that the dried bacilli which blow about the streets or are wafted about the rooms of well-lighted houses still retained their power to do harm, none would escape the ravages of tuberculosis. That we do escape is due to the fact that but few active, virulent bacilli find lodgment in suitable soil for growth and development. It is in the sputum fresh from the lips of the tuberculous or that has lain in dark and unventilated rooms that the danger lies. Immediate destruction of the sputum and the free admission of fresh air and sunlight to every room reduce to a minimum the dangers from infection from this source.

In close, dark rooms, the tubercle bacillus undoubtedly retains its potency for an indefinite period, and in densely populated and crowded districts, as in tenement sections where there is but a very meager supply of sunlight and fresh air, this source of danger is very great.

When the public fully appreciates that tuberculosis is strictly a preventable disease, that every case is dependent upon some previously existing one either in man or in some domestic animal, and that it never originates in any other way, then we may obtain cooperation in the prevention of the spread of this fatal malady.

Popular education is necessary, and the first thing to be learned is that the bacilli must be promptly destroyed. If no bacilli fell under suitable conditions and in favorable places for their development, then the lifetime of a single generation would mark the extermination of tuberculosis, but if each individual now suffering from it is permitted to infect one or more healthy

persons, then there will be no progress made toward its suppression, but there may be an actual increase in the total number of cases.

The principal sources from which infective bacilli come, are two—milk from infected cows, and the sputum from tuberculous persons.

Compared with these sources of danger all others are of slight importance. Omitting for the present a consideration of bovine tuberculosis, attention will be briefly called to the dangers which lie in the sputum of the tuberculous patient.

There is today in this country alone, traveling up and down the various avenues of life, a vast army of tuberculous persons, more than a million and a half in number, hawking and spitting, each one spreading millions of living, virulent bacilli all about him, in his room, about his home, upon the streets, in public places, in railway and sleeping coaches, in street cars, cabs, and in every conceivable place where he may chance to wander.

So widespread is this disease and so numerous are its victims that almost daily contact with these germs must be had by every individual in the country; and these dangers are infinitely multiplied by the carelessness of the patients and the lack of general information on the part of the public concerning the proper care and disposition of the dangerous excreta from these persons. It is self-evident that not all who are exposed to the dangers of tuberculosis contract the disease, otherwise none would escape, yet it is just as true that no person is known to be immune to it.

The most important thing to be done against its spread is to educate all the tuberculous in the proper care of their sputa. To locate these persons it becomes practically necessary that they be registered, for if thus made known to their proper health authorities it would be possible to place in their hands the rules and regulations necessary for their guidance and direction and for the protection of those whose unfortunate duty it becomes to be associated with and to care for them as well as to safeguard the general public from the dangers of further spread of the malady. It is due in large measure to lack of proper understanding of the purposes of such registration that opposition, largely of a sentimental character has been set up against it, but as its true objects become better known, opposition ceases and the active cooperation of the patients themselves is obtained. No publicity should be attempted in registration and the health authorities alone should be acquainted with the facts. While this educational movement is taking place much good may be done by physicians calling attention of such patients to the necessity of proper precautions to be taken for the protection of their associates and friends. The average tuberculous person expectorates many millions of bacilli each day and frequently these are spat upon the floor or upon the grounds about the house where they may find entrance into the air passages or digestive tracts of others and thus the primary focus of infection is extended until all the members of the family, together with its descendants, may be afflicted with tuberculosis. Hence the older writers concluded that the disease was hereditary while in fact they had before them but a wellmarked example of a communicable disease.

Destruction by fire is the ideal method of dealing with the sputum. Each patient should be supplied with a sputum receptacle of a suitable kind into which the expectorated material should be placed and kept until it may be thrown into the fire. Cheapness and convenience are the two requirements of receptacles of this character. After trying a number of those on the market we have adopted at Boulder Lodge Sanatorium one which answers admirably all practical purposes and which costs nothing. It is made from the leaves of old magazines—two or three leaves being rolled into a little cup of cone-shape, about the size and shape of a calla lily, the apex of the cone is turned over for the bottom of the cup and the receptacle is ready for use. It is small, and may be

held in the hand or laid near the patient or slipped into the pocket, and after using two or three times it is thrown into the fire. These cups are readily made by the patient or nurse, the material is always at hand, it is impervious for several hours, and answers fully as well as the more cumbersome and uncleanly articles on the market. These cups are equally well adapted for use in the home. For use at night we have small porcelain granite cups into which papers are folded as a lining. These are placed beside the bed within easy reach of the patient. Each morning the contents of the cups are emptied into the fire, and the cups sterilized.

For those at work, and especially for workmen, some more substantial receptacle may be made of use, such as a small wide-mouthed bottle, which may be slipped into the pocket and readily be cleansed and sterilized each day.

Handkerchiefs and cloths of sufficient value to save from burning should never be used by the patient. Even when the sputum cup is made proper use of, it is necessary to wipe the lips, and for this purpose some soft cloths or pieces of cheese-cloth should be used, after which they may be burned.

It is the duty, both for himself and for those about him, of the patient to see that none of his bacilli escapes the fire.

In the act of coughing, fine particles of germ-laden moisture are expelled from the mouth, and are a source of danger to nurses and attendants or other persons about the patient. Care should be exercised to turn the head from other persons and to place the handcloth over the mouth while coughing.

The bedding and clothing used by the patient often become soiled with sputum and other ejecta containing bacilli. The hands of attendants or others whose duties bring them in contact with such articles are likely to become soiled. The clothing and linen should be such as may be boiled or otherwise sterilized. Bedding should be thoroughly aired before the beds are made, and should be frequently exposed to the sunshine. Attendants must cleanse their hands carefully after rendering any sort of service to the patient or after touching anything about him.

Rooms occupied by the tuberculous must not be used by others and it is little less than suicidal to occupy the same bed with them, particles of sputum and the spray expelled in coughing being specially dangerous in such close proximity. The infection of husband or wife under such circumstances is very common, many such instances having fallen under my personal observation.

The cleansing and sterilizing of rooms that have been occupied by the tuberculous should be thoroughly done. Walls should be wiped, the woodwork washed, all the clothing and bedding removed, aired and exposed to the sun for 2 or 3 days, and linen should be washed and boiled. After thus cleansing, the contents should be returned to the room and hung in such a manner as to expose them to the fumes of the formalin lamp for several hours. After again airing the room it may be reoccupied with safety by other persons.

Sanatoriums for the tuberculous should have bare, polished floors, painted walls with rounded corners, woodwork of plainest type, and furnishings that will catch but little dust.

Tuberculous persons should not expectorate in pastures or in other places where cattle feed as the disease may be communicated to them; neither should they have anything to do with the care of cattle, with the milking of them or with the preparation of foods. Spoons, dishes and other articles from the table or patient's tray should be sterilized by boiling for 20 minutes after each washing.

Personal cleanliness, on the part of the patient should be enjoined; the hands should be washed frequently, the finger-nails closely trimmed and beard closely shaven.

Flies should be excluded as much as possible from the patient's room; they are often guilty of much that has been attributed to other carriers of contagion. Recently, while my assistant was preparing some specimens for the microscope, I observed a fly fall into the cup from which the sputum was taken, and after literally wallowing in it, flew away carrying thousands of fresh tubercle germs on its wings and legs. This little incident served to impress upon my mind the important role which the housefly may play in the dissemination of this disease, and added much to my former opinion of the fly as a public nuisance. The fly should be banished in every possible manner from the home. It is doubtful if the mosquito, concerning which so much has recently been said in pathologic circles, is guilty of half the crimes that could be charged to this common pest.

Kissing.—The mouth and lips of the tuberculous are never free from tubercle bacilli. These germs are still warm and fresh from their resting place in the patient; they have never been exposed for an instant to the light or air, and in the act of kissing, there has been no opportunity for any outside agent to act upon them in their passage from the one who is sick to the one who is well. It is a veritable inoculation of tuberculosis; the germs thus transferred find entrance through the tonsil, fauces, or digestive tract, and in time the early symptoms begin to manifest themselves, while the history of the case gives no clue to the origin of the attack. I am fully aware that it is altogether utopian to condemn kissing, but to kiss the tuberculous often means death to one who at the time may be in perfect health. I believe kissing to be the most dangerous practice in which the tuberculous indulge, and that more persons are infected in this way than in all other ways combined. Kissing is not dissimilar to our feeding experiments with animals, when the fresh bacilli are purposely spread upon the food of animals to be infected. Thus all extraneous circumstances and modifying influences are eliminated, and the active, living germs from the tuberculous subject find immediate entrance into the tissues of the healthy animal.

Tuberculosis in the family from generation to generation may be almost wholly imparted by the family kiss, it being communicated by direct inoculation and with but little else to give rise to the apparent hereditary tendencies of the disease.

Situated as I am, working among this class of patients, I often see them kiss their relatives and friends, and at the particular moment it is often most embarrassing to chide them, but these words that here are written should be taken up by others until every person, whether sick or well, may know fully the danger that threatens from this universal custom.

Many persons apparently in full health have sputa swarming with bacilli. This is a common experience to phthisiologists. These persons, especially if girls, are a source of infinite danger to their acquaintances and friends, and I here, in behalf of health and life, call upon our American girls and women to put aside the foolish practice which has grown up among them of saluting their friends of the same sex with a kiss which has no meaning. Should men indulge such idle folly they would be the subject of ridicule.

This practice is devoid of meaning, is purely formal, is fraught with danger, and is a frequent cause of death. It has nothing to warrant it and should everywhere be condemned. The tuberculous person should always remember that he is a source of danger to others and should refrain from practices that place other lives in danger.

Trailing Dresses.—Dresses that trail upon the streets are carriers of infection. Tuberculous sputum, fresh from the lungs of the tuberculous, is thus often mopped up and carried home, where it may soon find lodgement in some susceptible person, perhaps a little child just creeping

about the floor. Street dresses should always clear the walk; trailing skirts which sweep the dusty and muddy streets, gathering up dirt and filth of every description, are not pleasant to contemplate. Much rather would we think of milady sweet and clean.

The Communion Cup.—The necessary, but as now used, ill-advised communion cup is not free from danger as a carrier of infection. The tuberculous, along with healthy persons, partake of the cup which passes from lip to lip, and clinging to it are accumulations from each. Living, infective bacilli, among other germs, are present and death may thus enter from this sacred obligation. Individual cups alone are proper. In our homes we would deem it improper, and highly so, to offer a cup to another after ourselves partaking from it. No less is it bad taste because done in the sanctuary. Habits do not regulate themselves according to the place in which they are practised. If unsanitary and improper in the home they are none the less so when practised in the church.

Every possible safeguard must be thrown around every individual to protect him from coming into contact with the germs of this deadly disease. If some measures advocated appear harsh or in any way unkind it must be remembered that the good of all is greater than the interests or convenience of the few and that the public health must be conserved at any price.

ITHACA EPIDEMIC OF 1903.

BY

LUZERNE COVILLE, B.S., M.D.,
of Ithaca, N. Y.

Beginning before the middle of January of this year and continuing until the middle of March, Ithaca was visited by an epidemic of typhoid such as had no equal in this country. The city lies upon 8 hills and the valley between (Fig 3). It is supplied by a private water company, from 2 streams. Of these, the water of Six Mile creek was undoubtedly infected. The campus of Cornell University is supplied by water from still another stream, which was clear of typhoid. The city contains approximately 13,000 permanent residents, and houses additionally about 2,800 students of the University. In the first 6 months of the year there were nearly or quite 1,300 typhoid cases. In July and August there were approximately 80 additional typhoid cases, mainly infected from one well, which received water from a broken sewer tile leading from a house in which was a "walking case."

The outburst of typhoid rose rather abruptly from the middle of January till February 2-4. It then fell gradually to February 20, from which time the curve drops gradually and subsides about the middle of March. During this time no person who drank *exclusively* well water, spring water, or artesian well water seems to have suffered from the disease. Of course, a few cases have arisen from transfer infection, but the number is relatively very small. The fact that Ithaca has within its limits about 1,500 wells, many of them in full use, will explain this relatively small number of typhoid cases. For nearly 2 years the city had been warned through chemist examinations of the city water and publication in the daily papers that the city water was unfit for drinking in the raw state, especially in the time of flood. The city Board of Health had especially tried to impress this upon residents by reports made and published in February, March, and April, 1902, when samples of water showed 800, 18,000, and 720 colonies of bacteria per cubic centimeter, for the respective months. For many years the residents have depended for drinking purposes either upon boiled water or upon artesian and spring water brought into the city by venders. It

¹ Read before the New York State Medical Society, at the Second Semiannual Meeting, New York Academy of Medicine, October 14, 1903.

is safe to say that at least 10% to 15% of each class entering the University have "freshman diarrhea" each year, caused largely by the water used.

During the last 5 years in which the University has conducted its student infirmary there has been some enteric fever each year, in the main during the fall months. Some of these are "imported," but as a rule, these patients have not had typhoid originating in town. In the winter of 1900-01 there were 40 to 50 of these student cases; in 1901-02 the number increased to 100 to 150. Of these, only two or three each year have reacted under the Widal test, and these few positive tests have given positive histories of typhoid. Ithaca is not a typhoid town.

Beginning in January, 1903, the type of this enteric fever changed, due to a different strain of infection, and

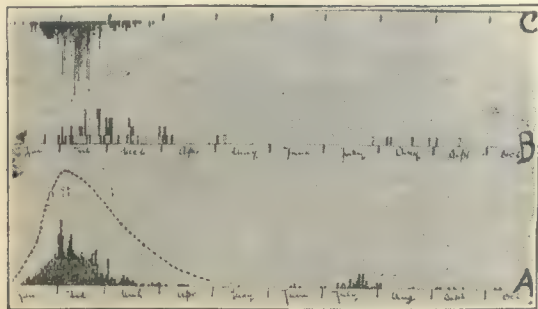


Fig. 1.—A, report of 961 cases, made to the City Health Board; scale 1-1; the dotted line representing approximate height and distribution if all cases had been reported. B, deaths; scale 1-5; student deaths in light rectangles, the townspeople in black. C, personal observation of cases; scale 1-2; the black rectangles representing fever cases; the — lines the atypical cases.

the outbreak assumed an entirely different character. While in previous years the enteric cases had been of mild course, had not reacted to the serum test, and the patients had recovered in a week to 3 weeks; they now began to run a more typical typhoid temperature curve, and gave the Widal reaction in most cases positively. The patients recovered in 3 to 6 weeks.

Upon the head waters of Six Mile creek lie 2 small villages, Slaterville and Brookton. Along the 12-mile course of the stream its narrow valley is dotted by farms and their houses and barns. In these 2 villages and among these farm holdings there have been not infrequent cases of enteric fever during the past 2 or 3 years. The closets used are those common in the country, and there is every chance in over a score of cases for typhoid dejecta from these outhouses to enter the stream directly. The stream bed is narrow, without storage basin, and its flow, ordinarily about half enough to supply Ithaca. In time of flood or freshet it is what may be termed torrential. A freshet such as took place from December 16 to December 22 would wash down stream a large share of such infection, but would not give a continuous invasion such as is evidenced by the bulk of cases cropping out from February 1 to February 15, nor would it give such a concentrated infecting medium as is evidenced by the outburst of that period. This source of infection can probably be dismissed.

A second source of infection has been considered—that of an Italian colony of laborers employed in the stream bed and encamped upon its immediate margin. This colony left the creek bed before December 1, and did not return until late in the spring. Upon what seems very reliable authority, there was no illness among them. Their presence and their latrines, however, would no better explain the source of infection than the first conditions.

A third cause of infection—in a considerable quantity and for a longer period—would be a person or persons with walking typhoid living in shanties close by the

intake at the pumping station of Six Mile creek. In 2 or 3 of these shanties, lying upon the very outskirts of the town, cases of typhoid occurred early in the winter, as attested by the Widal reaction. In these houses during the winter months the excreta and garbage were thrown out upon the bank of a small stream that leads down to Six Mile creek and empties just below the Ithaca water intake, at a point protected from winter freshets by a bend or bay in the bank of the stream. The winter thaws of December 16-22, January 26-31, and February 2-4, would conveniently bring such typhoid excreta, previously frozen, into the water supply in such a manner, at such times and in such quantities as should reasonably explain the extent of the epidemic both as regards length of infection period and distribution throughout the city pipes.

During late June and early July the Barnes' well infected some 50 persons by means of escape sewage the ingress of which into the well in a half-inch stream could readily be appreciated by means of a lantern dropped into the well.

If we analyze these cases of fever we find them divided into approximately 4 equal divisions or classes—some of each class at some time giving an agglutination test and all giving some if not all the clinical symptoms of typhoid.

Subclass A. Infectious Cases.—I. The subnormal cases. These patients are conscious of no fever at the beginning of the onset, but become subnormal in pulse and temperature and remain so for about 10 days to 2 weeks. They tend to relapse every 2 weeks and may so continue into the third, fourth, and even fifth invasion or incubation. (79 cases.)

II. Cases having a very moderate temperature for a few days followed by subnormal pulse and temperature, and also liable to relapse. Occasionally a second or third relapse will develop a regular typhoid temperature. (64 cases.)

Subclass B. Fever Cases.—III. Short sharp temperature cases of 5 to 10 days' duration, with high pulse. This class simulates grip, is slowly convalesced from, and has only rarely relapsed into typhoid. (75 cases.)

IV. Regular typhoid. These are in the main typical. In the lighter cases, the patients may not present markedly the occipital



Fig. 2.—Distribution of cases as reported to the City Health Board. Compiled by Dr. H. B. Besemer.

migraine, injected eyes, intense pharyngitis, nasal hemorrhage, in the early days, and they are apt to be without rose spots and marked tympanites; and they recover in 10 to 20 days. The severer cases have all the clinical picture of a typical typhoid. (71 cases.)

All these cases of all classes had one peculiar symptom. Every patient had the throat marks of the infection. The pharyngeal walls and especially the pillars of the fauces and the soft palate and the uvula had the dull angry red so common to the "gouty" throat. This remained throughout the relapses or the reinfection periods of the 2 subnormal classes, while in the tempera-

ture cases there was apt to be an extension in the form of a very acute nasopharyngitis. The migraine was usually frontal or occipital, or both, and was especially marked in the regular typhoid class. There was also wellmarked conjunctival injection in any temperature rise. In the subnormal cases especially, the patients had widely dilated pupils and dulled expression. There was regularly constipation throughout the disease.

All hospital accommodations were soon overcrowded. There were 150 trained nurses, at a conservative estimate, employed in the town, and there were 100 or more of moderate training. The patients were in charge of 31 physicians of the town with 8 from out of town. The overcrowding undoubtedly caused a degree of sepsis not common in the disease. Intestinal hemorrhage was a frequent complication, as were also pulmonary edema, pneumonia, and in the very severe cases perforation of the intestine. The records as near as can be ascertained are as follow:

	Cases.	Deaths.	Percent.	Total.
Student typhoid cases in town....	181	13	10	} 9.1%
Student typhoid cases out of town	197	17	8.7	
Cornell Infirmary.....	95	11	11.5	
City Hospital.....	119	8	6.7	} about 5%
City typhoid cases in town.....		42		
City typhoid cases out of town...		7		

The student statistics are that approximately 1,200 students left town; of these nearly half were sick, and of these about 200 had typical typhoid.

Of the physicians one only had typhoid and died. Two or three nurses only had typhoid, and no fatalities among them are known.

Of the 79 deaths, from January to October, there are 20 of which there are no available statistics. Of the others death was directly ascribed as follows:

Typhoid	18	Heart	2
Alcoholism	1	Exhaustion.....	1
Hemorrhage	7	Sepsis	2
Perforation	6	Chronic gastritis.....	1
Pelvic cellulitis	1	Gangrene	1
Acute tuberculosis.....	2	Appendix operation.....	1
Pyothorax	1	Mastoid operation.....	1
Kidneys complicated.....	2	Heart complicated.....	2

In 66 deaths, 3 occurred upon the seventh day, 1 upon the ninth, and 2 upon the tenth. One occurred upon the one hundred and ninety-fourth day. Omitting this and 2 wrongly certified, 63 deaths averaged to have occurred upon the twentieth day.

A word as regards the Widal test: Of nearly 300 patients seen by me, nearly 150 agglutination tests were made. In most of the regular typhoid cases the test was obtained early—from the third to the tenth day—but in a few cases was delayed until the twenty-first, twenty-sixth and twenty-seventh days. Often a positive reaction was followed on succeeding days by negative results. In 5 patients who had given previously a positive reaction, there was a negative result after an average of 63 days. In nine other patients who were previously positive, they remained positive after an average of 73 days. All classes of cases gave positive reactions sooner or later.

	Early tests.	Late tests
I. Subnormal	4 at 43 days	3 at 68 days
II. Mild temperature.....	2 at 18 days	3 at 41 days
III. Simulating grip.....	14 at 14 days	3 at 70 days
IV. Regular.....	35 at 19 days	9 at 73 days

One regular case of severe typhoid persisted in giving a negative reaction throughout its course. It was complicated by erysipelas. (These are most irregular results obtained in the press of practice, but are given for what they are worth.)

One more notable feature is that no plumbers making alterations in plumbing, or connections with the mains

in the vicinity of typhoid houses, nor any sewer station operatives, so far as can be ascertained, had typhoid fever.

In the later and small epidemic in July, only about 7 or 8 patients can trace their typhoid to a possible infection through the medium of flies.

This epidemic is remarkable for the following reasons:

1. The absence of sure causal proof.
2. The sharp onset and comparatively abrupt ending of the epidemic.
3. The great variety in its course, and the large percentage of atypical cases.
4. A cyclic recurrence of symptoms at intervals of 14 days, or relapses, or reincubations from autoinfection in the atypical cases.
5. Many cases ran a severe and septic course. (There was much intestinal hemorrhage and pneumonia.)
6. The relatively small number of relapses in the typical cases.
7. While many people of the Cornell University campus drank city water occasionally, only a very few had a regular type of typhoid.
8. Those who drank exclusively of other than city water escaped infection.
9. Bathing in city water, and the use of city water



Fig. 3.—Map of Ithaca, showing Six Mile Creek entering from the southeast and giving the location of the dam (a) and pumping station (b) of the Water Works Company.

for general utility and culinary purposes caused no typhoid.

10. Outside of families and the direct care of the sick, few cases of transfer infection are known.

11. The milk-supply was not infected.

12. Through the extreme care of latrines and out-house collections, practically no epidemic resulted through flies during the summer months.

13. The almost total immunity of physicians and trained nurses.

14. The deathrate was relatively much higher among the adolescent students than among the townspeople.

15. The comparatively high average age at death—29.6 years.

16. Many who had enteric fever and typhoid during the past 2 years had typhoid this year.

17. The relatively low deathrate under the conditions—6.6%.

18. The large number of cases—over 1,300, and probably over 1,400 if the facts could be ascertained.

19. A practically average percentage deathrate for all physicians.

20. A vote of 1,335 to 30 upon the third of March, in favor of municipal ownership of the city water supply,

and the establishment both of a filtration plant, and of an artesian water supply.

21. The almost total exemption of the city from typhoid now, after a small outbreak during the summer.

Drs. Emil M. Chamot, Veranus A. Moore, Benson A. Cohoe, and Mervin T. Sudler, of the University, have given most invaluable aid both during the epidemic and since. Drs. H. Burr Besemer and Edward Hitchcock, Jr., of the city Health Board, have aided in compiling the statistical tables and maps.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

January 2, 1904. [Vol. XLII, No. 1.]

1. Arthritis Deformans: The Report of a Series of 110 Cases from the Johns Hopkins Hospital. (From the Clinic of Professor Osler.) THOMAS McCRAE.
2. Acute Otitis Media: The Necessity of an Early Diagnosis and Treatment. FRANK D. BOYD.
3. Some Recent Experiences with Chronic Suppurations of the Ear. PHILIP HAMMOND.
4. The Efficacy of the Treatment of Acute Purulent Otitis by Aseptic Drainage. H. GRADLE.
5. The Great Value of Drainage and Ice in the Early Stages of Mastoiditis. SARGENT F. SNOW.
6. Diabetes Mellitus: The Limitations of Its Dietetic Treatment. ARTHUR R. ELLIOTT.
7. Empyema of the Antrum. O. N. HEISE.
8. The Röntgen Ray as a Therapeutic Agent, with Especial Reference to Carcinoma. ARTHUR DEAN BRVAN.
9. Perisinusial Abscess of the Lateral Sinus with Metastasis in Liver and Sternoclavicular Joint. GORDON KING.
10. Syphilis in the Negro. FRANK JONES.
11. Rapidly Growing Sarcoma of the Femur; Report of a Case; Disarticulation at the Hip-joint; Recovery. C. M. NICHOLSON.

1.—See *American Medicine*, Vol. V, No. 23, p. 900.

2.—See *American Medicine*, Vol. V, No. 20, p. 779.

3, 4, 5.—See *American Medicine*, Vol. V, No. 22, p. 863.

6.—See *American Medicine*, Vol. V, No. 20, p. 780.

7.—**Empyema of the Antrum.**—O. N. Heise is impressed by the few references, to the difference between cystic and true empyema, the one being due to a dental cyst, the other a true infection of the antrum of dental or nasal origin. These cysts press on the floor of the antrum until the bone is finally resorbed, leaving only the periosteum and mucous membrane of the antrum as a covering, the cyst then filling the chamber completely, raising outer and inner walls and the roof. Many antral cases are due to primary infection from some accessory cavity. Dental abscesses and caries and even filled teeth often cause nasal disturbances. It is easy to overlook a diseased condition of the roots. Extraction is often a prime factor in cure. The relationship between diseased conditions of the upper jaw and antral troubles should be considered more frequently than it is. [H.M.]

8.—**The Röntgen Ray.**—A. D. Bevan believes the Röntgen ray is indicative in certain superficial epitheliomas, as a post-operative treatment in most carcinomas, and in inoperable cases as a justifiable piece of experimental work. The dangers are from serious burns even in expert hands, and from losing valuable time in using the Röntgen ray when greater chances of cure are offered by surgical removal. The amount of damage for which this is responsible far outweighs the good so far accomplished. [H.M.]

9.—See *American Medicine*, Vol. V, No. 22, p. 863.

10.—**Syphilis in the Negro.**—F. Jones frequently encounters simultaneously in the negro both the primary and secondary manifestations. The high mortality of pulmonary tuberculosis in this race is due to the damage already wrought by syphilis. Syphilis also causes enormous accumulations in the pleural cavities. The prevalence of heart disease is due to the same cause. Acute syphilis produces acute endocarditis, from which lesions both valvular and muscular may arise in their most severe forms. Sometimes the disease seems to spend its force on this organ. The writer reports 43 cases of stricture of the rectum, 47 being in women, and believes that this is a more frequent cause of pronounced constipation than supposed. This is due to syphilitic infection to which the rectum in women is more exposed than in men. [H.M.]

11.—**Rapidly Growing Sarcoma of the Femur.**—C. M.

Nicholson describes sarcomas of central and peripheral origin in the long bones, and reports a case of the peripheral variety in a child of 8, requiring amputation at the hip-joint 5 weeks after the first appearance of symptoms, the leg affected being 3 cm. greater in circumference than the other. [H.M.]

Boston Medical and Surgical Journal.

December 31, 1903. [Vol. CXLIX, No. 27.]

1. Typhoid Fever in Children. ADOLPH BAGINSKY.
2. Acute Flexion of the Gallbladder as a Cause of Biliary Colic. Its Relief by Operation. A. T. CABOT.
3. Some Remarks on Chronic Sphenoidal Sinusitis. ALBERT E. ROGERS.
4. The Case of Louis Bitzer. EDWARD B. LANE.
5. A Brain Hardened by Kaiserling's Method Showing the Track of a Bullet. WILLIAM F. WHITNEY.
6. What was the Cause of Death? A. ELLIOTT PAINE.

2.—**Acute Flexion of the Gallbladder as a Cause of Biliary Colic.**—A. T. Cabot reports 2 cases. An otherwise healthy woman of about 50 had for years been subjected to attacks of pain in the right hypogastric region. She, in addition, had the other ordinary symptoms of biliary colic, except there was no definite history of icterus. Operation being consented to, the gallbladder was found rather long, with its fundus extending below the edge of the liver, and the pressure of the ribs carried its fundus upward and inward, producing a distinct bend or kink in the gallbladder. When the fundus was drawn downward this bend was effaced, but it reproduced itself when the gallbladder was allowed to fall back; there were some slight adhesions. The gallbladder was opened and no stone found. To obliterate the kink, the gallbladder was drawn outward and attached to the peritoneum. Prompt recovery from the operation followed, and the most annoying symptoms were promptly relieved. However, some disturbance persisted and later evidence of appendicitis appearing the appendix was removed, since which time the patient has been entirely free from pain. The second case was an otherwise healthy man, who likewise presented the general symptoms of attacks of biliary colic, but there was no icterus. These attacks having been repeated several times, operation was advised and consented to. The gallbladder was found long and lax; it projected beyond the edge of the liver, and being attached to that organ up to the very edge, made, by its weight and downward pull, a distinct sulcus in the lower edge of the liver. Cholecystectomy was done; no stones were found in the gallbladder, and the patient made a complete recovery. The author is of opinion that the kinking of the gallbladder in both these instances produced the symptoms. In such cases he believes it is best to completely excise the gallbladder. [A.B.C.]

3.—**Chronic Sphenoidal Sinusitis.**—A. E. Rogers, in his experience in the Massachusetts General Hospital, has come to the conclusion that chronic sphenoidal sinusitis occurs much more frequently than is generally supposed. He found on examining 600 patients, that 29 were cases of accessory sinus disease, or nearly 5% of all who came to the throat department for treatment. Chiari and Lichtwitz report an average of only 2%. Of these 29 cases he found the antrum of Highmore affected 4 times, the frontal sinus once, a mixed frontal and ethmoid twice, the anterior ethmoidal 3 times, the posterior ethmoidal twice, the sphenoidal sinus 16 times, and a mixed posterior ethmoidal and sphenoid once. This places the empyema of the sphenoid at the head of the list, which does not agree with the majority of clinical observations in placing the maxillary sinus as the most commonly diseased. Specific directions are given by the author as to how to reach the sphenoidal sinus and determine whether or not there is a pathologic condition; likewise his operative procedure upon such cases in which operation is necessary, is detailed at some length. Eleven cases, regarded as somewhat typical, are described in detail. [A.B.C.]

5.—**Brain Hardened by Kaiserling's Method to Show the Track of a Bullet.**—William F. Whitney reports that a man had shot himself with a 32-caliber revolver with suicidal intent. Two shots had been fired, both striking the frontal bone, only 1 of which penetrated the skull. In spite of operation and active treatment the patient died some hours after being admitted to the hospital. The interesting features of the

case was the postmortem treatment of the brain to preserve it for medicolegal and other purposes. It was hardened in bulk in Kaiserling's fluid for 2 months. It was then cut in a series of sections each 1.5 cm. thick and the track of the bullet located as follows: It entered at about 4 cm. from the front of the right anterior lobe, passed directly across, traversing both lobes. In the left one was a cavity the size of the end of the thumb, filled with blood clot and disintegrated brain substance. This opened upon the surface at the point where the trephine wound had been made. From this cavity the track turned almost at right angles and proceeded directly backward, passing through the white substance of the left hemisphere and along the upper part of the convolutions of the island of Reil, in the middle part of which it was found to be lodged. [A.B.C.]

Medical Record.

January 2, 1904. [Vol. 65, No. 1.]

1. A Plea for Justice to the Tuberculous. S. A. KNOFF.
2. The Diagnostic Significance of Certain Reflexes and Tendon Phenomena. H. OPPENHEIM.
3. Commentaries upon Lues and Leprosy as Subkatabolic Diseases. HOMER WAKEFIELD.
4. Diagnosis of Acute Lobar Pneumonia. STEPHEN SMITH BURT.

1.—Justice to the Tuberculous.—S. A. Knopf appeals against official, private, and professional phthisiophobia. He discusses the injustice and inhumanity of the Marine-Hospital regulation on the subject, and the almost universal protest on the part of the medical profession. He also scores the infamous Goodsell-Bedell law, which is practically prohibitive of the establishment of tuberculosis sanatoriums anywhere in New York State, and records the deprecatory resolutions of the New York Academy of Medicine and other medical societies of the State. Private phthisiophobia has resulted partly from the official and partly from the excessive caution of the insufficiently educated. The difficulty of obtaining work leads to the concealment of incipient cases, and thus overcaution defeats itself. In answer to professional phthisiophobia, as represented by Qaxe's paper in the *New York Medical Journal*, the writer quotes the opinion of leading specialists and others, giving a decided negative to the charge that there is a greater tendency to immorality and crime than among the well or those afflicted with other diseases, and that the average tuberculous patient is inclined to brute selfishness, to loss of self-control, and distortion of ethical perceptions, many inclining to the belief that these sufferers are above the average in their mental and moral character. Insanity invites tuberculosis through lowering of the vitality, close confinement in asylums and prisons, lack of exercise, depressing environment, close contact with inmates already tuberculous, and lack of facilities for treatment. There is urgent need for reform in these institutions. Education is the only method of combating phthisiophobia. The perfect safety of contact with an individual who takes care of his sputum should be made known to all. [H.M.]

2.—Cerebral Reflexes and Tendon Phenomena.—Professor H. Oppenheim, of Berlin, calls attention to the almost universally constant presence of the knee-reflex phenomenon in health. It may be absent in apparently healthy children of syphilitics; but later symptoms of hereditary syphilis may supervene. Mechanical conditions such as fat, genu valgum, edema, etc., may prevent the manifestation of the reflex. Under other conditions any exaggeration or diminution of this phenomenon is indicative of a pathologic condition. The achilles reflex or heel phenomenon is not fully appreciated. With the patient in the kneeling position the phenomenon in the normal state consists in plantar flexion of the foot when the achilles tendon is percussed. It is almost constant in health, and its absence is important, in the absence of trauma, a previous sciatica, diabetes, etc. The loss of heel-reflex usually long precedes the loss of knee-reflex in tabes. The Babinski reflex is dwelt upon at some length and a number of its varying manifestations explained. The author directs attention to a reflex first noted by himself. If, in health, the inner aspect of the leg be stroked, tapped or pinched, there will be either no movement, or flexion of the toes will occur; but in affections of the pyramidal tracts a dorsal flexion of the toes and of the foot

occurs. It thus forms a valuable adjunct to the Babinski test. [A.B.C.]

3.—Syphilis and Leprosy as Subkatabolic Diseases.—

In conclusion, Wakefield says in substance that in the treatment of syphilis and leprosy, parasitocides, *per se*, however powerful, unless they are active oxidants, are of no value, but active oxidants are of the greatest value, even if devoid of parasiticide properties. Mercury, in the primary stage of syphilis, does not even destroy the virus, as is attested by the later appearance of the secondary and tertiary manifestations. Potassium iodid accomplishes a similar purpose as an oxidant in syphilis, leprosy, and in cancer, though it is most valuable in the former. Agents producing hyperemia of the tissues are of greatest value. Erysipelas has been mentioned; the bites of venomous serpents, scorpions, hornets, etc., when not proving fatal, are even curative; which suggests the hypodermic injection of attenuated venoms, to the same end. Hot baths, exercise, cardiac stimulants, oil massage, using the oil of highest reduction (oxidation) power, and oil internally, which has been found so efficient in leprosy, have all been found of value. Theoretically, an arrangement by which Röntgen or ultraviolet rays of light, or high-frequency currents could be administered to the entire body for long periods daily, would be most efficacious. [A.B.C.]

New York Medical Journal.

December 26, 1903. [Vol. LXXVIII, No. 26.]

1. The Etiology of Bronchopneumonia. LEWIS A. CONNER.
2. The Point of Election in Tuberculosis. J. O. COBB.
3. Accidents and Complications Following Operations on the Nose and Throat. JUSTUS SINEXON.
4. Fat Necrosis and Report of a Case. V. B. JACKSON.
5. Laryngeal Complications in Typhoid Fever. Report of a Case. Tracheotomy. Recovery. HOMER DUPUY.
6. A Device for the Prevention of Premature Baldness. JOHN GILBERT.
7. Treatment of Typhoid Fever with Castor Oil. C. C. BASS.
8. Delayed Secondary Hemorrhage Following Amygdalectomy: Report of Two Cases. RICHMOND MCKINNEY.

1.—Etiology of Bronchopneumonia.—L. A. Conner says the name bronchopneumonia does not indicate a single infectious disease, but is used to designate those inflammations of the lung parenchyma, of whatever etiology, which have their origin in the bronchial walls and which therefore bear a constant relation to such bronchi. With respect to etiology he considers 2 great classes—primary and secondary. The secondary cases are divided into 3 groups: 1. Those cases complicating or following the acute infectious diseases, and seen especially in children. 2. Those developing in the course of various chronic and debilitating diseases. 3. Aspiration pneumonia. Holt found that among 426 cases of bronchopneumonia in children 97% occurred during the first 3 years of life. Primary cases are very rare in adults. In the aged, the primary form is occasionally seen, but by far the greatest number of cases develops in the course of the various chronic diseases common to that period of life. Among the acute infectious diseases complicated by bronchopneumonia measles stands first. Influenza, diphtheria, whoopingcough, and scarlet fever, are especially mentioned. It is also a complication of typhoid fever, smallpox, erysipelas, and even varicella and German measles. Chronic nephritis, chronic diseases of the heart, gout, cerebral hemorrhage, and the various surgical affections, such as fractures are the conditions in group 2 most frequently complicated by bronchopneumonia. Aspiration pneumonia is common in all conditions of stupor and unconsciousness, such as cerebral hemorrhage, meningitis, and the like, when the normal sensitiveness of the larynx and trachea is lost and when the act of swallowing is imperfect. Among the cases of primary bronchopneumonia the bacterium most frequently found is *Diplococcus pneumoniae*. Next, but far below it in point of frequency comes *Streptococcus pyogenes*, either alone or combined with other bacteria. Much less frequently than these two have been found, separately or in various combinations, the pyogenic staphylococci, *Bacillus pneumoniae* of Friedländer, the influenza bacillus, *Bacillus pyocyaneus*, *Micrococcus tetragenes*, and others. In the bacteriology of secondary bronchopneumonia the bacterial list includes the same names, together with a number of others, such as *Bacillus diphtheriae*, *Bacillus typhosus*, *Diplococcus intracellularis meningitidis*, etc. [C.A.O.]

2.—Point of Election in Tuberculosis.—According to J. O. Cobb, the explanation for the constant deposit of bacilli and foreign matter lies in the fact that the vis a fronte by the great veins and lymph vessels in the angles of the neck causes enough suction to create a counter lymph current and an area of lymph stasis in the apices of the lung. A bacillus falling within this zone of lymph stasis would become arrested far quicker than elsewhere in lung tissue. In bovines, as well as in man, the pulmonary deposits of foreign matter are anatomically the same as for tubercle bacilli. [C.A.O.]

3.—Nose and Throat Operations.—Justus Sinexon calls attention to the accidents and complications following operations on the nose and throat. He believes that the laryngologists and rhinologists of today are at fault, in that they seldom attempt to correct redundant tissue or faulty secretions by constitutional treatment, but at once resort to the knife or cautery, and that they have an almost total disregard of the anatomy or physiologic functions of the nose or throat. When the necessity of operative interference in the nose and throat is unavoidable, care should always be exercised, regardless of the technic employed, that the repair should be accomplished with as little cicatricial tissue as possible. Another source of danger is that when the operation is not fully completed, fragments of tissue and portions of bone or cartilage are allowed to remain, thus impairing drainage, interfering with the reparative process, and offering a possible source of infection. [C.A.O.]

4.—Fat Necrosis.—The case reported by V. B. Jackson is of interest mainly on account of the large tumor that was formed. The patient, a man of 56, had a chill, attended with intense nausea, vomiting, and severe pain in the epigastrium. There was slight fever and constipation. A distinct tumor was noticeable lying midway between the umbilicus and ensiform cartilage. It was the size of an ordinary fetal head, somewhat movable, and very tender upon slight pressure. An exploratory incision was made, the transverse colon lay in a sulcus at its upper part, the duodenum and ileum being intimately attached below, and the excessive fat of their omentum and mesentery, which was diseased and lumped together, apparently made the bulk of the mass. A specimen showed the mass to be one of typical fat necrosis. It is the opinion that the mass was formed from a subacute pancreatitis, and that the acute symptoms were not unlikely induced by an acute gastroduodenitis. The patient made an uneventful recovery. [C.A.O.]

5.—Laryngeal Complications in Typhoid.—Homer Dupuy reports a case of submucous laryngitis complicating typhoid fever in a girl of 20. High tracheotomy was followed by great relief and subsequent recovery. The points of interest are the prompt relief, during 9 hours, which followed the local use of adrenalin, the alarming hemorrhage which occurred a few hours after the operation and presumably due to hypostatic congestion of the right lung, the action of adrenalin given internally which the author believes arrested the bleeding in this instance, and the complete restoration of the cricoarytenoid joint movements, which guaranteed the normal respiratory and phonatory functions of the larynx. The 25 collated cases mentioned in this article, which have been reported in the last 58 years, afford eloquent proof that the subject of typhoid affections in the larynx calls for general recognition. Evidence, bacteriologic and clinic, strongly supports the view adopted by the majority of observers, that the laryngeal involvement in most instances is a direct typhoid infection. A high deathrate, as shown by statistics, when this complication exists, teaches the salutary lesson of always examining the larynx when the danger signals of hoarseness, dyspnea, or dysphagia set in. The favorable results which follow operative interference offer such a contrast to the high mortality without operation that there can be but unanimity of opinion as to its propriety. Tracheotomy is the most approved because in most cases the only possible surgical procedure which can save life. [C.A.O.]

6.—Prevention of Premature Baldness. John Gilbert maintains that the tight hat band and the impervious material from which the head gear of many civilized persons is constructed, are responsible for cases of baldness, especially of the premature variety. The devices advocated by him consist of cork or other resilient material upon a backing of some metal;

the whole to be applied at intervals to the hat band in juxtaposition to the head, thereby confining the pressure to certain parts or sections, leaving the intervening space free to allow the free ingress and egress of air, and to relieve the pressure on the blood-supply. [C.A.O.]

7.—Castor Oil Treatment of Typhoid.—C. C. Bass summarizes the results in 79 cases of typhoid fever treated with castor oil. In the majority of these cases no medicine except castor oil was given. All were given an abundance of pure drinking water. The diet was strictly liquid, generally milk, and sometimes predigested food. No deaths occurred. There occurred 3 hemorrhages. The shortest duration of fever was 12 days; the longest, a case which relapsed, 44 days. The average duration of fever was 16½ days, counting from the first day of the headache, malaise, etc., until the temperature reached normal. Bass begins promptly with a dose of pure castor oil every 12 hours, regardless of the stage of the disease. The dose should be regulated so as to cause 1 or 2 actions, and will vary from 1 dr. to 8 dr., depending upon the patient, the stage of the disease, and the condition of the bowels. [C.A.O.]

8.—Secondary Hemorrhage after Amygdalectomy.—Richmond McKinney reports 2 such cases in boys aged 7 and 10 years respectively. The hemorrhage in each case occurred 4 days after the operation; it was oozing in character and venous. [C.A.O.]

Medical News.

January 2, 1904. [Vol. 84, No. 1.]

1. The Management of Typhoid Fever Epidemics. GEORGE A. SOPER.
2. Anomalies and Difficulties of Diagnosis in Typhoid Fever. HENRY L. ELSNER.
3. Management and Treatment of Typhoid Fever. EGBERT LE FEVRE.
4. Thoughts on Chlorin and an Antiseptic Technic. DOUGLAS H. STEWART.
5. Excision of the Frenum Preputii Following Laceration During a Suspicious Intercourse. CHARLES C. MILLER.
6. Chickenpox Concurrent with Smallpox. PHILIP D. BOURLAND.

1.—Management of Typhoid Epidemics.—G. A. Soper reminds us that we attribute to health boards a knowledge they do not possess, and then excuse them from responsibilities the law places on them. It is customary for 1 member to be a physician, and beyond this no scientific knowledge is required and no remuneration is given. Theoretically, the health officer employed, directs the active work. His salary is less than a dollar a day, and a scientific training in sanitation can scarcely be acquired in this country. The responsibility for typhoid epidemics lies ultimately in many cases with our universities. In atypical cases of typhoid provisional diagnosis should be promptly reported, and on the seventh day a Widal test made. When aid is needed to control the epidemic the State board should be called on, and its representative provided with ample power. The 30 days required for dissolving an incompetent local board should be shortened. Except in extreme cases the State's expert should act only as an adviser. Maps should plot the location of cases, and tables embody results chronologically. As disinfection on a large scale is required, the board should furnish the lime and bichlorid. Urotropin should be used for the bladder. [H.M.]

2.—Anomalies and Difficulties of Diagnosis in Typhoid.—H. L. Elsner thinks no other acute infection so atypical, and few confer so short an immunity. Incubation may be long with vague symptoms, or we may have early hyperpyrexia with profound involvement of the nervous system. Among the most malignant cases are those met in drunkards, and in those nervously reduced, which develop cerebrospinal meningitis and die before the tenth day. Typhoid is a hypotensive disease. As it advances pressure may fall to 100 mm. or lower. At no time is it high without complications, usually abdominal. During the first stage relative lowering and disproportion is more diagnostic than dicrotism. There are sometimes sudden drops to normal temperature without hemorrhage or perforation. In most cases in the prodromal stage fibrillary twitching of the tongue is characteristic. The diagnosis of typhoid must be surrendered if the patient has repeated chills. There are few cases in which chilly sensations are absent. The least valuable of prodromal symptoms is nose-bleed. The writer has detected an enlarged spleen in all cases, but not by palpation, and eruption in all but 8 cases. With scarlatiniform

eruptions blood cultures reveal the specific bacilli. In 2% of cases a vesicle caps the roseola. In 2 cases seen by him there were severe hemorrhages before the eleventh day. Subjective and objective symptoms of perforation are not always associated with rupture of an ulcer, the peritoneum being protected by adhesions. There may be effacement of liver dulness without perforation. Peritoneal inflammation causes rise of blood-pressure. There should be daily observations of pressure. The differentiation of nephrotypoid from a preexisting chronic nephritis depends on pressure. With evidences of endocarditis we may presume the absence of typhoid. [H.M.]

3.—Management and Treatment of Typhoid.—E. Le Fevre advises having 2 beds in the room so that there may be daily airing and sunning. The physician should by inspection see that his orders as to cleansing after defecation and urination are carried out. In no other disease do we so fail to adapt diet to individual needs. With milk exclusively, the stools contain more undigested food than with a mixed liquid or semiliquid diet containing the same amount of proteids, carbohydrates, and fats. Milk is deficient in carbohydrates, resulting in a condition of partial starvation, in which the proteids of the body must make up the deficiency with progressive loss of weight. It must be shielded from this by giving carbohydrates and other energy sustaining foods. The increased coagulability of the blood in the later weeks depends on increase in lime salts in the blood from the calcium oxid of cows' milk and the lime water used at times to dilute it. This suggests partial decalcification by citrate of soda. The physician should be capable of giving definite instruction as to the preparation of food. None should be given which cannot be passed through a fine wire sieve. Water should be given ad lib. and may be acidulated with HCl or orange and lemon juice or flavored with wine. It is rarely wise to give more than 2 pints of milk daily. This also may be variously flavored, and stale grated bread or baby foods may be added to it. Carbohydrates may be given as soups of oatmeal, rice wheat, barley, tapioca, or sago alone, or with bouillon. With milk and eggs they cause flatulency. Egg combined with milk is difficult of digestion. Egg water may be given. The yolk should be given only after subsidence of the fever. Gelatin protects the proteids of the body and is valuable in hemorrhage. Salines and castor-oil are the best cathartics, and salol the best disinfectant. Brisk rubbing should accompany the application of cold. Strychnin should be reserved until the nervous centers are affected. Alcohol stimulates the heart and retards emaciation. Nitroglycerin should be given only when tension is high. [H.M.]

4.—Chlorin as an Antiseptic.—Douglas Stewart gives the results of his experience with chlorin and other antiseptic agents. Taking mercuric chlorid 1-1,000 as a standard and anthrax as the germ, various preparations of chlorin have been found to make a good showing. The 2 best known chlorin solutions are the liq. sod. chlorat. of Labarraque and the liq. pot. chlorat. of Javelle (Javelle is a mill, not a man). By omitting water from the Labarraque we obtain the wellknown technic of washing soda and calx. This with anthrax gave 6 positive cultures out of 6 trials. It worked well, however, against molds, gave quite as good results and did not attack the hands so much when one-third (by weight) of the carbonat. potas. was substituted for the carbonat. sodæ. To eliminate soap from our technic take a heaping teaspoonful of calc. chlorat., of table salt and of aq. ammoniac, mix in a quart of cool water, bleach and cleanse the hands therein and they will often be sterile. Give special attention to the nails with powdered pumice, stick and brush. When properly performed, one should not get more than 2 positives out of 12 attempts, although this washing is merely preparatory. Rubber gloves boiled for 15 minutes were placed on a sterile plate in the open air and 2 cultures made from them every 3 minutes. One showed both cultures positive on the second culture, i. e., at the end of 3 minutes. The other glove took at 21 and 24 minutes. He knows of no methods in general use which will sterilize a vulva. All fail when tried at the bar of the culture media. Recently his advice to pregnant women is to daily wash the mons veneris and private parts with water 2 quarts, a heaping teaspoonful of calx, of salt, and a half teaspoonful of pot. carb. Let it dry on the skin. Without being too positive with but 3

vulvas, 1 was sterile after the second washing, 1 after the sixth, and the third was confined too soon to determine. [A.B.C.]

5.—Excision of the Frenum Preputii Following Laceration During a Suspicious Intercourse.—C. C. Miller holds that the danger of syphilis after intercourse with a prostitute is great if there be any abrasion of the penis. The abrasion most common from such intercourse is laceration or rupture of the frenum. Under such circumstances, if the patient is seen within 24 or 48 hours, his practice is to completely excise the frenum, making a gutter in the glans at the site previously occupied by the insertion of the frenum. This gutter is closed with a continuous suture of catgut. If the foreskin is redundant, circumcision is done at the same operation. Excision of the frenum is justified on the ground that if ruptured it will atrophy, and is therefore useless; it removes a seat of probable inoculation, and probably prevents the patient from contracting syphilis. The history of syphilitic infection leads to the supposition that the virus is taken into the general circulation but slowly, hence as a preventive measure it is rational. If but 1% of such operations prevents an attack of syphilis it is justified. In 5 patients so treated the author has seen no syphilis, though a chancreoid in one instance occurred at the site of operation. [A.B.C.]

6.—Chickenpox Concurrent with Smallpox.—P. D. Bourland reports an epidemic of chickenpox, and notes that the concurrence of smallpox in no way caused the course of his cases to depart from the type. Vaccinated and unvaccinated showed equal susceptibility and a similar course. None had ever been exposed to smallpox. No adults were attacked. Previous attacks in 5 children again exposed conferred immunity in 4. Smallpox and chickenpox are distinct entities and neither influences in any way the other. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Levulose Diabetes.—As a general rule, the sugar excreted by diabetics is dextrose; but in rare instances, it is entirely or in part levulose. The number of cases of levulose diabetes is still very small. An interesting one has just been reported by W. Schlesinger.¹ The patient, a girl of 15, passed a large quantity of levulose. She had had polydipsia and polyuria, and suffered from weakness, but was not emaciated. Attacks of psychic excitement were frequent. The administration of levulose caused a marked increase of this sugar in the urine; while under phloridzin the levulose disappeared and dextrose was excreted. This point is of interest in connection with the theory of phloridzin diabetes. As the patient had levulosuria, she presumably had levulosemia; and according to the prevailing theory that phloridzin merely renders the kidney permeable to the sugar in the blood, she should have had levulosuria. The appearance of dextrose, however, shows, in the author's opinion, that the accepted theory is not tenable. Of the 5 cases of spontaneous levulosuria reported, the youngest was 15, and the oldest 51. In 4 there were typical diabetic symptoms. The cases were usually mild, and did not pass into a severe diabetes. The presence of levulose has been repeatedly demonstrated in the urine of ordinary diabetic cases. Regarding the origin of the levulose, Schlesinger believes that it is formed in the body, and not ingested; that it is produced in the tissues and in the blood, out of dextrose; and that it is probably a normal product that in cases of levulosuria is not utilized; although there may in some cases be an overproduction of the substance. Levulose may be demonstrated in the urine by means of the Seliwanoff reaction and of the spectroscopie.

REVIEW OF LITERATURE

Action of Diphtheria Toxin on the Circulatory Organs.—This paper is the second one contributed on this subject by

¹ Arch. für exper. Path. u. Pharmak., Bd. 1, Hfte. 3 and 4.

Karl Ritter-von Stejskal.¹ In it he shows that intravenous injection of large quantities of toxin in the dog produces effects both on the heart and on the bloodvessels. The heart is first irritated and then paralyzed. The nervous apparatus of the heart is also influenced, the reflex control of the heart over the circulatory apparatus being lost. The effect of the toxin on the bloodvessels varies from a slight loss of vasomotor tone to an absolute paralysis. These effects on both sides of the circulatory apparatus occur simultaneously, and the cardiac paralysis can not be exclusively attributed to the vasomotor paralysis. The latent period and action of the poison depend not only upon the dose of toxin, but also upon the resistance of the animal. The author could not demonstrate an injurious influence of the vasomotor paralysis on the heart, which theory is maintained by Romberg. It cannot be denied that an imperfect filling of the coronary arteries, as a result of lowered blood-pressure, may have some influence on the heart; but this seems unlikely, as it seems more probable to assume that a diminished blood supply will first affect the respiratory center, and later the heart. [B.K.]

Comparison Experimental Studies of the Virulence of Differently Bred Tubercle Bacilli of Human Origin.—Moeller² finds that by passing the human bacilli through guineapigs, the tubercle bacilli from these animals are much more virulent for guineapigs than human bacilli inoculated directly into these animals. He says the bacteria having once passed through the animals adapt themselves to that soil, and henceforth become more virulent. Moeller also finds that the tuberculin, the product of avian, blindworm tuberculosis, and other acid fast bacilli, acts similarly upon cattle and human beings, and yet avian, human, and blindworm tuberculosis are separate types. It is a question of a group reaction, a chemic process, characteristic of the whole group of acid fast bacilli. In closing, Moeller says after the passage of the bacilli through guineapigs we are no longer dealing with human tubercle bacilli, but with the tubercle bacilli of guineapigs. [J.F.]

A Contribution to the Study of Splenic Anemia.—S. M. Zypkin³ reviews the literature on this subject, and gives the salient points of cases reported by Stümpell and Müller. He gives in full detail the history and autopsy notes of a case of splenic anemia in a 41-year old woman. This patient presented a complex of symptoms simulating both pernicious anemia and pseudoleukemia. Blood examination showed 2,900,000 red blood cells, 23% hemoglobin, and a normal number of white blood cells. The differential count of the latter was as follows: Polynuclear neutrophiles, 54%; eosinophiles, 2%; large lymphocytes, 27%; small lymphocytes, 12%; mononuclear cells with nongranular protoplasm, 6%. The lymph-glands were not enlarged, but the characteristic splenic tumor was present. Postmortem examination showed fatty degeneration and infiltration of the liver cells and considerable atrophy of the mucous membrane of the alimentary tract. The bone marrow showed the typical changes of pseudoleukemia. Zypkin places this case midway between pernicious anemia and pseudoleukemia, although it is more closely related to the former than to the latter. He concludes that the severer types of blood diseases are closely related to each other, and that pernicious anemia, splenic anemia, and pseudoleukemia are different stages of lymphatic or myelogenous leukemia. [W.E.R.]

Caisson Illness and Diver's Palsy.—An exceedingly valuable and exhaustive experimental study of the effect of compressed air and of oxygen has been made by L. Hill and J. J. R. Macleod.⁴ The results are tabulated under 9 headings, including the effect on the respiratory and other systems, circulation, etc., the effects of decompression and the rules of safe working for caissoniers and divers. They find that the cause of caisson sickness is the escape of gas bubbles in the bloodvessels and tissue fluids on decompression. These bubbles can be seen postmortem in the bloodvessels, heart, retina, aqueous humor, connective tissue, spaces, etc. The alimentary canal is

blown out with gas and cyst-like cavities are produced in solid organs. The practical suggestions regarding the precautions to be observed with workmen are of great value. From their study in conjunction with records of caisson sickness the writers conclude that men selected for high pressure work should be small, spare and wiry and not older than 20 to 25. They should be total abstainers and abstemious in all their habits. The longer the shift the slower should be the decompression, and the higher the pressure, the shorter should be the shift and the longer the decompression. The ventilation of the caisson or diving apparatus should be very free, the temperature of the air being about 60° F. The men should remain quiet for an hour or so after decompression and be recompressed on any sign of sickness. The writers are of the opinion that by proper choice of men and regulation of the shift and decompression period, work could be carried on without loss of life at a depth of even 200 feet, that is about 7 atmospheres pressure. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. OBE

EDITORIAL COMMENT

The effect of ether anesthesia on the kidneys has been supposed by some to be very irritating, so much so that ether should never be given to patients suffering from nephritis. Influenced by the statement of a surgeon of experience that he would not operate in the presence of albumin and casts except in cases of great necessity Dr. John C. Munro¹ investigated the records of 4,185 patients who have been treated in the surgical wards of the Boston City Hospital within 3 years. He found albumin and casts in the urine of 500 patients who were not suffering from obvious renal degeneration. Practically every form of injury and disease was included in the series, the majority being of a serious nature. Of these patients 60% underwent operation, 12% suffering from fracture, and in many cases etherization was for long operations. The cause of albumin and casts was difficult to determine. The use of alcohol, insufficient or improper food, and hard work are suggested as possible causes of renal irritation. Sepsis seems to be a factor of some importance, for in a number of cases the albumin and casts disappeared as soon as drainage was established. The recoveries were as satisfactory as could be desired and there were no complications but which might adequately be explained on grounds independent of renal lesions. Postmortem examination showed no condition which would indicate that the kidneys were the cause of the fatal result except in 2 cases out of 63. Munro concludes that we should expect evidence of renal irritation in over one-third of the surgical patients in a municipal hospital. A trace of albumin with or without hyaline and granular casts, unattended by other evidence of renal degeneration should not influence the prognosis in surgical disease or operation. The proportion of young and otherwise healthy people affected is as great as in adults. Albumin and casts alone are apparently no contraindication to the administration of ether. This paper seems of great practical importance. Ether is now generally acknowledged to be a much safer general anesthetic at the time of operation than chloroform or any of the other usual general anesthetics. A considerable number of surgeons, however, have adhered to chloroform as the best general anesthetic because they have believed that the effect of ether on the kidneys and lungs is dangerous enough to counterbalance the greater safety of ether at the time of operation. This opinion does not seem to have been founded on any very definite information and up to this time few if any have taken the trouble to study the effects of ether anesthesia in a large series of cases as Munro has done. Very often careful study of cases and accurate observation give us

¹ Zeit für klin. Med., Bd II, p. 129.

² Zeitschr. für Tuberculose und Heilstaettenwesen, 1903, Bd. V, Heft 1.

³ Berliner klinische Wochenschrift, October 19 and 26, 1903.

⁴ Journal of Hygiene, October, 1903.

¹ Transactions of the American Surgical Association, 1903.

quite a different view of a condition than we have gained by more superficial observation. No doubt in many cases the albumin and casts, which Munro shows, exist in a considerable proportion of cases quite independent of the use of any anesthetic, have many times been unjustly attributed to the use of ether. If as his contribution seems to show, ether usually has no effect on the kidneys, its much greater safety at the time of operation certainly entitles it to the favor which it has enjoyed with a large proportion of American surgeons, in spite of the contrary opinion of most British and Continental surgeons.

REVIEW OF LITERATURE

Perforating Gastric and Duodenal Ulcers.—B. G. A. Moynihan¹ states that we have to deal with acute, subacute, and chronic ulcers. In the acute form the floor of the ulcer gives way suddenly and completely, and stomach contents pour out and produce sudden, alarming symptoms, which terminate fatally in almost all cases, unless speedy treatment is instituted. In the subacute form, owing to the small size of the ulcer, or the emptiness of the stomach, or to plugging by omentum or lymph, escape of stomach contents is small. The symptoms may be quite as sudden and alarming as in the acute variety, but the patient is much more likely to recover. In the chronic form, perforation takes place slowly, and a protective peritonitis develops ahead of the perforation. Escape of stomach contents is therefore local and may lead to perigastric abscess. Chronic perforation occurs most frequently on the posterior gastric wall; acute and subacute perforating ulcers are most common on the anterior wall. Recovery may occur under medical treatment in any of these forms, but in the acute and subacute forms the danger is so infinitely greater than from operation that the latter should be done without a moment's delay. When in doubt as to diagnosis, the author relies much on rigidity of the abdominal muscles. In women, about the time of the climacteric, false symptoms of perforating ulcer may occur without known cause. Absence of muscular rigidity over the abdomen may enable us to exclude perforation. In perforating gastric ulcer, the greatest pain and tenderness may be in the appendiceal region. This is due to the peculiar conformation of the transverse mesocolon in the region of the pylorus by which the extravasated fluid is directed toward the right renal pouch, thence into the right iliac fossa. Such symptoms appeared in 18 out of 49 reported cases. It should not be forgot that perforation may be multiple. A large number of recorded cases shows that more than one opening was present in 20% of the cases. [A.B.C.]

Penetrating Abdominal Wounds.—H. Gebele's² observations have convinced him that during times of peace all penetrating wounds, whether stab or shot wounds, should be treated with laparotomy. During war immediate laparotomy is always indicated, when hemorrhage exists; unless there is hemorrhage gastrointestinal wounds can wait safely, if protected by an antiseptic dressing. [E.L.]

Popliteal Aneurysm in a Boy.—This case is reported by J. F. Black³ because of the great rarity of aneurysm in the young. The patient was a boy of 9 with a previous history of measles and diphtheria but no family history of syphilis. The aneurysm was of the sacculated variety and arose from the posterior wall of the artery. It was the size of a large walnut, and was removed after ligation of the vessel above and below. Perfect use of the limb was recovered. [A.G.E.]

The Evolution of Abdominal Surgery from Observations Extending Over a Third of a Century, and Founded on Over 2,000 Operations Performed.—A. W. Mayo Robson's⁴ address abounds in numerous interesting statements and in many instructive comparative statistics. He gives a general review of the evolution of surgery during the past 30 years, presenting some hopeful views for the future. He states it is reasonable to hope that before another decade has passed, cancer will have been hunted to its source,

and a means of cure discovered. When we have seen what preventive measures have done for rabies, leprosy, etc., is it too much to hope for the extinction, by repressive legislation, of syphilis or many diseases due to the gonococci? The next generation will probably see tuberculosis in all its forms becoming a rare disease. In the future it seems reasonably sure that the diseases produced by the normal colon bacillus, such as appendicitis, cholecystitis, colitis, cystitis, pyelitis, peritonitis, etc., will be dealt with by the method of immunization in many instances, and diseases induced by the pus organisms will be more generally treated by antistreptococcus serum. Concerning the diagnosis of various diseases of the human body, the services of the skilled pathologist will be more and more called into requisition. The surgeon, the bacteriologist, the pathologist, and the internist will work more and more in harmony. The address is interesting and instructive. [A.B.C.]

TREATMENT

SOLOMON SOLIS COHEN

H. C. WOOD, JR.

L. F. APPLEMAN

REVIEW OF LITERATURE

Stammering Treated by Hypnotism.—G. Hudson Maquen¹ recently demonstrated on a boy of 14 a method which he has found of considerable value in treating certain cases of stammering. The method is that of inducing the lighter stages of hypnotism, and then suggesting to the patient that he can talk. The value of this procedure lies in the fact that the stammerer is usually suspicious and incredulous in the waking state, and will not believe what is told him regarding his capabilities of speech. When he is hypnotized he is told that he will not and cannot stammer if he follows out the directions that are given him at that time, and also those that are given while he is awake. In some cases of the so-called mental stammering, results which seemed impossible by any other method have been attained by this treatment. Hypnotism is not recommended as a cure for stammering, but only as a means of inducing in the patient the necessary condition of mental receptivity for the regular physiologic training. [A.G.E.] [Nevertheless, it would be far better to depend upon normal suggestion. Dercum has shown that the hypnotic state is one of "artificially induced hysteria," and therefore to be avoided. S.S.C.]

Escoquinin.—Dommer² describes the results of the use of a new form of quinin, made by combining a glucosid found in the horse-chestnut with quinin. The resulting salt, to which has been given the name escoquinin, is an amorphous yellow powder, almost insoluble in water and ether, but freely soluble in alcohol, and possessing a bitter taste. It is given in doses of 0.1 gm. to 0.2 gm. (1 gr. to 3 gr.), preferably in capsules. Dommer states that it is useful especially as an analgesic in neuralgia, migraine, rheumatism, and the like. [H.C.W.]

Diabetes Insipidus.—A. Wolff³ reports on 2 patients with diabetes insipidus, treated with secale cornutum; one was under this treatment for months; his quantity of urine diminished from 11,000 cc. to 2,000 cc., his thirst disappeared after the first dose, and he gained several pounds in weight; his general health improved very much. The second patient derived less benefit. In Wolff's opinion the drug acted by contracting the bloodvessels, thus diminishing the quantity of blood, which passed through the kidney. The primary cause of the disease probably rests on a functional change in the renal epithelium; at least in diabetes insipidus, the point of urinary concentration is much lower than normal: 0.22°-0.33° instead of 1°-2.7°, the blood falling little below the normal point, however. [E.L.]

Dormiol.—Dormiol is dimethylethylcarbinolchloral. It is a colorless liquid, having a penetrating odor, resembling that of menthol and of camphor, a cool taste and yet burning. According to Combemale⁴ it may be used in place of the other hypnotics in certain cases of rebellious insomnia as it produces no disorder of circulation or respiration, but induces calm

¹ Lancet, August 29, 1903.

² Münchener medizinische Wochenschrift, No. 33, 1903.

³ Pediatrics, September, 1903.

⁴ British Medical Journal, August 1, 1903.

¹ Proc. Phila. County Medical Society, October 31, 1903.

² Med. Woch., 1903, 4, 383.

³ Münchener medizinische Wochenschrift, June 9, 1903.

⁴ Journal des Praticiens, Vol. xvii, No. 32, 1903, p. 504.

sleep undisturbed by unpleasant dreams. Dormiol is prescribed in the dose of from 1 gm. to 4 gm. (15 gr. to 60 gr.) in solution in water to which a little syrup may be added. The drug may also be given in capsules. Combemale has seen sleep follow the administration of a single capsule containing .45 gm. (7 gr.) in some cases of asthma and cardiac disease. [L.F.A.]

Euquinin in the Treatment of Malaria.—DeCarlo¹ has obtained good results with euquinin in malaria, especially in children in whom the absence of the excessively bitter taste of the ordinary drug made it easy of administration. Even prolonged use of large doses failed to produce any digestive disturbances. [H.C.W.]

FORMULAS, ORIGINAL AND SELECTED.

Leube's Stomachic Powder.—

Pulv. rhubarb	20 parts
Sodii sulf. exsic.	5 "
Sodii bicarbonatis	5 "

—[Med. Pharm. Critic and Guide.]

Lotion for Cracked Lips.—

Glycerin	4.0 (66 min.)
Carbolic acid	1.0 (16 min.)
Cherry laurel water	4.0 (66 min.)
Saturated solution of boric acid, enough to make	500.0 (1 pint)

Apply freely with finger.—[Critic and Guide.]

OPHTHALMOLOGY

WALTER L. PYLE

EDITORIAL COMMENT

The Present Status of Subconjunctival Injections.—Since the introduction of subconjunctival injections 7 or 8 years ago, a great amount of literature has appeared regarding their merits. As is usual in the case of a new method of treatment, the most extravagant claims have been made as to the extent of its usefulness. On the other hand, as many of the most hopeful predictions have failed of fulfillment, considerable skepticism has developed as to its value in ophthalmic therapeutics. A careful study of the relative literature since 1897, made by C. S. Bull,² shows how contradictory has been the evidence offered, although as a whole it is sufficient to give the method a permanent place in ophthalmology. Bull states that a study of the reported cases leads irresistibly to at least one conclusion, viz.: That the efficiency of these various solutions injected beneath the ocular conjunctiva cannot be ascribed to the increased local acceleration of the lymph currents, the so-called leukocytosis, nor to the antiseptic action of the remedies employed, since the presence of such processes cannot be demonstrated in the tissues of the eye, following the injections. The chief change seems to be in the composition of the aqueous humor, which becomes richer in albuminoids, due to irritation of the bloodvessels. It is likely that coincidental with this increase of serum albumin in the aqueous is the appearance of various protective substances of the blood, which physiologic chemists have taught us are always found in combination with the albuminoids of the blood. During the past 3 years Bull has employed subconjunctival injections of sodium chlorid, sublimate, mercuric oxyeyanid, and hetol (sodium cinnamate) in solutions of varying strengths. The diseases so treated included different forms of keratitis, choroiditis, iridochoroiditis, detachment of the retina, cellulitis of the lids and orbit, and panophthalmitis. He has not been able to determine any important difference in mode of action or effect between salt solutions and solutions of mercuric cyanid, except that the latter are infinitely more painful, even when combined with cocain or acocin. With the exception of

some brilliant results in several cases of orbital cellulitis of an infectious character, Bull has seen no reason to believe that subconjunctival injections of any of the solutions commonly used bring about any more rapid or favorable results than other methods of treatment hitherto employed for affections of the cornea, uveal tract or retina. His conclusions, based on observations of his own cases and a careful study of the literature of the subject, are that all reports of the beneficial effects of subconjunctival injections should be carefully criticised and compared with the results obtained by other and less troublesome methods of treatment, before accepting them as of any real value.

Suggestions for the Blind.—With the characteristic energy of a true scientist, Javal, the wellknown French oculist, who became totally blind nearly three years ago, has recently devoted his time to collecting suggestions relative to the lessening of the disability due to the onset of blindness in adult life. These with his own valuable experiences he presented to *Société Française d'Ophthalmologie* last year, and a more extensive work on this subject is expected to follow. The author invites communication of further suggestions or experiences. His address is E. Javal, 5 Boulevard Latour-Manbourg, Paris. After citing numerous wellknown examples of persons whose useful activities were not curtailed by blindness coming on in adult life, Javal first addresses himself to those who have the care of the blind. In hopeless cases, he deprecates a mistaken sense of humanity in holding out false hopes, by medication, electricity, etc. He believes that as soon as the oculist is certain that blindness is inevitable, he should urge the patient to use the little sight left to prepare himself for total blindness. Javal contends that the loss of one sense does not lead to further development of the others, but that the afflicted person learns to notice sensory impressions that others overlook, and to interpret them with increasing skill. In illustration he cites his keen judgment of the chief characteristics of a stranger by the feel of the hand and sound of the voice. Touch and hearing are the blind man's chief sources of information as to his surroundings, and their value and cultivation is discussed and illustrated by personal experiences. He advises frequent visits to high-class theaters to develop the judgment of emotion by the sound of the voice. A light cane is called the blind man's antenna, and its numerous uses are described. Attention is called to the remarkable sense of obstacles possessed by the blind, and in explanation it is suggested that it may be in some way associated with the ultraviolet and ultrared rays, which though invisible to the human eye have certain effects on the skin. Instructions for orderly and invariable arrangement of household furniture, books, etc., are given, and many valuable details in domestic life, particularly with regard to eating, drinking, bathing, etc., are discussed. By means of the Braille raised letters, relief maps, sketches and plans, writing boards, typewriters, and phonographs, much useful diversion is offered to the blind man of scholastic inclination. Javal encourages walking, but advocates the use of some sign such as dark glasses, or the cane, to indicate the infirmity, rather than vain attempts to conceal it. Javal himself has derived great pleasure from the use of a tandem tricycle in company with a trusted companion. With a good memory a blind man may become expert in playing dominoes, chess, draughts and card games. Special boards, characters and playing-cards for the blind may be obtained in nearly every large city. A curious comment is that on tobacco-smoking Javal says that it is a mistake to suppose that the blind get no enjoyment from smoking, at least, those who have smoked before the loss of sight. That the cigar or pipe has gone out may not be recognized by the blind so quickly, he acknowledges, and says, that when in doubt he surrounds his cigar with his hand to feel the heat. Very dry cigars

¹ Die Med. Woch., 1903, 4, 375.

² Trans. American Ophthal. Society, 1903, p. 81.

are best as they may be smoked slowly and do not go out.

The Use of X-rays in Ophthalmology.—The invaluable aid of skiagraphy in the treatment of foreign bodies in the eye is universally recognized, and the salient points in localization are now incorporated in modern ophthalmic teaching. Recently the therapeutic virtues of these rays have been extensively utilized in ophthalmic practice. Numerous cases of successful treatment of rodent ulcer of the eyelids have been reported. The eyelids, especially the lower, are a common site for rodent ulcer, and, as elsewhere, application of the x-rays may bring about a cure. M. S. Mayou¹ holds that the x-rays act by producing a local leukocytosis. The leukocytes remove all irritating cells or substances, or encapsulate them and prevent their spread. The cure of tuberculous of the conjunctiva by the x-rays has been reported by Sydney Stephenson,² and the same author and David Walsh say that the x-ray and high-frequency electric currents are of great value in the treatment of trachoma. At a recent meeting of the Ophthalmologic Society of the United Kingdom, M. S. Mayou reported an extensive experience in the treatment of trachoma by x-rays. At the present time trachoma is treated by applying some form of irritant, either chemic or mechanical, to the eyelid, producing a leukocytosis. In the x-rays we have a method of setting up a leukocytosis with the absolute minimum of destruction to epithelial and other tissues. In this way excessive scar formation is avoided. Further, the effect produced from a slight leukocytosis to actual gangrene, is under almost perfect control. There is much less deformity in the lid after treatment, the procedure is practically painless, and pannus clears up quickly and thoroughly. Mayou found that even prolonged exposure of the globe to the x-rays was attended only by such trifling bad results as falling out of the lashes and conjunctivitis. Experiments on rabbits and frogs showed that the x-rays did not bleach the visual purple. The results of treatment by the x-rays are compared by Mayou with those produced by copper sulfate, jequirity, and other irritants, and it is pointed out that there is less destruction of tissue and subsequent cicatrization, as well as less pain, with the former method. In applying the rays the eyelids are everted (the operator's hands being protected by bismuth ointment and cotton gloves) (the cornea is only exposed in severe cases where pannus was present). Owing to the infiltration set up, difficulty was found in deciding when that treatment should cease. Out of nine cases, five remained well, one cleared up but recurred two months later, two others improved and were still under treatment, and in one case of corneal opacities following trachoma the vision had improved from perception of light to counting fingers at three feet. The disadvantages of the treatment were: (1) All patients did not react well to the x-rays, and (2) it was sometimes difficult to tell when treatment should cease.

Test-characters for Children and Illiterates.—To avoid the difficulties met in using the ordinary illiterate test-cards of Snellen, Burchardt Boettcher, Guillery, Galezowski, Lotz, Wolffberg, de Wecker, Albrand, Praun, Heiman, and others, Dr. Arthur E. Ewing, of St. Louis, has recently published an admirable set of universal test-characters. The characters used are a cross, a horse-shoe, a square, a circle, a star, and in profile a mug, a pitcher, a teapot, and two chairs. All are drawn approximately to Snellen's scale of 1' visual angle for the thickness of the line and 5' for the size of the object, but with variations necessitated by the forms of certain objects, as the two chairs, the cross and the teapot. The differences in the ease of recognition of the several characters are found to be not much, if at all, greater than

in the case of the standard test-letters of Snellen. An intelligent child will often name these characters, or at least a sufficient number of them, correctly at first sight, perhaps calling the square a "box," or a "window," or a "picture frame;" the circle a "hoop," or a "ring," etc. In most cases, however, some study of the characters is found to be necessary, and for this purpose Dr. Ewing has had them printed singly on small cards, and gives them to the child to look at and to learn to name them at home.

The graduations in size and the numbering of the several sizes of the characters are the same as in Dr. John Green's "Test-letters in Geometrical Progression," communicated to the American Ophthalmological Society in 1867, and strongly recommended as the standard by Javal. The ratio, as compared with the next larger size, is $\sqrt{0.5}$ ($= 1 : 0.707$, or practically $1 : 0.7$), or, as compared with the next smaller size, $\sqrt{2}$ ($= 1 : 1.414$, or practically $1 : 1.4$), which gives the convenient series: —5, 7, 10, 14, 20, 28, 40, 56, etc., the successive numerals representing the distances at which the several sizes of characters should be discerned by a person of normal vision.

REVIEW OF LITERATURE

The Operative Treatment of Myopia.—Frost¹ considers the question of operation on the second eye after a successful result in the first. His view at present is that unless there are some exceptional circumstances it is better left alone. The main object of the operation is to render the patient independent of glasses. The eye that remains myopic can see near objects unaided, while the other serves for distant vision. The possibility of obtaining binocular vision is, of course, too remote to be worth considering. He has only operated on both eyes in 2 cases, and in 1 the presence of lamellar cataract was the reason. In the other, the second operation was undertaken at the patient's request, and glasses would have been required in any case to correct the astigmatism. Although well satisfied with the improvement produced in distant vision by the operation in suitable cases, he has several times been disappointed in the power of near vision, some of the patients having been unable, with any correction, to read small print. Possibly this is due to their having acquired a habit of reading with the other eye. In 1 of Frost's cases, a man of 21, glaucoma supervened. Suppuration occurred in 2 cases, both children. Detachment of the retina followed after 6 operations, in 1 case after 3½ years of excellent vision. From a study of his 31 cases (33 eyes), Frost concludes: 1. The operation should be restricted to patients whose actual myopia is not less than 12 D. (that is, who require a correcting lens of not less than 13.5 D.). 2. The patient should be able to read 1 J without glasses with each eye. 3. After the entire removal of the lens, the distant vision *without glasses* is usually at least as good as it was before *with glasses*, and with correction it is usually much better. 4. The operation should be limited to the more myopic eye, except under special circumstances.

Euphthalmin as a Mydriatic.—Hale² repeats his former enthusiastic endorsement of euphthalmin as a safe and convenient mydriatic for diagnostic purposes. He concludes: 1. Euphthalmin (5% to 10% watery solution) produces practically no subjective symptoms. 2. Its mydriasis is of short duration. 3. The effect shows itself earlier in youth than in age. 4. It does not noticeably influence tension. 5. It has no effect on conjunctiva or cornea. 6. It influences accommodation to only a slight degree. 7. The normal condition of the pupil is rapidly restored. 8. It is apparently nontoxic. Hale has used euphthalmin for 3 years in all kinds of cases, old and young, for diagnostic purposes. He finds that he obtains a satisfactory dilation in nearly every instance after 2 drops at five-minute intervals at the end of 45 minutes at most, using either a 5% or 10% solution. This dilation lasts usually 2 hours, never more than 4 hours, and causes no inconvenience to the patient beyond the unusual amount of light. Although there have been reports of increased tension as well as a true glaucomatous

¹ Lancet, February 29, 1903.

² British Medical Journal, June 6, 1903.

¹ Ophthalmoscope, July, 1903.

² Medicine, 1903, p. 532.

attack induced by euphthalmia, Hale has seen no tendency to increase of tension from its use.

The Conservation of Binocular Single Vision.—In an extensive article on this subject E. R. Lewis¹ offers the following conclusions: 1. The only congenital attribute of vision is proper light-perception. All other visual attributes depend upon learning on the part of the child. 2. In many cases certain influences cause this learning to be directed into other than normal paths, in which event the act of binocular single vision is not learned. 3. Lack of binocular single vision is a very prevalent condition. 4. This lack represents great loss to the individual. 5. Cases in which the casual influences can be removed may be differentiated from those in which such removal is impossible. 6. Proper measures adopted at the right time will result in conservation of binocular single vision in a large number of cases.

Myopia in Diabetes Mellitus.—Neuburger² records 2 cases in which the sudden development of myopia led to the discovery of diabetes mellitus. Hirschberg was the first to demonstrate that myopia may develop in the course of diabetes mellitus in eyes previously emmetropic or hypermetropic without turgidity or opacity of the lens. The explanation usually given that the myopic change is due to the altered refractive index of the lens-substance induced by the glycosuric state, is not very convincing, as the myopia may disappear abruptly and the diabetic changes elsewhere increase. Neuburger makes a plea for a careful examination for glycosuria in all cases of myopia beginning in middle life.

Embolism of the Central Artery of the Retina Following Paraffin Injection into the Nose.—Hurd and Holden³ report a case of this nature in a man of 32. The case is the most recent addition to the list of unfortunate results following paraffin injections. A study of the retinal changes was made almost from the time of formation of a true embolism of the central artery, and demonstrated that the plugging of the retinal arteries was due chiefly to endarteritis obliterans instead of an embolism. The only similar case of blindness on record is that reported by Leiser.⁴

Operation for Detachment of Retina.—Müller⁵ aims to prevent choroidal tension and retinal dislocation and stretching by the excision of a piece of sclera (in size about 8 mm. by 20 mm.) from the external portion of the posterior segment. The choroid is left intact, and precautions are taken not to allow more of the subretinal fluid to escape than is required by the diminished size of the globe. Müller has performed this operation with successful results in 7 patients.

Potassium Permanganate in the Treatment of Purulent Ophthalmia.—In cases of purulent ophthalmia, Vian⁶ cauterizes the palpebral conjunctiva twice daily with a 10% solution of potassium permanganate used on absorbent wool rolled about a wooden or metal applicator. Irrigations with boric acid are used, and as the suppuration diminishes, the permanganate is applied less frequently. In 53 cases so treated (7 in adults) the results were uniformly successful. The advantages claimed are rapidity of cure, harmlessness particularly to the cornea, and relative painlessness. Vian claims that when used in cases of diphtheric conjunctivitis these applications do not aggravate the condition like those of silver nitrate.

Skin-grafting for Restoration of the Eyelids.—Dodd⁷ advises that for the upper lid, Thiersch grafts should always be used, unless the whole thickness of the lid is destroyed. In forming the lower lid, if there is adjacent skin available, it should be used to form the lid and the resulting defect filled in with Thiersch grafts. When there is dense cicatricial tissue for the floor of the graft a pedicle graft is the only one which I have found satisfactory. Should pedicle grafts not be available and the underlying tissue have proper vascularity, then either Wolfe or Thiersch grafts may be used, and his results have been best with a Wolfe graft prepared very thin.

Double Iritis following Mumps.—Collomb¹ reports a case of this nature in a young man of 29. The right eye was attacked simultaneously with the swelling of the parotid glands and a marked posterior synechia was the result. A subacute iritis of the left eye followed a month later, with resultant synechia, that could not be broken by vigorous atropin instillations.

A Modified Glass Ball for Use in Mules' Operation.—Bronner² recommends a Mules' ball with a hole in the middle, which is covered in with glass so as to keep out air and water. He operates as follows: A catgut suture is passed through and tied on to each of the tendons of the 4 recti muscles. The eye is then removed. The glass ball is introduced into Tenon's capsule, a thick silk suture is passed through the center with a needle attached to either end. The superior and inferior, also the external and internal recti muscles, are then tied together over the ball. Three or four catgut sutures are put through the subconjunctival tissue above, below, and over the ball, and tied together in a vertical line. The needles attached to the end of the silk suture of the glass ball are passed through either side of the subconjunctival tissue. Four sutures are then put through the conjunctiva on either side and over the ball, and united in a horizontal line. The ends of the suture of the glass ball are not covered in by the conjunctiva, but are allowed to hang out at the outer and inner ends of the line of suture. They are then loosely tied together over the sutures so as to keep the glass ball *in situ*. The silk suture is not removed for 5 or 11 weeks, so as to give the parts time to become thoroughly organized and hardened.

Metastatic Carcinoma of the Choroid.—Oatman³ reports a case of this nature, and makes a very comprehensive review of 30 cases on record of which he considers the reports trustworthy. He has compiled the following table of differential diagnosis:

CARCINOMA OF THE CHOROID.	SARCOMA OF THE CHOROID.
Always secondary.	"Secondary sarcoma of the choroid is unknown." (Fuchs.)
Has always occurred posteriorly, usually on the temporal side of the nerve.	May occur at any point.
A flat discoid tumor or thickening of the choroid which spreads laterally.	A rounded protuberance growing out into the vitreous.
Early detachment of the retina.	Late detachment when centrally located. (Griffith.)
Destroys vision in a few weeks.	May exist a long time with good vision.
Has not been described as being vascular.	May appear vascular.
May be very painful with T. N. or T-.	Pain is due to +T.
First symptom may be a rapid increase of hypermetropia without marked ophthalmoscopic changes.	Too circumscribed to produce hypermetropia.
T. may be diminished.	If confined to the choroid T. is never diminished. (Marshall.)

The Treatment of Myopia.—R. Liebreich⁴ has made a special study of skulls of cadavers and living individuals, and has observed a physiologic asymmetry of the orbits and the halves of the face. This he found to be due to variations in the shape of the malar bone. This asymmetry affects only the outer halves of the orbit, and those which affect also the upper jaw, frontal and temporal bones, he considers pathologic. The inner halves of the orbit are usually symmetric. As the distance of the optic foramina from each other, and the distance of the turning point of the eye from the internal orbital surface, and the depths of the orbits measured along the internal surface are almost constant in the greatest variety of skulls, the size of the angle formed by these vertical lines may be determined by the breadth of the nose, when examining a skull, by the distance of the pupils from each other in the living individual. This angle determines the development of myopia, as

¹ Annals of Ophthalmology, January, 1903, p. 47.

² Münchener med. Wochenschrift, No. 12, 1903.

³ Medical Record, July 11, 1898, p. 53.

⁴ Vereinsbeilage der Deutschen medicinischen Wochenschrift, April 3, 1902, p. 110.

⁵ Münchener medicinische Wochenschrift, No. 23, 1903.

⁶ Société Française d'Ophthalmologie, May, 1903.

⁷ Journal American Medical Association, October 17, 1903.

¹ British Medical Journal, September 26, 1903.

² American Journal of Medical Sciences, March, 1903.

³ Klinische Monatsblätter für Augenheilkunde, Vol. xl, 289.

⁴ Revue générale d'ophtalmologie, Vol. xxii, No. 2, p. 75.

well as its heredity. If it is too large, the internal recti are made to exert themselves out of proportion; the accommodative power is strained, and in time myopia is produced. The use of prisms he considers the only positive remedy against the progress of the disease. In extreme cases he combines these with very weak concave glasses. [E.L.]

Hereditary Optic Atrophy.—C. L. Mix,¹ after stating that this condition is transmitted through unaffected females, says he is almost ready to formulate a law that in the evolution of an individual variation inheritance is invariably through the female, who is herself unaffected. This statement is based on the law regarding the condition in question, and which is the same in hemophilia, Daltonism, hemeralopia, Friedreich's hereditary ataxia, and other parallels. The etiology of hereditary optic atrophy is obscure. At best we can only assume an imperfectly endowed visual apparatus which early undergoes involution, just as does the brain in cases of dementia precox. The cases reported by Mix are eight in number, from one family. The time of onset was within the narrow limits of 18 to 25 years or 22 to 25 for seven of the eight. The history extends through six generations, and in four of them cases have appeared. There are living at present four representatives all amaurotic, three brothers and a nephew. An uncle of the three brothers was also temporarily affected, as shown by the family tree that accompanies the article. The four living cases show nothing not hitherto reported except one brother, who has ataxic paraplegia. [A.G.E.]

Leukemic Retinitis.—Retinal changes in leukemia have been often studied but some points still remain unexplained. K. C. Orloff² describes the histologic findings in the retina of a man who died from leukemia. The most notable feature was the distribution of the wellknown tumor-like formations along the course of the vessels. This observation is not in accord with most authorities who maintain that these little "tumors" can form at any point of the retina. Of course, simple hemorrhages into the retina may occur, but they will give a different picture; moreover, in the case reported such hemorrhages were absent. [L.J.]

Curative Treatment of Trachoma by Röntgen Ray Tube Exposure and by High Frequency Current.—S. Stephenson and D. Walsh³ use the expression "focus tube" exposure since it is not known whether the Röntgen rays themselves are the sole or even the chief therapeutic agents. Only one case so treated has been previously recorded in literature. The present writers report the results in four, in all of which there was marked improvement, two being cured and the others promising cure with continuance of the treatment. These results obtained by a few weeks' treatment open up a new era as regards trachoma. The clearing up of corneal opacities and partial disappearance of pannus suggests important extensions of the method. Results in the case in which the high frequency current was applied were not less striking. Both methods are painless. In unskilled hands the focus-tube might play havoc with the eye. [H.M.]

Treatment of Tuberculosis of the Iris with Tuberculin T.R.—M. Handmann⁴ reports the cases of 2 individuals afflicted with tuberculosis of the iris; one had the disease in both eyes. Under the use of tuberculin the small nodules existing along the outer part of the iris disappeared, and very satisfactory visual power returned. The cases were observed for 18 months without recurrence. While the possibility of a mistaken diagnosis and spontaneous recovery must be considered, the very fact that the carefully administered tuberculin did not produce any deleterious symptoms, should be sufficient to treat other similar cases with the drug also. [E.L.]

Conjunctivitis due to Fast Driving.—A. E. Davis⁵ states that the conjunctivitis caused by rapid riding in open automobiles with the eyes unprotected has several points of difference, particularly in the chronic stage, from ordinary conjunctivitis. These points are: (1) the inflammation is confined almost wholly to the bulbar or ocular conjunctiva; (2) the deeper con-

junctival and subconjunctival vessels are enlarged and tortuous, especially noteworthy being the number of the deeper vessels affected; (3) there is a clearer and more watery discharge than in the ordinary forms. Treatment consists in removing the cause and in the application of cold compresses to the eyes for 15 minutes at a time, three or four times a day, and the application of mild astringent washes twice daily. Davis protests strongly against the indiscriminate use of adrenalin chlorid solution which is frequently prescribed in these cases. The continued over-stimulation of the muscle fibers of the vessels leads finally to a passive congestion more difficult to control than is the original condition. The use of this drug is positively harmful in these cases. In fact, it is of only small remedial value in any disease of mucous membranes and its local use should be limited to that of a styptic in operations on these membranes. [A.G.E.]

Miliary Tuberculosis of the Choroid.—This condition is a valuable sign of general miliary tuberculosis. Choroidal tubercles are from $\frac{1}{2}$ to $\frac{3}{4}$ the diameter of the optic disc, are usually spheric, although the larger ones may be ovoidal, and are pinkish-yellow to yellowish-white in color. Their most constant characteristic is their projection into the retina. E. Margulies¹ in this paper reports the only case on record in which this projection was absent. This exception to the rule is accounted for by the fact that the tubercles in this case had their origin in the deeper parts of the choroid. [B.K.]

Tuberculosis of the Conjunctiva Cured by the Röntgen Rays.—Sidney Stephenson² reports the case. Patient was a child 4 years of age. The diagnosis of tuberculosis of the conjunctiva was positive from microscopic and cultural examinations. Treatment by the Röntgen rays was instituted and cure was effected without any visible cicatrization except such as was produced by the excision of the material for diagnosis. The treatment by Röntgen rays is simple, painless and free from danger. He is of the opinion that to judge by a single case, this method is likely in the future to displace the other methods of treating tuberculosis of the conjunctiva. It is to be remembered that spontaneous cure of tuberculosis of the conjunctiva may rarely occur. This occurs so seldom that treatment by any means which will promise a cure is to be recommended, and in the present light of our knowledge the Röntgen rays are best. [A.B.C.]

Trachoma.—A. Peters³ warns against making a diagnosis of trachoma only in cases where true trachoma granules and scars are noted. The trachoma granule is nothing more than a reaction of the normal tissue to the presence of adenoid tissue and the scar formation depends upon the existence of these adenoid follicles. In some cases instead of adenoid tissue development we have nothing more than chronic, dry conjunctivitis, a form of slight trachomatous infection. Such abortive forms are quite dangerous, as they are usually overlooked and may often by producing new infections lead to serious consequences. He relates several such instances. An efficient prophylaxis is almost impossible, but the best preventive is probably the removal of all adenoid tissue in the very earliest cases, and to effect this all trachoma regions should be searched most thoroughly for their true and abortive cases. Bacteriologically considered, the disease is usually a mixed infection. [E.L.]

Phlyctenular Ophthalmia in the White and Black Races.—H. D. Bruns⁴ says he is aware of no study of the relative liability of the white and the negro to attacks of this affection nor has any one called attention to the greater severity of the malady and its curious varieties in the latter race. Of 17,311 eye cases in his clinic, 5,052 were cases of conjunctival disease. Of these, 2,002 were colored and 39% were phlyctenular cases. Of 3,050 whites only 14% were phlyctenular cases. The period of life over which liability to attack extends is longer in the negro than in the white. The disease is much more severe in the negro, many of the cases being almost hopeless. Bruns gives tables showing the effect of local treatment with mercurials alone, mercurials with other agents, and without mercurials. He interprets them as showing that local

¹ Chicago Medical Recorder, March 15, 1903.

² Medizinske Obzornosti, ix, No. 2.

³ Medical Press and Circular, February 18, 1903.

⁴ Klinische Monatsblätter für Augenheilkunde, Vol. xl, 219.

⁵ The Postgraduate, April, 1903.

¹ Zeitschrift für klin. Med., Bd. xlviii, p. 238.

² British Medical Journal, May 30, 1903.

³ Münchener medizinische Wochenschrift, January 20, 1903.

⁴ New Orleans Medical and Surgical Journal, August, 1903.

treatment has but little to do with the progress of the case, [A.G.E.]

Primary Sarcoma of the Iris.—Henri Coppez and Jean de Vaulcroix¹ report such a case occurring in a woman 45 years old. A black tumor had developed in the anterior chamber of the right eye during the 4 or 5 years preceding her first visit to the hospital. The tumor occupied the external part of the iris, extending on one side almost to the pupillary margin, and on the other to the iridocorneal angle. There were also 3 or 4 black spots, irregular in outline, in the other parts of the iris. The tumor did not extend to the posterior parts of the eyeball. The other eye was normal. The tumor was removed, but 9 months later it became necessary to enucleate the eyeball, as sarcomatous nodules had developed. The tumor proved to be a spindle-celled sarcoma, and an examination of the eyeball showed that the process was both extraocular and intraocular. The case demonstrates the danger of penetrating eyes, which are the seat of malignant growths. The author concludes that enucleation is preferable to excision of the tumor in cases of sarcoma for 3 reasons, namely: (1) The opening of the sarcomatous eye is dangerous from the point of view of local or general recurrence; (2) the suprachoroid region is frequently affected from the beginning; (3) there can exist under the iris metastatic foci resembling in appearance congenital pigmentation. [J.H.W.R.]

Clinical and Pathologic Examination of Intoxication Amblyopia.—The patient, a man of 35, who had always used tobacco and alcohol excessively, lost his eye 7 years before his death due to an injury with hot iron. His right eye continued to be good until 9 weeks before death, since when he noticed a gradual diminution of vision. Examination showed a central relative scotoma for white and all colors of about 10 degrees. Vision = 0.3. Papillary border slightly hazy, but no pallor of the temporal half of papilla. He developed delirium tremens, jumped out of window, and died as the result of his injuries. The autopsy was performed 16 hours afterward, thus excluding the possibilities of examining the retina according to the Nissl method. The optic nerves of both sides, but especially on the left, showed in the papillomacular bundles increase of the interstitial connective tissue, formation of new bloodvessels, capillary endarteritis obliterans, spaces in the nerve substance into which the connective tissue was growing, without, however, compressing the nerve fibers. After studying this case thoroughly, F. Schieck² cannot agree with Birch-Hirschfeld, who sees in such amblyopias a lesion of the retinal ganglia, but concludes that the process begins in the optic nerve as an endarteritis obliterans. The macular fibers, being centrally located, suffer in their nutrition and a scotoma is thus produced. [E.L.]

Variations in the Technic of Cataract Extraction.—Captain R. H. Elliot,³ of Madras, who recently visited the principal eye-hospitals in Italy, Switzerland, Austria, Germany, Belgium, Holland, Poland, Russia, Denmark, Sweden, and France, says that the point most impressed upon him was the variety of method employed by different surgeons to obtain the same end. This was nowhere more obvious than in cataract extraction, that operation being the text for his very instructive paper. The stages of the operation dealt with are preparatory measures, preparation of the patient, the operation, the question of iridectomy, removal of the lens, and methods of bandaging. Each of these points is considered at length, the technic of the various operators being described. The article must be read in full to be appreciated. [A.G.E.]

Copper Citrate in Ophthalmology.—Copper citrate is a green, odorless and tasteless powder, easily soluble in water. It possesses certain bactericidal properties. Recently the salt has been recommended in the treatment of trachoma. A. G. Crotow⁴ gave the remedy a trial in 109 cases, embracing pannus tennisi, pannus crassus, granular trachoma, chronic conjunctivitis, and corneal maculas. The remedy was applied in several ways: As a powder of 5% to 10% strength with sugar as a base; as a 5% to 20% ointment in vaselin, or lanolin, or glycerin; in

the form of sticks containing 10% to 20% copper citrate, and in saturated aqueous solution as a lotion. The best results were seen in pannus tennisi from the use of the 5% to 20% glycerin salve. Secretion was rapidly arrested and vision improved in a short time. Excellent effects also followed the use of this ointment in corneal maculas. In recent trachoma the copper citrate pencil acted well. Chronic conjunctivitis, on the other hand, did not yield to the new remedy, which, nevertheless, deserves all attention as unrivalled in pannus and corneal maculas. [L.J.]

Contracture of the Sphincter of the Iris in Accommodation and Convergence of Pupils not Reacting to Light.—M. Rothmann¹ reviews all the cases reported to have this peculiar symptom and gives the details of one coming under his own observation. During the course of an attack of migraine a girl of 12 was suddenly found to have isolated paralysis of the sphincter of the right iris, with extreme dilation of the pupil. Partial reaction to accommodation and convergence returned shortly but never to light. The pupil would remain contracted for 1 minute, and then needed 1½ minutes, to return to complete dilation. The paralysis he believes to be due to a small central hemorrhage; the limited return of power to a contracture of the iridal sphincter. [E.L.]

Sarcoma of the Choroid in a Child.—W. E. Bruner² reports a case of sarcoma of the choroid, of about 2 years' duration, in a child of 6 years. Several physicians and oculists had advised against operation. Metastases appeared soon after complete exenteration was performed and death occurred in 4 months. The case had at first been diagnosed as subsiding panophthalmitis and subsequently as glioma. The age of the patient was that at which glioma, rather than sarcoma, usually appears. [A.G.E.]

The Projection of the Retina upon the Cortical Calcarine.—S. E. Henschen³ believes that there exists without doubt a central retina in the cortical "calcarine." He states that in medical literature there does not exist a single fact that is in opposition to his conclusions. The whole lateral surface of the occipital lobes can be destroyed without causing any disturbance of vision. Lesions of the cortical "calcarine" alone cause hemianopsia. He reports a case in which the lesion was limited exactly to the cortical "calcarine," and shows diagrams which go to prove that the lesion in the optic radiation is of a secondary nature. There exists in this case an exact hemianopsia. In a second case the cortical "calcarine" was destroyed, the lesion attacking only the medullary substance near the occipital lobe. The lateral surface of the opposite hemisphere was destroyed over a great extent. The second lesion did not provoke hemianopsia; this only existed in the right visual field. He quotes, with illustrations, a number of other cases which seem to demonstrate the existence of hemianopses a quadrant, and that the fibers from the superior calcarine lip supply the superior part of the retina, the inferior calcarine lip corresponding to the inferior part of the retina. [J.H.W.R.]

Peribulbar Carcinoma.—W. Reis⁴ reports in a man of 72 a case of peribulbar carcinoma, taking its origin from the epithelium of the connective tissue at the corneoscleral junction. The tumor grew rapidly and showed a marked tendency to fatty and other degenerations. It surrounded almost the entire eyeball at the time of its removal. The bulb was not invaded at any point by the cancer tissue, nor were there metastases in the interior of the eye. The eyeball presented the picture of a total atrophy due to the pressure of the tumor masses and the inflammatory reaction. The nasal part of the eyelid was slightly implicated. [E.L.]

A Case of Streptococcus Conjunctivitis with a Subsequent Panophthalmitis and a Fatal Termination.—After briefly referring to similar observations in literature, Engels⁵ reports the case of a male child 1½ years old, who 4 days after an attack of measles, developed redness and swelling of the lids of the left eye. Two days later the right eye also became affected. There was a diffuse bronchitis with beginning bron-

¹ Journal Médical de Brux., 1903, p. 497.

² Graefes Archiv für Ophthalmologie, Vol. lrv, 458.

³ The Practitioner, August, 1903.

⁴ Russki Vrach, April 26, 1903.

¹ Neurologisches Centralblatt, 1903, Vol. xxii, p. 242.

² The Cleveland Medical Journal, August, 1903.

³ La Semaine médicale, April, 1903, p. 125.

⁴ Archiv für Augenheilkunde, 1903, xlviii, 255.

⁵ Hyg. Rundschau, June 1, 1903.

chopneumonia of the right lung. At the first examination, the left cornea perforated and the lens escaped. The swelling and redness of the lids continued to increase, and the right-sided corneal ulcer spread until it involved nearly the entire cornea. Fever was high, and the child gradually sank and died. Bacteriologic examination revealed in the right eye only streptococci; in the left, a diplococcus (not that of Fraenkel), producing a yellow pigment, and xerosis bacilli, also forming a yellow pigment. Animal inoculations into the conjunctival sac were unproductive, so long as pure cultures were used; when mixed cultures were employed, the animal died of general infection from the conjunctiva, the cornea presenting a slight degree of turbidity. As goat-serum has been found to destroy the bactericidal complement of rabbits' blood, the author injected rabbits with such serum and then produced the conjunctival infection. The result was a much more severe purulent conjunctivitis. [D.R.]

Localization of Foreign Bodies in the Eye.—L. C. Deane¹ describes his apparatus for localizing foreign bodies in the eye and reports 7 cases to illustrate its use. The localizer is a modification of the machine used by Davidson, of London. Deane also discusses the use of the giant magnet in the removal of pieces of steel from the eye. His own experience does not lead him to fear removing foreign bodies through scleral wounds. In the past 2 years 14 cases have been thus treated without a single detachment of the retina. [A.G.E.]

Ptomain Poisoning with the Result of Hemianopsia.—José G. Mendoza² reports the case. He believes a history of malaria is an influence to be considered. The condition of the eye is given in full; and certain curious symptoms, as exanthem arising in the course of the disease, and later general icterus are detailed. Syphilis is positively excluded. The man, aged 45, a native of Mexico, appears to suffer merely the functional derangement of the retina, and which according to the writer has developed from "Paludism and infection of the nerve tracts or centers" as a result of an autointoxication. [T.H.E.]

The Diagnostic Value of Old Tuberculin in Parenchymatous Keratitis.—Enslin³ has made injections of tuberculin in many cases of parenchymatous keratitis coming under his observation. All of the cases traceable to hereditary syphilis without signs of tuberculosis, gave no reaction whatsoever, with one exception. Here no reason could be found for the reaction, the only feasible explanation being a probable hidden focus. In all the cases where the history pointed to tuberculosis, whether syphilis was present or not, typical reactions were noted; only a general reaction, however, can be said to be of value in these cases. Enslin advises the use of tuberculin injections in all cases in which the slightest doubt exists as to origin of the affliction. [E.L.]

The Visual Fields in Traumatic Hysteria.—Mahillon⁴ looks upon the examination of the visual field, especially for colors, of great importance in posttraumatic nervous troubles. The loss of color perception is in regular order almost always the same, as follows: Violet, green, blue, yellow, and last, red. The persistence of red is characteristic of this dyschromatopsia. When a victim of an accident shows a regular concentric contraction of the fields with reversion of the color fields, together with other nervous symptoms, the case is probably one of traumatic hysteria. The prognosis in these cases must be reserved. The concentric contraction of the color fields cannot be simulated, and any attempts at simulation can be readily thwarted. Medical expert testimony in traumatic cases should be considered incomplete if the precise details of the functional condition of the visual apparatus are not known. When the examination of the visual field is done with care, the weight of such testimony will be great. [J.H.W.R.]

Removal of a Piece of Iron from Lens without Injury to Its Transparency.—O. Feilke⁵ reports the case of a medical student, who presented himself with a piece of iron in his lens 2 mm. long. It had been there for an hour. The corneal wound

was closed and the anterior chamber inviolate. Schloesser's electromagnet took the iron from the lens with ease; it settled in the lower part of the anterior chamber, from which it was removed by a curved Hirschberg magnet through a special incision. Both eyes were kept bandaged for 8 days. Eight months after the injury the vision was almost as good as before the injury. A very slight turbidity in a small part of the anterior portion of the lens could be perceived. [E.L.]

Acute Optic Neuromyelitis.—E. Weill and L. Gallavardin¹ report a case of acute diffuse myelitis with double optic neuritis, occurring in a girl of 14. The clinical history, with autopsy and histologic notes, is given at length. The myelitis was intense in the inferior portion of the dorsal cord. There was slight evidence of peripheral neuritis, involving particularly the sciatic and external popliteal nerves. There was diffuse interstitial encephalitis. A review of the literature reveals only 24 or 25 similar cases. [A.G.E.]

Exophthalmus and Loss of an Eye Through a Blow against the Temple in a Man with Hemorrhagic Diathesis.—B. Pusey² reports the case of a man of 28, who a month before received a blow against the right temple and who ever since presented prominence of the right eye. Examination showed edematous eyelids, exophthalmus, hazy cornea, and normal fundus. V 20/70. Rest in bed, atropin, and a pressure bandage did not improve the exophthalmus, and as the corneal haziness increased it was thought best to explore the posterior part of the orbit. The external rectus muscle was severed and the bulb brought forward; only bloodclots were found, and the wound was closed. The exophthalmus increased, and 2 days later the cornea ruptured. The eyeball was removed 8 days later. The patient bled profusely during the operation and during the first change of dressing. Recovery occurred after several weeks. [E.L.]

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 2, 1904:

SMALLPOX—UNITED STATES.			Cases	Deaths
Arkansas:	Fort Smith.....	Dec. 12-19.....	1	
California:	San Francisco.....	Dec. 13-20.....	3	
Colorado:	Denver.....	Nov. 14-23.....	3	
Illinois:	Chicago.....	Dec. 19-26.....	4	
Indiana:	Evansville.....	Dec. 19-26.....	1	
Louisiana:	New Orleans.....	Dec. 19-26.....	1	
Maine:	Brewer.....	Dec. 19.....	1	
	Old Town.....	Dec. 19.....	9	
	Orono.....	Dec. 19.....	1	
Massachusetts:	Brockton.....	Dec. 19-26.....	1	
	Fall River.....	Dec. 19-26.....	1	
	Haverhill.....	Dec. 19-26.....	1	
Michigan:	Flint.....	Dec. 19-26.....	1	
	Port Huron.....	Dec. 19-26.....	2	
Nebraska:	Omaha.....	Dec. 19-26.....	1	
New Hampshire:	Manchester.....	Dec. 19-26.....	2	
New York:	New York.....	Dec. 19-26.....	1	
Ohio:	Cincinnati.....	Dec. 18-25.....	8	
	Dayton.....	Dec. 19-26.....	4	
	Youngstown.....	Dec. 12-19.....	12	
Pennsylvania:	Altoona.....	Dec. 12-19.....		1
	Erie.....	Dec. 19-26.....	1	
	Philadelphia.....	Dec. 19-26.....	66	14
	Pittsburg.....	Dec. 16-23.....	18	6
South Carolina:	Charleston.....	Dec. 19-26.....	1	
Tennessee:	Memphis.....	Dec. 19-26.....	17	
Wisconsin:	Milwaukee.....	Dec. 19-26.....	10	
SMALLPOX—FOREIGN.				
Austria-Hungary:	Prague.....	Nov. 28-Dec. 5.....	20	
	Trieste.....	Nov. 28-Dec. 5.....	1	
China:	Shanghai.....	Nov. 14-21.....		1
Colombia:	Barranquilla.....	Dec. 5-13.....		3
France:	Paris.....	Dec. 4-12.....	17	
Great Britain:	Birmingham.....	Dec. 5-12.....	2	1
	Glasgow.....	Dec. 11-18.....	28	1
	London.....	Dec. 5-12.....	2	
	Manchester.....	Dec. 5-12.....	2	
	Newcastle-on-Tyne.....	Dec. 5-12.....	1	
	Nottingham.....	Dec. 5-12.....	1	
India:	Bombay.....	Nov. 24-Dec. 1.....		1
Netherlands:	Rotterdam.....	Dec. 5-12.....	1	
Russia:	Moscow.....	Nov. 21-Dec. 5.....	5	3
	Odesa.....	Nov. 28-Dec. 5.....	6	
	St. Petersburg.....	Nov. 16-Dec. 5.....	81	2

¹ The American Journal of the Medical Sciences, July, 1903.

² Crónica Médica Mexicana, December 1, 1903.

³ Deutsche medicinische Wochenschrift, February, 19-26, 1903.

⁴ Journal Medical de Brux., No. 43, 1903.

⁵ Archiv für Augenheilkunde, 1903, xlviii, 242.

¹ Lyon Médicale, August 9, 1903.

² Archives of Ophthalmology, 1903, xxxi, No. 2.

Turkey:	Beirut.....	Nov. 28-Dec. 5.....	Present.
	Smyrna.....	Nov. 22-29.....	7
Uruguay:	Montevideo.....	Sept. 5-Oct. 31.....	12

YELLOW FEVER—UNITED STATES.

Texas:	Laredo.....	Dec. 28.....	1
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YELLOW FEVER—FOREIGN.

Colombia:	Cartagena.....	Nov. 23-30.....	1
Mexico:	Ciudad Victoria.....	Dec. 6-12.....	8
	Merida.....	Dec. 6-12.....	2
	Vera Cruz.....	Dec. 6-12.....	9

PLAGUE—INSULAR.

Philippine Islands:	Manila.....	Oct. 24-Nov. 14....	2
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PLAGUE—FOREIGN.

Australia:	Brisbane.....	Sept. 1-30.....	1
China:	Hongkong.....	Nov. 7-14.....	1
Egypt:	Alexandria.....	Nov. 21-28.....	1
	Minieh.....	Nov. 21-28.....	3
India:	Bombay.....	Nov. 24-Dec. 1.....	51
	Calcutta.....	Nov. 14-28.....	43
	Karachi.....	Nov. 22-29.....	8
Mauritius:	.....	Nov. 12-Dec. 3....	208

CHOLERA—INSULAR.

Philippine Islands:	Manila.....	Oct. 24-Nov. 4....	19
	Provinces.....	Oct. 24-Nov. 14....	551

CHOLERA—FOREIGN.

India:	Madras.....	Nov. 14-20.....	3
Japan:	Nagasaki.....	Nov. 21-30.....	1
Straits Settlements:	Singapore.....	Nov. 7-14.....	5

Changes in the Medical Corps of the U. S. Army for the week ended January 2, 1904:

MATHEWS, First Lieutenant **GEORGE W.**, assistant surgeon, is granted leave for ten days, from about December 24.

BOURKE, First Lieutenant **JAMES**, assistant surgeon, is assigned to temporary duty as attending surgeon and examiner of recruits in Chicago, Ill.

FISHER, **WILLIAM C.**, contract dental surgeon, is granted leave for seventeen days, from about December 23.

ALLEN, First Lieutenant **JOHN H.**, assistant surgeon, will return from Fort Logan H. Roots to San Francisco, Cal., for duty.

GIBSON, **EDWARD T.**, contract surgeon, now at Fort Ethan Allen, is relieved from further duty in the division of the Philippines, and will proceed to his home, Minneapolis, Minn., for annulment of contract.

PATTERSON, **EDWIN W.**, contract surgeon, is relieved from further duty in the division of the Philippines, and upon the expiration of his present leave will proceed to Fort Washington for duty.

KEMP, **JAMES F.**, contract surgeon, is granted leave for one month.

WATERHOUSE, **M. MANLEY**, contract surgeon, now at Fort Sheridan, will proceed to San Francisco, Cal., for transportation to the Philippine Islands on the transport to sail from San Francisco about January 1.

EBERT, Major **R. G.**, surgeon, is granted leave for one month.

BUSHNELL, Major **GEORGE E.**, surgeon, is detailed to represent the medical department of the Army at the Tuberculosis Exposition to be held in Baltimore, Md., January 25 to 31. Major Bushnell will proceed from the Army General Hospital, Fort Bayard, to Baltimore in time to reach that city on or before January 24, and upon the close of the exposition will return to his proper station.

KULP, Captain **JOHN S.**, assistant surgeon, now on leave in Philadelphia, Pa., is relieved from further duty at Fort McDowell and will assume the duties of attending surgeon and examiner of recruits at Philadelphia on January 1, relieving Captain Charles F. Kieffer, who will proceed to Fort D. A. Russell for duty.

So much of orders of December 23 as directs Captain **Henry R. Stiles**, assistant surgeon, to proceed to San Francisco, Cal., and report by telegraph to the adjutant general of the Army for orders, is revoked.

DESHON, Captain **GEORGE D.**, assistant surgeon, is relieved from duty as attending surgeon and examiner of recruits at Boston, Mass., to take effect February 1, and will then proceed to Fort Des Moines for duty.

HEIZMANN, Colonel **CHARLES L.**, assistant surgeon-general; **BIRMINGHAM**, Major **HENRY P.**, surgeon; and **EDIE**, Major **GUY L.**, surgeon, are appointed a board of officers to meet in Washington, D. C., for the purpose of making recommendations looking to the revision of the Manual for the Medical Department. The board will report to the surgeon-general of the Army for instructions.

WALLES, Major **PHILIP G.**, surgeon, is relieved from duty at Fort Assiniboine and will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands on transport to sail about February 1.

GIBSON, **EDWARD T.**, contract surgeon, leave granted is extended twenty-three days.

McMILLAN, **CLEMENS W.**, contract surgeon, now on leave at Marlin, Tex., is relieved from further duty in the division of the Philippines, and upon expiration of leave will proceed to the Presidio to relieve Contract Dental Surgeon **William G. Hammond**, who will report for transportation to the Philippine Islands.

HARTSOCK, Captain **FREDERICK M.**, assistant surgeon, now in Washington, D. C., will, upon the expiration of his present leave, proceed to Fort Bliss for duty, to relieve Captain **Edwin P. Wolfe**, assistant surgeon. Captain Wolfe will proceed to San Francisco, Cal., for transportation to the Philippine Islands on the transport to sail February 1.

STILES, Captain **HENRY R.**, assistant surgeon, is relieved from duty in the division of the Philippines, and will proceed to San Francisco, Cal., for further orders.

Changes in the Medical Corps of the U. S. Navy for the week ended January 2, 1904:

MARCOUR, **R. O.**, assistant surgeon, detached from the Franklin and ordered to the Dixie, for duty with the Panama Marine Brigade—December 24.

BRISTER, **J. M.**, assistant surgeon, detached from the Isla de Cuba and ordered home—December 24.

GUTHRIE, **J. A.**, passed assistant surgeon, ordered to the Franklin—December 26.

FREEMAN, **G. F.**, passed assistant surgeon, ordered to the Naval Station, Olongapo, P. I.—December 29.

Changes in the Public Health and Marine-Hospital Service for the week ended December 31, 1903:

GEDDINGS, **H. D.**, assistant surgeon-general, to report to Chairman of examining board at Washington, D. C., January 18, 1904, for examination to determine his fitness for promotion to the grade of surgeon—December 30, 1903.

MEAD, **F. W.**, surgeon, granted leave of absence for 1 day, December 28—December 24, 1903.

WHITE, **J. H.**, surgeon, bureau letter granting Surgeon White leave of absence for 5 days from December 17, amended to read 5 days from December 19—December 22, 1903.

MAGRUDER, **G. M.**, surgeon, granted leave of absence for 2 days from December 30—December 28, 1903.

WERTENBAKER, **C. P.**, passed assistant surgeon, to report to Chairman of Examining Board at Washington, D. C., January 18, 1904, for examination to determine his fitness for promotion to the grade of surgeon—December 30, 1903.

PERRY, **J. C.**, passed assistant surgeon, to report to Chairman of Examining Board at Washington, D. C., January 18, 1904, for examination to determine his fitness for promotion to the grade of surgeon—December 30, 1903.

ROSENAU, **M. J.**, passed assistant surgeon, detailed to represent the service at meeting of the Society of American Bacteriologists at Philadelphia, Pa., December 29 and 30—December 24, 1903.

WICKES, **H. W.**, passed assistant surgeon, granted leave of absence for fifteen days from December 24—December 18, 1903.

VON EZZDORF, **R. H.**, passed assistant surgeon, to report to Director of Hygienic Laboratory for temporary duty—December 21, 1903. To proceed to the city of Mexico for special temporary duty—December 31, 1903.

FOSTER, **M. H.**, passed assistant surgeon, granted leave of absence for four days from January 5, 1904—December 18, 1903.

RICHARDSON, **T. F.**, assistant surgeon, granted leave of absence for one month from January 1, 1904—December 29, 1903.

FOX, **CARROLL**, assistant surgeon, granted leave of absence for five days from October 31, 1903, under paragraph 191 of the regulations.

McCLINTIC, **T. B.**, assistant surgeon, granted leave of absence for seven days from December 26, 1903, under paragraph 191 of the regulations.

FRANCIS, **EDWARD**, assistant surgeon, to report to the Director of the Hygienic Laboratory for duty—December 17, 1903.

STIMSON, **A. M.**, assistant surgeon, granted extension of leave of absence for two days from December 15—December 22, 1903.

WARD, **W. K.**, assistant surgeon, granted leave of absence for one day, December 17, 1903, under paragraph 191 of the regulations.

SMITH, **F. C.**, assistant surgeon, relieved from duty at the Immigration Depot, New York, and directed to proceed to Detroit, Michigan, and report to medical officer in command for duty and assignment to quarters—December 18, 1903.

STEEGER, **E. M.**, assistant surgeon, to proceed to Clarksburg, W. Va. for special temporary duty—December 24, 1903.

GIBSON, **L. P.**, acting assistant surgeon, granted extension of leave of absence, on account of sickness, from November 20 to December 10—December 30, 1903.

HUME, **LEA**, acting assistant surgeon, granted leave of absence for twelve days from December 19—December 30, 1903.

TUTTLE, **JAY**, acting assistant surgeon, granted leave of absence for ten days from December 21—December 28, 1903.

BROCK, **G. H.**, pharmacist upon being relieved from duty at Detroit, Mich., directed to proceed to Delaware Breakwater quarantine station and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist **L. C. Spangler**—December 22, 1903.

GOODMAN, **F. S.**, pharmacist, relieved from temporary duty at Laredo, Texas, and directed to rejoin station at Norfolk, Va.—December 21, 1903.

ALLEN, **G. C.**, pharmacist, to proceed to Louisville, Ky., for temporary duty—December 19, 1903.

ILITIS, **G. W.**, pharmacist, relieved from duty at San Francisco, Cal., and directed to proceed to Detroit, Mich., and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist **G. H. Brock**—December 22, 1903.

SPANGLER, **L. C.**, pharmacist, upon being relieved from duty at Delaware Breakwater Quarantine Station, to proceed to Boston, Mass., and report to medical officer in command for duty and assignment to quarters—December 23, 1903.

BIERMAN, **C. H.**, pharmacist, granted leave of absence for eight days from December 22—December 19, 1903.

Boards Convened.

Board convened to meet at the Marine Hospital, Stapleton, N. Y., January 4, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon **Preston H. Ballhache**, chairman; Passed Assistant Surgeon **A. C. Smith**, recorder.

Board convened to meet at Washington, D. C., January 18, 1904, for the purpose of examining certain officers to determine their fitness for promotion to the grade of surgeon. Detail for the Board: Assistant Surgeon-General **A. H. Glennan**, chairman; Assistant Surgeon-General **L. L. Williams**; Assistant Surgeon-General **G. T. Vaughan**, recorder.

American Medicine

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The deficits of twenty New York hospitals, according to a report published in *Charities*, are as follows:

Hospital.	Annual Report for the Fiscal Year Ending	Deficit.
St. Luke's.....	Sept. 30, 1902	\$27,566.13
Roosevelt.....	Dec. 31, 1902	6,208.23
Presbyterian.....	Sept. 30, 1902	80,229.88
J. Hood Wright.....	Dec. 31, 1902	521.81
Woman's Hospital.....	Sept. 30, 1902	10,700.59
Flower.....	Sept. 30, 1902	8,224.34
Ruptured and Crippled.....	Sept. 30, 1902	55,675.27
Post-Graduate.....	Sept. 30, 1902	44,103.81
General Memorial (N. Y. Cancer Hosp.)...	Dec. 31, 1902	7,845.04
Montefiore Home and Hospital.....	Sept. 30, 1902	2,197.26
N. Y. Eye and Ear Infirmary.....	Sept. 30, 1902	6,106.06
Lying-in.....	Sept. 30, 1903	88,477.63
Mt. Sinai.....	Nov. 30, 1902	58,160.34
Lincoln.....	Sept. 30, 1902	586.35
N. Y. Infirmary for Women and Children	Sept. 30, 1903	6,678.36
Hahnemann.....	May 1, 1902	4,760.38
Nursery and Child's.....	Dec. 31, 1902	8,143.86
Orthopedic.....	Sept. 30, 1902	5,391.68
German.....	Dec. 31, 1902	9,841.15
Ophthalmic.....	Sept. 30, 1902	947.61
Total.....		\$432,868.78

The question is asked, how should this deficit be met, and from all the answers by correspondents there is but one worth any consideration. All the others are wide of the mark. As to how the deficit is actually met, in order that the hospitals may keep on, there is, however, one very exact answer: The endowment funds are applied to expense account. To a business man, of course, this method is financial folly.

Remedies for hospital deficits, proposed by Mr. Tucker's correspondents are briefly as follows:

1. By the public treasury, either *en bloc*, or on the *per capita* or *per diem* basis.
2. Small payments by the patients.
3. The city should pay for the destitute; other patients to reimburse the hospital.
4. Increase the tuition fees of the students of the affiliated medical school.
5. The use of unrestricted legacies to meet current expenses.
6. Appeal to the public for greater contributions.

With bluntness, Rev. Henry C. Potter answers:

Unfortunately, I dissent entirely from the premises on which the article is built, as I do not believe in the high value which the writer of the article places upon hospital treatment as compared with domestic treatment. His whole paper seems

to me a bid for the growth of institutionalism in a direction in which that growth is already becoming a menace.

Plans 1 and 3 are frankly socialistic, and in our political conditions, are held to be extremely dangerous. Plan 4 is as impractical as it is unjust. Plan 5 is in a business sense ruinous, and plan 6 has been already overworked, with the result that only one-sixth the money required has been secured. Bishop Potter's opinion elicits sympathy, but in fact it would be a reversion to medical barbarism, ill-treatment, increased length of illness of the sick, and increased amount of disease generally in the community. There remains the perfectly sound business plan, and the workable method of making all but the absolutely destitute pay something for their cards of admission, their medicines, etc. Even the destitute, so-called, could usually pay five cents or one cent. There is altogether too much sentimentalism about "destitution" and "charity" and "suffering humanity." Weed out the cheats who are able to pay the private physician; require a small fee from all who should and can pay a small fee; find if the destitute cannot pay even one cent; there will be left very few utter incapables. Exception, of course, to these rules may sometimes have to be made in case of those with highly contagious diseases. This plan encourages independence and self-respect on the part of hospital, physician, and patient, and it would at once free the hospital of its deficit, which is at present a disgrace to the physician, the hospital, the patient, and the public. Selfishness, sentimentalism and deficit are boon companions; the first is the patient, the second selfish charity, and the third the diseased hospital.

The duty of organization is in reality a self-interest and a necessity, and it must be carried out from one, the other, or from all motives combined. Dissension and individualism, whenever it has occurred has brought individual physicians to selfish and balked careers, and has reduced the mass to a condition of powerlessness as regards legislation and public sanitation, and has increased quackery and medical delusions a hundred-fold. Dr. McCormack finds that of 120,000 registered physicians in this country only one in four were members of any medical organization whatever. Alabama was almost a sole exception, and there the profession in the courts, halls of legislation, and executive

offices was honored, its advice heeded, and quackery was unknown. In Kentucky there was not an itinerant or advertising doctor in the State. Four years ago the American Medical Association Committee began its work, adopted as the first condition of reorganization the local self-government by the county society, and the House of Delegates of the State made up from county and district delegates, and electing its delegates to the House of Delegates of the national body exactly like the political method of our State and general government. The objections to coincident membership in county, State, and national societies which have been raised seem without force, or at least arouse only the question, "What other plan is more 'American?' or even more feasible?" This one, so far at least, is working out in practice, and any faults in it are most easily and readily changeable by the House of Delegates, in whose hands all power lies. Dr. McCormack in his powerful plea for peace and union in New York says:

The complex and difficult problems before the profession of this country, incident to our unprecedented advance in population and civilization, and which must be solved by it, if they are to be solved, will tax its highest intelligence and energies at its best. Provision can then be made for continuous scientific research, and for systematic collective investigation into the causes and prevention of disease, upon the large, generous lines demanded by the vast interests involved. The vexed problem of medical education can then be taken up with confidence and justly and wisely solved. Reciprocity in licensure and membership between States can then be discussed from the standpoint of the common good and settled upon some equitable basis. Constructive statesmanship can be substituted for the narrow time-serving political methods of the present in municipal, State, and national public health affairs, and our great profession, great even now in spite of its divisions, united, elevated, and ennobled, would come to occupy its rightful place as one of the greatest of modern forces for the guidance and protection of our people. It would be an honor, even to New York, to lead in a reform promising such results, and to set an example in complete organization, which less favored and weaker States would imitate with both pride and profit.

Union in New York, despite obstacles and difficulties, progresses, and Dr. McCormack reports that as a result of the recent conference of the committees of the two State societies even the details of the union have been agreed upon by nine out of 10 members, and now only an enabling act of the General Assembly is needed to effect the actual amalgamation. Of course, the plan of union is that already in successful operation in 32 States, and in over 1,500 counties, and which will doubtless be accepted by the rest of the States at the next annual meetings. The terms "un-American," "trades-unionism," "tyrannic," etc., have been applied to the method, and some opposition has appeared here and there. But it is generally believed that the criticism is based upon misconception, and that the constitution or reorganization of the American Medical Association is in fact according to American ideals and truly representative procedures. The following propositions concerning New York by Dr. McCormack appear either self-evident or demonstrated beyond controversy:

1. That existing professional conditions and estrangements are useless and senseless, that they are hurtful almost beyond calculation to both the profession and the public welfare, and that they are remediable.

2. That the plan of organization is based upon our system of civil government, that it was prepared with much care and unselfishness, and that it contains nothing untried, experimental, or impracticable.

3. That the county society is not only the unit of the organization, but the source of all authority and power in both the State and national bodies, through a representative delegate system, and it is also the only portal of entry to the entire society system.

4. That coincident membership has been an old and perfectly satisfactory method in many States, is essential to complete organization, and that it is just and right. It would be unfair to permit a physician to become a member of his county society and enjoy all the benefits arising from the labors of the State society, as to permit one to become a citizen of Ithaca or Troy without becoming a citizen of the State of New York and bearing the burdens and responsibilities of the same.

5. That amendment of any part of the plan is purposely made easy and is controlled by delegates from, and responsible alone to the county societies.

6. That the time has come for unification, and that, while union under a defective plan, which the joint body could modify and improve for the common good, would be far preferable to a continuation of existing conditions, the one now proposed has been found excellent and practical after full trial in other States, and, having been prepared away from New York contentions and controversies, it offers a basis for compromise honorable alike to both factions and to neutrals.

A Meeting in Baltimore to Discuss the Tuberculosis Congress Situation.—On January 28, 1904, at 8.15 p. m., there will be held in Baltimore, at McCoy Hall of the Johns Hopkins University, under the auspices of the Maryland Tuberculosis Commission, an informal meeting of American physicians and hygienists interested in the tuberculosis problem of this country. The object of the meeting will be to form a national committee to represent the American medical profession at the International Tuberculosis Congress to be held in Paris in 1905. There will also be a free discussion of the announced Congress on Tuberculosis in St. Louis under the leadership of Mr. Clark Bell, and the other tuberculosis congress to be held in Washington in 1905 under the leadership of Dr. Daniel Lewis, or as it is now called "The American Antituberculosis League." It is hoped that the deliberations at this meeting will result in an understanding between all concerned, and that all individualism and partisanship will be supplanted by true love to humanity, by genuine scientific and practical methods, and by the highest professional motives. If it is the unanimous opinion of the medical profession that there should be an American Congress on Tuberculosis previous to the one which is to meet in Paris next year, it should be thoroughly representative and an honor to the American medical profession. Professor Wm. H. Welch of Johns Hopkins will preside. All communications relating to this meeting should be addressed to the Secretary pro tem., Dr. H. Barton Jacobs, 11 Mount Vernon Place, Baltimore, Md. Those of our readers who are not yet familiar with the present tuberculosis congress situation in America, should refer to an open letter by Dr. S. A. Knopf of New York, entitled, "American and International Tuberculosis Congresses and Tuberculosis Exhibits for the years 1904 and 1905," which appeared in *American Medicine* December 5, 1903, and to our editorials on the subject then and since.

In the American crusade against tuberculosis the first noteworthy event of the year will be the Maryland Tuberculosis Exposition, to be held in Baltimore through the week of January 25. If the number and distinction of the men engaged can guarantee success, this exposition will amply justify the interest which it has excited. Even if their ambitious plans should not be fully realized, it is a novel and very striking idea of the Maryland Tuberculosis Commission to present this subject by means of an exposition. Their original purpose was to show in a graphic way as much as possible of the results of their own investigations, and to make beside a modest exhibition of the general movement against tuberculosis, hoping in this way to make a strong impression upon the people of Maryland. They have undoubtedly hit upon a means of most effective appeal to the popular mind, and it is not surprising that the plans of the Maryland Commission have arrested the attention of all who are interested in tuberculosis. The growth of the exposition was for a time embarrassing to its originators, who expected to give only a family party. But with the aid of the State Board of Health, the Maryland Public Health Association, and a large committee of influential citizens, the project will certainly reward the anticipations of visitors, and probably of its sponsors. The test of the value of the exposition will be the number of plain people who attend it. The list of speakers, among them Adami, Flick, Hoffman, Knopf, Ravenel, and Salmon, insures a genuine fest to the medical profession. But the people who will visit the exposition outside of lecture hours have most need of the lesson which the exposition is intended to convey, and if these people will be attracted in large numbers, the results of the exposition will be vastly better than the commission could have achieved by means of printers' ink. The keenest interest waits upon this experiment.

The Tramp as a Distributer of Disease.—The tramp has become a criminal, either actual or future, and though it may not always be possible to differentiate him from the honest, poor man seeking work, it should be done as a rule, and he should be photographed and classed in the rogues' gallery. Kindness to him, gifts of food or clothing, are really methods of making one *particeps criminis*. His role as a scatterer of the germs of disease has never been sufficiently well recognized. The reception he gets in households, towns, and cities on his routes is precisely that which brings to the citizens the surest chance that he will leave a trail of disease after him. He has syphilis or gonorrhea, or more probably both, he is filthy beyond description, and his associations are such that he is the prey of any infectious disease that is epidemic. The hospitals must periodically care for the criminal and clean him and cure him before sending him out again on his rounds of laziness and crime. His existence and that of his whole class is dependent upon the transportation he gets by theft or crime on railway trains. "Where there are no railroads there are no tramps." Do what they will, the railroads cannot prevent the many thousands of tramps from riding on their trains. His presence along the lines of

railroads is a constant heavy expense to the companies, and a menace to the health and property of the travelers and citizens. The railway companies are now organizing police departments to abate the danger and the nuisance, and the profession will be glad to cooperate, and much lies in its power, with city and town governments, and with the transportation companies to lessen the evil. Save the man if he is savable, but kill the tramp.

Reading in bed has recently been the subject of an extensive newspaper discussion in the *Daily Mail* of London. The results of the controversy are, of course, nil, each contributor doubtless being resolved, from the arguments of the like-minded, to do exactly what he has heretofore done, *i. e.*, to read in bed or not to read in bed, according to the convictions irrationally and indiscriminatingly formed before the newspaper undertook the office of public instruction. Like every other doubtful custom, this one may be good or bad, according to the method in which it is carried out. If the position is literally prone, the habit is unqualifiedly bad, because in such a position the eyes are fixed upon the book, in a straining and harmful way, and the book cannot be sufficiently and properly illuminated by the lamp or light used. But if one sits, propped up by pillows, in much the same position of the head and trunk as when in a chair, there can be no evil consequences, providing a good rich light is rightly placed behind and at one side of the head. The primary condition of scientific spectacles in case of the commonly existing refraction error should be observed, and is even more necessary in night reading than in that by daylight. The greatest argument for reading in bed is that the attention is not distracted by the discomfort of the body, the noises, and interruptions usual at other times. Let one take an erect position of the body and head, be assured he has a good oculist, and that his light is strong, white, steady, and properly placed; he may then read with impunity until drowsiness cautions him to stop.

Proverbial Wisdom as to Suppers.—The "supper" in our time and in city life has been displaced by the "dinner," but that does not change the old rules as to the advisability of going to bed or of not doing so "on an empty stomach." An old Italian proverb has it that, *Chi va a letto senza cena tutta notte si dimena*—"who goes to bed supperless, all night tumbles and tosses." Other proverbs advise the reverse of this. A Portuguese saying is, "If you would be ill, sup and then go to sleep." It is plain that the "potted wisdom" of proverbs will give no decisive rule as to digestion during sleep. The custom of an after-dinner nap is common in almost all Italian and Oriental countries, but it is contradicted by an old Latin proverb, *Post epulas stabis vel passus mille meabis*, which the Germans have capitally translated, *Nach dem Essen stehen oder tausend Schritte gehen*. An English saw runs: "After dinner sit awhile, after supper walk a mile." As a rule, one may perhaps say that the northern, and especially the Anglosaxon races, incline to think that digestion is not the best and easiest during sleep. But even here doubtless much depends

upon the kind of food eaten before sleeping. As to drinking, the people's experience is, that "he who goes to bed thirsty rises healthy." As age comes on digestion grows more difficult, so that the Spanish say, "Who steals an old man's supper does him no wrong." "An egg, and to bed," accentuates the advice. Habit is undoubtedly a chief element in the success or failure of the custom, so that there is much implied in the old saying, "Drink wine, and have the gout; drink no wine and have the gout, too." With our heartier and heavier food, most will probably agree that one should not sleep for two or three hours after eating.

A plea for the purification of hospital statistics is made by Dr. Wherry in the Bulletin of Iowa Institutions, which should be read by every hospital manager and trustee. It relates more to hospitals for the insane, but the general principles are as applicable and as needing application to others. We published last year figures of some hospitals which proved that if they had as many patients as figured in their reports every cot would have been occupied every night of the year by two or three sleepers. The old saying that figures will not lie, says Dr. Wherry, came from the times before the day of statistics. Physicians' reports he avers are generally most absurdly inaccurate, and all conclusions drawn from them and from hospital (for the insane) reports are worse than useless, they are perniciously misleading. As illustrations of this point he adduces instances of the mechanical filling in of the blanks of the answers of friends:

Q.—What is the cause of insanity?

A.—Melancholia.

Here the disease was mistaken for the cause. Again:

Q.—What is the cause of insanity?

A.—A love affair with a lady.

Of course, an ordinary love affair would scarcely be a sufficient cause for insanity, but when "with a lady," it becomes serious. Here is one which illustrates the danger of procrastination:

Q.—What is the cause of insanity?

A.—Come on slowly.

One of the most important causes, perhaps, of insanity is heredity, and it is receiving more and more consideration as an etiologic factor, but, whatever its significance in this respect, it has, more than likely, received much of its impetus, and gained much credit from statistics which are misleading. For instance:

Q.—Any relatives or ancestors insane?

A.—None.

Q.—What is the cause of insanity?

A.—Heredity.

Of course, all things are possible, but it is hoped that heredity, as a cause, rests upon a firmer foundation than this.

We have recently heard much concerning the alarming increase of the number of the insane. Dr. Wherry says that many "new" patients are in these lists who are in reality old ones and who have been previously admitted in other hospitals as new patients. As to the causes of insanity here is a finding:

In a report before me I find that 62 conditions, mental and physical, and ranging all the way from anxiety to vaccination, are given as the causes of insanity in 409 cases admitted to the hospital during the biennial period, while 234 were admitted with "no satisfactory cause assigned." Evidently the causes assigned for the 409 cases, such as blindness, excessive study, exposure, lactation, masturbation, novel reading, overwork,

and vaccination, must have been eminently satisfactory; and, if this is so, it would be extremely interesting to know what causes could possibly have been assigned to the 234 cases that would not give satisfaction. In the light of latter-day science, the 234 admitted with no satisfactory cause came much nearer the truth than a majority of the 409 who were so bountifully supplied with the causes which gave such unqualified satisfaction, for, while such a varied and diversified assortment of causes may give universal satisfaction, as tending to prove all theories and opposing none, this great etiologic multiplicity does not necessarily imply truthfulness and accuracy. To be sure these causes are only "assumed," but to the average mind, even though it dwell but in the suburbs of science, 62 causes for 409 cases seems to be "assuming" altogether too much.

This all comes from the fact that the cause is given as a rule by some friend or relative of the patient, who is present during the examination. These friends have watched all the details of the investigation with unabated interest and more or less excitement, and the solemnity of the occasion weighs heavily upon them. They feel keenly the responsibility of their position and are determined, should a cause be called for, that it shall be produced, no matter from whence or how, and that no member of their family shall ever be deprived of his due meed of insanity for lack of so simple a thing as a cause; and upon reading over the usual list of causes one can not but wonder at the boundless possibilities of the human mind under circumstances such as these.

"Lastly," says Dr. Wherry of these reports, "there are the statements it does not contain; the questions not answered at all. If 'knowing so much that isn't so' is bad, the next worst thing is not knowing at all, and throughout all our statistical tables a large and increasing army of the 'Unknown' marches grimly and steadily on. In a report before me I find that out of 313 patients admitted the ages of 63 were unknown; nativity of 44 unknown; occupation of 34 unknown; civil condition of 26 unknown; cause of insanity in 124 not even assumed; number of attacks in 50 cases unknown; duration of insanity before admission in 116 cases unknown."

EDITORIAL ECHOES

The W. C. T. U. and the Family Medicine Chest.—The South Side Woman's Christian Temperance Union of Rochester met a few days ago to discuss "The family medicine chest and what it should contain." When the attention of the members was called to the terrible fact that both belladonna and aconite contain alcohol there was no hesitation in deciding that they should be banished promptly. Every woman at this epoch-making meeting was armed with a list of the remedies an ideal family medicine chest should contain. When these had been well shaken together and diluted with a flood of discussion, it was found that the articles indispensable to the chest were: Syrup of ipecac, peppermint, wintergreen, nux vomica, vaselin, turpentine, ammonia, baking soda, glycerin, witch hazel, castor oil, nitre, bandages, flannels, borax, camphor, and quinin. Not a word was spoken for some of the good old remedies that have been cherished for generations: Cod-liver oil, sassafras tea, mustard plasters, and sulfur and molasses—all these were as if they did not exist. We may be persuaded to spare aconite and belladonna—they have a sort of homeopathic suggestion, anyway, not to speak of the devil that lurks in the alcohol they contain—but it would be only common generosity for the Rochester Woman's Christian Temperance Union to let us keep the good old remedies.—[*New York Evening Post.*]

BOOK REVIEWS

A Textbook of Clinical Anatomy.—By DANIEL N. EISENDRATH, A.B., M.D. Illustrated. Philadelphia: W. B. Saunders & Co. 1903.

This book is intended to supplement the knowledge of anatomy gained during the first 2 years of a medical course by applying that knowledge to the solution of bedside, clinic, and operating-room problems. The medical, as well as the surgical, aspects of these problems have been kept in view by the writer, with the result of producing a very well-balanced and useful book. The usual custom of considering in order the various regions of the body, beginning with the head, has been followed. The details of anatomy are not given, hence this work is not to be substituted for standard treatises on that subject. Two of the many valuable features of the book seem to the reviewer especially noteworthy. First, the constant directions for palpating structures that can be outlined in this manner. This endeavor to make the student or practising physician learn for himself the landmarks of anatomy is the highest ideal of teaching, and to him who follows carefully these directions the book will prove exceedingly useful. Second, the manner of illustrating the points mentioned in the text. The majority of the illustrations are original, a distinct relief in these days of copying from book to book. In the preparation of those showing surface outline the structures were traced upon artist's models and the subject then photographed, the results being most satisfactory. Röntgen ray pictures, especially of fractures, are also introduced. The publishers have aided in the clearness of the illustrations by supplying an excellent quality of paper. The book contains 502 pages of text and 155 illustrations. It can be heartily recommended.

The New International Encyclopedia. Volume XII.—Dodd, Mead & Co.

This number beginning with Maximilian I and ending with the New Jerusalem Church includes the following medical articles:

Measles	Mineral waters
Medical Association, American	Mint
Medical code	Monomania
Medical Department, Army	Monstrosity
Medical Department, Navy	Morphin
Medical education	Mouth, Diseases of
Medical school	Movement cure
Medical statistics	Mumps
Medicine	Muscae volitantes
Medico-Psychological Association	Musk
Medullary sarcoma	Myelitis
Melancholia	Myiasis
Memory (amnesia)	Myopia
Meningitis	Myrrh
Menstruation	Myxedema
Mental pathology	Nails, Diseases of
Menthol	Narcotics
Mercuric chlorid	Nausea
Mercury	Necrosis
Mesentery, Diseases of	Nematoda
Mesmerism	Nephrectomy
Metastasis	Nephrotomy
Methylene-blue	Nervous disease
Migraine	Neuralgia
Malaria	Neurasthenia
Milk	Neuritis
Milk cure	Neurology
Milk fever	Neurosis

Among subjects omitted or without cross reference are:

Measles, German	Milium
Mediastinum, Diseases of	Molluscum contagiosum
Melena of the new-born	Morphea
Ménière's disease	Muscles, Injuries to
Meningocele	Mushroom poisoning
Menopause	Mycosis fungoides
Methyl acetanilid	Mydriatics
Methyl chlorid	Myoma
Methyl salicylate	Myxoma
Methyl violet	Naphthol
Microcephalus	Neck, Injuries of

Only about half the usual quota of medical men receive biographic notice, although the number might have been swelled by such wellknown names as those of Ménière, Mikulicz, Minderer, Monsel, T. G. Morton, Murphy, Naegle, and

many others. There is no mention of the medical uses of mustard and naphthalin, and no reference to the involvement of the ovaries in mumps, or to eyestrain as a prominent etiologic factor in nausea. The long and otherwise excellent article on milk contains the merest allusion to its modification for infant-feeding, and nothing as to its pasteurization, or to its peptonization for the sick. The article on migraine is much more lucid than those intermittently contributed to medical periodic literature. Those on the historic aspects of medicine show excellent judgment in the selection of developmental events from a huge mass of material, and the other subjects treated receive the intelligent handling which is characteristic of this work.

The Medical Annals of Maryland—1799 to 1899.—By EUGENE FAUNTLEROY CORDELL, M.D. Baltimore, 1903.

This volume was prepared for the Centennial of the Medical and Chirurgical Faculty of Maryland in 1899, the committee in charge consisting of Drs. Osler, Ashby, Friedenwald, Hurd, and Preston. In the 889 pages of the work are embraced 3 divisions: (1) An historic section; (2) a biographic section; (3) a chronologic section. In the first is given a running account of the society during its first 100 years. The second contains the names of all the physicians who have been members of the society, with a brief medical biography of each. The third part is based on the historic researches of the late Dr. John R. Quinan, but has been extensively elaborated. The entire book gives evidence of the most painstaking efforts on the part of the compiler. Dr. Cordell was especially fitted to deal with this historic subject, as his recent appointment to the chair of the History of Medicine in the University of Maryland abundantly demonstrates. His wish that he might "produce a volume which will, for all time to come, be regarded as authoritative in all matters relating to the medical history of the State," will, we are sure, be fully gratified. The Medical and Chirurgical Faculty of Maryland is to be heartily congratulated upon the work of its first century.

The Medical Epitome Series.—Edited by V. C. PEDERSEN, A.M., M.D. **Physics and Inorganic Chemistry.**—By ALEXIUS MCGLANNAN, M.D. **Normal Histology.**—By JOHN R. WATHEN, A.B., M.D. Philadelphia and New York: Lea Brothers & Co., 1903.

These 2 volumes of this series maintain the high standard set by the editor in the beginning. They fulfil their purpose very well, that is for furnishing to the student or graduated physician a concise review of the subject in question. Though there are now almost numberless books of this type there is always room for first-class additions to the number. The editor of this series has been fortunate in securing men who use the limited space at their command to the very best advantage. The books average slightly more than 200 pages and are well illustrated.

Static Electricity and Electric Vibrations.—By FRANKLIN B. GOTTSCHALK. Published by T. Eisele, 906 Evanston avenue, Chicago.

This is a volume of 175 pages, devoted to a presentation of the most important mode of treating patients by means of electricity. The author, while a believer in the use of drugs and other methods of treatment, is yet an advocate of the use of static electricity in many properly selected conditions, and the little book is a result of his labors along this line. There are numerous illustrations which explain the method of administering electricity and the mechanics of the apparatus involved.

A Compend of Human Anatomy. Quiz-Compend No. 1.—By SAMUEL O. L. POTTER, M.A., M.D. Seventh edition revised and enlarged. Philadelphia: P. Blakiston's Son & Co.

This latest edition of Potter's wellknown work has been entirely rewritten to adapt it to the latest textbooks on the subject. The illustrations have been increased from 117 to 138. The tables and plates have been placed in their natural positions in the text instead of in an appendix. The size of the book has been increased by 82 pages. In this form the compend still maintains its place as one of the most valuable in the series, being a distinct improvement on the earlier editions.

AMERICAN NEWS AND NOTES.

GENERAL.

Medical Association of Porto Rico.—On December 27 and 28, 1903, there was held in San Juan, Porto Rico, the first annual meeting of the "Asociacion Medica de Puerto Rico" (Medical Association of Porto Rico). Several very interesting papers were read and discussed, marking an epoch in medicine in this Island, as it was the first time that scientific professional matters have been presented before a body of medical men here. This Association was organized a year ago, and includes now about 75 of the 200 (more or less) physicians of the Island. The meeting was enthusiastic, and the Association enters upon its second year of life in a prosperous condition, promising fair to become a power in the land. Its officers are: President, Dr. Manuel Quevedo Baez; vice-president, Dr. Ramon Ruiz Arnau; secretary, Dr. Rafael Velez Lopez; treasurer, Dr. Jose Carbognell. Dr. Francisco Goenaga is the other member of the board of directors.

Pure Food Legislation.—Pure food legislation was taken up on January 5 in Congress. Proposed amendments to the present laws were explained by Dr. H. W. Wiley, chief of the Bureau of Chemistry of the Department of Agriculture. He desired to add the word "foods" to the title of his bureau, making it "The Bureau of Chemistry and Foods." Another amendment suggested by the National Pure Food Association strikes out the words "with intent," in the provision against misbranding of food products, so as to relieve the government from the necessity of proving the intent to deceive in such action. Dr. Wiley explained the working of the law regulating the importation of foreign goods, the results of which, he said, were excellent, many cargoes of foreign foods having been refused admission to the country since last July. As many as 50 cargoes of German wines containing salicylic acid had been sent back. During the 6 months the law had been in operation, without suit or process of law, nearly all shipment of adulterated foreign foods had been stopped, although previous to the operation of the law 10% of all imported foods and drinks were adulterated.

Miscellaneous.—The former able editor of the *Cincinnati Lancet-Clinic*, Dr. J. C. Culbertson, having resigned, Dr. Mark A. Brown was chosen to fill his place. A portion of an editorial in the number of January 2 of that journal is as follows: In the last number of the old year was published a list of those who in the future will assume the editorial management and direct the policy of this journal. Since the complete staff has been made public, the editor has been overwhelmed with congratulations; nor does he take it much amiss that the felicitations have all been in the line of his great good fortune in securing so strong a corps of editors to assist him in the management of the several departments of medicine. He, too, is a little dazed at his success, for, without exception, all of his associates not only number among the leaders of their art, but stand for the dignity of medicine and its progress, and possess an ill-concealed animosity for any and every kind of quackery and clap-trap performance that would tend in the slightest degree to lower its tone. The word "policy" as applied to the *Lancet-Clinic* is rather a misnomer, for as in the past so in the future, there will be no policy other than truth and honesty, and a fixed purpose to give to its readers all that is best in our profession.

EASTERN STATES.

Lowered Deathrate in Cambridge.—According to the report of the Cambridge Board of Health, which has just been issued, the deathrate in that city is lower than it has been for many years. Last year the rate per thousand inhabitants was only 15.13. In 1902 it was 15.15; 1901, 16.83 and in 1900, 16.87. The number of all kinds of contagious diseases was less than it has been in previous years.

Boston's Lowered Deathrate.—The annual report of the Boston Board of Health for the year 1903 shows that there were about 10,640 deaths in the city during that year. The exact figure cannot be given. This makes a deathrate of 17.70 as against 18.73 in 1902 and 19.70 the year before that. No disease prevailed extensively enough during the year to be classed as epidemic. The mortality among small children also was smaller than last year. There were 68 cases and 13 deaths from smallpox, but that was early in the year, and the disease has not claimed any victims in Boston for many months.

Fire in Massachusetts Insane Institution.—On January 4, fire broke out in the Taunton Insane Institution, which threatened the lives of several hundred patients confined in the institution. The flames were, however, controlled, and no loss of life is reported, though serious damage was done to the hospital. The normal capacity of the hospital is 650 inmates; but 982 patients now are registered there. Of these, over 500 were in the women's wards. It is believed the damage to the building will exceed \$50,000. One of the most serious results of the fire was the destruction of the pathologic laboratory, the autopsy room, and the library of Dr. Miller, the hospital pathologist.

NEW YORK.

Cold Car Bill Introduced.—A bill has been introduced in the New York Legislature making it a misdemeanor for any railroad to run between November 1 and April 1 any car not properly heated.

Numerous Accidents in New York City.—The publication recently of figures showing that last year there were 458 persons killed in the streets in New York, whereas there were only 138 deaths from traffic accidents in London during the same period, has resulted in a campaign for legislation to control the reckless driving that prevails in New York City. The facts gathered by the newspapers show that beside the hundreds killed outright, fully 3,000 persons are disabled every year, more than twice the number killed or wounded in all of the railroad accidents throughout the country, by the almost criminal carelessness of drivers. The average driver is apparently utterly indifferent as to whether or not he runs down pedestrians, and it is an outrage to see helpless women have to rush to get out of the way of these ruffians on the box. In London the drivers have a wholesome respect for the policeman, who regulates traffic in effective fashion.

PHILADELPHIA, PENNSYLVANIA, ETC.

Health Conditions in Allegheny.—Contagious diseases reported to the Allegheny Bureau of Health for the 14 days ended December 26: Smallpox 21 cases; diphtheria 46 cases; scarlet fever 15 cases; typhoid fever 23 cases.

Health Conditions in Pittsburgh.—Contagious diseases and deaths from same reported to the Pittsburgh Bureau of Health for the 14 days ended December 26: Smallpox 45 cases and 14 deaths; diphtheria 55 cases and 18 deaths; scarlet fever 37 cases and 3 deaths; typhoid fever 290 cases and 23 deaths.

The Pittsburgh Academy of Medicine held an open scientific meeting January 5, having for its guests Dr. W. J. Mayo of Rochester, Minnesota and Dr. Albert J. Ochsner of Chicago. Dr. Mayo read a paper entitled "Ulcer and Cancer of the Stomach, from a Surgical Standpoint." The discussion that followed was opened by Dr. Ochsner. In the evening they were the guests of honor at the annual banquet of the Academy held at the Union Club.

To Prevent Child Labor.—The crusade against child labor in New Jersey will, it is believed, be crystallized within a few days in the formation of a permanent body, to be known as the Committee for the Protection of Children. The New Jersey Consumers' League has already taken up this question. At its invitation, many representatives of public and private educational and philanthropic organizations met in Newark and discussed the feasibility of forming a permanent child-labor committee.

Coroner's Statistics in Philadelphia.—Coroner Dugan, in giving out statistics of the work accomplished in his department during 1903, said it had been the busiest year in the history of the office. The number of inquests ran 553 beyond those of 1902—a total of 3,357. Certificates were issued in 1,018 cases in which the Coroner deemed inquests unnecessary, thereby saving the county expense. There were 58 homicides, an increase of 28; 202 suicides; 94 drowning cases, of which 63 were accidental, 6 suicidal and 25 undetermined; and 932 casualties, including steam and street railway cases, injuries from vehicles, falls from windows and on the street, down elevator shafts, and by machinery, an increase of 118. One hundred and forty-two persons died from scalds and burns; 20 were accidentally suffocated at their homes, 4 at fires, and 109 by coal and illuminating gas, of which number 43 persons were suicides. There were 254 casualties on steam and electric railways, an increase of 42, distributed as follows: Pennsylvania Railroad, 116; Reading Railway, 71; Baltimore and Ohio Railroad, 8; West Jersey and Seashore Railroad, 3. The casualties on the electric railways were: Philadelphia Rapid Transit Company, 53; Southwestern Company, 2; Chester Traction Company, 1.

Mortality in Philadelphia for 1903.—The annual report of the Bureau of Health, made public recently, shows a death-rate of 18.82 per 1,000 of population, the lowest rate, with 4 exceptions, since 1879. In 1897 the rate was 18.72, in 1899, 18.78, in 1901, 18.26, and in 1902, 17.67. The total of deaths for the year was 25,947, as compared with 23,847 for the previous year, the greatest increase being from typhoid fever, from 585 in 1902 to 957 last year. An infected milk supply and failure to observe the oft-repeated warning to boil all drinking water not filtered is held accountable for the heavy increase in this disease. The greatest total of deaths was from pneumonia, 3,180, as compared with 2,976, with tuberculosis a close second with 3,053, an increase over the preceding year of 208 cases. Deaths from smallpox numbered 278, 47 more than occurred in 1902. But 3 cases of malarial fever ended fatally during the year. The cases of contagious diseases in 1903, as compared with those in 1902, were as follows:

	1902.	1903.
Smallpox	1,842	1,637
Diphtheria	2,444	3,043
Typhoid fever	5,006	8,650
Scarlet fever	3,161	3,200
Totals	11,953	16,530

WESTERN STATES.

Indians Going Insane.—The National Hospital for Insane Indians, at Canton, S. D., has finished its first year. At the beginning it had 34 patients, half of its capacity. In a few months it was filled. According to Superintendent Gifford the number of insane Indians is constantly increasing, the chief cause being dependency. Lack of active occupation, hunting and the like is the chief cause of this.

Why many Cases of Tuberculosis are not Cured.—The Cincinnati *Lancet-Clinic*, of January 2, commenting upon this subject editorially, says: "The statistics of those experienced in the treatment of tuberculosis have shown that in order to obtain favorable results the patient must be secured when the disease is in the first stage, or stage of infiltration. Judging by the experience gained in the Cincinnati Branch Hospital for Consumptives, we feel this is the greatest stumbling-block to success, and will exist until physicians and the general public recognize the necessity of earnest efforts when the disease is in its incipency. One cannot but feel at times that the reliance upon the sputum examination for diagnosis is one of the factors which will lead to a paucity of favorable results. That physicians do rely upon the microscope to a large degree is shown by some of the death returns in our Health Department. Several physicians signed the certificate "supposed to be consumption, but the sputum examination was negative." A physician who will wait until the lungs break down sufficiently to result in the throwing off of tubercle bacilli, or who will rest satisfied with the results of 1 or even 2 or 3 sputum examinations when reported negative, is guilty of withholding from his patients valuable opportunities for recovery. Neither the microscope nor the Röntgen ray can substitute a competent physical examination, although they are invaluable in some instances as confirmatory factors.

CANADA.

Typhoid Epidemic in Montreal.—There are approximately 1,000 cases of typhoid fever in Montreal and the half dozen smaller municipalities which join it on 3 sides. This alarming total is being added to rapidly, despite the vigorous precautions adopted a week ago to forestall the spread of the disease. Police-men have gone from house to house distributing printed warnings that a serious typhoid epidemic exists, and urging householders to boil their drinking water. In the meantime, bacteriologic tests will be made of the water.

FOREIGN NEWS AND NOTES

GENERAL.

Operated upon Only 84 Times.—A man who has survived 84 surgical operations lives at Guisborough, an old world market town in Yorkshire, England, at the foot of the Cleveland Hills. For over 30 years he has suffered from the ravages of the hungry disease known as lupus. Having reached that stage of life, which, under normal conditions, would be a man's prime, he is still an intense sufferer. The man still hopes to be cured.

To Combat Tropical Diseases.—Three medical experts in the service of the French Government departed on the steamship *Mariposa* for Tahiti, where they will endeavor to check the ravages of disease among the natives. The experts include Dr. H. Louvan, Dr. F. Cassiau and Dr. Grosfellez. These men are authorities on leprosy, elephantiasis and other tropical diseases, and have been sent because of the increase in mortality among the natives. The doctors will be given certain judicial powers to aid them in enforcing such sanitary laws as they may adopt.

Treatment of Tuberculosis in Germany.—The German Central Committee for Tuberculosis publishes some interesting statistics concerning the results of the open-air treatment of tuberculosis. During the year 1902, 12,187 tuberculous men and 4,302 tuberculous women were treated in open-air hospitals at the expense of the Imperial Workmen's Insurance Office. Of this number 78% were so far healed that there is no prospect of the disease rendering them incapable of work. If those cases are deducted in which after a fortnight's treatment, it was evident that no cure could be effected, the successful cases numbered 81%. Figures published by the Imperial Statistical Office show that the deathrate from tuberculosis in German towns of 15,000 and more inhabitants is steadily decreasing. The number per 10,000 who died of tuberculosis in the 5 years ending in 1881 was 357.7; in 1886, 346.2; in 1891, 304.5; in 1896, 255.5, and in the 5 years ending 1901, 218.7.

OBITUARIES.

James Francis Ferguson, at his home in Central Valley, N. Y., December 30; a graduate of the Medical Department of the University of New York, in 1861, and from the Bellevue Medical College, in 1862.

He served with the Second New York Militia during the early part of the war and was at one time confined in Libby prison. He was with General Banks in Louisiana and was afterward provost surgeon in New Orleans. His professional appointments were as follows: Attending surgeon, Bellevue Hospital, Outdoor Department, 1870-71; visiting surgeon to the Blackwell's Island Hospital, 1872-92; visiting physician to the Hospital for Nervous Diseases, 1886-92, and consulting physician of the Charity (now City) Hospital, since 1892. He was a member of the alumni of Bellevue Hospital Medical Society of the County of New York, New York Academy of Medicine, the New York Neurological Society, Military Order Loyal Legion, Lotos Club, Army and Navy Club, Kane Lodge, No. 451, F. and A. M., Jerusalem Chapter, No. 8, R. A. M., Coeur de Lion Commandery, No. 23, K. T., and a thirty-third degree Scottish Rite Mason.

George H. Hackenburg, a noted scientific man, who is credited generally with being the originator of the telephone idea, died at his home in Austin, Tex., recently. He was 80 years old. In 1864 he wrote an article, which was published, making public his ideas of the principles of the telephone, which were afterward practically applied by others. The article attracted wide attention. He was at that time living in Ohio. He was born in Union county, Pa., and was a graduate of the Medical College of New York University. He practiced medicine in New York State for several years, and was a frequent contributor to magazines on scientific subjects. He moved to Texas in 1873.

Charles G. Frowert, suddenly, at his home in Philadelphia, January 9. He was a well-known physician of the city, having graduated from the University of Pennsylvania in 1874. He was a thirty-second degree Mason and a Knight Templar, and took an active interest in secret society affairs. He was a member of the Pennsylvania Medical Society, the Philadelphia County Medical Society, the American Medical Association, and other medical associations. He was medical director for many large life insurance companies, and trustee of the Presbyterian Church of the Covenant at Cynwyd.

George Winslow Foster, at his home in Bangor, Me., recently. He was at one time connected with the Insane Hospital at Taunton, Mass., and labored in the same capacity in the Government Hospital at Washington, D. C. In 1901 he was called to the position of superintendent of the Eastern Maine Insane Hospital, at Bangor. He was a graduate of Bowdoin College in 1871, and later of the Maine Medical School, a member of the American Medical Association, the Washington, D. C. Medical Association, and the Penobscot Medical Association.

Stewart H. Reed, at his home in Madison, N. J., January 6, from pneumonia. He was a graduate of Williams College, Mass., in 1878, and the College of Physicians and Surgeons of New York, in 1881; a member of the Board of Chosen Freeholders for Chatham township, member of the first Board of Councilmen, one time member of the Board of Education, one time physician for the Board of Health, and a member of various medical societies.

Benjamin H. Hartwell, at his home in Ayer, Mass., December 30. He had been a pension examiner for 28 years, and examining physician for many prominent organizations and companies. He was a graduate of Lawrence Academy and of Jefferson Medical College, Philadelphia; one time coroner in his home city and for 8 years was connected with the medical department of the Massachusetts militia.

Frank M. Shaw, on January 3, in the Seney Hospital, Brooklyn, from an overdose of opium taken to relieve the dreadful pain of facial neuralgia; a graduate of the College of Physicians and Surgeons of New York, and one time a member of the staff of the Presbyterian Hospital. He was a member of the King's County Medical Society and various local clubs.

Cornelius E. Billington, at his home in New York, January 8, aged 60; he was a graduate of the medical department of the New York University, in 1864 and was a well-known writer, and the author of a work on diphtheria and its treatment.

Owen Campbell Brown, at his home in Detroit, Mich., recently after an illness of 3 months; a graduate of Toronto University and examiner for the Knights Templar, Masons, and Life Insurance Company of Chicago.

Edward L. Griggs, at his home in Waterbury, Conn., December 30, of heart disease. He was one of the oldest and best known physicians in Waterbury, and a graduate of the Yale Medical School, in 1864.

Margaret P. Buckman, at her home in Trenton, January 7, from scarlet fever contracted while caring for her child. She was a graduate of the Woman's Medical College of Philadelphia.

Harrison Baker, at his home in Baton Rouge, La., January 5, at an advanced age. He was a native of Pennsylvania, but had resided in Baton Rouge for the past 6 years.

L. S. Major, at his home in Austin, near Chicago, January 3, aged 61. Dr. Major came to Chicago in 1848, and erected the Major Block on La Salle street, in that city.

H. A. Chors was found dead January 8, in the rear part of a drug store in Brooklyn. He was 37 years old, and a graduate of the Long Island College Hospital.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

APPENDICITIS.¹

BY

J. J. BROWNSON, M.D.,
of Dubuque, Ia.

Member American Medical Association; Surgeon to Mercy Hospital; Surgeon to St. Mary's Orphanage; President Board of Commissioners of Insanity, Dubuque County, Ia., etc.

Appendicitis, its diagnosis, prognosis, and treatment, holds the "boards" as one of the most interesting and profitable subjects for medical men to consider, and therefore it may be of interest to relate the principles upon which I have based my method of operative procedure in cases of appendicitis:

Many years ago Dr. Fowler called me in consultation to Bellevue, Iowa. The patient, Mr. S., had been sick about 3 weeks with supposed inflammation of the bowels. He had passed through all the usual symptoms of pain, fever, vomiting, etc. After the distention had subsided there remained a circumscribed swelling in the right iliac region. Several consultants had seen the patient, and all advised the then prevalent, expectant treatment. The patient was hectic and had all the usual symptoms of encysted abscess, which physical examination confirmed. I advised operation. Ether was administered and I cut down upon the swelling, opening into a large collection of pus. After evacuation the cavity was lightly packed with gauze and the ordinary dressings applied. After 3 days the wound was dressed, and upon removal of the gauze there was a profuse discharge. The patient eventually made a good recovery. This was my first operation for appendicitis.

Later, I was called to a similar case, with Dr. Loose, of Maquoketa. The patient, Mrs. S., aged 60, was a resident of Otter Creek, Ia. She had been sick about 3 weeks. Dr. Loose stated that he had made a diagnosis of typhlitis. Upon examination there was dullness, tenderness, edema, and some rigidity in the right iliac region. This condition, together with the hectic symptoms was indicative of pus. We therefore decided to operate. Doctor Loose administered ether. On opening the abdominal cavity, gas, and some dirty, sanious-looking pus exuded, the odor was very foul and decidedly fecal. The wound was packed with gauze and the usual dressing applied. After several days the wound was dressed, and upon removing the gauze the discharge was profuse. Drainage was maintained, and after a time the patient recovered.

Patients of this class kept coming, and we now realized that a case in which the onset of the disease was marked by vomiting, constipation, pain in the right side, fever, etc., was not inflammation of the bowels, but appendicitis, which was becoming the much talked of, much investigated, modern, and much operated upon disease. Nearly all surgeons advocated immediate operation and removal of the appendix as soon as the diagnosis was made. Several of my contemporaries adopted this plan, and almost invariably there was a fatal termination in cases operated upon by them. This led me to investigate the reason for such difference in results. I discovered that the appendix was always removed in these pus cases, while I never removed it under such circumstances. Again, I took the reasoning of the older authors, that intermediary operations were always accompanied by a larger mortality than either primary or secondary. It occurred to me, therefore, and the clinical results proved that if this was true in ordinary operations—amputations, etc., it must be doubly so in cases in which the abdominal cavity and peritoneum are involved. I therefore followed a method of procedure many years ago which has been continued by me with the most successful results. I shall describe this method later.

There have been more deaths from appendicitis since the operative method has been in vogue than during the expectant plan, which I believe is due to interference being practised at the wrong time.

There are, in my judgment, three periods when the operation can be safely performed:

1. At the inception of the disease before fever, or in the primary period, when the appendix should be removed.

2. After the fever and distention have subsided and suppuration has taken place, when the cavity ought to be drained and nature allowed to take care of the appendix.

3. In the interval after all signs of inflammation have disappeared, when the appendix should be removed. In the first period, if done early, the mortality ought to be very low. In the second period, the fatal cases are nearly always due to the zeal with which operators go after, and persist in getting the appendix. They break down the adhesions, thus producing septic peritonitis and death. It is not necessary to remove the appendix in this stage, since nature will remove the offending part of the appendix, and all that is necessary is incision and drainage. I use gauze packing and even hesitate to make any exploratory examination. I have demonstrated this to be a safe and successful method by treatment of numerous patients. The third period is a very safe time and should be recommended to patients, especially after a second acute attack. As advocates of the plan for immediate operation, the only reason is that we never know what the appendix is going to do, but on reflection it is only the so-called fulminating cases, or those in which the abscess bursts directly into the peritoneal cavity, that result badly, terminating fatally, almost before anything can be done. In these cases the damage is usually done before the patient is seen by a physician. So it is right here that we ought to consider whether every patient should be subjected to a critical operation to prevent a circumstance which happens but rarely. The whole question hinges on how to prevent the fulminating cases. In which of the three periods do these cases most generally occur? If in the intermediate period, which would be the greater danger, to operate during this period or run the risk of the case becoming fulminating? Would there be fewer deaths after 100 operations in this period than if left to run the risk of becoming fulminating? Any but the ordinary fulminating case can be, or should be, determined by the ordinary practitioner, and when the case progresses it will go on to resolution or to the formation of adhesions and abscess. When an abscess forms, sufficient evidence is given of its presence, so that it may be opened before it bursts into the abdominal cavity. If this opening and draining and allowing nature to take care of the appendix is properly done, there should be practically no mortality. I regard the anxiety about the abscess bursting as a sort of bugaboo, which has led to the desire for immediate operation and removal of the appendix. As before stated, this condition ought to be determined before the abscess becomes so large as to burst. I have never seen a case of abscess of the appendix with adhesions that did not give plenty of evidence long before the fatal perforation took place. If, now, we can eliminate the fulminating cases, and the abscess with adhesions, I need not mention that it is useless to operate upon patients after the septic contents have been poured out into the abdomen, causing septic peritonitis; it is a forlorn hope, and will only bring odium on the legitimate operation.

Summing up all the facts we find it is those cases in which rupture occurs directly into the peritoneal cavity over which we have no control. In all other cases there are peculiar symptoms and physical signs by which we may determine in time the patient's condition and institute such operative procedure as will conduct the case to a successful termination. I believe the "operate-and-remove-the-appendix-as-soon-as-the-diagnosis-is-made plan" should be modified, and the condition of the patient and the period of the disease made the basis for active interference, following out, as directed, the plans laid down.

In the first and third stages the technic is fully settled and whether we amputate or invaginate should be left to the judgment of the operator. In the second stage, the operator should cut freely down and open the cavity with care. As soon as pus appears no further interference should be attempted, except to pack lightly with gauze and put on a combination dressing. After three or four days, when nature has walled off and protected the sides of the wound, the gauze may be removed and ample drainage will be found. By this method we run no risk of infecting the wound. In other words we give exit to the pus; nature does the rest. I never remove the appendix in this stage and I have followed this plan in a great number of cases always with successful results. It may be urged that by this method the disease will recur. I have never seen but one recurrence. If it should recur there is no danger of the pus bursting into the abdominal cavity, for it will follow the old scar and

¹ Read at the meeting of the Austin Flint, Cedar Valley, Medical Society, at New Hampton, Ia., November 10, 1903.

open externally; the scar tissue always being the point of least resistance. On the other hand, if you insist on exploring the wound and removing the appendix it enhances the danger and is of no practical benefit.

I was recently called in consultation by Dr. B. A child had been sick 3 weeks with the usual symptoms of appendicitis. The distention had gone down, and there was a tumor, the outline of which could be made out in the right iliac region. The child had trouble with the urine, caused by pressure on the bladder. She was hectic and suffered some pain. A diagnosis of appendiceal abscess was made, and operation advised and accepted. Chloroform was administered, an incision was made, and gauze drainage instituted. The child recovered.

About the same time as the foregoing case one of my friends who belongs to the "operate-immediately-and-remove-the-appendix" class had a patient with a similar case. The patient was in the intermediary stage, high fever, and distention, and he as usual operated, removing the appendix, and as usual with such operations in this stage, the child was dead the next day. The appendix contained a large concretion, but had no rupture. This patient did not die from lack of operative skill, but because the procedure was adopted at the wrong time—in the intermediary period, when there was distention and fever, the peritoneum already struggling to protect itself could not stand the increased invasion of operative procedure, and the patient succumbed.

Perhaps many of my readers have attended patients with appendicitis having the usual symptoms, and in whom, after distention of the abdomen went down, a swelling or lump was left in the right side. The physical signs gave fluctuation, and yet the tumor went away, and the patient recovered. How can we account for this? This leads to the question, was it pus? If so, is pus ever absorbed? I do not think pus ever is absorbed. As to cases in which the lump disappears, I think a circumstance which occurred in the following case will solve the problem:

L. S., aged 9, became sick on Monday with vomiting and pain in the umbilical region. I saw him on Wednesday; there was fever, tenderness, and rigidity in the right side. I diagnosed appendicitis, and said he probably would require an operation. The next day the patient seemed to be better, with less distention and fever, tumor, dullness, and signs of pus in the right side. On Friday, Dr. Boothby saw him in consultation with me, and we thought it best to operate. As it was in the afternoon when we reached the house, and the hour was growing late, we compromised on aspiration. After applying ice and salt to anesthetize the parts, we introduced the needle and found, much to our surprise, not pus, but fluid. The outcome of the case was as follows: We had evidently infected the patient, for the next day he had a chill, and the day following, when I saw him, we aspirated again, and this time it showed pus. Incision and drainage was then done in the usual way, and the boy recovered.

Here, then, is probably the explanation of cases in which there is tumor and signs of fluctuation, and in which the patients recover without operation or its bursting into the bowel or bladder. The tumor contains fluid which becomes absorbed, and not pus. It is a fluid something similar to the fluid in a case of pleurisy. This was new to me, for it was the first time that I had reflected that the serous membrane covering and surrounding the appendix, when inflamed, produces, like other serous membranes, fluid, which when not infected is absorbed. I have not seen this fact mentioned in any of the textbooks. In this second stage, how are we to tell that this enlargement with signs of fluctuation is serum, and not pus? By the absence of hectic, the rigidity and the tenderness will be less, and there will not be such inflammatory edema. Also, I think the length of time and the absence of chill will help to form an opinion. In case of any doubt, aspiration with a sterile needle can be done, which, if performed with care, will do no harm.

CONCLUSIONS.

1. The operation for appendicitis ought to be done in the primary or before fever period. The appendix should be removed, to guard against fulminating cases and those in which rupture occurs into the abdominal cavity.

2. In the secondary period after suppuration, drainage should be instituted, and nature left to take care of the appendix.

3. In the interval, after all symptoms of inflammation have subsided, when the appendix should be removed.

The operation ought not to be done in the intermediary period when there is fever and distention of the abdomen, because the *danger* from operation at this period is greater than the *risk* of the case becoming fulminating, or the abscess bursting into the abdominal cavity.

I have operated on numerous patients with appendicitis, and when the operation was based upon the foregoing principles, have never lost a case.

THE UNIFICATION OF THE MEDICAL PROFESSION IN THE STATE OF NEW YORK.

To the Medical Profession of the State of New York.

Editor of American Medicine:—The sub-committee of the Joint Committee on Conference presents the following plan of consolidation of the Medical Society of the State of New York and The New York State Medical Association for the information of the medical profession of this State.

The plan is the result of much labor, legal investigation and careful thought and attention on the part of the committee; and the organization recommended for the consolidated corporation is one which is now in successful operation in 32 States of the United States. It is based upon the form of government of the United States and care has been taken not to interfere in any way with the autonomy of county organizations, or with their property or other vested rights.

We respectfully urge the members of the profession to promote by all proper means the passage by the Legislature of the proposed Act prepared by counsel for the committee, authorizing the consolidation of the Medical Society of the State of New York and The New York State Medical Association. The proposed act will be introduced in the Assembly or Senate in due course, and if passed, will authorize the consolidation upon terms to be agreed upon by the 2 corporations. The consolidated corporations will be known as the Medical Society of the State of New York.

Before the agreement for consolidation under the proposed act will become operative or effective for any purpose, it must be authorized or ratified by the vote of each corporation at an annual meeting, or else, at a special meeting of each corporation called to vote upon the agreement, and it must also be approved by the county medical societies in affiliation with the Medical Society of the State of New York.

The agreement to be recommended by the committee for adoption in accordance with the terms of the Act, will contain provisions for giving effect to the following stipulations:

1. All assets and liabilities of The New York State Medical Association shall be transferred to and vested in and assumed by the Medical Society of the State of New York at the time of consolidation.

2. Expert accountants shall be employed to ascertain the assets and liabilities of each corporation, and their reports shall be submitted with the agreement for consolidation.

3. All members of The New York State Medical Association in good standing at the time of the consolidation shall be admitted to membership in the Medical Society of the State of New York.

4. All members in good standing of the county medical societies now in affiliation with the Medical Society of the State of New York shall be admitted to membership in the Medical Society of the State of New York.

5. All members in good standing of The New York State Medical Association shall be admitted to membership in the county medical societies for the counties in which they respectively reside.

6. All members in good standing of the Medical Society of the State of New York shall be admitted to membership in the county medical societies for the counties in which they respectively reside.

7. The plan of organization, constitution and by-laws of The New York State Medical Association, with such modifications as have been agreed upon by the committee, shall be adopted

as the plan of organization, constitution and by-laws of the Medical Society of the State of New York.

8. The following proposition shall be submitted by referendum to the vote of the members of the consolidated corporation, namely:

The principles of medical ethics of the American Medical Association, being suggestive and advisory, shall be the guide of members in their relations to each other and to the public.

9. The Medical Society of the State of New York will petition the Legislature for the passage of such further enabling act as may be necessary, if any, to carry the consolidation agreement into effect.

AN ACT

TO AUTHORIZE THE CONSOLIDATION OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK AND THE NEW YORK STATE MEDICAL ASSOCIATION.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1.—The Medical Society of the State of New York, incorporated by or pursuant to chapter one hundred and thirty-eight of the laws of eighteen hundred and six, entitled "An act to incorporate medical societies for the purpose of regulating the practice of physic and surgery in this state," and continued by chapter ninety-four of the revised laws of eighteen hundred and thirteen, passed April tenth, eighteen hundred and thirteen, entitled "An act to incorporate medical societies for the purpose of regulating the practice of physic and surgery in this state," and The New York State Medical Association, incorporated under chapter four hundred and fifty-two of the laws of nineteen hundred, may enter into an agreement for the consolidation of such corporations, setting forth the terms and conditions of the consolidation and the mode of carrying the same into effect.

Each corporation, party to the agreement, may petition the Supreme Court for an order consolidating the corporations, setting forth in such petition the agreement for consolidation and a statement of all its property and liabilities and the amount and sources of its annual income. Before the presentation of the petition to the court, the agreement must be approved by a majority of the vote lawfully cast at an annual meeting of each corporation, separately, or at a meeting of each corporation separately and specially called pursuant to its by-laws for that purpose, and a certificate of such approval, verified by the president and secretary of the meeting shall be annexed to the petition.

On presentation of the petition, the certificate of approval and the consolidation agreement, and on such notice to interested parties as the court may prescribe, and after hearing such interested parties as desire to be heard, the court may make an order for the consolidation of the corporations on such terms and conditions as it may prescribe.

When the order is made and duly entered, the corporations, parties to the agreement, shall be one corporation under the name "Medical Society of the State of New York," which shall not be deemed to be a new corporation, but to be a continuation of the Medical Society of the State of New York, incorporated in eighteen hundred and six. A certified copy of said order shall be filed in the office of the Secretary of State. All the property belonging to the corporations so consolidated shall vest in the said Medical Society of the State of New York, which shall have all the powers, rights and privileges possessed by either corporation at or immediately prior to the consolidation, and which shall be subject to all of the liabilities of each corporation.

Sec. 2.—This Act shall take effect immediately.

Respectfully submitted,

A. JACOBI,
GEORGE RYERSON FOWLER,
E. ELIOT HARRIS.

THE TEMPERATURE CURVE.

BY

LOUIS FAUGERES BISHOP, A.M., M.D.,
of New York City.

We are constantly discussing the temperature charts of various conditions, so it might be well to consider what the temperature curve really is. There are some things that are perfectly well known which it is worth while to review or to observe from another point of view.

Much that cannot be explained in language can be expressed by mathematic symbols, such as the temperature curve. This is indeed a wonderful invention, in that it can express by 1 symbol 2 quantities of entirely different kinds. In the temperature curve the 2 elements expressed are time and the degree

of fever. These quantities are presented to the eye and mind by a properly constructed temperature chart better than is possible in any other way, but to give an accurate impression, the curve must be properly drawn.

In filling in the chart, very rarely is any error made in placing the point at the proper temperature, but on the other hand, the element of time is seldom expressed by putting the point in the proper place, so that if 6 different nurses should keep a chart of the same patient without comparing notes, it would not be surprising if there were 6 different curves. This, in dealing with a mathematic subject, is absurd. The intelligent physician discounts the error by a study of the chart.

The distance on a temperature chart from below upward represents the temperature; the distance from side to side represents time; the temperature distance is usually subdivided when the chart is printed, the time distance being left for the nurse to subdivide. Usually the nurse leaves from a quarter to an eighth of an inch for each observation of temperature, irrespective of the lapse of time. The result is that the temperature taken 15 minutes after a cold bath is given the same space as if 4 hours had elapsed since the previous observation.

What should be done is that the distance from right to left allowed on a chart for 24 hours should be mentally or actually divided into 24 spaces, and each observation recorded in exactly the proper position, then when the points are connected the curve will be a mathematic curve, representing in a wonderful way the relation of 2 quantities of a different character—time and temperature.

A WEDGE MOUTH GAG.¹

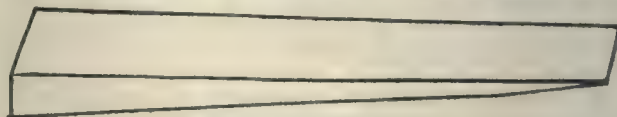
BY

FREDERIC GRIFFITH, M.D.,
of New York City.

Fellow of the New York Academy of Medicine.

Five years ago I had under my care a case of melancholia in a male. One of his fixed delusions consisted in a belief that his food was poisoned, consequently he refused to eat. Forced artificial feeding was therefore carried out continuously by means of a gag and stomach tube and it is with a description of the gag used which we found so efficacious in this case that this article has to deal. Credit for the invention is due to James Connolly, my day nurse.

Simple in design the model which I have made consists of a wedge-shaped block $7\frac{1}{2}$ inches long, $1\frac{1}{2}$ inches wide, $\frac{3}{4}$ inch thick



Figure

at the base with bevelled edges tapering to an edge at the apex.

Locust or beechwood is best used in the manufacture because they are tough and do not splinter or split.

To force open the jaws of a patient the wedge is grasped and inserted between the teeth manipulating in the same manner as an oyster-knife is used to pry open oysters.

This instrument has the advantages of cheapness, durability, ease and security in manipulation and of reducing to a minimum the danger of teeth cracking. It should be included in every anesthetizing outfit.

Improvement Accomplished by the Present Health Officials of Chicago.—The Bulletin of the Chicago Health Department, for the week ended January 2, says that the present Commissioner of Health was originally appointed in 1893, and recently reappointed for a fifth term. Comparing the corresponding period prior to 1893 with the period ended 1903, the chronologic summary of Chicago mortality shows a reduction in the general mortality from 24.35 to 15.97 per 1,000 of population, with a constructive saving of upwards of 79,500 lives at all ages and of 55,000 lives of infants and young children. It shows a decrease of more than a fifth (22.4%) in the tuberculosis death-rate; a decrease of 70% in the diphtheria mortality; and of more than three-fourths (75.9%) in the typhoid fever rate.

¹ Presented at the Academy, Surgical Section, December 4, 1903.

ORIGINAL ARTICLES

CANCER OF THE STOMACH. A REVIEW OF CASES FROM THE STANDPOINT OF DIAGNOSIS AND MEDICAL AND SURGICAL TREATMENT.¹

BY

JAMES RAE ARNEILL, A.B., M.D.,
of Denver, Colo.

Associate Professor of Medicine in the University of Colorado.

Cancer of the stomach, when considered in a broad, comprehensive manner, often furnishes interesting and difficult problems in differential diagnosis. Its symptomatology is so remarkably variable and its signs so inconstant that there are no pathognomonic evidences of the disease, taken as a whole. This we would expect from a consideration of its pathology. One patient comes to us in the advanced stages of the disease, when a mere novice could make a diagnosis; another comes with the disease in its very incipency, when a Riegel or an Ewald would confess himself baffled. In one case the newgrowth is located at the pylorus; in another the tumor involves the cardia; in a third the lesser curvature; while in yet another it is the fundus which is diseased. In one the growth is hard and of the scirrhus variety; while in another an ulcerating and encephaloid cancer is found; in a third there is perhaps a carcinoma developing on the base of an old gastric ulcer.

In one there are symptoms of a profound toxemia; in another chiefly evidences of starvation; in yet another, symptoms of stenosis and dilation of the stomach. Is it any wonder, then, that when considered in its entirety with its multiplicity of symptoms and signs, frequent mistakes of omission and commission are made?

In my experience, cases of cancer of the stomach have been most frequently mistaken for, (1) chronic atrophic gastritis; (2) pernicious anemia; (3) ulcer of the stomach; (4) gastric neuroses and enteroptosis; (5) tuberculosis, Bright's disease and heart disease; (6) abdominal newgrowths involving other organs and tissues.

In many of these cases mistakes would often have been avoided if careful laboratory examinations of the blood and gastric contents had been made. In others a careful examination of the abdomen with a trained eye and educated hand, would have made the diagnosis almost positive. However, in a certain percentage of cases, even after the most expert examination, both physical and laboratory, the diagnosis hangs in the balance for the time being. Did space permit, I might illustrate these different points by referring to actual cases seen in private and hospital practice.

Diagnosis.—The physician frankly admits that the cure of cancer of the stomach by medical means is absolutely impossible. The only hope for cure lies in the field of surgery. Consequently the chief ambition of the internist is to make an early diagnosis and then refer the patient for operation. Theoretically this sounds well, but practically results have not been encouraging. The technic of pylorotomies and resections has been developed remarkably and most patients recover from the operation if performed by a skillful surgeon. But the disease has not been entirely eradicated; in the majority of cases that come to operation there are already secondaries—or the incision has not gone beyond the cancerous tissue. Unfortunately, cancer of the stomach may have existed for some months even without symptoms. Do any of the modern gastric methods furnish us with means of making an early diagnosis? Before answering this question permit me to cite the results of some very careful analyses of stomach contents, in a number of cases of cancer of the stomach and pernicious anemia.

¹ Read before the Denver City and County Medical Society, November 17, 1903.

During the past six years, while a member of the Medical Staff of the University of Michigan, it was my duty during most of this period to make careful physical examinations of the "in" cases entering the medical clinic. Among these were between 40 and 50 cases of cancer of the stomach and esophagus, and nearly as many cases of pernicious anemia and large numbers of the different varieties of stomach diseases. Space will not permit of a detailed report, and therefore I shall confine my attention largely to a series of cases, hospital and private, which were examined and studied during the past year.

The analyses of the stomach contents were made by trained members of the medical staff or by myself and are as follows:

EXAMINATION OF STOMACH CONTENTS.

CANCER OF THE STOMACH.

1. Radtke: Granose test breakfast.
1 hour amount.....75 cc.
Free HCl.....0
Total acidity......85
Microscope—Many long (Oppler-Boas') bacilli.

1. Radtke: Granose test breakfast.
Free HCl.....0
Loosely combined HCl.....14
Organic acids and salts.....30

Total acidity.....44
Lactic acid, 5 to 1 part p.m.
Pepsinogen—No change in 9 hours.

Microscope—Many long bacilli.
1. Radtke: Boas' test meal.....40 cc.
Free HCl.....0
Lactic acid.....1% to .05%
Good pale yellow green (Strauss).
Washing showed corn which had been in the stomach for two days.

CANCER OF THE STOMACH.

1. Radtke: Boas' test meal.....17.5
Total acidity.....
Microscope shows long bacilli and yeast.

1. Radtke: Granose test breakfast.
Free HCl.....0
Loosely combined HCl.....7.5
Organic acids and salts.....60

Total acidity.....67.5
Pepsinogen—No change in several hours.
Microscope shows long, non-motile rods; yeast but no sarcinae.

2. Reeder: Boas' test meal.
Free HCl.....0
Many long bacilli.
Moderate excess of mucus.
Pepsinogen—No change in 10 hours. Tube may not have reached stomach. Obstruction two inches from white line. Infant's tube.

2. Reeder: Granose test breakfast.
Amount.....2 cc.
Free HCl.....0
Total acidity.....0

3. Lang: Granose.
1 hour.....25 cc.
Free HCl.....0
Total acidity.....22
Pepsinogen—1.8 mm. in 11 hours. Some long bacilli.

3. Lang: Granose.
Free HCl.....2
Loose combination HCl.....7
Organic acids and salts.....7

Total acidity.....16

PERNICIOUS ANEMIA.

1. Brunstetter: Granose breakfast.
Free HCl.....0
Loosely combined HCl.....2
Organic acids and salts.....0

Total acidity.....2
Some mucus. No blood.

2. Couper: Granose test breakfast.
Free HCl.....0
Loosely combined HCl.....2
Organic acids and salts.....10

Total acidity.....12

2. Couper: Granose test breakfast.
Free HCl.....0
Total acidity.....2

3. Lute: Granose test breakfast.
Free HCl.....0
Total acidity.....3
No retention. Few yeasts and no sarcinae.

3. Lute:
Free HCl.....0
Total acidity.....7

PERNICIOUS ANEMIA.

4. Erley: Granose test breakfast.
Free HCl.....0
Total acidity.....0
Pepsinogen—Practically nil.

4.
Total acidity.....0
Free HCl.....0
Pepsinogen—No change.

5. Mrs. Sessions: Granose test breakfast.
Free HCl.....0
Total acidity.....3
Pepsinogen—No change in 10 hours.

Microscope shows no bacteria.
5. Mrs. Sessions:
Free HCl.....0
Loosely combined HCl.....2
Organic acids and salts.....4

Total acidity.....6
Pepsin and pepsinogen negative in 24 hours.

5. Mrs. Sessions: Granose test breakfast.
Stomach empty; at least nothing withdrawn.

6. Palmer: Granose test breakfast.
1 hour.....75 cc.
Free HCl.....0
Total acidity.....0
Bacteria, negative.

6. Palmer: Granose test breakfast.
1 hour.....30 cc.
Free HCl.....0
Total acidity.....0
Bacteria, nothing characteristic.

7. Rogers: Granose test breakfast.
1 hour.....100 cc.
Free HCl.....0
Organic acids and salts.....5

Total acidity.....5
Pepsinogen—1.4 mm. in 22 hours.

8. Kline: Granose test breakfast.
1 hour.....60 cc.
Free HCl.....0
Loosely combined HCl.....0
Organic acids and salts.....0

Total acidity.....0
Few yeasts. No bacteria. No sarcinae. Pepsin. No digestion in 28 hours.

Chymosin—No coagulation in ¼ hour.

Lactic acid—Under 1 p.m. (Strauss.)

Pepsinogen—6 mm. in 8 hours. Long, thick rods.

8. Lang: Granose.

1 hour.....25 cc.
Free HCl.....36
Loosely combined HCl.....14
Organic acids.....5

Total acidity.....55
Excess of mucus.

4. Mrs. Abendshine: Granose.

Free HCl.....36
Loosely combined HCl.....18
Organic acids and salts.....19

Total acidity.....73
Coffee colored lavage. Many yeasts and sarcins. Excess of mucus.

Pepsin—24 hours, 5.8 mm.

4. Mrs. Abendshine: Granose.

Free HCl.....30
Loosely combined HCl.....10
Organic acids and salts.....11

Total acidity.....41
Pepsin—5 mm. in 24 hours. Some budding yeasts. Numerous sarcins, bacilli. Some non-motile rods.

4. Mrs. Abendshine: Granose.

Free HCl.....30
Loosely combined HCl.....12
Organic acids and salts.....10

Total acidity.....52
Pepsinogen—4.2 mm. in 22 hours. Sarcins, yeasts numerous. Few non-motile rods.

4. Mrs. Abendshine: Granose.

Free HCl.....20
Loosely combined HCl.....24

Total acidity.....44
Digestion. Pepsin in 28 hours, 6 mm.

5. Grüner: Ordinary meal.

Free HCl.....0
Lactic acid. Positive.

5. Grüner: Granose.

Free HCl.....16
Loosely combined HCl.....22
Organic acids and salts.....2

Total acidity.....40
Berry seeds with granose. Little mucus.

STOMACH ANALYSIS.

CANCER OF STOMACH.

6. Mersen: Riegel test meal.

Amount, 15 cc.
Free HCl.....0
Total acidity.....20
Pepsinogen—4 mm. in 18 hours. Bacteria, long rods, single and threads, non-motile. No tissue bits.

6. Mersen:

Free HCl.....0
Total acidity.....0

6. Mersen:

Free HCl.....0
Total acidity.....3

6. Van Dyke:

Free HCl.....0
Loosely combined HCl.....12
Organic acids and salts.....20

Total acidity.....32

8. Schmidt:

Free HCl.....0
Loosely combined HCl.....20
Organic acids and salts.....44

Total acidity.....64

Pepsin—22½ hours, negative. Pepsinogen—22½ hours, 5 mm. Lactic acid—Strong Uffleman. Ether extract—Distinct grass green. 0.5%—Strauss. Berry seeds and greens from yesterday's dinner, potato. Excess of (ropy) mucus. No blood. Many long bacilli in large bundles, yeast (budding). No sarcins. No tissue bits.

9. Harrington: Boas' test meal.

Amount, 164 cc.
Free HCl.....0
Total acidity.....18
Pepsinogen—2 mm. in 24 hours.

9. Harrington: Boas' test meal.

250 cc. Gunzburg negative.
Free HCl.....10
Loosely combined HCl.....4
Organic acids and salts.....10

Total acidity.....24

Pepsinogen—3 mm. in 24 hours. Many long bacilli. Non-motile. No yeast.

Chymosmogen—Slight at the surface in ½ hour.

8. Kline: Granose test breakfast. On November 4, 1902, 1 hour. Stomach entirely clean as shown by washings.

8. Kline: Hypermotility.

Free HCl.....0
Absorption test.
Potassium iodid.
No reaction at end of 1 hour. Unsatisfactory at end of 2 hours. No reaction at 4 hours.

9. Harrington: Boas' test meal.

100 cc. Mucus not increased. Few yeasts. Many short, non-motile rods. Gunzburg, pink.

Free HCl.....12
Loosely combined HCl.....4
Organic acids and salts.....14

Total acidity.....30

Pepsinogen—4 mm. in 24 hours.

9. Harrington:

Free HCl.....0
Loosely combined HCl.....38
Organic acids and salts.....14

Total acidity.....52

Chymosin—Solid in 20 minutes. Chymosinogen—Solid in 20 minutes.

10. Recklau: Boas' test meal.

400 cc. Gunzburg.....0

Free HCl.....0
Total acidity.....14

Pepsinogen—1.1 mm. in 24 hours.

10. Recklau:

Free HCl.....5
Loosely combined HCl.....2
Organic acids and salts.....18

Total acidity.....20

Pepsinogen—2.6 mm.

10. Recklau:

Free HCl.....0
Loosely combined HCl.....10
Organic acids and salts.....15

Total acidity.....25

11. Street: Ordinary meal.

Free HCl.....10
Combined HCl.....10
Organic acids and salts.....80

Total acidity.....80

Stomach washed out night before.

Boas' test meal.

Free HCl.....18-20
Combined HCl.....8
Organic acids and salts.....6

Total acidity.....32

In the following cases of undoubted cancer of the stomach, we note the interesting finding of the presence of free hydrochloric acid in the stomach contents, varying from a slight hyperacidity in the cases of Mrs. Abendshine and Mr. Lang, to a moderate hypoacidity in several of the other patients.

Cases of cancer of the stomach, showing free hydrochloric acid in the stomach juice:

Lang: Free HCl.....36

Abendshine: Free HCl.....0

" " ".....36

" " ".....30

" " ".....30

Grüner: " " ".....20

" " ".....16

Harrington: " " ".....0

" " ".....12

" " ".....10

Street: " " ".....0

" " ".....20

" " ".....10

In the following cases of cancer of the stomach: Radtke, Reeder, Mersen, Van Dyke, Schmidt and Recklau, free hydrochloric acid was absent in one or more examinations or only showed a trace.

In all of the nine cases of pernicious anemia free hydrochloric acid was absent.

The conclusion to be drawn from these findings is that a persistent absence of free hydrochloric acid is more characteristic of pernicious anemia than it is of cancer of the stomach.

There can be no question about the correctness of the diagnoses in the cases cited. Cancer of the stomach was determined in practically all by the presence of a tumor and other classic signs of the disease or by exploratory operation. Pernicious anemia was proved by extremely careful blood counts, estimation of hemoglobin, differential counts and the finding of megaloblasts and normoblasts; and by the exclusions of conditions such as bleeding piles, intestinal parasites and other diseases, which might cause a severe secondary anemia.

An analysis of the stomach findings in the foregoing cases reveals the following important facts: In all of the patients with pernicious anemia there was a complete absence of free hydrochloric acid and likewise a

practical absence of loosely combined hydrochloric acid and lactic acid. Also an absence of the ferments, pepsin, pepsinogen and lab ferment when tested for. In other words, there was an achylia gastrica. Furthermore, in the vast majority of the cases of pernicious anemia, the motor power of the stomach was good, as we find very little evidence of retention and fermentation, the analyses showing, in most cases, an absence of yeast, sarcins, lactic acid, long bacilli and retained food.

In the cases of cancer of the stomach, several show a goodly amount of free hydrochloric acid, as before mentioned; most of them, a total acidity of some moment, but made up of loosely combined hydrochloric acid, and especially of organic acids. In practically all of the cases there was evidence of considerable stagnation and fermentation—such as retained food—long bacilli, sarcins and yeast.

In chronic atrophic gastritis there may occasionally be a dilation of the stomach, with signs of retention in addition to the absence of acids and ferments, as in the majority of cases of cancer of the stomach.

We may speak of two classes of atrophic gastritis, the one associated with pernicious anemia and the other in which the anemia has not developed. Why is there this difference? Is there a hemolysis in one and not in the other? Does the small intestine vicariously take up the work of the stomach in those cases in which a pernicious anemia does not develop and not in the others? Or is there something in the blood of these patients which resists the action of the toxins?

It may be that in some cases chronic atrophic gastritis has nothing to do with the development of pernicious anemia, but rather is the result of that disease.

Location of the Tumor.—A pyloric tumor is by no means always located in the pyloric region. As the result of gravity or traction this tumor may be located in almost any part of the abdomen from the left hypochondrium to the pelvis.

Symptoms are, of course, useful in assisting in the location of the newgrowth. The vomiting of large quantities of gastric contents, especially food which had been in the stomach a few days, the presence of a large swelling in the epigastrium, undergoing peristalsis and antiperistalsis, if associated with a mass located in the right hypochondrium or in any other part of the abdomen, moving down readily on deep breathing, or perhaps not moving at all, makes one almost positive that the pylorus is involved in the newgrowth. If there is no vomiting or evidence of retention, but a tumor is present in the pyloric region, we conclude that the mass involves the lesser curvature and extends close up to the pylorus, or that the pylorus is involved and the opening kept patent. To be positive which curvature is involved, lesser or greater, it is essential, especially in women, to distend the stomach.

We frequently find a growth just above the navel, in the region of the normal greater curvature, but on distention learn that this is the lesser curvature of a dislocated stomach. Inflation of the stomach is absolutely essential in deciding whether the anterior or the posterior wall is involved. If the latter, inflation will place a cushion of air in front of the tumor, so that it is not so readily felt, while if the former, it will make it more prominent.

The gastroduaphane is of very little use in this connection.

Treatment.—Medical treatment is at best only palliative. Surgical treatment in the vast majority of cases is the same, but in cases of pyloric stenosis the palliation is something remarkable. With extreme rarity radical operation effects a cure. I know of only one instance in which there was apparently a complete cure, and this was in a case of sarcoma of the pylorus.

Medically, a stomachic before meals, such as some preparation of condurango (wine or fluid extract), hydro-

chloric acid, and ferments after meals, with a carefully selected diet may be extremely useful for a varying period of time. If there is evidence of pyloric stenosis, with retention and fermentation, gastric lavage is absolutely essential for the patient's comfort. Röntgen ray treatment has proved disappointing in the treatment of patients with cancer of the stomach. Better still, if the patient's condition and the size and location of the growth will justify, is surgical intervention. The operation selected, whether a pylorectomy or a gastroenterostomy, will depend upon the findings after opening the abdomen. It is absolutely impossible to state with certainty beforehand which operation should be performed. If the growth is strictly limited to the pylorus, and not too large, if there are no important adhesions to neighboring viscera, if there is no secondary involvement of the liver, pancreas or lymphatic glands, and above all, if the patient's condition will justify it, the serious surgical procedure, pylorectomy should be performed. Otherwise the more simple, gastroenterostomy should be resorted to. The preference of the surgeon will decide between the McGraw elastic ligature and the Murphy button. The majority of the patients seen by me were operated upon either by Dr. Nancrede or Dr. Darling, and the McGraw elastic ligature was used.

I recall 3 or 4 pylorectomies in patients whom I had examined previous to operation.

The first patient, a woman in her thirties, had the typical signs and symptoms of pyloric stenosis. The tumor was large and it was necessary for the surgeon to resect about a third of the stomach. Recovery from the operation was rapid, all symptoms disappeared, the patient gained remarkably in weight, and strength, and general health. This happy condition of affairs continued for some months, but the patient finally died in about a year.

The second was a remarkable case, and has been reported by Professor Dock.

In making the physical examination I found the following condition: Patient, Mr. Williams, father of Dr. Williams, of the medical class of 1903, Michigan, came to the hospital 5 years ago. He was in a condition of extreme emaciation, weighing less than 100 pounds, normal weight about 145. He was not especially cachectic. His symptoms were those of pyloric stenosis. An easily palpable tumor about the size of a hen's egg was felt in the pyloric region. It descended readily on deep breathing, and could be held down during expiration. I do not recall the exact stomach findings, but the tentative diagnosis was carcinoma of the pylorus. Operation was advised. Dr. Nancrede resected the pylorus, the patient made an uneventful recovery. All symptoms of stenosis and dyspepsia disappeared. He was able to eat a large mixed diet, and in a few months his weight reached 150 pounds. This excellent condition has continued for over 5 years. I saw the patient last spring, and he was in the best of health.

Pathologic examination revealed the fact that the tumor was a sarcoma, an extremely rare newgrowth in this region. The radical cure proves that the entire growth was removed, and that there were no secondaries.

The third patient was operated upon by Dr. Darling, in July, 1903. F. C. Schmidt, of Niles, Michigan, butcher, aged 45, came to the hospital because of severe pains in his stomach after eating, and enlarged glands in the inguinal and femoral regions. The present trouble began about a year ago. Nearly every meal brought on distress. This would continue for $\frac{1}{2}$ to 1 hour. The pains have gradually grown worse, and he now suffers nearly all the time, but pain is most severe just after eating. Patient took to his bed about 3 months ago; at this time he had chills and fever. He would remain in bed for several days, then go to work for a few days. He had severe drenching sweats up to 10 days ago, since then no chills, fever, or night sweats.

During the past month the character of the pains has changed; after eating he now feels as if there was a large snake inside of his abdomen, moving round and round and turning over.

The patient was emaciated and cachectic, had lost 20 pounds in weight. In the vault of the mouth was a hard growth, which had been there for 15 years. There were also several enlarged glands in the inguinal and femoral regions.

Abdomen.—In the epigastrium a large swelling appeared and disappeared, suggesting a distended stomach undergoing peristaltic movements. At times the movements extend considerably below the navel, mostly to the left.

Palpation.—Half way between the navel and the margin of the ribs, just to the right of the mid-line, a distinct hard mass is felt. It descends on deep breathing. It can also be felt in the mid-line and is ridge-like. The outlines cannot be distinctly defined. Analysis of the stomach contents showed:

Free HCl.....	0
Loose combined HCl.....	20
Organic acids and salts.....	44
Total acidity.....	64

Pepsin and pepsinogen were practically negative in 22½ hours. Lactic acid gave a very strong test. Many long bacilli in large bundles; also budding yeast. No sarcins. No tissue bits. The patient's father died of cancer of the stomach at 63 and the mother of the same disease at 53.

A diagnosis of cancer of the lesser curvature in the neighborhood of the pylorus was made and operation advised.

Dr. Darling operated, and found a circumscribed growth just back of the pyloric ring. As it was fairly free from adhesions and no secondaries found, a pylorotomy was performed. The patient developed a phlebitis a few days after operation, otherwise his recovery was uninterrupted. In 2 weeks' time he was eating a large mixed diet.

I received the following letter from him, dated October 7, 1903: "I never felt better in my life. Am attending to my business every day. I have gained 25 pounds; never was heavier. As for symptoms, I have none. I am eating everything and have no bad effect."

Gastroenterostomies.—The majority of cases of pyloric cancer when referred to the surgeon are not suitable for resection. In this event most surgeons choose gastroenterostomy, a much easier and less dangerous operation. The relief from symptoms and the improvement may be just as marked as that experienced after pylorotomy. Naturally, the improvement is only temporary, from a few months to several years. Of the 6 or 8 patients whom I have seen, two died, and apparently without good reason. In 2 patients the operation was done to relieve extreme cases of gastropnoia with dilation. In one other case to relieve pyloric stenosis, due to adhesion of the gallbladder to the pylorus and perforation of the pylorus by a gallstone. The other patients had cancer of the pylorus.

REPORT OF FOUR INTERESTING CASES.

CASE I.—Street, aged 32, a clergyman, consulted me July 4, 1902. He had applied himself excessively during the past 4 years to evangelistic church work. He had suffered from constipation for 10 or 12 years and had taken laxatives for several years. His stomach had given trouble for 5 years, *i. e.*, gas, and belching. For 8 months he had vomited from 1 to 10 or 12 times a week, never in the morning, rarely in the afternoon, but usually after the evening meal. On one occasion 3 years ago he vomited 2 or 3 tablespoonfuls of material mixed with mucus, a little later a teaspoonful of bright red blood. He has lost greatly in weight and strength and has become very nervous. During this time he consulted several physicians, some men of prominence. The diagnosis of nervous prostration and nervous dyspepsia was made on each occasion, because of the history of overwork, his profession and the nervous symptoms. When the patient came to me it was only necessary to strip him and carefully inspect and palpate the abdomen, to make a diagnosis of dilated stomach with newgrowth in the pyloric region. The patient was emaciated, having fallen off from 168 to 137 pounds. He was a trifle cachectic. The examination of the chest was negative.

Examination of the abdomen revealed a dilated stomach, markedly distended with gas, and showing active peristalsis and antiperistalsis. The greater curvature was ½ inch below the navel. In the region of the pylorus was a hard mass the size of an egg, descending with deep breathing and capable of being held down during expiration. The stomach tube was immediately passed, and a large quantity of foul, fermenting material withdrawn. On standing there appeared an upper layer of frothy material an inch thick. Microscopic examination showed sarcins, yeast and large numbers of Oppler-Boas' bacilli.

Titration according to Töpfer's method gave:

Free HCl.....	10
Combined HCl.....	10
Organic acid and salts.....	60
Total acidity.....	80

The patient was placed on a selected diet and lavage. Six days later the stomach being washed out the night before, a Boas' test meal was given with the following analysis:

Free HCl.....	18-20
Combined HCl.....	8
Organic acids and acid salts.....	6
Total acidity.....	32-34

Two days later the patient was put into a hot bath at 110° for a more careful abdominal examination. In addition to the pyloric tumor, an elastic air cushion-like mass about the size of a coconut was felt in the right flank. It descended on deep breathing. During that night he had intense pain in this location. There was marked distension and very striking peri-

stalsis. This continued all the next day in spite of careful irrigation of the stomach and colon, on two occasions. It was relieved by hypodermic administration of morphin and atropin. Dr. Nancrede saw the patient in consultation and agreed upon the advisability of operation.

My diagnosis was dilated stomach, secondary to tumor of the pylorus. Because of the patient's age and the presence of a fair amount of hydrochloric acid, I felt that it was impossible to make a positive diagnosis of carcinoma. The history of having vomited a small amount of fresh blood several years before made ulcer with marked pyloric thickening a possibility. Benign tumor of the pylorus was also considered. The presence of sarcins, yeast, and especially long bacilli, made carcinoma a possibility. However, it was deemed necessary to perform an exploratory operation, with the idea of doing a gastroenteroenterostomy—with the McGraw elastic ligature—or whatever else seemed advisable after opening the abdomen.

The operation was satisfactorily performed, and a good result anticipated. But, contrary to expectations, the patient did not do well—vomiting soon set in and continued in spite of frequent stomach washings, till his death 3 days later. Evidently a vicious circle became established, in spite of efforts to guard against it by enteroenterostomy.

Autopsy revealed a scirrhus of the pylorus, producing marked stenosis. The cushion-like mass in the right flank was explained by the pressure of very strong bands of adhesion constricting a section of the intestines. It was noted with interest that the elastic ligature had only partly cut its way through.

The following case was of unusual interest because of the fact that all the patient's symptoms and signs were those of a typical case of advanced carcinoma of the stomach, but he had never been asked to remove his clothing by his physician. The abdomen had never been inspected or palpated.

CASE II.—J. B., a merchant, aged 58, complained of distress after eating. He induced vomiting in order to obtain relief; only twice did he vomit involuntarily. The vomitus was very sour. He had lost 34 pounds in weight, from 170 to 136, and had grown pale and weak. He was perfectly well up to 4 months ago. He had suffered from constipation for 4 months. He lived on soft-boiled eggs, toast, and rice. He ate greens for dinner and vomited them the next morning. He passed water frequently, getting up 2 or 3 times at night. Palpitation was noted.

The patient was distinctly cachectic, being pale and sallow. In the epigastrium was a large, hard, irregular mass, about the size of an orange, apparently involving the lesser curvature, and extending over to the pylorus. It descended on deep breathing. The stomach tube was passed, and a large quantity of foul-smelling material withdrawn. This was analyzed, and as I remember, showed an absence of free HCl. Good test for lactic acid and yeast and long bacilli. He was told (at his urgent request) that he had advanced carcinoma. He went to a sanatorium, was treated for a few weeks, returned home, and died in 3 or 4 months.

Rectal examination showed no involvement; liver was not enlarged; blood showed secondary anemia of 50% hemoglobin.

CASE III.—Mrs. H., aged 45, was seen in consultation. Her physician had discovered a mass in the abdomen, but was uncertain whether it was an enlarged spleen or omentum, etc., or abdominal aneurysm. She complained of daily vomiting, extreme weakness, and great loss of weight. She was emaciated cachectic, very pale and sallow. Abdominal examination: In the epigastrium over the abdominal aorta and pulsating with it was a mass the size of the fist. Side position caused the tumor to fall to one side of the aorta. The mass moved very little with respiration. The spleen and liver were not enlarged. Rectal examination was negative. The uterus and ovaries were in the posterior culdesac, but were not carcinomatous.

Analysis of stomach contents was not made, not being deemed necessary. The patient died in a few weeks. No autopsy allowed.

CASE IV.—Mrs. H., aged 68, proved very interesting because of the fact that a diagnosis of floating kidney had been made. Her appearance might easily have suggested chronic parenchymatous nephritis, as she was very pale and sallow, with edematous face and ankles, and a practical absence of any striking stomach symptoms.

Because of her mental condition and inability to speak English, it was impossible to obtain a satisfactory history. She had gradually failed, growing thin, and pale, and weak. She said that she had not vomited. Her son thought that she had vomited once or twice.

Examination of the abdomen showed on inspection marked distension except in the epigastrium. Palpation revealed a tumor about the size of the kidney in the right hypochondrium. It was very freely movable, could be pushed up under the ribs (a diagnosis of floating kidney had been made). On feeling of the mass it struck me that it was too irregular and nodular, and too far forward for the kidney. Likewise, when the patient was turned on her left side it moved over in the position of the stomach (a dislocated stomach). Later it could be felt as a rather long, hard mass, 3 in. by 4 in. by 1½ in., occupying apparently the lesser curvature of the dislocated stomach.

Autopsy proved this to be a scirrhus of the pylorus and lesser curvature having the size and shape of a kidney.

In conclusion, the association of a persistent absence of free HCl, the presence of lactic acid, long bacilli, yeast and retained food, with a tumor and cachexia, in the vast majority of cases, of course, means carcinoma. Even if a tumor is not detected, one is justified in making this diagnosis. The positive diagnosis of the case in its early stages is absolutely impossible. In an obscure digestive case which repeatedly shows an absence of free HCl, and in which pernicious anemia has been excluded by careful blood-examination, if the patient continues to grow worse under good treatment, an exploratory laparotomy should be urged by all means, for diagnostic, and if indicated, for therapeutic purposes.

It is natural to ask, of what value are the much-vaunted laboratory findings in the diagnosis of cancer of the stomach. It has been noted that all of the so-called classic laboratory evidence may be detected in other diseases. For instance, it is possible in a case of chronic atrophic gastritis with dilation, to find them all except the bits of carcinomatous tissue, *i. e.*, absence of free HCl and the ferments, and the presence of lactic acid, Oppler-Boas' bacilli, yeasts, and sarcins. Furthermore, we have seen that a small percentage of undoubted malignant cases furnish a fair amount of free hydrochloric acid. Our attention has also been drawn to the fact that if we were depending on the absence of free HCl in the stomach contents for a diagnosis of cancer of the stomach, many cases of pernicious anemia would be diagnosed as such.

The lesson to be learned is that laboratory diagnosis if incomplete and too much emphasized, may lead to unfortunate conclusions. It is the physician who takes a broad view of his cases from the standpoint of a careful history and physical examination and experience, combined with the assistance of laboratory findings, who will make the fewest errors in diagnosis. The younger medical generation is prone to emphasize too much the importance of laboratory work, while the older is likely to minimize its importance.

CONGENITAL INTRAUTERINE POLIOMYELITIS AND NEURITIS: THE QUESTION OF THEIR OCCURRENCE AND INFLUENCE UPON SO-CALLED CONGENITAL DEFORMITIES.*

BY

JOSEPH FRÄNKEL, M.D.,
of New York City.

Instructor in Nervous Diseases at Cornell University Medical College;
Attending Physician to the Montefiore Home.

AND

B. ONUF (ONUFROWICZ), M.D.,
of Sonyea, N. Y.

Pathologist to the Craig Colony; formerly Neurologist to St. Catherine's Hospital, and Consulting Neurologist to the Jewish
Dispensary, Brooklyn.

The following case of multiple deformities, which has already been the subject of a preliminary communication by Dr. George R. Elliott, at the meeting of the American Orthopedic Association, June 2, 1899,¹ suggests the inquiry as to the occurrence of anterior poliomyelitis and central neuritis as congenital conditions acquired during intrauterine life:

I. S., a girl, aged 4, became an inmate of the Montefiore Home September 22, 1895. The mother of the child was seen only once, and therefore numerous details of the history could not be ascertained with desirable accuracy, particularly details that suggested themselves after the case was studied for awhile. The father and mother of the child were not related by blood, and no evidence of hereditary defects was obtained.

The child was born naturally at full term, and was not asphyxiated. It is fairly certain that the condition of the extremities, for which relief was sought, was noticed immediately after birth. The child was breast and bottle fed. During

the first year convulsions are said to have occurred. Their nature and frequency are not ascertainable. At no time could the patient use upper or lower extremities well. She began to walk and talk at a natural age, although these functions were at no time normal. Occasionally the child complained of vague pain in the head and hands.

One and a half years ago an operation on the left foot (apparently osteotomy for club-foot) was performed in the Fifteenth Street Hospital.

During the patient's stay in the Montefiore Home from September 22, 1895, till June, 1897, when she died from a foudroyant malignant diphtheria, she was frequently and thoroughly examined by Drs. George R. Elliott, B. Sachs, Chas. Dana, V. P. Gibney, and by us. Different opinions were expressed about the nature of the condition. The results of the examinations mentioned are stated below:

Patient is fairly well nourished and a fairly well-developed child, being 84½ cm. in height and weighing 29½ pounds. The child shows normal cerebraction for its age, is usually in a happy frame of mind, although at times cranky. The externalization of the emotions is decidedly explosive and spasmodic. The examination of the vegetative organs is negative. Skin shows an extensive eczema capitis, and dependent thereon the cervical glands are enlarged.

The most pronounced features of the case are:

Motor disturbances of all four extremities, characterized chiefly as bilateral wrist-drop and drop-foot and disturbances of speech and of facial innervation, as described below. All cranial nerves are normal, excepting the seventh, and possibly the twelfth. The facial innervation is asymmetric, the face being drawn to the left side, especially when the patient laughs or cries. The tongue deviates markedly toward the left side. The speech shows marked dysarthric features.

Upper Extremities.—These are markedly tapering. There is considerable atrophy of the musculature of the forearm and more so of hands and fingers, so that the skin over the dorsal surface of hands and fingers is singularly baggy. Both hands are in position of wrist-drop. Over the right elbow there is an extensive scar, the result of an attempted operation. The upper extremities are loose and flabby. The passive excursions of both shoulders are free. The right elbow permits extension to a right angle only and the left to an angle of about 150°. Beyond this an insurmountable resistance is encountered. This resistance is evidently purely osteogen. The motor power of the forearm and hands is considerably diminished. The patient succeeds in extending the fingers, but very little, and the hands not at all. When asked to grasp an object, she takes it between the index and middle fingers, showing inability to adduct and abduct the thumb. The reflexes of the upper extremities are not elicitable.

Lower Extremities.—The lower extremities show the same markedly tapering appearance as the upper. Marked talipes equinovarus on both sides, particularly on the right side. The right lower extremity is longer than the left. The difference in length concerns the thighs and not the legs. There are no apparent atrophies. There are no muscular rigidities but the passive excursions of the left hip meet resistance. The motor power of the flexors of the leg and the extensors of the foot is considerably diminished in both extremities. A displacement of the right caput femoris is distinctly present. When the child is put in an erect posture and attempts to walk, two phenomena become apparent: Cock-step gait, and an intense lordosis of the lumbar column. Knee reflexes are present. Plantar reflex is normal. Achilles reflexes are not elicitable.

Electric Examination.—The flexors and extensors of the wrist do not respond to any electric stimulation. In some of the muscles of the lower extremities various phases of degenerative reaction are encountered.

Additional Clinical Data.—The patient was examined again on 3 further occasions, namely on December 17, 1896, on March 4, 1897, and for the last time on April, 1897, 2 months prior to her death. A careful comparison of the notes taken at these 3 examinations with those of the initial examination shows that the clinical picture remained practically unaltered during those 2 years with the exception that the patient's vocabulary increased and that her articulation became better although remaining still defective, the difficulty lying mostly in the pronunciation of the s's and t's and the speech being stammering. The condition being otherwise stationary as we have just pointed out, we shall give only such data of the subsequent history which serve to complete the first notes in some details.

Upper Extremities.—The abductor pollicis muscle acts well, the flexor pollicis not at all, the extensor pollicis very little, its action being confined to slight extension of the last phalanx of the thumb. Patient can spread the fingers and can flex the last 3 fingers in the phalangeal joints. The metacarpal bones are made out with great distinctness. The fingers are long and show a slight semicircular curve, with concavity to palmar surface, especially so the index and the third and fourth fingers. The wrist cannot be fully extended passively, owing to mechanical causes, while passive flexion can be pushed to such a degree as to bring the palmar surface of the hand in contact with the forearm. The power of active movements in the wrists is entirely gone, while pronation and supination and the movements of the elbow are limited.

Lower Extremities.—The movements (active and passive) of the hip and knee-joints are free, except that there is

* Read before the New York Neurological Society, November 5, 1903.

some resistance to full extension of the knee and that the excursions of the left hip are somewhat diminished. Voluntary movements of the ankles and toes are preserved to a slight extent.

Attempts were being made by Dr. Elliott to replace dislocation of the hip when the malignant diphtheria developed, which ended fatally after 24 hours.

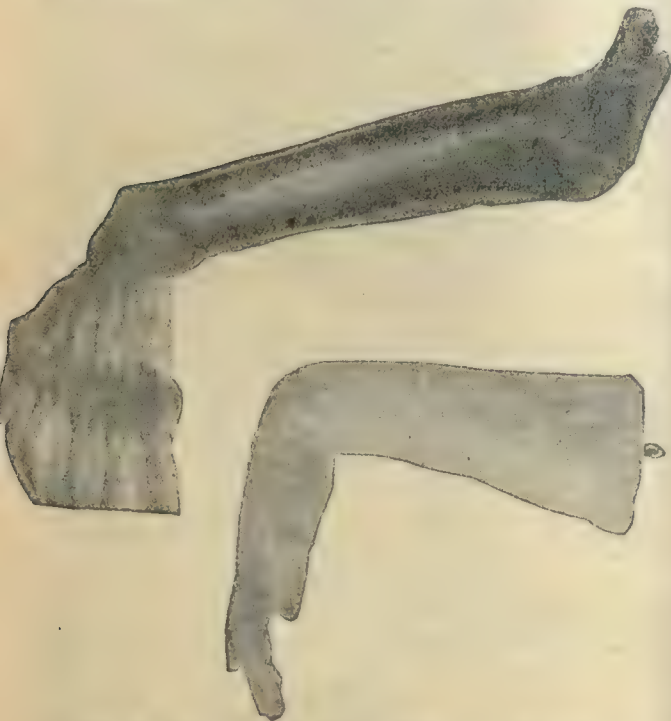
ANATOMIC FINDINGS.

The autopsy was made by Dr. George R. Elliott. Unfortunately no general autopsy notes were taken, but the whole pelvis, with all its muscles and with the adjoining portion of the thighs, and the right forearm and hand, were removed. These 2 specimens were carefully studied by Dr. Elliott,¹ whose report we give herewith:

Right Forearm and Hand.—There is a subluxation of the head of the radius forward. The orbicular ligament is not rup-



Text Fig. 1.—Photograph of pelvis of patient, partially dissected, showing dislocated hip (left). (From Dr. Elliott's picture, published l. c.)



Text Fig. 2.—Photograph of plaster cast of portion of right forearm and hand; also radiograph of partially dissected right forearm and hand. (From Dr. Elliott's picture, published l. c.)

tured, but appears stretched, similar to that of the left subluxated hip to be mentioned later. The head of the radius rests upon the coronoid process of the ulna.

Muscles: Anterior Brachial Region, Superficial Layer.—Palmaris longus absent. This is frequently absent normally. Pronator radii teres, flexor carpi radialis, and flexor carpi ulnaris all fairly well developed. Flexor sublimis digitorum: The ulnar half of this muscle sending tendons to ring and little fingers is atrophic, but does not show fatty change; radial half of the muscle is composed of fat; apparently no muscular fibers remain. The original contour of this part of the muscle, now entirely fatty, is clearly defined.

Anterior Brachial Region; Deep Layer.—Flexor profundus digitorum is markedly atrophic and fatty. The fatty change increases from the ulnar to the radial side. The ulnar quarter sending its tendon to the ring finger is quite muscular, the second quarter less so, the third contains very few muscular fibers, while the fourth, or that connecting with the index finger, is almost entirely composed of fat.

Flexor longus pollicis is entirely converted into fat.

Pronator quadratus muscle is apparently normal.

Radial Region.—In place of the supinator longus is found nothing but a tendinous band. Extensor carpi radialis longior contains a few muscular fibers, but is chiefly tendinous.

Extensor carpi radialis brevior is fairly well developed.

Posterior Brachial Region; Superficial Layer.—Extensor communis digitorum, extensor carpi ulnaris, and extensor minimi digiti small, but present; no apparent fatty change.

Deep Layer.—Supinator brevis, extensor ossis metacarpi pollicis, extensor secundi internodii pollicis, and extensor indicis small, but absolutely free of fatty infiltration.

The extensor primi internodii is wanting.

In short, then, it is the flexor groups of muscles that we find converted into fat; while the extensors, on the contrary,



Text Fig. 3.—Drawing made from specimen as shown in photograph; showing site of dislocated left hip as compared with normal right hip; also fatty adductor group (left) contrasting with normal right. (From Dr. Elliott's specimen.)

show nothing of this wholesale fatty change, but exist as small, well-defined muscles.

Wrist.—Carpal bones present (see Text Fig. 2).

Hand.—Of the intrinsic muscles those of the thumb are chiefly at fault.

All the thumb muscles are absent except flexor brevis pollicis, which is fairly well developed. The muscles of the hypothenar eminence, on the contrary, are all preserved.

The lumbricales appear normal and well developed.

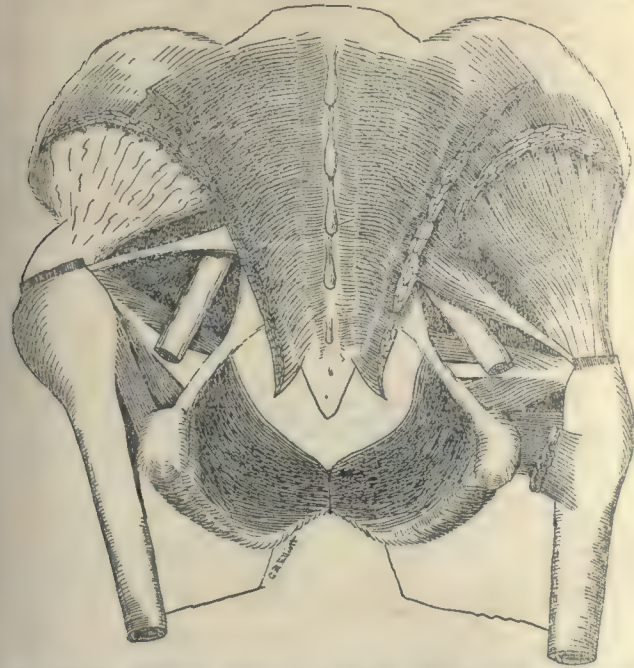
Dorsal interossei are present; first and second small, but showing no fatty change; third and fourth well developed.

There is a subluxation of the left hip upward and forward. Capsule is found intact and thickened, forming, together with a depression made in the ilium, a cavity for the head of the femur (see Text Fig. 4, accurately drawn).

The old acetabulum is well defined, measuring 2 cm. in diameter; that of the right, or normal, measures 2½ cm.

The old acetabular surface is covered with cartilage and its cavity filled largely with a very much hypertrophied ligamentum teres (see Text Fig. 5).

This ligamentum teres is 4 cm. long, $1\frac{1}{2}$ cm. wide, and 4 mm. thick. The head of the femur is reduced in size, measuring 2 cm. in diameter, covered with normal cartilage. The right



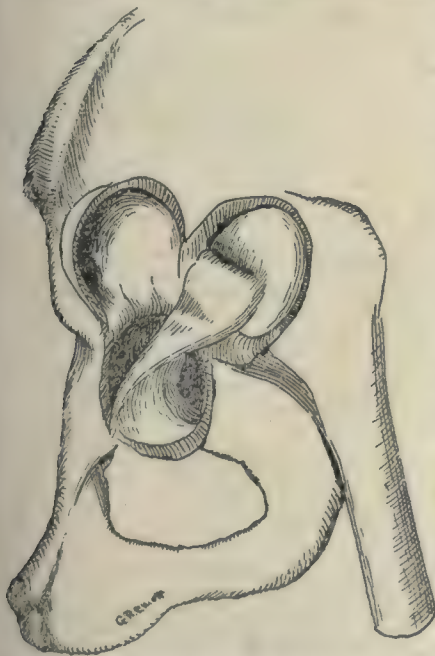
Text Fig. 4.—Accurate drawing of posterior view of pelvic specimen, showing different levels of the two femur heads, with muscular displacement, fatty gluteus minimus of left side and tendinous pyriformis muscle of left side (From Dr. Elliott's picture, published l. c.)

head is $2\frac{1}{2}$ cm. in diameter. Neck of femur is considerably shortened.

Both trochanters are well developed. Shaft of femur, at a distance of 6 cm. from small trochanter, measures 1 cm. in diameter; right, $1\frac{1}{2}$ cm.

Muscles of Pelvic Specimen: Anterior Surface of Right Side.—Psoas and iliacus apparently normal, so also the adductor longus, brevis and magnus.

Anterior Surface of Left Side.—The adductor longus and brevis are reduced to about one-fifth of the volume of the same muscles of the right side (compare Plate I Fig. 2 with Plate I Fig. 1). Between the adductor longus and brevis, on one hand, and the adductor magnus on the other, is a considerable mass of fat tissue, as there is also to the inner side of the adductor magnus (Plate I, Fig. 2). This fat tissue seems to have taken the place of the vanished muscular tissue. The psoas is well developed, though thinner than that of the other side, especially in its tendinous portion. The iliacus is markedly thinner than that of the other side, but otherwise of good appearance.



Text Fig. 5.—Accurate drawing of left dislocated hip of specimen, showing hypertrophied ligamentum teres, old well-preserved acetabular site, new acetabular site, and shortened femur neck. (From Dr. Elliott's picture, published l. c.)

Posterior Surface of Right Side.—The pyriformis, gemelli, obturator internus, quadratus femoris and the biceps and semitendinosus show a good appearance and apparently normal bulk. The right glutei, however, show rather much fat between

the muscular bundles, and are in general somewhat thin, especially the minimus.

Posterior Surface of Left Side.—The glutei show marked changes, consisting as they do of about as much fat and fibrous tissue as of muscular tissue; the fat and fibrous tissue being interspersed between the muscular bundles. The gluteus minimus seems to be entirely absent, but this might be erroneous, as it may not have been sufficiently separated from the medius in the dissection. The pyriformis is greatly reduced in bulk. The gemellus superior and the obturator internus seem to be of about the same size as those of the opposite side, and of normal appearance. The (left) gemellus inferior is somewhat smaller than the right one. The quadratus femoris is reduced to about a fourth of the bulk of the other side, being directed almost longitudinally instead of transversely. It has otherwise an almost normal appearance.

The biceps and semitendinosus are also reduced apparently to about one-third of the bulk of those of the other side.

This concludes Dr. Elliott's report on the macroscopic appearance of the 2 gross specimens (forearm, hand, and pelvic) which report we have taken partly from the publication quoted and partly from personal communications from him.

To sum up: Of the muscles forming part of the pelvic specimen on either side—namely, the adductors (longus, brevis, maximus), the ileopsoas, the glutei, the pyriformis, the

gemelli and obturators, the quadratus femoris, biceps, semitendinosus and semimembranosus—those showing the greatest changes macroscopically are: The left adductors, longus and brevis (reduced to about one-fifth in bulk); next, the left quadratus femoris (reduced to about one-fourth), the left biceps and semitendinosus (reduced to about one-third), the left pyriformis and iliacus (much reduced in bulk); also the left glutei, especially the minimus, (which are thinner and showing a great amount of interfascicular fat tissue); furthermore, the right glutei (the interfascicular fat of which is also increased at the expense of muscular tissue). Less changed are the left psoas and left gemellus inferior, showing only a reduction in bulk, while all other muscles of the pelvic specimen have an apparently normal gross appearance.



Text Fig. 6.—Right hip of specimen, showing normal ligamentum teres. (From Dr. Elliott's picture, published l. c.)

Microscopic Examination of Muscles.—The microscopic examination of muscles was confined to some muscles of the pelvic specimen of each side, which were chosen for comparison of the marked with the less marked, and of the fatty with the apparently only atrophic or fibrous changes. The muscles examined were the following:

1. The entire muscular mass—consisting of the adductors (longus, brevis, maximus)—and of the semimembranosus, semitendinosus, and biceps. Through this entire mass, at the level of the perineum, microscopic sections were made, the plane of which was vertical to the longitudinal axis of the thigh. Such sections were practised through said muscular mass of either side.

2. A piece of the gluteus medius plus minimus of either side, cut transversely.

3. A piece of the right and of the left psoas cut also transversely.

The examination extended not only to the muscle, but also to the condition of the intramuscular nerves and of the muscle spindles. For the sake of brevity, we omit the original detailed account of the findings, which, instead, may be summed up as follows:

1. Reduction in volume of certain muscles, chiefly of the left side, and especially the adductors, longus and brevis, the

quadratus femoris and pyriformis and iliacus of the left side; also of the glutei of both sides, but more of the left (see Plate I, compare Fig. 1 with Fig. 2).

Whether the muscular fibers themselves were reduced in caliber we did not ascertain. Hauck,² Schwalbe and Mayeda,³ J. Halban,⁴ and others have justly called attention to the great variation in the caliber of a muscular fiber in the same muscle according to the presence or absence of rigor mortis at the time when they are put into the preserving fluid and according to the kind and concentration of the preserving fluid itself. If these factors are unknown, no reliable data are obtainable, and this being so to a great extent in our case, we did not undertake any measurements of muscular fibers.

2. Increase of the perimuscular fat tissue around some muscles (the adductor group of the left thigh), of the intramuscular—i. e., interfascicular fat tissue in others (chiefly glutei of

Such areas of waxy degeneration are found in all the muscular sections examined by us except in those passing through the right psoas muscle. In one muscle (left psoas) also a muscle spindle shows the waxy degeneration.

6. Disintegration of muscle fiber in some muscles (glutei of left side, less those of right side), consisting either in entire defect of such, only the sarcolemma remaining, or in scarcity and irregular arrangement of the muscular fibrils with apparent loss of the interfibrillary substance. (Plate II, Fig. 2 at C, C, and D). The possibility of these changes being artefacts cannot be safely excluded however.

7. The apparently good preservation, if not increased amount of the muscle spindles in the affected muscles and the unusually large amount of muscular fibers found in the spindles, as many as 15 in a spindle (see Plate III, Fig. 1, showing a spindle with 15 muscle fibers (M) and a number of nerve

TABLE I.—SHOWING THE FINDINGS OF THE EXAMINED NERVE ROOTS.

Seg- ments.	Roots.			
	Left posterior.	Right posterior.	Left anterior.	Right anterior.
1 Cervical.	Apparently normal with the exception perhaps of a narrow peripheral zone.	(Altered.) Responding abnormally to Pal's stain (axis cylinders remain black), but interstitial tissue not thickened. (Bad differentiation, evidently too quickly differentiated.)	(Altered.) Apparently the entire root degenerated, but mostly the periphery. Interstitial tissue thickened.	
2 "	Decidedly normal excepting perhaps one or two small peripheral areas.	Normal.	Decidedly normal excepting perhaps a small area in the periphery.	
3 "	(Doubtful.) Seems more or less degenerated. Interstitial tissue not thickened. ¹	Normal.	Normal. ²	(Altered.) Apparently all degenerated. Thickening and dilatation of bloodvessels.
4 "	(Doubtful.) Only slightly altered if not normal.		(Altered.) Considerably degenerated. Interstitial tissue thickened.	Apparently normal.
5 "	Apparently normal.	(Altered.) On Pal sections one bundle bleached out, as if degenerated; in another bundle one area bleached out.	(Altered.) Responding abnormally to Pal's stain.	(Doubtful.) Only slightly altered, if so.
6 "	Normal.	Normal.	(Altered.) All degenerated. Interstitial tissue thickened.	(Altered.) All degenerated, to judge from the response to Pal's stain; but interstitial tissue not thickened.
7 "		(Doubtful.) More likely normal.		
8 "	Normal.	(Altered.) Two bundles normal but greatest part of the other three bundles responding abnormally to Pal's stain (axis cylinders remain black).		
Dorsal.	Normal except perhaps part of periphery in one bundle.	Evidently normal.	(Altered.) All degenerated. Scarcity of nerve fibers. Interstitial tissue and bloodvessels thickened.	(Altered.) Marked degeneration. Scarcity of nerve fibers. Thickening of bloodvessels.
1 Lumbar.	Normal.	Normal.	(Altered.) Degenerated. Responding reversely to Pal's stain. ³	(Altered.) Degenerated. Responding reversely to Pal's stain. Bloodvessels thickened. ³
2 "		(Altered.) Greater part normal. Some areas apparently altered.		(Altered.) All degenerated, responding reversely to Pal's stain. Interstitial tissue increased. ³
3 "	(Altered.) Some areas altered, responding abnormally to Pal's stain.			
4 "		(Altered.) One bundle normal, the other three responding reversely to Pal's stain. ³		
5 "	(Doubtful.) Part decidedly normal, and the remainder not typically degenerated, if at all.		(Altered.) Much degenerated (with the exception of a small area in each bundle). Interstitial tissue much increased. ³	(Altered.) All degenerated. Reversed response to Pal's stain. Bloodvessels and interstitial tissue thickened. ³
1 Sacral.	Apparently normal.	(Doubtful.) Part decidedly normal. The remainder also. Interstitial tissue not increased.		
2 "				
3 "	(Altered.) Altered, but not markedly.		(Altered.) Much degenerated, responding reversely to Pal's stain. Interstitial tissue increased. ³	
4 "				(Altered.) Altered, but not to much extent.

¹ It is possible that this root has been erroneously marked as the left posterior and that it is actually the left anterior.

² See what has been said under 1.

³ i. e., the axis cylinders being dark, the medullary sheaths white after the differentiation.

both sides, less the psoas of the right side) at the expense of muscular tissue.

3. Increase of the fibrous connective interstitial tissue between some muscles, chiefly between the adductor group and semimembranosus of the left side; hardly, however, if at all, in the muscles themselves.

4. Vascular changes (Plate II, Fig. 1—V.) consisting in the thickening of all walls and found chiefly between the adductor group and semimembranosus muscle of the left side, also in the glutei; less in the psoas muscle of the right side. It is chiefly the disproportion between the lumen and the thickness of the walls, at the expense of the former, that is abnormal.

5. Areas of waxy degeneration of muscles, found mostly in the neighborhood of large bloodvessels and of the connective tissue between the muscles (see Plate II, Fig. 1—W., taken from the point X of Plate I, Fig. 2).

fibers (N) from the right psoas muscle). Furthermore the waxy degeneration of one muscle spindle found in the left psoas muscle, all the other spindles found being apparently normal. The examination for spindles was not systematic enough, however, to allow far-reaching conclusions.

8. The presence of changes in the intramuscular and intermuscular nerve bundles of certain muscles, consisting in scarcity of nerve fibers, increase of the tissue between the fibers, and thickening of the perineurium. These changes, especially the scarcity of fibers, are most marked where the muscular atrophy was most pronounced, namely, in the section passing through the adductor group, biceps, semimembranosus and semitendinosus of the left thigh (see Plate II, Fig. 1, N—) but are seen also, although to less extent, in muscles which did not seem to be much changed (right psoas, for instance).

To this should be added that muscle spindles were nowhere found scattered in the midst of perimysial or intramuscular fat tissue, but always either directly surrounded by muscular tissue or bordering directly on such. Also note the fact that with one exception none of the muscle spindles was involved in the waxy degeneration or otherwise altered.

In comparing the gross findings in the muscles with the microscopic findings, it should be noted, that, what appeared grossly as a fibrous transformation of muscle, had no histologic equivalent, there being no increase of the intramuscular fibrous tissue in any muscle. Only the intermuscular fibrous tissue was increased in some regions.

Examination of the Nerve Roots.—Altogether 44 spinal nerve roots were examined microscopically. They were all either cervical, lumbar, or sacral, but not dorsal, with the exception of the first dorsal segment, of which latter all 4 roots were examined. Changes were found not only in many anterior roots, but also in a number of the posterior roots, as seen in the attached table. However, while the altered anterior roots, beside reacting abnormally towards the Wolters-Pal* stain, showed a notable increase of the interstitial tissue, and in some cases a great scarcity of fibers, the affected posterior roots showed only abnormal reaction to the said medullary stain, but not any hypertrophy of the interstitial tissue or scarcity of nerve fibers. It is needless to discuss the changes of each root in detail, since they are all tabulated in the attached table.

Plate III, Figure 2, depicts a cross section of the left anterior root of the sixth cervical nerve, which root is evidently much degenerated; for comparison see Plate III, Figure 3, showing the apparently normal posterior root of the same nerve. Both roots were stained after Wolters-Pal.

It must be said that on the whole the interpretation of the specimens was made difficult by the fact that they all had lain in alcohol for about 24 hours previous to being hardened in Mueller's fluid. Nevertheless, all having hardened alike, and many staining very well, the conclusion is pretty safely warranted that the pathologic changes quoted above were really present.

SPINAL CORD.

Gross Condition.—The brain and spinal cord, after the autopsy, were placed in alcohol of unknown concentration. About 24 hours afterward they appeared to be unusually soft. As the spinal cord and cerebral axis were to be examined for eventual tract degeneration, they were then put in Mueller's fluid, but the eighth cervical segment was placed in strong alcohol for examination with Nissl's method. This piece unfortunately dried out, owing to a crack in the vial containing it.

The gross findings of the spinal cord after the bichromate hardening were as follows: The whole cord is small, the length being 37 cm. from the oblongata to the filum terminale. The cervical and lumbar enlargements do not show the familiar intumescence, or such is at least badly developed, especially the lumbar enlargement. On sections through the upper cervical segments punctate depressions, usually 1 or 2, are seen about the middle of the anterior horn. The same condition is present in the lower cervical segments, but here the depressions lie more toward the lateral horn. The same condition exists also in the dorsal portion. In the upper lumbar region these depressions are multiple and scattered over the anterior and base of the posterior horn.

Microscopic Examination of the Spinal Cord.—The regions of the spinal cord subjected to microscopic examination were: All 8 cervical segments, the first, second, fourth, seventh, eighth, tenth, and twelfth dorsal and all lumbar and sacral segments.

Of each of these segments a continuous series of from 75 to 90 cross sections was made, the greater part of which were stained after van Gieson, but sections stained after Wolters-Pal were also taken from each of the examined segments. The total number of sections of the spinal cord amounted to 2,246.

We again refrain from recording here our original detailed notes on the changes found, as they would take too much space and needlessly tire the reader. The following summary will be sufficient:

1. A shrinkage of the nerve cells of the anterior horns in most levels of the spinal cord, but affecting some more and others less, some not at all or very slightly. Some cell groups are deeply affected, others slightly or not at all. In illustration of this unequal involvement of levels and cell groups, we refer to Table III, giving the condition of the anterior-horn groups of the lumbosacral region.

In view of the fact that certain muscles of the "pelvic specimen" on the left side were much more involved than those of the right side, as, for instance, the left adductor longus and brevis, quadratus femoris, biceps, and semitendinosus, it was expected to find some cell groups of the lumbar region particularly strongly involved on the left side and only slightly on the right, thus allowing some conclusions as to the representation of these muscles in certain cell groups. In this regard, however, we were disappointed, finding no distinct differences in the involvement of the cell groups of the two sides, except for the postposterolateral group, which seems more involved on the left side. Plate IV illustrates this cell group in the second sacral segment with its shrunken cells, Fig. 1

showing it under low magnifying power, and Fig. 2 under higher, while Fig. 3 shows one of the cells (C) of Fig. 2 under immersion.

The failure of finding otherwise any marked differences in the involvement of the cell groups of the two sides may be accounted for by the fact that no unbroken series of sections was made through the lumbosacral region, but only a consecutive series of from 75 sections to 90 sections taken from each segment.

Moreover, as only part of the muscles was examined, the topic relation between spinal and muscular changes could not be definitely established. We note, nevertheless, the apparent intactness of the posteromesial cell group of the sacral region, which in view of the preservation of the function of the vesical and the rectal sphincters, does not at least contradict the view promulgated by one of us (Onuf) that this cell group contains the nucleus for the said sphincter muscles.

2. Shrinkage of the cells of Clarke's columns on certain levels, as well as of cells of the lateral horn and of the zone between the bases of the anterior and posterior horns. On most levels, however, Clarke's columns, as well as the cells of the

TABLE II.—SHOWING THE ANTERIOR-HORN GROUPS OF THE LUMBAR AND SACRAL REGIONS OF THE HUMAN SPINAL CORD.

	Mesial		Antero-lateral Group		Postero-lateral	Post-postero-lateral	Central and Middle	
	Antero-mesial	Postero-mesial	Antero-lateral	Postero-lateral			Centr.	Middle
I. Lumb. segm.	●	●	●	●			●	
II. Lumb. segm.	●		●	●				●
III. Lumb. segm.	●		●	●				●
IV. Lumb. segm.			●	●			●	
V. Lumb. segm.			●	●	●		●	
I. Sacr. segm.			●	●	●		●	
II. Sacr. segm. } prox. part } dist. part }	● ●	● ●	● ●	● ●	● ●		● ●	● ●
III. Sacr. segm. } prox. part } dist. part }	● ●	● ●	● ●	● ●	● ●		● ●	● ●
IV. Sacr. segm. } prox. part } dist. part }	● ●	● ●	● ●	● ●	● ●		● ●	● ●
V. Sacr. segm.								

The above table represents the normal distribution and relative size of the anterior-horn groups of nerve cells in the various segments of the lumbar and sacral regions in man. The sizes given are not based on a count of the nerve cells, but only on a rough estimate from serial study.

other formations just mentioned, were intact, contrasting singularly with the shrunken anterior horn cells.

3. Cavities in certain regions of the gray matter, much less in the white. These cavities are mostly of elongated shape and often with a bloodvessel in the center. They show usually fairly smooth margins and have no epithelial lining. In some regions, especially some cervical segments, they are so numerous in the gray matter as to give the latter a riddled appearance.

This is illustrated in Plate V, Fig. 1, depicting a cross section of the eighth cervical segment, in which "C" represents the cavities.

The possibility of these cavities being artefacts cannot be positively gainsaid.

4. Vascular changes, found particularly in the sacral region, especially the first and second segment near the central canal. Here the sections show groups of several transversely cut vessels lying close to each other, and the whole angioma-like group being surrounded by a smaller or larger mass of granular exudate. (See Plate VI, Figs. 1 and 2.)

* Modification of the Weigert stain.

5. Presence at certain levels (especially sixth and seventh cervical and second lumbar) of slender, elongated, almost vermiform cells with corkscrew-wound processes, appearing like incompletely developed cells. These cell changes are probably secondary to the shrinkage of the anterior horn cells and are much less extensive than the latter.

6. Proliferation of the ependyma of the central canal in certain regions, particularly the sacral. This is of so frequent occurrence that it requires no further discussion.

7. Changes of the white matter, particularly in the region of the pyramidal tracts, direct cerebellar tracts, and Gowers' columns of the cervical region. These changes look much like degenerations, but can be followed only for a short distance upward and downward and are more likely artefacts than actual degenerations.

In conclusion of the remarks on the spinal cord, we may say also that possibly, and even probably, part of the shrinkage of the anterior horn cells is artificial, but that a good portion of it is pathologic, cannot be doubted in view of the absence of this shrinkage in the cranial nerve nuclei (with a slight and explainable exception), notwithstanding the fact that the cerebral axis practically underwent the same hardening proc-

3. Upper part of the pons and velum medullare anterius up to just below the decussation of the fourth nerve.

4. Corpora quadrigemina, posteriora and anteriora.

These 4 portions were hardened in Mueller's fluid and cut serially. At most levels every fifth section, at others only every tenth section was preserved.

Naturally the series through the cerebral axis contains considerable gaps at the points at which it was divided as above mentioned, since owing to irregularities of the cut surfaces and incomplete parallelism of the same, a considerable portion of each block became lost.

Medulla oblongata and pons up to level of the facial nerve: At the lower levels of the pyramidal decussation there is marked shrinkage of the anterior-horn cells throughout the horn. A riddled appearance similar to that of the upper cervical region is seen in the lower part of the medulla oblongata, affecting both the white and gray matter—mostly the gray, however, and reaching up to the pyramidal decussation, being practically gone in the region of the inferior olivary bodies. The cavities are rather small, but numerous and frequently perivascular.

The proximal region of the medulla oblongata and the

TABLE III.—SHOWING THE CONDITION OF THE ANTERIOR-HORN GROUPS OF THE LUMBOSACRAL REGION¹ IN OUR CASE.

Level of spinal cord.	Mesial.		Anterolateral and group X.		Posterolateral.	Postposterolateral.	Central and middle.	
	Anteromesial.	Posteromesial.	Anterolateral.	Group X.			Central.	Middle.
I. Lumbar segment.	Apparently normal.	Apparently normal.	Apparently normal.	.....	Apparently normal.	.....	Apparently normal.	.....
II. Lumbar segment.	Perhaps partly atrophic.	.....	Evidently partly atrophic.	.....	?	.....	.....	?
III. Lumbar segment.	Very slightly atrophic, if at all.	.....	Perhaps partly atrophic.	.....	.....	.....	.....	Very slightly atrophic, if at all.
IV. Lumbar segment.	Most cells are shrunk.	Most cells are shrunk.	Apparently more atrophic than normal cells.	.....	Probably not atrophic.	.....	Apparently more atrophic than normal cells.	Much artificial shrinkage in this segment, making interpretation quite difficult.
V. Lumbar segment.	.....	.....	Decidedly partial atrophy; but apparently more normal than atrophic cells.	.....	Decidedly partial atrophy; but apparently more normal than atrophic cells.	.....	Atrophy perhaps slightly less than in the anterolateral and posterolateral groups.	.....
I. Sacral segment.	.....	.....	Part of cells decidedly atrophic, others decidedly normal. In the proximal slides apparently more normal than atrophic cells; in the distal slides vice versa.	.....	Same condition as in anterolateral group of same segment.	Decidedly atrophic.	Apparently normal.	.....
II. Sacral segment.	Apparently normal.	.....	.....	Apparently normal.	Much atrophic.	Much atrophic, apparently most of all; more on one side than on the other.	Apparently normal.	.....
III. Sacral segment.	Apparently normal.	Apparently normal.	.....	.....	.....	Same condition as in II, sacral segment.	.....	.....
IV or V. Sacral segment.	Anterior-horn groups are practically gone here normally.							

Changes apparently about the same on both sides in all groups except the postposterolateral, which seems more atrophic on one side.

¹For the nomenclature of the cell groups, compare with Table II. (The latter is taken from B. Onuf's article: "On the Arrangement and Function of the Cell Groups of the Sacral Region of the Spinal Cord in Man," Archives of Neurology and Psychopathology, Vol. iii, No. 3, page 397, 1900. See also abstract on same subject in Journal of Nervous and Mental Diseases, Vol. xxvi, page 438, 1899.)

esses as the spinal cord, being put in alcohol at the same time and left in it for the same length of time, previous to hardening in Mueller's fluid.

Examination of the Brain: 1. *Cerebral Axis.**—The entire brain had been put in alcohol of the same (unknown) concentration as had been used for the spinal cord and was left therein for about 24 hours—that is, just as long as the spinal cord. Pieces of cerebral and cerebellar cortex were then removed for examination after Nissl, while the cerebral axis was cut off from the hemisphere at the uppermost level of each peduncle, and was (after removal of the cerebellum) severed transversely into 4 contiguous portions—namely:

1. Lower part of the oblongata up to about the middle levels of the pyramidal decussation.
2. Upper part of the oblongata and lower part of the pons up to the level of the sixth root.

*By cerebral axis we designate what the Germans call "Hirnstamm," i. e., that part of the brain which consists of the oblongata, pons, corpora quadrigemina, basal ganglia and insula, or in other words, all that remains of the brain after removal of the cerebellum and of the cerebral pallium (hemispheres).

lower part of the pons up to the facial root show rather numerous vascular changes. They are apparently of 2 kinds—old ones and recent ones. The old ones consist in thickenings of the bloodvessel walls, chiefly the muscularis and adventitia. The recent ones are characterized by the presence of a perivascular exudate, which in some places is of a granular character, appearing like detritus, while in others it is formed partly of this granular detritus-like mass, for the most part, however, of what seems to be red blood cells. Such recent changes are well illustrated in Plate VII, Fig. 1, which shows a bloodvessel presenting marked infiltration of its walls with round cells (r) and surrounded by a granular exudate (E).

Both the old and recent changes are found in different regions, but favoring, perhaps, mostly the neighborhood of the raphe and the middle cerebellar peduncle. The exudative changes seem, on the whole, more numerous than the old ones.

Region of corpora quadrigemina, velum medullare anterius and pons upward of the facial root:

These regions show some vascular changes, apparently mostly not recent ones, but such old ones as have been described for the upper part of the oblongata and lower part of the pons.

They are comparatively very slight, and much less numerous here than there.

Nuclei of the motor cranial nerves:

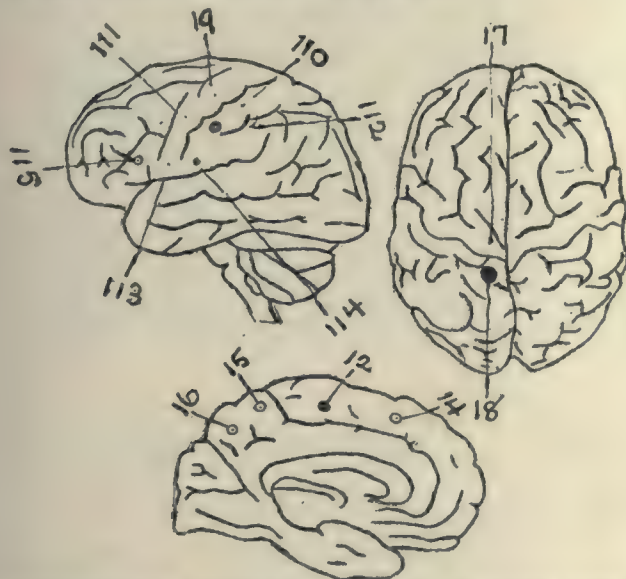
The nucleus of the twelfth nerve shows shrinkage of most of the cells in its mesial part on both sides, while most of those of its lateral half appear normal.

The nuclei of the third, fourth, seventh, ninth, and tenth nerves and nucleus ambiguus, also that of the sixth and fifth nerves appear quite normal. It is somewhat difficult to judge of the motor nucleus of the fifth as the series of this nucleus is rather defective, but where it is seen its cells look normal.

The nucleus of the eleventh nerve we do not discuss here, as it properly belongs to the cervical region. Of the twelfth nucleus, part of the cells, especially in the mesial portion, look decidedly shrunk on both sides, while the lateral ones appear for the most part normal. It is true that there are considerable gaps in some of the series, especially of the twelfth nucleus, which makes it rather difficult to judge. Yet the fact seems remarkable that aside from the hypoglossal nucleus the cells of all the cranial motor nuclei so far as seen, appear to be normal. This is interesting because clinically all cranial motor nerves, with the exception of the twelfth and seventh, appeared to be normal, and because of the fact pointed out already, that the cerebral axis had practically been hardened in the same manner as the spinal cord, and ought, therefore, also to have shown extensive cell shrinkage if such had been artefact.

More difficult is it to explain the affection of the left seventh nerve observed clinically to which apparently no anatomic lesion of the seventh nucleus corresponded. But it is true that the series through the seventh nucleus was rather defective, and so eventually diseased portions of the nucleus may have escaped notice.

We must not omit to mention that nowhere in the cerebral axis could any tract degeneration be found. It might be objected that the cerebral axis had lain in alcohol for 24 hours before hardening in Mueller's fluid, and that this would spoil it for the Weigert stain, but as a matter of fact, the latter stain succeeded very well, and the said objection can therefore not be upheld.



Diagrammatic chart, showing the findings of all the examined pieces of cerebral cortex of the left hemisphere, tabulated in graphic form. The ciphers 110, 111, 112, 113, etc., are the numbers of the specimens as they were registered in the catalogue of the Pathological Institute of the New York State Hospital. 110, changes, if present, are very slight, affecting possibly some of the pyramidal cells; 111, possibly some cells of the polymorphous layer changed; 112, changes in a fair number of the large pyramidal cells and in a considerable number of the polymorphous cells, mostly in the axial part of the convolution; 113, a small number of the polymorphous cells and still fewer large pyramidal cells are changed; 114, very few cells (large pyramidal) are changed, if any at all; 115, very few cells (large pyramidal), if any at all, show changes; 116, normal; 117, changes in a few of the large and middle-sized pyramidal cells; 118, very marked changes throughout the thickness of the layer of pyramidal cells, small and large, but almost only in the axial part of the convolution; 119, changes in many large pyramidal cells and in part of the polymorphous cells; 120, apparently normal; 121, apparently normal; 122, apparently entirely normal. • normal; • doubtful; • changes slight; • changes well marked; • changes very marked.

2. *Cerebral Cortex.*—We mention once more that after the brain had been lying in alcohol of unknown concentration (received by us in this manner) and showing then a suspiciously soft consistency, pieces of cerebral cortex were

removed, mainly from the motor region, but also from others (see the appended chart) and put in absolute alcohol. They were then prepared as required for paraffin drenching, cut, and stained after Nissl. The child having died of a phagedenic form of diphtheria, decomposition of the body was naturally favored and, moreover, the autopsy occurred in summer, about 12 hours after death. Our expectations regarding the availability of the material for microscopic examination, did, there-

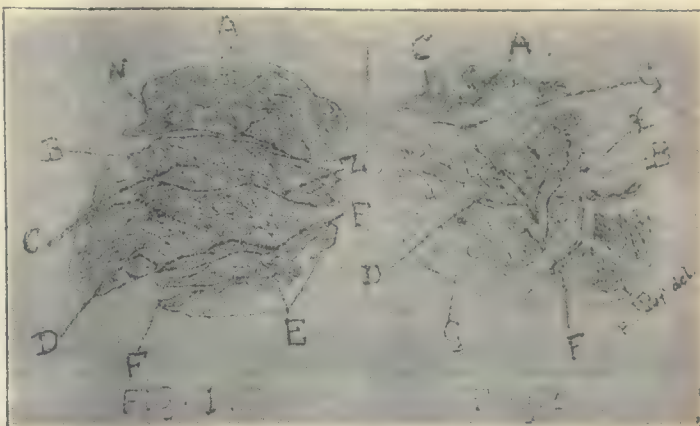


Plate I.

Fig. 1.—Microscopic section through the biceps, semitendinosus, semimembranosus, and adductor group of the right thigh; natural size; depicting slide No. 718-71, 1/3 of the Pathological Institute. Fig. 2.—Microscopic section through the same muscles as Fig. 1, but of the left thigh; natural size; depicting slide No. 718-72, 1/4 of the Pathological Institute. A, adductor longus; B, position of femur; C, adductor brevis; D, adductor magnus; E, biceps and semitendinosus; F, semimembranosus; G, fat tissue. For other explanations, see text.

fore, not run very high. The latter showed, nevertheless, that the state of preservation was much better than we dared to hope, yet not good enough to allow judging of the finer structure of the cells as revealed by the Nissl method. The differentiation between stained and unstained substance of the cell body was wiped out to a considerable extent, and, in view of what has been said, it would be hazardous to assert in how far this condition was due to, or contributed in, by the influence of the diphtheric poisoning. Evidences were found that some of it was undoubtedly due to postmortem changes.

Instead of reporting the detailed findings in the cerebral cortex, we refer to the appended chart in which the results have been graphically represented. It is seen there that altogether 13 different regions of the left hemisphere were examined. The black, circular spots denote changes, the degree of which is expressed by the size of the spot, while circular spots with a dot in the center denote normal findings.

A look at the 3 figures of this chart immediately elucidates 1 point, namely that whatever cortical changes are present, are not general, but confined to what we were used to call the motor region, namely the 2 central convolutions and the paracentral lobe. In all other cortical regions examined, no changes were found.

We have, therefore, to deal with a localized and not with a general cortical affection. Again in the "motor" region itself not all places are equally affected, but some more, others less, and of others it is doubtful whether they are affected at all.

The changes are apparently confined to the nerve cells and do not affect the interstitial tissue. No proliferation of neuroglia nuclei is seen, nor are there apparently any vascular changes. As to the nature* of the nerve-cell changes, such are either of the atrophic kind or the cells appear to have bizarre, undeveloped, "embryonic" shape. The cells involved are the pyramidal cells, chiefly the larger ones, and the cells of the polymorphous layer. In some regions almost only the axial part of the convolution contains the altered cells. (See chart.)

Plate VII, Fig. 3, illustrates some of these altered cells. The cell agglomeration depicted in the figure is taken from a section passing through the upper end of the posterior central convolution. The size and location of this cell agglomeration with relation to the whole convolution is indicated by the spot X of Fig. 2 of the same plate. In that figure the part marked // // // // // denotes the molecular layer of the convolution (Mol.), while the part marked Med. represents its medullary layer.

3. *Cerebellar Cortex.*—The piece of cerebellar cortex examined by us with the Nissl method presented nothing abnormal as far as we could judge, or at least we did not feel justified to consider as pathologic whatever alterations seemed present.

EPICRISIS.

In attempting to interpret the case the following views must be discussed:

*That the question of the presence or absence of changes in the finer cell structure must be left undecided, has been explained on p. 100.

1. The view of the peripheral origin of the disease, according to which the deformities and muscular changes are the primary cause and the spinal changes secondary to these.

2. The view of the central origin of the disease, which considers either spinal or neuritic changes as the primary cause and the muscular and skeleton changes as the secondary.

In discussing the view of the peripheral origin of the disease first one theory ought to be considered, namely, that which sees the primary cause in abnormalities of development of the skeleton, due to such prenatal causes as lack of amniotic fluid, intrauterine pressure from other causes, or intrauterine traumatism. This theory which, as Young⁵ says, is as old as medicine, but which

flexion of the wrist, this would by no means explain why, for instance, the radial half of the flexor digitorum profundus was entirely converted into fat, while the other half was only slightly changed, as has already been called attention to by Dr. Elliott in his above quoted article. Moreover, the condition of the carpal bones was not such at all, as to prevent muscular activity.

More reasons could still be adduced in contradiction of the skeleton theory, but those mentioned are sufficiently strong to disprove them.

Of other possibilities in the line of a peripheral origin we should mention:

1. Primary muscular dystrophy of the atrophic type.
2. Polymyositis.

To the first of these (namely, the dystrophy) the



Fig. 1

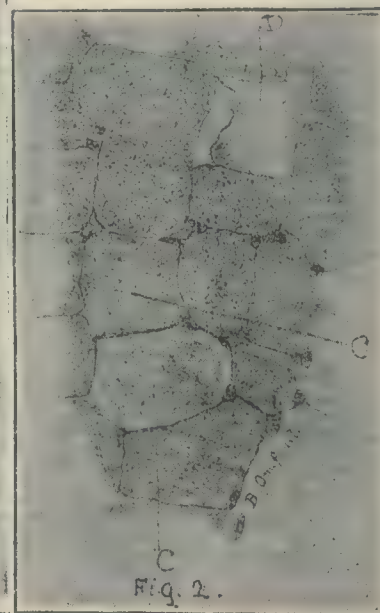


Fig. 2

Plate II.

Fig. 1.—Showing a small portion of the left adductor magnus muscle taken from the point X, of Plate I, Fig. 2; it shows areas of waxy degeneration of muscles (W), also two thickened bloodvessels (V) and a degenerated nerve bundle (N) with apparently only four nerve fibers left. M, normal muscular fibers. Fig. 2.—Portion of the left gluteus medius and minimus muscle showing disintegration (pathologic or artefact?) of some fibers (C, C, D); in D the fibrillas are almost entirely gone and the sarcolemma as depicted; oil immersion, Leitz, ocul. 1, objective 1/4 in.; picture taken from slide 718-74, 1/1 of the Pathological Institute.

found strong support chiefly by Cruveilhier, Roser and Luecke⁶ was put forth to explain congenital dislocation of the hip.

The theory of intrauterine traumatism can probably be easily disposed of, in view of the fact that the 2 dislocations namely of the right radius and left hip, which alone could be explained on a traumatic basis, were not attended by a break of the capsule. They could therefore hardly explain the deep muscular changes found. Even if these changes were considered as due to inactivity, they could not be accounted for by the subluxation, since such subluxation would not be apt to cause serious inactivity, such as would lead to the muscular degeneration found. Moreover, such a traumatic theory would by no means explain the deformities and paralytic symptoms of the foot and hand, *i. e.*, the double wrist-drop and drop-foot.

Again the theory of maldevelopment of muscles and skeleton from intrauterine pressure, or faulty position, could not account for the distribution of the muscular changes. If, for instance, the wrist-drop was due to changes in the carpal bones, preventing passive or active

clinical history is absolutely opposed, and it need not, therefore, be further considered.

The second possibility, namely, that of a polymyositis, is made extremely improbable by the anatomic findings.

We should in such cases expect to find evidence of focal muscular lesions, and the residues of such would be most likely extensive thickening of the fibrous connective tissue, scattered here and there within the muscle tissue. This was by no means the case. Whatever hypertrophy of fibrous connective tissue was present, affected the tissue between muscles, and not within the muscles. Moreover, the large number of muscle spindles found in the atrophied muscles speaks much more in favor of a degenerative than of an inflammatory origin of the muscular alterations, if the fairly well-adopted view is acknowledged of the sensory function of the muscle spindles.

One is therefore urged to look to changes in the peripheral nerves, or to spinal changes, as the primary cause of the muscular condition.

As to the peripheral nerves, such were not examined.

Having lain in formalin for a long time, they did not appear fit for examination for degenerative changes. Only the intramuscular nerves were seen, and these in many muscles presented considerable atrophic changes.

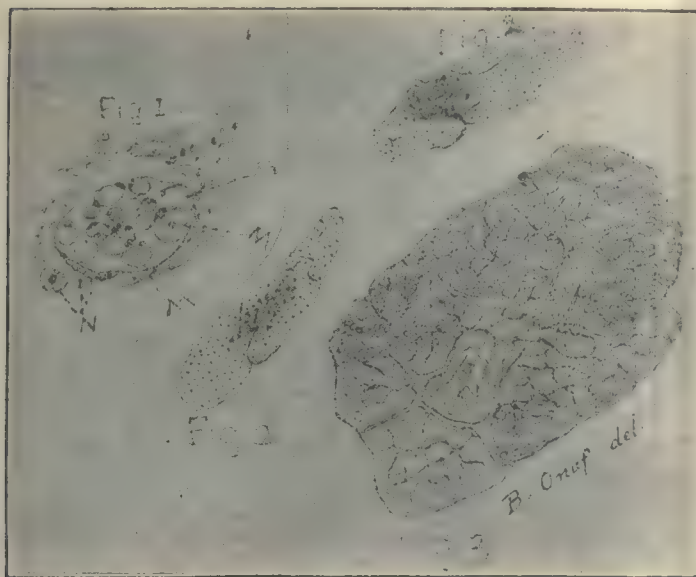


Plate III.

Fig. 1.—Muscle spindle from the right psoas, with fifteen muscular fibers (M) and a number of transversely cut nerve fibers (N); drawn from specimen No. 718-76, 1/2; Leitz, ocul. 1, with objective Zeiss A.A. Fig. 2.—Cross section of the left anterior root of the sixth cervical nerve, evidently much degenerated; Wolters-Pal stain; the medullary sheaths appear white, the axis cylinders black, instead of vice versa, as should be normally; drawn from specimen No. 118-47, 5/2; Leitz, ocul. 1, with Zeiss objective A.A. Fig. 3.—Posterior root of the same nerve as Fig. 2, stained in the same manner, and having a normal appearance; drawn from specimen No. 718-47, 6/1; Leitz, ocul. 1, with Zeiss objective A.A.

However, in view of the fact that the nerve trunks, such as the sciatic, were not histologically investigated, our judgment in this regard must be kept in abeyance.

Coming now to the spinal changes, one might think in the first place of an affection of the nerve roots, communicated, for instance, from a meningitic process. There was no pathologic evidence in favor of such view, and it may, therefore, be dismissed. The root changes must then be explained as secondary, *i. e.*, degenerative.

It remains, then, to assume an affection of the anterior horn of the spinal cord.

We cannot here discuss all the possibilities, but can touch only on the principal points.

In the first place, the theory of an agenesis of the spinal cord cannot be held up as the histologic evidence is in contradiction with such agenesis.

Progressive muscular atrophy and amyotrophic lateral sclerosis can be excluded both from the history and the findings. Syringomyelia is also excluded by the findings.

A myelitis affecting the anterior horns in addition to other regions of the spinal cord was a possibility seriously to be considered. However, if any myelitis was present it apparently did not to any extent reach beyond the gray matter. The changes that were found, certainly chiefly affected the anterior horns, so that if a myelitis did exist, it mainly was a poliomyelitis. Since, however, the changes consisted chiefly in the shrinkage of cells and no marked evidences of a past inflammatory process were found, it stands to question whether it would not be more appropriate to consider the cell shrinkage as the outcome of a past central neuritis, that is, a neuritis such, for in-

stance, as we find it, in lead neuritis, where the fundamental pathologic alterations must be sought for in a parenchymatous affection of the anterior-horn cells.

Weighing all the evidence, in conjunction with the clinical history, our conclusion is indeed that in the case of congenital deformities reported by us, the primary cause of the muscular changes, and incidentally also of the deformities, is either a poliomyelitis or a central neuritis of prenatal origin.

Such conception would fully explain the muscular changes, and the skeletal deformities could again be easily accounted for, as induced by the muscular alterations. This has particular reference to the dislocation of the hip, which can be best explained on the theory of changed dynamics of the hip-joint. The adductors, which in our case were markedly changed, would under normal circumstances help to press the head of the femur outward and downward and thus, with the other muscles acting as antagonists, keep the femur head in position. Loss of the adductor action by taking away the resistance offered by these muscles would then naturally give the other muscles full sway, and the head of the femur would be dislocated in the direction of the least muscular resistance, namely, upward and inward.

This is confirmed by the fact that the femur is dislocated upward and inward.

That the cortical changes were secondary to the spinal changes was made very probable by the fact that they affected only the motor region and certain parts of it.

Neither the cerebral cortex, nor the spinal cord was examined systematically enough to allow quite definite conclusions as to the correspondence between the intensity of the cortical changes and that of the spinal anterior-horn changes. On the whole, however, the mutual relation and dependency between the spinal and cortical cellular changes were pretty evident, and as the cortical changes were much less marked than the spinal ones, we are justified in consider-

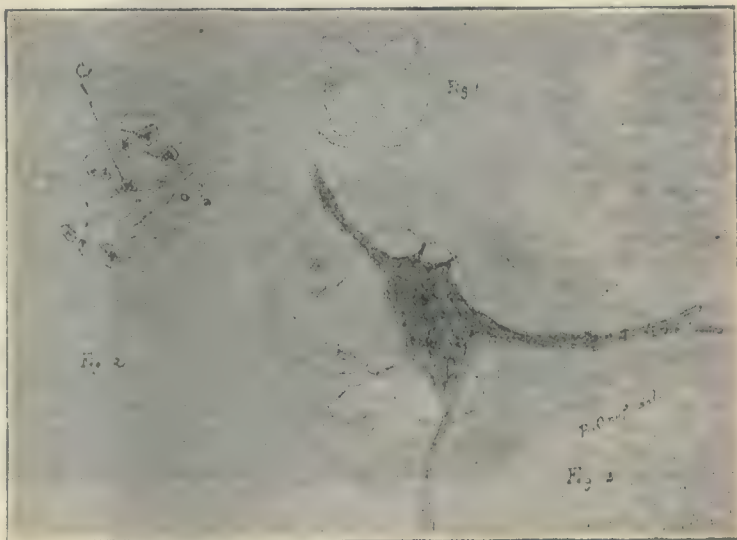


Plate IV.

Fig. 1.—Shows the post-posterolateral group of the second sacral segment, in our case; the territory of the group appears lessened and its cells shrunk; drawn from specimen No. 718-228, 2/1.9. Fig. 2.—Shows the same group as Fig. 1 under higher power. Fig. 3.—Shows cell (C) of Fig. 2 under immersion.

ing them as secondary to the former. The possibility of such occurrence is shown by the fact that in cases of amputation of long standing, atrophic changes in the central convolutions have been known to occur. Such

secondary cortical changes would be still more likely to arise when the primary disease giving rise to them, namely, an affection of the anterior-horn cells of the

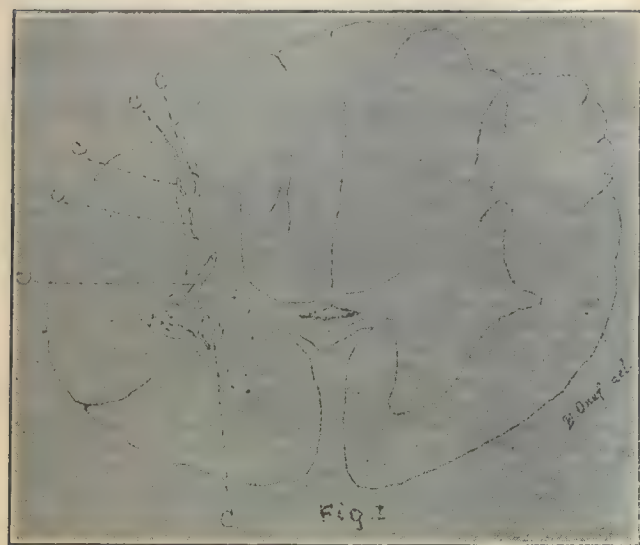


Plate V.

Fig. 1.—Depicting a cross section of the eighth cervical segment with six cavities (C) in the gray matter (pathologic or artefact?); taken from specimen No. 718-29, 1/14.9; Leitz, ocul. 1, objective 3 in.

spinal cord, started in at such an early period, *i. e.*, pre-natally, as was the case in our patient.

In searching about 30 textbooks on nervous diseases for data regarding congenital anterior poliomyelitis we struck only one giving information on this point, namely, Dana's, in which we found this statement: "It (meaning acute anterior poliomyelitis) may be congenital, *i. e.*, occur in intra-uterine life (Sinkler)." No other reference is given, but we were fortunate enough to find, nevertheless, the publication of Wharton Sinkler to which Dana refers, namely: "On the Palsies of Children" in *American Journal of the Medical Sciences*, Vol. lxix, p. 348, 1875.

We quote literally the entire passage of Sinkler's paper to which Dana evidently has reference.

Of the 2 cases which I have called congenital paralysis, one was a child in whom there was complete palsy of the right arm. The mother stated that at birth the right arm was shrunk, and not more than one half the size of the left. The child was delivered by forceps, but it is not likely that these

were the cause of the paralysis, for there was no sign of external injury, and when the patient was seen by me there was no contraction of the flexors in the affected limb. Moreover, the

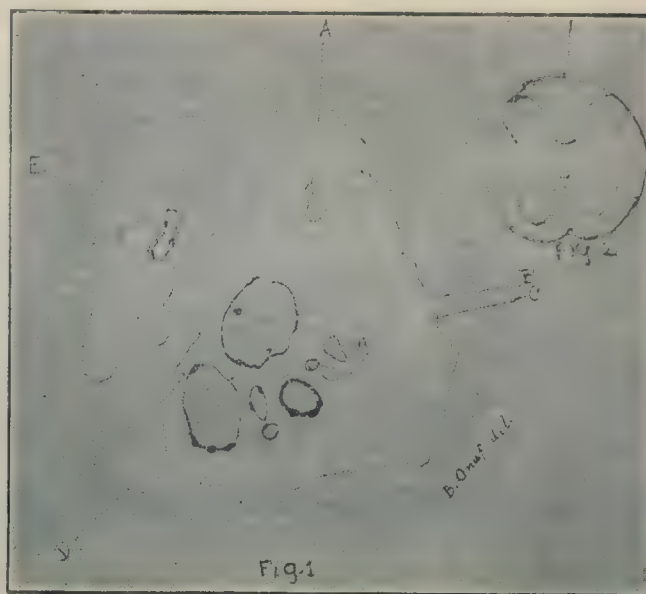


Plate VI.

Fig. 1.—Shows the vascular, angioma-like changes in the sacral region (II sacral) near the central canal in our case, as described in the text; A, B, C, D, E, bloodvessels; drawn from specimen 718-228, 1/11. Fig. 2.—In this figure the spot in the center represents the region illustrated in Fig. 1, giving its relative size and location.

paralysis and atrophy were evidently from one and the same cause. The muscles of the arm were all easily moved by the faradic current, and by the use of this agent there was a great

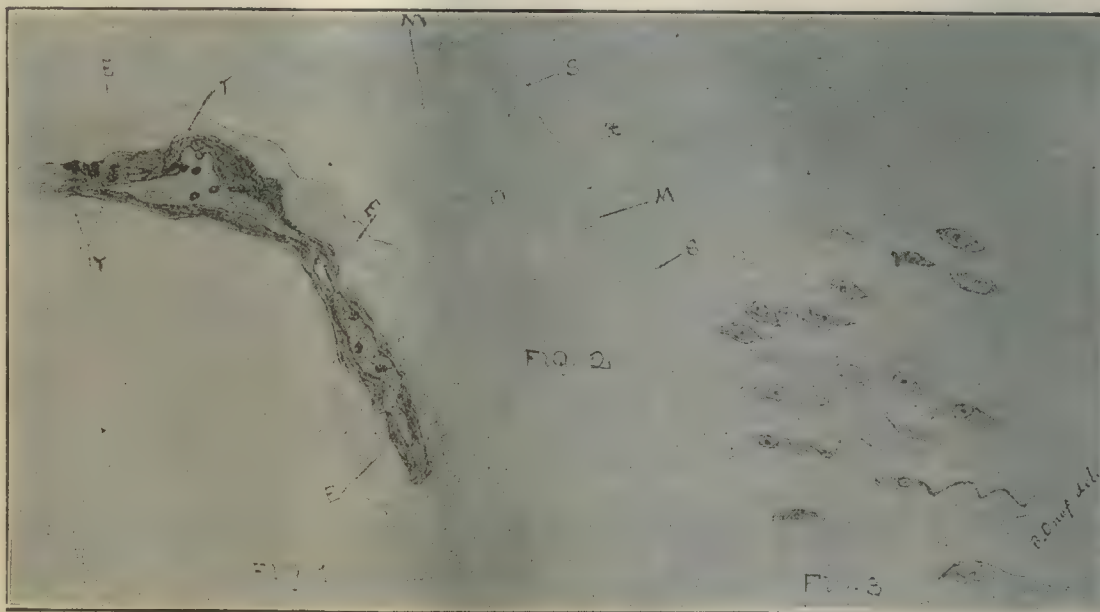


Plate VII.

Fig. 1.—Illustrates a bloodvessel of the cerebral axis, the walls of which are infiltrated with round cells (T) and which is surrounded by a granular exudate (E); drawn from specimen No. 718-121, 1/15.2. Fig. 2.—Somewhat diagrammatic figure; representing a section through a section through the upper end of the posterior central convolution (in our case), drawn with the purpose of giving the size and location (X) of the region depicted in Fig. 3. M, medullary layer of the convolution; S, surface of the convolution; M, molecular layer of the convolution, marked //; X, size and location of Fig. 3. Fig. 3.—Depicts an agglomeration of cells from the spot X of Fig. 2; some of the cells show the bizarre, elongated, apparently shrunk or undeveloped form described in the text; drawn from specimen No. 718-18, 1/4.4; Leitz, ocul. 1, oil immersion 1/4 in.

gain in power. The other case was one of paralysis of the right leg, which had existed from birth.

Of the second of these cases not much can be made,

as details are wanting, but the first one certainly gives a clinical picture corresponding closely to that of a poliomyelitis, although an obstetric paralysis cannot be quite safely excluded, even if it is not very probable. There was no postmortem evidence in this case to confirm the diagnosis.

As to congenital neuritis, our search in the same 30 textbooks of nervous diseases also proved futile with one exception. In Oppenheim's "Lehrbuch der Nervenkrankheiten," second edition, 1898, we find the following statement, which we render here in English: "Of interest is the fact that lead-poisoning can produce morbid conditions also in the offspring. A lead palsy which could hardly have been acquired otherwise than by way of hereditary transmission (Vererbung), I had opportunity to see in a case (Fig. 164). It affected the radial and peroneal muscles in a typical manner."

These are the only data from literature in support of our interpretation of our case as either prenatal, *i. e.*, intrauterine acute anterior poliomyelitis, or a congenital "central" polyneuritis.

These 2 conditions—acute anterior poliomyelitis and "central" neuritis—are indeed evidently closely allied, since lead, which usually causes a central neuritis, also may cause an anatomic process identical with poliomyelitis, as one of us (Onuf) had occasion to prove in a case of undoubtedly lead palsy examined postmortem.

Taken all in all, then, our case stands almost unique in the literature, and we only regret the unpropitiousness of circumstances, death by a foudroyant infectious disease, autopsy in midsummer, and about 12 hours after death, deficient preservation of the specimens before they reached our hands, and such more, which had brought the autoptic material to such a condition as to make its histologic interpretation very difficult. This was a reason more to abbreviate our report, by leaving out a great number of the original descriptive notes, making it thus a little more palatable to the reader. We wish to add one word, however, concerning the "recent" vascular changes found in the cerebral axis (see p. 102). These we probably can rightfully attribute to the diphtheric poisoning or infection.

How carefully the case was investigated anatomically is evidenced from the fact that about 5,500 microscopic sections were made, stained, and mounted, and most of them examined.

We cannot close this report without expressing our gratitude to Dr. Louis Lichtschein for the very material help given us in the preparation of the microscopic specimens.

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MALARIA FOLLOWED BY INTERSTITIAL NEPHRITIS AND PERIPHERAL NEURITIS.

BY

OTTO LERCH, A.M., M.D., Ph.D.,
of New Orleans, La.

Professor of Clinical Diagnosis, New Orleans Polyclinic.

In a country like this, where malaria prevails, any complication of, or sequence following this disease, must be of interest to the practitioner.

The following case of peripheral neuritis and interstitial nephritis following malaria was observed in the Charity Hospital.

The patient entered my ward November 19, 1902. He was born 56 years ago, in Fort Worth, which was his place of residence until he came, a few months ago, to Louisiana. He states that his father died at the age of 76; his mother at the age of 65, from heart disease. He has 2 brothers and 2 sisters living and healthy. He has passed through the diseases of childhood, measles, mumps, whoopingcough, and contracted malaria when 9 years old. He denies any venereal disease, and claims to have been well, up to his present trouble, which began October 14. He was working in the field in the sun, when at about noon he felt "that something was passing through his head that knocked him down." He did not lose consciousness, but remembers that he was picked up and carried home. For 3 weeks he suffered with a high, continuous fever, for which he was treated by local physicians. He then came to New Orleans and entered the hospital. He complains of excessive weakness, loss of appetite and sleep; numbness of left hand and outer portion of left thigh, formication over left forearm and fingers of left hand; states that he has a sensation as if his thigh was covered with felt; his bowels are regular, and he has full control over the bladder and rectum; urinates frequently at night. Since he was first taken sick he has suffered from severe frontal headaches, which he says come on at irregular intervals, lasting for hours and for days. The patient is a confectioner by trade; has used whisky and beer very moderately, and smokes a pipe as a rule. He measures 5 feet 6 inches, and his average weight has been 120 pounds. He weighed, on entering the hospital, 115 pounds. He is of a deadly pallor, and his skin is cold and clammy. There is some edema of the feet and ankles and puffiness of the eyelids. The lungs are normal, the superficial arteries are in fair condition; the radial pulse is 80, regular and empty; heart dulness is normal, sounds are pure and weak; the liver is enlarged, the lower border protrudes below the border of the ribs, and is smooth and hard; his spleen is very much enlarged, reaching nearly to the navel; there is pain on pressure over the gallbladder; urine is of light color, specific gravity 1.014, reaction acid, traces of albumin, mucus, hyaline, and a few fine granular casts.

Blood examination shows 2,980,000 red cells, and 30,000 white cells, plasmodia estivoautumnal type, and a large number of crescents are found. Temperature varied between 98° and 99° to December 20, when he left the hospital, his general condition improved, and blood free from plasmodia. Spleen was very much decreased in size.

On examining the nervous system more thoroughly, it could be easily demonstrated that the muscular weakness of the left arm and hand was specially marked, and the sensation of touch and pain of the third, fourth, and fifth fingers of the left hand and the outer portion of the thigh was lost. A pin could be thrust deep into the skin without the patient noticing it, whereas the adjoining portions were rather hypersensitive to touch as well as to pain. The sense of heat and cold was not disturbed. It has been mentioned before that he had a constant sensation of numbness and other abnormal sensations in these distinctly marked areas; otherwise the nervous system was found intact. The area affected in the hand corresponded to the cutaneous distribution of the ulnar nerve, and that of the thigh to the external cutaneous, though adjoining nerve fibers were involved.

The case is interesting because a leukocytosis is rare in malaria, always due to a complication, and it adds one more to the large list of nephritis due to this disease. The man had never been a drinker, had never contracted syphilis, glands were not enlarged, and there was no sign of old scars, etc., and other symptoms of chronic lues. He had never passed through any of the infectious diseases; had always led a regular life. A hypertrophy of the left ventricle could not be made out, and the superficial arteries for a man of his age were in good condition, whereas the urinary symptoms were those of an interstitial nephritis. It is most probable that the nephritis was caused by his recent attack of malaria. Another feature of the case is that he was free of fever and chills as long as he was under our observation. It is one of those cases in which the patient is constantly ailing, every organ being more or less degenerated, every function altered, the blood loaded with pigments and plasmodia, yet an equilibrium is established that allows the patient to go on, and in many instances to perform his daily work. Of special interest, however, is the peripheral neuritis. A large number of these cases has been recorded, yet they are not of daily occurrence, and always attract attention. On the other hand, neuralgias are a common feature of the disease, and we all know how difficult it is, and sometimes even impossible to differentiate neuralgia from neuritis, the one passes so gradually into the other.

If we examine the etiology we find that alcohol is a

prominent feature in both, arsenic, mercury, lead, the toxins of spoiled meats, and all the infectious diseases—typhoid, malaria, pneumonia, diphtheria, mumps, rheumatism, dysentery, and all the rest may cause either. Diabetes, gout and all other cachexias—arteriosclerosis and old age, and the severe anemias may produce neuralgia or cause neuritis; gastrointestinal disturbances, especially constipation are a common cause of neuralgia and sometimes of neuritis. Cold and excessive work are the direct cause in both, though emotion frequently produces neuralgia when any of the remote causes exist, whereas it cannot cause a neuritis. The seat of the trouble in both is in the course of a nerve and its distribution, though in neuralgias the nerve-endings are more usually affected. Neuritis is often accompanied with fever, but an absence of temperature is not rare by any means.

The symptoms are paresthesia and pain, numbness in the feet and finger-tips, pain along the affected nerves, which is increased on pressure, excessive weakness, so much so that it prevents the patient from walking for weeks and months, paresis, paralysis, and atrophy of the affected muscles as the disease progresses. The symptomatology varies according to the cause. Alcohol neuritis is especially characterized by affecting a number of muscles at the same time, and the extremities are far more frequently affected than the nerves of the trunk; that following diphtheria usually attacks the muscles of the throat. If the neuritis is due to one of the infectious diseases, we have fever, delirium, an enlarged spleen, gastrointestinal disturbances, and in some cases jaundice.

In neuralgia we have pain as in neuritis, affecting a nerve trunk or its distribution, but the character of the pain differs; it is paroxysmal remittent or intermittent, it is lancinating, cutting, and boring, and frequently relieved by deep pressure, though often aggravated by touch. The pain is produced by emotion, draught, eating, coughing, motion, etc. The attacks are often accompanied by vasomotor disturbances, local perspiration, flow of saliva and of tears. In rare instances the hair may turn gray, or may fall out in spots.

A pseudoparesis and paralysis is not infrequent, and makes the differential diagnosis in some cases difficult. Malaria is said to cause periodic attacks, though neuralgia, due to other causes, may also be periodic. The marked points of difference in these 2 affections are the continuous pain usually present in neuritis, and the paroxysmal pain and painful points along the nerve course in neuralgias. The increased pain in neuritis on pressure and the relief that follows pressure in neuralgia, anesthesia, and paresthesia are hardly ever present in neuralgia; paralysis and paresis in neuritis, and pseudoparesis and paralysis in neuralgia; atrophy in the one, though wasting may be observed in the other.

Thanks are due to Mr. deBuys, R.S., for assistance in the management of the case reported.

HALLUCINATIONS OF VISION.¹

BY

HOWARD F. HANSELL, M.D.,
of Philadelphia.

Under the euphonious title of "Mimicries of Vision," Dr. de Schweinitz has called attention in the editorial columns of 2 recent numbers of the *Medical Record* to symptoms that might be ascribed to ocular causes, but which are really the ocular expression of general disorders. My title, which might with propriety be substituted for the word mockeries or delusions refers to a different aspect of the subject—namely, the erroneous mental conception derived from diseases of the interior of the eye by which the retinal or nervous stimulus is

perverted. This is again essentially different from the hallucinations of brain disease, from the delusions of mania a potu, from dreams, or the visions of the trance state. Thus visual hallucinations may be classified under 3 varieties: (1) Those that arise from ocular disease (organic and peripheral); (2) those that arise from localized disturbance of the circulation of the brain (the so-called functional nervous diseases which may arise from peripheral or central causes), and (3) those from organic disease of the cortical centers (central). There is also a fourth variety that does not lend itself easily to classification. I refer to the exceedingly transitory imaginings, probably also due to localized cerebral congestion or anemia, not infrequently found in the subjects of uterine or ovarian disease, particularly evident at the menstrual periods. With all of these varieties the physician is intimately concerned. They are symptoms of pathologic states dependent in all instances upon local or general disease, and while they are interesting to and have been studied by psychologists, they belong preeminently to the domain of medicine.

Ocular mockeries of vision, those delusions of sight for which ocular disease is responsible are manifold and embrace mistaken conceptions of objects in the world of reality, and their transformation into other objects that exist only in the world of imagination. They owe their being to:

1. *Errors of Refraction.*—Myopes have an inaccurate impression of size, distance, color, and detail, and err in their judgments of matters concerning which their only or chief information comes through their organs of vision. So much is left to the imagination in the make-up of a landscape, a picture, a human face, that they suffer a rude awakening when made to realize by glasses the real appearance of things. The hypermetrope sees the detail, but misses the harmonious whole. The astigmatic individual sees the square an oblong, the circle an oval, and fails to perceive with equal clearness simultaneously all parts of an object. These facts are so well known that elaboration or further illustration would be a supererogation.

2. *The Ocular Muscles.*—The patient with a paralyzed ocular muscle receives 2 impressions of every object, neither of them correct, because the mental conception must be formed without the association of the binocular coordination and the physiologic double retinal image.

3. *Opacities of the Media.*—The mental impression of opacities of the cornea is that of cloudiness; of opacities of the lens, that of a fog; of opacities of the vitreous, that of smoke. Minute scattered vitreous opacities are extremely deceptive, and lead the patient to believe he sees flies, spiders, webs, that elude his grasp as he reaches to brush them aside.

4. *Disease of the Retina, Choroid, and Optic Nerve.*—Irritation of the rods and cones of the retina and the axes cylinders in the nerve and retina by the pressure of blood or inflammatory material accentuates the normal activity of the tissues and the field of vision is occupied by brilliant meteoric displays of flashes and circles of light, bright or colored rings or waves of light rapidly passing from one side to the other, or emanating from the center and spreading toward the periphery, startling and real while they last, and their disappearance followed by a feeling of intense relief. The brilliancy and frequency of the attacks depend upon the intensity and chronicity of the affection. The perversion or distortion of objects, micropsia, megalopsia, etc., is the erroneous mental conception of the imperfectly formed images on diseased patches in the retina, particularly of the foveal region. Scotomas and sectional defects in the field are usually ascribed by the patient to causes extraneous to himself until his judgment teaches him that the defects exist only for himself.

True hallucinations of vision are independent of ocular conditions, and are properly referable to mental disorders. The subject has often been written about, and

¹ Read before Section on Ophthalmology, College of Physicians, December 15, 1903.

every practitioner of experience has met many cases. A most interesting monograph has been published by the late Dr. Edward H. Clark, of Cambridge, Mass. He considers the mental delusions apparently originating in the sense of sight, but which have no connection with ocular disease, under the title of "False Vision," or "Pseudopsia," a word of his own coining. He deals with the subject from the standpoint of the physician and physiologist. For a clear, comprehensive, and systematic exposition from the standpoint of the ophthalmologist, I refer to the paper by Posey in "Transactions of the Philadelphia County Medical Society, 1895."

As an illustration of the wellknown fact that peripheral irritation may give rise to mental symptoms simulating the insanity of cerebral disease I record the following case. In the spring of 1902 I was requested by Dr. Anderson, resident physician in the Insane Department of the Philadelphia Hospital to see a patient under her care.

The patient, a woman of 25, was admitted to the hospital 2 months before. Her parents stated that she had been born blind, and consequently had received her education in a blind asylum. She had displayed evidences of average intelligence, and upon completion of her course had been placed in charge of the training of children in the school. After some years she was obliged to relinquish this position on account of violent pain in the head and delusional insanity. She became unmanageable, and was removed to the Philadelphia Hospital. I found a pale, emaciated, small woman confined to her bed and crying out during all her waking hours that her room was on fire and everything before her was enveloped in a bright red glare. This delusion was constant and never varied. The patient also appeared to be in great pain, but whether physical or mental, could not be determined. Both eyes were injected, tender to the touch, sightless, and atrophic. In order to relieve the possible ocular source of her delusion, both eyes were enucleated. The girl gradually became more quiet, until in a few days after operation, her mind regained its former clearness, and all delusions vanished. In a short time she resumed her occupation of teaching.

AN UNUSUAL FORM OF TUBERCULOUS DISEASE OF THE CHEST.¹

BY

J. N. HALL, M.D.,
of Denver, Colo.

I have seen several examples of an unusual form of tuberculous disease of the chest, not generally accurately diagnosed, and giving rise to much confusion as to prognosis as well. Although, if my explanation of the trouble be the correct one, the pathology of these cases is fairly familiar, the fact remains that the type of disease is not described in the textbooks to my knowledge, and in none of the cases mentioned, had anything like an exact diagnosis been advanced. As the first case was that of a physician, and the second that of a physician's wife, and as both had been examined many times by medical men of excellent education and wide experience, with practically the same findings at all times, I am forced to conclude that the present or some better exposition of the true condition is called for. In other words, if there be agreement as to the history and physical signs, but no exact diagnosis, the disease needs further description. I have seen other examples than the ones quoted, but wish to present a few sharply defined types, rather than numbers of cases less clear in outline, for ordinary lung tuberculosis may easily be associated with this variety of the disease.

CASE I.—A male physician, aged 62, formerly a resident of Ohio, has been in Colorado 13 years, coming here for his health. Twenty-three years ago, while much overworked, he had ill-defined distress in the chest, almost incapacitating him for work. After exertion one day he had an attack of hemoptysis. Another followed in 2 weeks, and for 3 years he never went longer than 6 weeks without one. He was distinctly relieved by the hemorrhages, and had very little cough during all this time. For the next 3 years he spat blood at irregular intervals. He then removed to Denver. In six months he considered

himself absolutely well. After several years he began to expectorate bloody sputum, and had a prolonged attack of bronchitis. Tubercle bacilli were found at this time. He gradually improved again. In June, 1901, he removed to Los Angeles, and in a few months was very much better, so that he bought property and settled down. Since that time the old symptoms have returned, and he suffers from oppression in the left chest. During the intervals of improvement he returned to his normal weight, 146 pounds. At times profuse purulent expectoration has been present, at other times, none at all. Dr. Robert Levy, of Denver, once examined him for loss of voice, but found nothing to account for the trouble in the larynx. He stated, however, that he believed the trouble to be tuberculous. It is interesting to consider whether the aphonia may not have been from pressure of enlarged glands upon the vagi, relieved later by subsidence of the inflammation, without permanent damage. I saw the patient but once, but the most careful examination failed to reveal any signs of disease in the lungs. When I mentioned this to him, he stated that all the doctors he had seen for 20 years had told him the same thing, Drs. Wm. J. Rothwell and F. E. Waxham, of Denver, included. The nails were not clubbed. His heart was slightly hypertrophied, and his aortic second sound moderately accentuated, presumably from incipient kidney disease, but I had no opportunity to examine the urine. No enlarged glands were found, and there was no abnormal dullness under the sternum.

CASE II.—Mrs. N., 40 years old, wife of a physician. Father probably died of tuberculosis. For about 12 years she has had tuberculosis, and has been examined by many physicians. During much of this time her husband has been in the medical department of the army, and has been stationed at many posts in the West, as well as in the Philippine Islands. Once in two or three years during this time she has had a feeling of oppression in the chest, relieved in a few days by the occurrence of sharp hemoptysis. This bleeding occurs two or three times, and for some months she has much cough and purulent expectoration, containing tubercle bacilli. They have never been especially numerous, but the examinations have always been positive. She loses flesh at these times, but regains it in the intervals, and now is at her full weight, 140 pounds. While living at Catalina Island, Manila, and Los Angeles she has always been better than at Fort Wingate, Denver, and other elevated stations, where she has had all her hemorrhages. I found her chest finely developed, and the resonance absolutely normal. In the lower chest, occasional crackles were to be heard, but evidently simply from disuse of the lung temporarily, since they disappeared upon deep inspiration. If any other signs of tuberculosis existed, a most careful and prolonged search failed to reveal them. There were no enlarged glands anywhere, and no dullness was present over the upper sternal region. The nails were not clubbed, and I found nothing to prevent my passing her for life insurance, so far as the physical examination went. I recommended her removal to Los Angeles, where she had done well before, and have heard that she is now again in perfect health.

Dr. C. P. Conroy has given me a most carefully kept history of a third patient, from which I have abstracted the following notes:

CASE III.—Y., male, book-keeper, aged 29. Sixteen months ago he had severe diarrhea, and was below par until 8 months ago, when he developed a cough with hemoptysis, and purulent sputum containing tubercle bacilli. At present he is considerably below his normal weight, expectorates an ounce of almost pure pus daily, and this contains tubercle bacilli in the greatest abundance. Absolutely no physical signs are present in the chest to account for all this trouble, and the further physical examination is negative. I believe this case is one similar to the first two, but in the beginning stages, and venture the prediction that it will follow a course similar to that of the others.

The striking feature of these cases is that no physical signs are to be found, such as we ordinarily expect in cases with history of cough, expectoration containing tubercle bacilli, and hemoptysis. But the cough, the blood, the pus, and the bacilli must be accounted for in some way.

It seems obvious that they come from the chest, but I cannot believe they are from the lung proper. I have seen many cases with similar history, one coming to my notice today, in which the explanation is that a small cavity exists well walled off, but capable of furnishing the sputum, bacilli, and blood at intervals for years, but the signs of its presence are entirely clear upon auscultation and percussion. I cannot believe that such a focus can escape a careful physical examination. I believe, however, that we may explain all the trouble readily if we conceive of a slow tuberculous ulcerative process in the bronchial glands. Almost the only direct reference in the textbooks that I have found is Percy Kidd's

¹ Read at the meeting of the Denver City and County Medical Society, November 8, 1903.

statement: "In some cases the continued absence of adventitious sounds may suggest the glandular origin of the lesion." But he makes no mention of the peculiar course of the disease in these cases.

I have, in a previous communication, quoted many cases, and references too numerous to repeat here, going to prove the frequency and severity of such tuberculous processes. The common history, as illustrated at the postmortem, points toward a gradual enlargement of a tuberculous bronchial gland or a group of them, eventual softening, ulceration into the bronchus, gradual emptying of the contents, suppuration within the cavity thus formed, liberation of tubercle bacilli at times in great numbers, frequently hemorrhage from ulceration into a considerable neighboring vessel, gradual retraction of the suppurative focus, with final healing, and possibly, years later, a repetition of the process in a neighboring gland or group of glands. We must note the proneness of a tuberculous process in cervical glands, for instance, to spread from one group to another, over periods of years, in an analogous manner. All this trouble may go on deep in the chest, near the bifurcation of the trachea, and not within the radius of successful detection by percussion or auscultation. Occasionally the cutting off temporarily of the respiratory murmur in the area supplied by one bronchus gives us a hint of the presence of such a glandular enlargement pressing upon that bronchus, but I must dissent forcibly from the views of certain authors as to the possibility of frequently detecting the presence of these glands during life. The trouble certainly goes on within them in most cases, not only undetected, but unsuspected.

The periods of active symptoms in these cases of course correspond to those of the destruction of the enlarged glands, and the periods of quiescence to the intervals between such breaking down processes. The lungs show no signs, or at most only temporary and uncertain ones, because the disease seems prone to remain, in many cases, a glandular tuberculosis throughout its course.

The tendency to improvement at seashore resorts so noticeable in at least one of these cases is in line with the long recognized fact that glandular tuberculosis is frequently improved by sea air. The failure of cure by altitude treatment is accounted for by the fact that it is not a pulmonic disease, and lung tuberculosis is the one process above all others most benefited by such treatment.

The good condition of the patients between the periods of activity is in line with the vigor of the individual with tuberculous cervical glands when these are quiescent. The severity of the hemorrhages in the cases is accounted for by the fact that they do not arise, like most pulmonary bleeding, from capillary regions, but from ulceration into a considerable artery or vein. The curious finding of bacilli in abundance at times, and their decrease, or even absence at others is just what we might expect from a study of the pathology of the trouble, although we recognize the fact that in many cases the tubercle bacillus is not to be demonstrated, excepting by inoculation, in tuberculous bronchial glands.

Finally, if there be any other explanation covering all the features of these curious cases I shall be glad to listen to it. Fortunately my own patients have lived so long that anatomic demonstration has been lacking.

Wholesome Advice from Lay Source.—The Chief Burgess of West Chester has issued a proclamation of New Year's greeting to his people, and at the same time, after the manner of Moses, has given them 10 wholesome rules to follow. They are as follows: Don't get mad; walk a mile a day; abstain from pork; wash and be clean; eat moderately of good food, but eat all the apples you can; speak to everybody; stand up straight and look people in the eyes; respect age; stay at home; sleep with your windows open to the 4 winds of heaven.

OPERATION FOR THE RADICAL CURE OF INGUINAL HERNIA IN YOUNG CHILDREN.

BY

PEARCE KINTZING, B.Sc., M.D.,
of Baltimore, Md.

Professor of Surgery, Woman's Medical College, Baltimore; Surgeon to the Good Samaritan Hospital, the Hospital of the Woman's Medical College.

Although, as pointed out by Agnew many years ago, a certain proportion of children with inguinal hernia recover by persistently wearing a properly fitting truss, still this is the smaller proportion, and the number is less than those who recover from umbilical hernia; while the difficulties experienced in compelling many children to wear a truss persistently are almost insurmountable. In many instances the truss is worn for the greater part of the time, over the unreduced hernia, thereby increasing and perpetuating the trouble.

As has been intimated, a certain class of these cases persists, in spite of properly fitting and continuously worn trusses, and the disease is even aggravated by the mechanical support, which seems by its pressure to increase very materially the patulousness of the canal. In these cases there is not only present the anatomic defect as to the inguinal canal, of which I will speak later, but muscular insufficiency as well. Here, sooner or later, the mass, which slowly increases in volume until it reaches the scrotum, becomes irreducible, owing to the contents of the sac, generally the omental portion, becoming adherent to its walls, by reason of the inflammation excited by the pressure of the misdirected truss and the impeded circulation from the same cause. An examination of the anatomic factors of these hernias will reveal that they are of that variety of congenital hernia in which the prolongation of the peritoneum over the spermatic cord, the funicular process, has failed to contract around the cord and thereby to shut off the abdominal cavity; hence, even before the descent of the bowel, the peritoneal cavity is one with the interscrotal space. In brief, the tunica vaginalis testis is continuous with the peritoneum.

While hernias of this class offer least hope of cure by means of the truss, yet they are the most hopeful from the standpoint of operation, although they present a certain difficulty to which little or no reference is made by systematic writers on this subject, and one object of this paper is to call attention to this fact.

None of the operations yet devised for the radical cure of hernia has succeeded in preventing a return of the defect in a certain proportion of the cases, either in adults or children, yet it seems to me that young children offer the most favorable field for total and permanent success by operative means. They bear both operation and restraint well, and, since the radical operation is accompanied by but little shock, reaction and recuperation is very rapid, much more so than in adults.

While all of the factors concerned in the production of hernia are not known, yet it is safe to assume that the principal agent is the anatomic defect before emphasized, that is, the failure of the peritoneum to close tightly around the cord. The gut entering the funnel thus left for it, acts as a wedge, and acts unceasingly, aided by gravity, stooping, coughing and straining. The result is inevitable. In children then, much more than in adults, is the principal mechanical difficulty overcome by proper closure of the peritoneal infundibulum. The conditions of growth and muscular development being normal, nature will do the rest. However the closure of the intercolumnar space is by no means to be neglected, although I do not regard this closure as the prime requisite in producing a cure in children, but rather the perfect obliteration of the peritoneal opening. The more nearly we can come to obliterating every vestige of this space, the more certain we are to accomplish our object, and heretofore sufficient emphasis has not

been laid upon this fact. The intermuscular canal is normal, the infundibular opening is not.

As pointed out by Deaver, to obliterate or to displace even the dimple in the membrane, which normally exists behind the internal ring, is of the highest importance. That faulty muscular development is not of itself sufficient to produce the lesion, may be inferred from the fact that it will be frequently noticed that after the reduction of even a large unilateral hernia in a child, no difference can be detected in the relative size of the 2 canals, *i. e.*, the intercolumnar opening, yet the descent occurs only on the one side, the side on which the peritoneum is patulous. More often this defect exists on the right side than on the left. Likewise how often do we find on examination of elderly males, canals into which the finger may be introduced almost to its full length, yet these persons have never been the subjects of hernia.

How long shall we endeavor to effect a cure by mechanical appliances? The axiom that there are no hard and fast rules in medicine or surgery, applies here. Some cases are evidently hopeless from the outset. Is it conformable with surgical conscience to delay in these cases? From my standpoint, the earlier such patients are operated on, the greater the chance of success. This class includes all cases in which the reduction can not be maintained for the greater part of the time, since it follows that each recurrence not only reproduces, but exaggerates the original conditions in their entirety. Under these circumstances, how are we to effect a cure by supports? The second class should include those cases in which the reduction may be maintained more or less satisfactorily, but which show no improvement after a year or 18 months' trial.

A sad case which came under observation at my clinic, was that of a child of less than 4 months, with a large protrusion which had become incarcerated, and so remained for over 24 hours, until all the ordinary symptoms of acute obstruction had developed. Under anesthesia the bowel was replaced, but 2 weeks later the child was brought back with a return of the difficulty. Taxis failed to relieve the strangulation, and the necessity of an operation was explained, but the mother absolutely refused consent, and the child died a short time afterward.

The youngest child upon whom I have operated, in whom no strangulation existed, was aged 1½ years. This child had a large scrotal hernia which had become irreducible. In this case the condition to which I have already made reference was present, that is, the sac of the hernia and the tunica vaginalis testis were continuous. The various elements which go to form the cord were spread out upon the sac, as though forming an integral part of it. It is plain that in such a state of affairs the sac can not be ligated and amputated, as is usually directed. It is necessary to first free the sac up to and well within the internal abdominal ring; then to slit it up to within a short distance of this point; to free and return its contents to the abdominal cavity. Next to dissect out carefully the vas deferens and its vessels—by no means an easy task, ligating supernumerary veins; close off the sac at as high a point as possible, so that when liberated the sac will retract well within the abdominal cavity, leaving one of the ligation threads long, in order that the stump may be transplanted if necessary. This transplantation is best accomplished by passing a long curved needle downward and inward, through the transversalis fascia toward the conjoined tendon and drawing the stump behind and against this structure.

My custom has been to draw up the downward continuation of the sac, until the upper orifice of the scrotum is reached, then to cut off at this point the cuff-shaped expansion, which has formed the hernial sac, leaving a tongue-shaped process, to which is attached the cord as before described. In my experience the remain-

ing portion, which drops back into the scrotum, even though much thickened, has taken care of itself without causing any disturbance. Omentum which has been contained in the sac is, of course, freed and returned, or removed as may be deemed necessary. The suturing is done in the usual manner. The dressing is retained by a plaster-of-paris spica around the thigh and the crests of the ilia, which is continued for about 4 weeks. This form of dressing absolutely prevents movement of the parts, and yet allows the child to be kept almost continually in the fresh air, a desideratum not to be overlooked.

SPECIAL ARTICLES

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

Proceedings Reported by the Secretary.

WILLIAM J. GIES, M.S., Ph.D.,
of New York.

The fourth regular meeting of the Society for Experimental Biology and Medicine was held in the demonstration room of the Department of Physiology, of Columbia University, at the College of Physicians and Surgeons, on Wednesday evening, December 16. Dr. S. J. Meltzer presided.

Reports of original investigations were offered as follows:¹
"The changes in the viscosity of the blood produced by various experimental procedures, with demonstrations": R. BURTON-OPITZ.

Dr. Burton-Opitz described and demonstrated the apparatus used in determining the viscosity of the blood. This demonstration was followed by a discussion of the changes in the molecular friction of the blood after intravenous injections of distilled water, saline, dextrose, and alcoholic solutions. The effect of alcohol, when introduced into the stomach and small intestine, was also noted. Next were considered the changes following subcutaneous administration of curare and the differences in the viscosity of arterial and venous blood. K, the coefficient expressing the viscosity, was determined before and after each experimental procedure, 2 or 3 determinations being made in each case.

It was found that, if distilled water, in quantities of from 5 cc. to 50 cc., is slowly allowed to flow into the facial vein, the viscosity of the blood is increased, but the increase is not considerable. The following experiment may serve as a sample: The normal coefficient K, in a dog weighing 19.2 kilos, was 802.6, or 5.8 times greater than K for distilled water at 37° C. After the injection of 10 cc. distilled water the coefficient showed the value 786.0, or 6.0 times greater than distilled water at 37° C. Normal saline solutions produce the reverse effect, *i. e.*, the blood becomes less viscous. In one case after injecting 10 cc. of 0.7% NaCl solution, the viscosity of the blood fell from 5.9 to 5.6 times that of distilled water at 37° C. Concentrated solutions of dextrose (5 cc.) injected into the facial vein bring about an increase in the viscosity of the blood, which is more pronounced than that produced by distilled water. About a half hour after the injection the coefficient K shows again its normal value.

If from 3 cc. to 5 cc. of 10% or 25% solutions of alcohol in water are allowed to flow into the facial vein, the molecular friction of the blood becomes greater. The same result can be obtained by introducing the alcohol directly into the stomach or duodenum; 30 cc. of a 25% solution were injected into the stomach. The viscosity determined 20 minutes later showed the value 608.09, as against 664.17, the normal coefficient. Thus, instead of being only 7.0 times greater than that of distilled water at 37° C., it changed after the injection to 7.7 times greater. An equally decisive change occurred after injecting 40 cc. of a 25% solution into the duodenum. A marked increase in viscosity also follows subcutaneous administration of

¹The abstracts here given have been prepared by the authors themselves. The secretary has made only a few abbreviations and minor changes.

curare; however, this result is not evident until the respiratory muscles become paralyzed.

Venous blood is slightly more viscous than arterial, but the difference is often very insignificant.

In all these determinations a direct parallelism exists between the viscosity values and the specific gravity. When the viscosity increases, the specific gravity increases also, and *vice versa*. Not a single exception to this rule could be found.

The viscosity was also determined in a dog having very large thyroid bodies. The right gland weighed 57 gm., the left 52 gm. The viscosity-coefficient, obtained by 8 determinations, showed the value 1233.17 (specific gravity, 1.05028), which means that the blood of this animal was only 3.8 times more viscous than distilled water at 37° C. The lowest previous value obtained by Dr. Burton-Opitz occurred in a dog after 3 days of hunger. K equalled in this case 1110.3 (4.2 times more viscous).

In general, it may be said that the less the viscosity the longer the period required for extravascular coagulation. This was especially well shown in the case just mentioned. Clotting set in after about 15 minutes.

"Survival of an animal after removal of both suprarenal capsules, due to a previous grafting of the organ into the kidney.": S. J. MELTZER (for F. C. Busch and Charles van Bergen, of the Department of Physiology at the University of Buffalo).

Dr. Meltzer stated that in several instances survival of a part of suprarenal grafts was obtained after transplantation into the kidney of the same animal.

In one experiment the animal (a rabbit) survived, after apparently all other suprarenal tissue, aside from that which was grafted into the kidney, had been removed. In this case, after total removal of the left suprarenal, a part of the gland, including medulla and cortex, was introduced through an incision into the cortex of the left kidney. Eighty-six days later the remaining right suprarenal was removed *in toto*. The animal survived the operation and was apparently normal for 21 days, at the end of which time it was killed in order to examine the graft. This was found, upon histologic examination, to have been in part replaced by connective tissue. The surviving cells apparently belong to the medullary portion of the suprarenal. The cortex had been replaced by connective tissue. Blood supply was good.

Slides showing the successful grafts were exhibited under the microscope. In this connection, also, Dr. Meltzer showed, under the microscope, a section of Zuckerkandl's organ, the chromophilic bodies of which are similar in nature to the chromophilic granules of the medullary portion of the suprarenal capsule.

"On the absence of a cane sugar inverting enzyme in the stomach": GRAHAM LUSK.

It was shown by Professor Lusk that free hydrochloric acid and not an enzyme caused the inversion of cane sugar in the stomach.

"A new head holder for rabbits, with demonstration": FREDERIC S. LEE.

The following reviews were made:

"The action of potassium cyanid upon the unfertilized egg": HOLMES C. JACKSON.

Loeb and Lewis were the first to note the fact that unfertilized eggs (of the sea-urchin), when placed in $\frac{n}{1000}$ KCN solution, retain their capability of fertilization much longer than when suspended in normal sea water. This was ascribed to the action of the KCN in inhibiting intracellular autolytic processes which lead normally to maturation and finally death. The bactericidal action of KCN was excluded, as the result of experiments in which eggs apparently died as rapidly in sterile as in putrid sea water.

Gorham and Tower's experiments in the same connection indicated, on the other hand, that the effect of KCN was entirely bactericidal. The sterile eggs retained their capacity for fertilization longer under absolutely sterile conditions than when placed in $\frac{n}{1000}$ KCN.

As the question now stands there exist two almost identical series of sterilization experiments by 2 pairs of investigators, with results diametrically opposed to each other. Critically considered, the more carefully conducted experiments seem to be those by Gorham and Tower; and in the lack of further evidence in favor of an intracellular action of KCN in this connection, we must conclude that the destruction of the bacteria by the KCN removes the condition which causes the death of the cell and in the absence of which the eggs retain their potential power for growth after fertilization.

Results of recent investigations in proteid chemistry: P. A. LEVENE.

Recent work on the chemistry of the proteid molecule has furnished explanation of many biologic phenomena. Thus in certain pathologic conditions there appears in the urine a sulfur and nitrogen containing substance, cystin. The source of the substance in the organism had been unknown until, through the efforts of Mörner and Embden and others, its radical was demonstrated to be a normal constituent of the proteid molecule.

The chromatin of a developed cell differs from that of an unfertilized egg by the presence in it of radicals of purin bases. It is probable that these bases are derived from the histidin radical, which is also a normal constituent of proteids.

Hemoglobin is known to be absent from the unfertilized egg, and it appears only in course of development of the embryo. It was shown recently that the nonproteid part of hemoglobin is a pyrrol derivative, and it is probable that a pyrrol radical is present in the proteid molecule. Chlorophyll is also a pyrrol derivative, a fact further establishing its close relationship to hemoglobin.

The work of Emil Fischer points to the way in which the various component radicals may combine in order to form the proteid molecule, and makes probable the eventual synthesis of true proteid material.

NEW MEMBERS.—The gentlemen named below were elected to membership: A. C. Abbott, Isaac Adler, B. H. Buxton, J. McK. Cattell, H. L. Cushing, E. K. Dunham, Simon Flexner, Reid Hunt, Hugo Münsterberg, J. A. Murlin, Horst Oertel, E. L. Opie, Theobald Smith, A. B. Wadsworth, R. S. Woodworth, Naohidé Yatsu.

Vermin Destroyed.—During 1902 185,982 rats were killed at the London docks, and the total destruction for 1903 amounts to nearly 70,000.

Oleomargarin in Dining Cars.—According to newspaper reports analysis made of the food served in the dining cars of the various railroads operating in Pennsylvania has determined Dr. B. F. Warren, State Dairy and Food Commissioner, to bring suit against a railroad running through the northern part of this State. What was served as butter on a dining car in October is said to have been shown by analysis to be oleomargarin. Butter procured on other roads proved to be pure. Analyses are now being made of liquors purchased on buffet cars, and prosecutions may follow the report of the chemist. As railroads are under Federal jurisdiction, an effort is being made to secure the cooperation of the Federal authorities in bringing suit.

The Contagion of Crime Spread by the Press and by Literature.—D. Román Pacheco (*La Escuela de Medicina*, October 31, 1903) addressed the Fourteenth International Congress of Medicine, held at Madrid, and pointed to the necessity for restricting the sale of printed matter which publishes crimes of an emotional nature, and insisted that newspapers and journals of wide circulation do great harm in giving as news, matter calculated to inflame criminal natures and instincts. There is a curious liking on the part of many to read, hear of, or see represented, criminal affairs under the guise of heroism. This must be atavistic, and is suggestive of premonal stages in the human development. Authors and journalists should enlarge the range of criminal matters on which it is forbidden to write. Youth should be encouraged in the higher instincts—led forward, not backward. Criminal slang is taught them by journals. They learn the language and acquire the mode of thought. A certain journal published the fact of some one killing himself after telephoning full directions as to the disposal of his body by some undertaker, and its burial. In 2 months the crime is duplicated. When crime is taken from the side of the law and its correction given over to the hands of the medical faculties, better success will be gained in controlling it, and in regenerating the criminal. Meanwhile the necessity of restraint of publication of inflammatory topics should be considered.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

January 9, 1904. [Vol. XLII, No. 2.]

1. Typhoid Fever: Some Unconsidered Hindrances in Its Prophylaxis. JOHN S. FULTON.
2. Shall We Operate on Deformed Septa in Cases of Atrophic Rhinitis? KATE W. BALDWIN.
3. The Distribution of Bloodvessels in the Labyrinth of the Ear. GEORGE E. SHAMBAUGH.
4. Professional Responsibilities. A. E. BALDWIN.
5. Tolerance of the Tissues to Foreign Bodies, with Special Reference to the Pulp and Gums. M. H. FLETCHER.
6. Arthritis Deformans: The Report of a Series of 110 Cases from the Johns Hopkins Hospital. (From the Clinic of Professor Osier.) THOMAS McCRAE (Continued).
7. Urethrotomy by the Combined Use of an Anterior and Posterior Sound Used as Guides, the Latter by Means of Prevesical Puncture with a Curved Trocar Canula Designed for the Purpose. G. W. PENN.

1.—See *American Medicine*, Vol. V, No. 22, p. 849.2, 3.—See *American Medicine*, Vol. V, No. 22, p. 863.

4.—**Professional Responsibilities.**—A. E. Baldwin emphasizes the far-reaching effect of dental work, or the lack of it. Responsibilities begin in advising care of the temporary teeth as even more important than those of adults. When mastication in a child is painful, bolting of the food with consequent digestive and nutritional disturbances follows. With loss of a tooth at this time, the tooth behind moves forward, preventing the proper eruption and corresponding expansion of the arch with irregularity. The first permanent molar is the most important to preserve. Its loss produces deformities of the lower part of the face. The writer also emphasizes the importance of treating small cavities, thus preventing them from getting bad. While much more work must be done at the time, a great amount is saved subsequently. Bridge-work or crowns may, by improper adjustment, cause the ills they were intended to rectify. Great care must be exercised to make the articulation natural, that the force of mastication may be on the lines of natural resistance. [H.M.]

5.—**Tolerance of the Tissues to Foreign Bodies.**—M. H. Fletcher presents cuts of elephants' tusks, one containing an encapsulated lead bullet, the other an iron bullet rolling around in what seems to have been a pus cavity. The protrusion of a broken breach from the apex of the root of a pulpless tooth seems invariably to cause an abscess, whereas the protrusion of a gutta-percha point causes no trouble. Wax and paraffin are unirritating to granular surfaces. Caseous pus and trichinas may become encapsulated. Needles may wander through the flesh without pain or apparent damage. Certain substances are *per se* noxious. Those that are most innocuous are impervious to moisture and more or less yielding in character. Hard, smooth substances may be tolerated, but if roughened by chemic action they produce trouble. Cloth and wood seem especially noxious. Intrinsic foreign bodies includes sequestra, pulpless teeth, calcareous or phosphatic deposits. These deposits about the neck of the teeth are always irritating, and are so situated that bacteria have free access to the irritated tissues, and pyorrhea alveolaris with autointoxication results. In man owing to the anatomic conformation of the pulp the blood and nerve supply is limited to the minimum, so that in case of injury there is no collateral circulation or nerve supply for rapid repair as in other tissues and in the teeth of the lower animals. A pulp may be capped with any innocuous substance, providing it does not press on it. Irritation may cause the formation of nodules of dentine which act as foreign bodies in turn, the attempt at repair defeating its own object. So long as tartar is present irritation is continuous, sequestra are formed, which are a second source of irritation. Healing occurs by removal of the deposits or sequestra, or by loss of the tooth. The latter invariably results in recovery. [H.M.]

6.—See *American Medicine*, Vol. V, No. 22, p. 900.

7.—**Urethrotomy by the Combined use of an Anterior and Posterior Sound.**—G. W. Penn discusses current methods of treating impervious urethral stricture when it is impossible to locate the proximal lumen. He believes Cock's method not justifiable when there are others less tedious and difficult; and this is also true of cystotomy for posterior catheterism when

done simply as a guide. The latter is used by most surgeons when other means are impossible. He quotes from many well-known writers. He himself has resorted to prevesical puncture, the procedure having been accidentally suggested to him in a case requiring immediate tapping. The canula bent to a curvature slightly less than that of a urethral sound was used as a passage for a post-urethral guide. Any discrepancy between the urethral curvature and that of the canula can be overcome by the facility with which the position of the canula itself can be shifted owing to the great degree of invagination above the pubis, the mobility of the abdominal wall permits. The bladder should be filled with salt solution and the penis grasped in order that there may be as few obstructing folds as possible. Dilation of the urethra posterior to the stricture, usual in these cases, increases the ease of the procedure. The opening having been made in the bladder while distended, is smaller even than the instrument itself, hence a more complete closure follows contraction with less liability to leakage. Dorsal decubitus should be maintained for 48 hours, thus favoring drainage through the perineal wound or the natural passage, as the case may be. [H.M.]

Boston Medical and Surgical Journal.

January 7, 1904. [Vol. CL, No. 1.]

1. Obstetric Nursing. A. WORCESTER.
2. On Some Questions Relative to Extrauterine Pregnancy, with Especial Reference to Tubal Abortion. MALCOLM STORER.
3. Typhoid Fever in Children. ADOLPH BAGINSKY. (Concluded.)
4. The Finzen Light Cure. H. JOHN STEWART.

1.—**Obstetric Nursing.**—A. Worcester emphasizes the advantage to the obstetrician as well as to the patient of having a well qualified obstetric nurse. During the first stage of labor no physician can do so well as a trained nurse, the service needed by the patient; he is only in the way, and such employment of his time is unprofitable. Obstetric nurses should be expected to exercise precautionary surveillance during the pregnancy, to manage the first stage of labor, to recognize any abnormal occurrence, to be able to conduct a normal labor, to apply appropriate preliminary treatment in emergencies, and in confinement to care for both mother and baby intelligently. The ideal education of the obstetric nurse includes still more. She must be taught how to fit in most helpfully in homes where the mother is under temporary eclipse; to utilize all sorts of make-shift material; to save unnecessary expense; and to make the family, and even the servants her friends. These lessons cannot be taught in a hospital ward. The schools of nursing must provide courses of instruction in obstetrics, and clinical practice under capable teachers where the education of the nurse is the matter of first and not of second importance, as it is in a maternity hospital, where the first consideration is the hospital resident. After class work and preliminary drill in the regular training school, opportunities for clinical practice can be arranged for in connection with the visiting nurse societies, who would gladly undertake more midwifery work. While under the necessity of employing graduate nurses for this purpose, it is not possible to supply the demand. But with student nurse service available, many of these visiting associations could well afford to employ a superintendent nurse competent to teach obstetric nursing. This would meet the needs of the very poor women, and of those who can pay only a very small fee for nursing service. [W.K.]

2.—**Extrauterine Pregnancy.**—M. Storer comments upon the frequent absence in tubal abortion of the classic symptoms of ectopic gestation, such as irregular flowing after a period of amenorrhea, sudden and severe colicky pains, the presence of an ill-defined tumor distinct from the uterus, and the escape of decidual tissue. Upon the last mentioned symptom he places no reliance. Grave anemia has been the exception in his experience. Tubal abortions are especially difficult of diagnosis, and yet they are more frequent than cases in which there is rupture; they formed 56% of his cases; and contrary to the teaching that ectopic gestation is much more likely to occur in multiparas, 41% of his cases were in primiparas. The symptoms which seem to the writer of most importance in tubal abortion are pain and anomalous escape of blood from the

uterus. As to treatment, he advises operation as soon as possible after rupture; and with a diagnosis of probable unruptured tubal pregnancy, a reasonable probability indicates immediate operation. Given tubal abortion some time before the patient is seen, nature will generally take care of it with an average convalescence of 8 months, while with operating and clearing out the pelvis, the mortality is no greater and the convalescence averages 8 weeks. Storer employs laparotomy rather than vaginal incision. [W.K.]

3.—Typhoid in Children.—A. Baginsky thinks it probable typhoid is often present in sucklings, the diagnosis being feverish dyspepsia. Boys are more susceptible than girls. Typhoid is more or less transmissible from person to person, and children are careless about soiling their persons. Degenerative and necrotic changes are more prominent in the intestines of children than adults. In some cases considerable meningeal effusion occurs, but real meningitis is rare. Most cases begin with indefinite symptoms. In the very young, fever may begin suddenly and rise rapidly. From the first to the tenth year the febrile period steadily increases in duration. Pulse frequently corresponds pretty closely to temperature elevation, 100, 120, 140. There may be apathy, screaming delirium, or the deepest stupor. The respiratory organs are always affected. There is usually some leukocytosis, 1 leukocyte to 650-1,200 erythrocytes. An unusually protracted angina with very high fever may be the only early symptom of typhoid. With high fever, albuminuria may be present for a week or two. Children are more predisposed than adults to relapses. On the part of the heart, adynamic conditions are less to be feared. As a rule complicating noma is fatal. Bloody diarrhea is seldom observed. Prognosis, as a rule, is favorable, but depends materially on treatment and the period at which it is begun. Errors in diet and insufficient nourishment often affect the outcome badly. Rapid, repeated, and long-continued cooling of the skin is dangerous to children, overtiring the respiratory centers, perhaps affecting the motor center. Heart paralysis may result from insufficient nourishment. The slowly cooled bath holds the fever down longer than the cold bath. Quinin is the best antipyretic. Among foods that may be given are bouillon, wine, yolk of egg with water and wine, milk, cornstarch, peptone preparations, plasmon and somatose. The intervals of feeding should be every $\frac{1}{2}$ to $\frac{1}{4}$ hour. [H.M.]

4.—Finsen Light Cure.—H. J. Stewart has visited the Salford Skin Hospital in Manchester, England, the London General Hospital, the Light Institute, at Copenhagen, and found in all of these the application of the Finsen light treatment yielding splendid results. The Finsen light has a candle power of 20,000 or 20 times stronger than the ordinary street lamp; its great advantage is in the vast number of violet rays produced. Finsen states that in lupus vulgaris 97% of cures are effected, even cases in which the whole face is involved are usually cured. In 800 patients treated, with the ages ranging from 75 to 4 years, the average duration of the disease was 11 years and the resulting cures was the average given above. This treatment has the advantage over the Röntgen rays that there is no danger of burning and consequent sloughing. With the Finsen light we are dealing with a known quantity, while with the Röntgen ray it is an unknown quantity. The former causes no pain, a red blister appears where the light is applied and in 5 or 6 days the scab falls off and the ulcer is healed beneath, the skin being free from cicatrix, and eventually free of redness. During the period of 6 years the Finsen Medical Light Institute, at Copenhagen, has grown from a small shed where only 1 patient was treated at a time to a magnificent institution in which are treated 300 people daily. [A.B.C.]

Medical Record.

January 9, 1904. [Vol. 65, No. 2.]

1. Etiology of Rheumatism: Obscurity, Insidiousness, Prevention, and Management in Childhood. JOSEPH E. WINTERS.
2. Remarks on the Management of Fractures Involving the Joints. VIRGIL P. GIBNEY.
3. The Principles of Diagnosis of Medical Malingerers. JOHN PUNTON.
4. Congenital Orbital Sarcoma of Endothelial Origin in an Infant: Operation and Preservation of Globe. MORTIMER FRANK.
5. Mixed Anesthesia, with Special Reference to the Administration of Hyoscin Hydrobromate before Ether. E. A. ROBERTSON.

6. The Early Diagnosis of Pulmonary Tuberculosis. FLOYD S. CLARKE.
7. A Simple and Accurate Method of Examining the Stools for Gallstones and Other Solid Bodies. HOWARD LILIENTHAL.

1.—Etiology, Prevention, and Management of Rheumatism in Childhood.—J. E. Winters states that rheumatism is caused by the nonneutralized acid products of proteid metabolism, and is cured by basic constituents of food. In rheumatism the perspiration, saliva, urine, and feces become acid. The alkalies of the blood are first drawn upon for neutralization. This causes disintegration of red cells. Sodium and potassium are the chief alkalies of the blood. Sodium transports carbonic acid to the lungs. Menacing symptoms in rheumatism are due to withdrawal of sodium, liberation of carbonic acid, and arrest of detoxicating oxidative processes. In chronic states the alkalies of bone tissue are attacked. Foods rich in basic constituents and vegetable acids, organically combined with vegetable proteid, with a minimum of animal proteid (yielding uric acid), and proper oxidation and elimination, cure and prevent rheumatism. Drugs may render the urine alkaline without influencing tissue fluids. Potassium and sodium compounds must be in organic combination to reach these. Cereals, potatoes cooked in their skins, and bread are rich in potassium. Salts of vegetable and fruit acids form alkalicarbonates. Masked expressions typify the rheumatism of childhood, and are the basis of nearly every case of heart disease. Rapid muscle growth in childhood with consequent acid products necessitates a large amount of vegetable proteid. With overplus of acid products the susceptible mitral leaflets feel the irritation first. Calomel followed by rhubarb and soda should be given so long as the tongue is furred. Soda should be in 20-grain doses before meals. Milk should be the sole food. When symptoms have subsided a strained cereal may be added. Animal food when allowed should be in the form of meats, not broths or beef juice, as these overstimulate metabolism. Vegetable soups are appetizing. [H.M.]

2.—Management of Fracture Involving the Joints.—Virgil P. Gibney holds that with fracture and separation of the epicondyle and condyle at the elbow-joint, to dress the forearm in full extension makes the olecranon a splint for the condyles, and prevents callus or other deposits in the olecranon fossi, thus minimizing the danger of full extension as an end result. From experience he is convinced that after such fractures full extension is harder to secure later in the management of the case than is flexion. After union is sufficiently firm, say from 10 days to 2 weeks, the extended position can be changed to that of flexion, as in supposed fractures of the neck of the femur. The employment of the Röntgen rays has enabled him, of late years, to completely differentiate bending of the neck of the femur from that of fracture; a condition which before the introduction of the rays always lent a certain amount of doubt to the diagnosis. In correcting hip deformities in adults by osteotomy, he invariably employs a plaster spica bandage, as he does in many other cases, and he is at a loss to understand why plaster bandages are not more popular with surgeons in general, unless it be that they fail to understand their proper application. [A.B.C.]

3.—See *American Medicine*, Vol. VI, No. 17, p. 656.

4.—Congenital Orbital Endothelioma in an Infant.—Mortimer Frank reports that a male infant, 8 weeks old, was brought to him with a swelling on the inner aspect of the left eyeball, producing a slight protrusion of that organ. It was situated between the internal angular process and the supra-orbital notch of the frontal bone, against the inner wall of the orbit, and was about the size and shape of a large peanut. Under chloroform anesthesia, the tumor, though adherent to the sclera, was separated by dissection and removed, leaving the eyeball in the normal situation. The child made complete recovery, the only evidence of an operation having been performed is a slight convergence which still persists. A histologic examination of the tumor led to a diagnosis of congenital alveolar sarcoma of endothelial origin. The writer, in a search of the literature, has been unable to find a similar case reported. [A.B.C.]

5.—Hyoscin Hydrobromate before Ether Anesthetization.—E. A. Robertson cites morphin, atropin, chloral, and

other drugs, which have been used in conjunction with or preceding the administration of ether, for beneficial result to the patient, fancied or real. In this connection he has practised, with entire satisfaction to himself, the administration of hyoscin hydrobromate. In man this drug causes: (1) Dryness of the mouth and respiratory mucous membranes; (2) flushing of the face; (3) great drowsiness, deepening into sleep, and sometimes semidelirious mutterings and dizziness; (4) diminished frequency of respiration; (5) diminished frequency of pulse-rate; (6) as a rule, dilation of the pupils; (7) depression of the motor nervous mechanism. He has employed the drug before operation in 57 instances. In from 3 to 10 minutes the mouth never failed to become dry, and thirst was almost always present. At the same time the pupils began to dilate, and continued in that condition until the ether was administered, though they responded to light reflex, and accommodation was not lost. Within 5 minutes, as a rule, the patient began to feel drowsy. The face was normal in color in most cases, but in a few was flushed. There were no symptoms of excitement or delirium, without dizziness or vertigo. The pulse, except in the case of one suffering from great weakness, was slow, full, and regular, and the respirations were deep, quiet, and normal. No dangerous symptoms arose at any time which could be fairly attributed to the use of the hyoscin. Indeed, the phenomena of anesthesia were slight and the course uneventful. The results in detail were as follows: Fifty-seven operations; 24 abdominal, 10 abdominal and plastic combined, 9 plastic, 2 vaginal hysterectomies, 1 cauterization of the vagina and cervix for cancer, 1 growth in bladder, 2 applications of strong nitrate of silver solution, 8 curetments. In all cases the Clover inhaler was used. The amount of the drug administered was $\frac{1}{100}$ of a grain. Vomiting occurred after the operation in about 50% of the cases. Stress is placed upon the benefit derived from hyoscin in stopping the secretion of mucus in the air passages during the action of the anesthetic. [A.B.C.]

6.—The Early Diagnosis of Pulmonary Tuberculosis.—F. S. Clarke gives the following as important in making an early diagnosis of pulmonary tuberculosis: An increased pulse-rate, gradual loss of weight and strength without obvious cause, an evening rise of temperature, digestive disturbances, numerous tubercle bacilli in the sputum, vesicubronchial breathing, small crepitant rales at the end of inspiration, the necessity of repeated physical examinations in order that we may reach definite conclusions. [H.M.]

7.—Simple Method of Examining the Stools for Gallstones and other Solid Bodies.—Howard Lilienthal says: "Take a loop of telegraph wire a few inches greater in diameter than the entire top of the closet seat, and fasten to this a bag of at least 2 thicknesses of dressing gauze or mosquito netting. The bag may be sewn to the wire or simply held by safety pins, but it should be made very full, so that when the hoop is in place the wire shall be well below the level of the seat and out of the way, while the bag shall hang down into the water at the bottom of the bowl. If the patient is not confined to bed he defecates into the closet, and then simply opens the water valve often enough to wash away all soluble matter, while solid bodies will be left in the bag. If the patient is confined to bed, the stool must be carried to the closet. In rural districts where there may be no plumbing the same procedure may be followed except that the water must be carried to the privy and poured through by hand. The principal advantage of this method, especially in city practice, is that the patient himself may be trusted to make an absolutely accurate examination. He has been able to confirm a diagnosis of cholelithiasis from tiny faceted stones considerably smaller than a mustard seed, which were discovered in the stools by the patient. [A.B.C.]

New York Medical Journal.

January 2, 1904. [Vol. LXXIX, No. 1.]

1. Gallstones: Their Surgical Treatment. B. FARQUHAR CURTIS.
2. The Surgical Treatment of Malignant and Nonmalignant Diseases of the Stomach. ALBERT VANDERVEER.
3. Hysterectomy for Infectious Disease of the Uterus and Uterine Appendages. H. C. DEEVER.
4. The Treatment of the Cardiac Toxemia of Pneumonia. HENRY L. ELSNER.

5. A Bacterial Treatment of Tuberculosis, with Reports of Cases. STEPHEN J. MAHER.
6. The Surgery of the Day. C. B. KELSEY.
7. The Ocular Complications of Mumps. J. H. WOODWARD.

1.—Surgical Treatment of Gallstones.—B. F. Curtis urges operation while the stones still remain in the gallbladder or cystic duct, and before grave infection has developed. The serious accidents of infection are thus avoided and any inflammatory condition which may exist can be improved or cured just as drainage cures urinary cystitis. The stone is removed before it enters the common duct, thereby preventing all the dangerous consequences likely to follow the presence of a stone in that passage, and further attacks of cystitis and colic are prevented. Further calculus formation is prevented or impeded, for the stones are formed in infected gallbladders, and the latter may be removed by operation or rendered so healthy by drainage that no more calculi will form. He calls attention to the fact that latent cases are by no means free from danger. The possibility of secondary pancreatitis must be kept in mind, and also that of carcinoma of the gallbladder, which he says is more common than has been supposed. Without reference to more important results, he says it is the general feeling of those with experience in the surgery of cholelithiasis, that in the latent cases, while the patients do not present symptoms pointing directly to the biliary system, they are afflicted with various dyspeptic complaints, and that the latter can be relieved or permanently cured by operation. [C.A.O.]

2.—Surgery of Stomach Diseases.—Albert Vanderveer reviews this subject, and in conclusion says: 1. That gastroenterostomy can be applied to all kinds and conditions of stenosis of the pyloric end of the stomach. 2. That it is a preferable operation to that of resection of the stomach in many cases, the immediate mortality being less and the possibility of the extension of life being quite as great, with as much comfort. 3. Next to gastroenterostomy he believes gastrectomy to be the most reasonable and satisfactory operation, yet this operation will necessarily be limited to but few cases. In doing it, great attention should be paid to removal of the lymphatic glands, as in this rests much of the permanent success of the operation and nonreturn of the malignant growth. [C.A.O.]

3.—Hysterectomy for Infectious Disease.—H. C. Deaver first outlines the early treatment of infectious disease of the uterus and uterine appendages. In cases in which the infection has passed into the tube, forming a pyosalpinx or tuboovarian abscess, he always operates through the abdominal route, tying off the ovarian vessels as close to the pelvic wall as possible, and rapidly excising the tube and ovary with scissors, following the incision right into the horns of the uterus, and closing the resulting wound with a continuous suture. He then drains with gauze, being careful to place the gauze along the line of suture. In cases in which the infection manifests itself as a phlebitis of the uterine sinuses and veins of the broad ligament, and is associated with small and multiple abscesses of the uterine walls, as well as with acute peritonitis, the author believes that an early operation is indicated. When infections of the uterus occur from gonorrhea and dermoid cysts, and from interligamentary and ovarian cysts, he performs a supravaginal hysterectomy. Supravaginal hysterectomy in badly infectious cases with dense adhesions he considers the ideal operation, for it thoroughly removes all the diseased condition and we can leave the floor of the pelvis with a serous covering by neatly stitching the opposed serous surfaces together. [C.A.O.]

4.—Cardiac Toxemia of Pneumonia.—H. L. Elsner treats the cardiac insufficiency resulting from pneumococcus toxemia by administering every 15 minutes 1 cc. (15 drops) each of the compound spirit of ether, aromatic spirit of ammonia, the compound spirit of lavender, and the tincture of valerian. This is kept up day and night until the pulse shows improved tone, and the heart action is decidedly better. If the mixture cannot be retained when it contains valerian, brandy or whisky may be substituted. He still further insists upon the internal administration every 2, 3, or 4 hours, according to the urgency of the symptoms, of 0.015 gm. ($\frac{1}{4}$ gr.) doses of spartan sulfate, with from 0.24 gm. to 0.36 gm. (4 gr. to 6 gr.) of caffeine. The alcoholic stimulant upon which he depends is

Tokay wine. This is administered in tablespoonful doses every half hour, and is given with the ethereal stimulant when due. Occasionally it is necessary to use high rectal injections of coffee and whisky, and hypodermic injections of ether, sterilized oil, and camphor during periods of collapse, with subcutaneous or intravenous injections of saline solution. However desperate the condition, he recommends persistence in the use of the diffusible stimulants, always administered with the idea of meeting the fading effects of the preceding dose. [C.A.O.]

7.—Ocular Complications of Mumps.—Abscess of the eyelids, conjunctivitis, keratitis, iritis, inflammation of the lacrimal glands, paralysis of the accommodation, amblyopia, optic neuritis, and neuroretinitis are some of the conditions mentioned by J. H. Woodward as complicating parotiditis. He reports in detail a case of optic neuritis in a girl of 11, which has now been under observation 18 months. [C.A.O.]

Medical News.

January 9, 1904. [Vol. 84, No. 2.]

1. The Mortality of Appendicitis. FREDERICS DENNIS.
2. The Relation of Proteids to Edema in Marantic Children; with Urinalyses in Infantile Diarrhea. PALMER A. POTTER.
3. Diagnosis of Gallbladder Diseases. J. THOMPSON SCHELL.
4. The Diagnostic Value of the Röntgen Rays. CHARLES LESTER LEONARD.
5. The Value of Climate in Genitourinary Tuberculosis. W. H. PRIOLEAU.
6. Sea-sickness. WILLIAM F. WAUGH.

1.—Mortality of Appendicitis.—Frederic S. Dennis says the question is, can the mortality of appendicitis be reduced by immediate operation in all cases, or by delay in mild cases, and the removal of the appendix after the attack has subsided. It has been proved by the accumulated experience of surgeons that interval cases have practically no mortality; and that operations during an attack, even though early, have been attended by some mortality. Dennis believes the only safe plan is to decide each case upon its merits. The mortality in appendicitis in all cases under medical treatment is about 16%, with 30% of relapses, while in diffuse suppurative peritonitis it is almost uniformly fatal. The mortality in all cases under surgical treatment is about 4%, and with no relapses. He holds that many cases demand immediate operation, but in any instance, if the patient is not materially better after the first 36 hours, operation should be performed; to wait longer than this increases the mortality. Fowler has demonstrated that operation in 48 hours in 127 cases, 83% recovered; after the fourth day there were 60% recoveries; on the fifth and sixth days, 58%; on the seventh to the eighth day, 50%, and on the ninth to tenth day, 33%. The value of the early operation depending upon the condition of the patient in 48 hours after the onset of the attack is thus obvious. The writer's mortality in his last 119 cases of appendicitis, irrespective of the kind of operation or of any special plan of treatment, was slightly over 1.5%; the 2 patients who died were moribund at time of operation. In the present paper he reports having operated upon 11 consecutive cases of acute perforated gangrenous appendicitis with general peritonitis. All of the patients recovered, in spite of the fact that the mortality heretofore in these cases has ranged from 31% to 91%. Concerning the further lowering of the mortality in appendicitis, Dennis says it can be reduced only by a hearty, cordial cooperation of both physician and surgeon, and when these relations are established, the deathrate, small as it is, will be still further reduced. [A.B.C.]

2.—Relation of Proteids to Edema in Marantic Children, with Urinalyses in Infantile Diarrhea.—P. A. Potter has examined the urine of a number of children with acute fermentative or infectious diarrheas. The idea in taking acute cases was to avoid mistaking degenerative kidney changes from long wasting illness for acute inflammatory processes, due to diarrhea itself. Those in whose stools Shiga bacilli were found or whose blood agglutinated these, were chosen to represent infectious forms, because the specific infectious nature here is considered proved. The writer lays special emphasis on cases marked by edema, because of their rarity, the different theories as to etiology, and the absence of any regular and previously efficacious treatment. Of 12 cases of marked diar-

reha, with high temperature, great prostration, and blood or mucus in the stools, only one showed a mere trace of albumin. Indican was found in the urine of two. Hyaline casts were found in two other specimens from children under 4 months, and consequently have little significance. In 4 Shiga cases there was no albumin nor evidence of renal disturbance. Of 6 cases of diarrhea with edema, 5 recovered. This was due to disregarding the diarrhea in the treatment and increasing the strength of the proteids in the food. In the first case the food, which had been plain barley water, and later contained by the addition of 4% milk, 75% of fats and proteids, was abruptly changed to a mixture containing 2.5% of proteids and fats, and in 16 hours the edema had entirely disappeared. Herter, with whom the writer agrees, thinks the edema due to involvement of the sympathetic nervous system from severe depression. Proteids are needed, notwithstanding their locally irritant effect on the intestines. Since diarrhea is not accompanied by kidney disturbances, alcohol is not injurious if needed for stimulation. [H.M.]

3.—Diagnosis of the Gallbladder Diseases.—J. T. Schell says, to assert that the general diagnosis of cholecystitis and cholelithiasis is easy and that the position of the calculus may in all instances be determined is an acknowledgment of inexperience with intraabdominal lesions. He discusses acute catarrhal cholangitis, suppurative cholangitis and the symptoms which appertain to each. Gallbladder diseases are to be differentiated from appendicitis, acute pancreatitis, perforating ulcer of the stomach or duodenum, gastralgia, nonperforating gastric ulcer, intestinal colic, carcinoma of the gallbladder and movable kidney. The best means for differentiating these conditions forms a series of discussions by the writer. The Röntgen rays have proved of but little avail in the diagnosis of gallstones. [A.B.C.]

4.—Diagnostic Value of Röntgen Rays.—Charles Lester Leonard says: The use of the Röntgen rays does not wholly eliminate the personal equation or the skill of the observer. Sufficient of these elements enter into the final results to frequently render them far from accurate. Equally good results should not be expected from the expert and the novice. The necessary knowledge and technic are not readily acquired, and earnest study is demanded of the student if he would learn to avoid errors. The writer confines himself to a discussion of the value of Röntgen rays in calculus nephritis and ureteritis. His conclusions are based on a study of 300 cases. The advantages demonstrated are a greater accuracy than in other methods of diagnosis; a freedom from the dangers and inconvenience of exploratory operation, vesical examination and ureteral catheterization; the definite locating of all calculi, giving their size, number, position, etc. An analysis of the 300 cases shows that calculi have been found in 86, or over 28%; that in 46 of these cases, or over 50%, the calculi were in the ureter; that in 19 of the cases of ureteral calculus the patients passed the calculi after expectant treatment had been suggested as the result of the Röntgen ray examination. The positive diagnosis has been confirmed by operation in all cases operated upon except 5. In two of these the operation was delayed more than a month, and it is probable that the calculi, which were small, passed. The negative diagnosis has been found as accurate as the positive. This diagnosis has been found correct in 45 cases that have come to operation after the negative diagnosis had been made. In 1 case, previously reported, a large calculus was found, the error being due to faulty technic. The total combined errors in both positive and negative diagnoses has been less than 3%. Frequently a pathologic condition of the tissues of an organ may be recognized in the photograph as well as the discovery of a stone. [A.B.C.]

5.—Value of Climate in Genitourinary Tuberculosis.—W. H. Prioleau maintains that equally beneficial results may be obtained in patients suffering from tuberculosis of the genitourinary apparatus as in those suffering from pulmonary tuberculosis or other tuberculous affections, provided, the genitourinary tuberculosis is recognized early, and equally as early as other cases sent to an appropriate climate. The principal reasons for the beneficial results obtained in pulmonary tuberculosis upon change of climate is the fact that the disease is recognized in its incipency, whereas in genitourinary tubercu-

losis the condition is quite the reverse so far as recognition is concerned. If a patient presents himself suffering from some genitourinary disease, especially if the symptoms be such as would appear in incipient tuberculosis of that tract, the physician, unless an expert, would probably think of almost every other disease to which that part of the body is liable before tuberculosis, consequently, early diagnosis of genitourinary tuberculosis is very rare. Extremes of climate are unsuited to such cases and they usually do best in an equable climate at a moderate elevation just as do cases suffering from pulmonary tuberculosis. At no time should a patient with tuberculosis of the kidney be sent to an extreme altitude. The increased heart's action caused by the elevation adds more work to the already inflamed kidney and thus inhibits the benefit which might otherwise accrue. Accompanying the change of climate should be a proper regulation of the patient's diet. [A.B.C.]

6.—Sea-sickness.—W. F. Waugh believes that if sea-sickness is due to vasomotor splanchnic paresis, atropin and strychnin are indicated. He advises giving atropin, gr. $\frac{1}{100}$ every 10 minutes until slight dryness of the mouth is felt, and repeating when the dryness begins to subside. Strychnin, gr. $\frac{1}{4}$ should be given every 10 minutes until the pulse has its normal tonicity, and thereafter just enough to sustain this effect. These alkaloids may be taken in hot water by mouth. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

The Diagnosis of Acute Tuberculous Rheumatism.—The diagnosis of acute tuberculous rheumatism is often difficult and one is frequently placed in a position of making a diagnostic error. In children this is more likely to happen on account of the difficulty experienced in obtaining correct answers to questions. An osteomyelitis, especially when localized near the epiphyses and showing itself in several points at the same time, may give rise to many mistakes, but under these circumstances one should take into consideration the intensity of the general symptoms, the rise in temperature, the marked typhoid condition, and rely above all on the findings given by a minute examination of the skeleton. It is however, with acute articular rheumatism that the acute tuberculous form is more frequently confounded, because in the latter affection its polyarticular manifestations simulate the ordinary acute type, while clinically they closely imitate each other. The tuberculous form however differs by the rapidity with which it becomes localized in a joint, by the absence of any effect from the administration of sodium salicylate or the coal-tar products, and above all by its tendency to give rise to plastic products, often resulting in ankylosis. A point to be noted in the differential diagnosis is the character of the pain. In the infectious pseudorheumatism, due to Koch's bacillus as in all forms of arthritis for that matter, the greatest pain will be found by exerting pressure over the joint itself, while in acute articular rheumatism the periarticular parts, tendon sheaths, periarticular serous bursas, articular ligaments and tendons will give rise to the pain. It has been pointed out by Lasègue that in acute articular rheumatism there is no intra-articular pain but the fibrous tissue and bursas and serous coverings of the tendons are more involved than the synovial membrane of the joints. He gave as a proof of this, the possibility of giving passive motion to joints so afflicted, without provoking suffering to the patient, if the latter could be made to relax the muscles going to the joint thus immobilized. A differentiation with true acute articular rheumatism having been made, it is necessary in order to complete the diagnosis, to look for the cause of the trouble, a task often long and difficult. If however, the patient has never been the victim of gonorrhea or former puerperal infection nor of any infectious process susceptible of producing joint manifesta-

tations, one should always think of tuberculosis. Should the patient give an hereditary or personal history of tuberculosis, or should he show lesions of a tuberculous nature, it is both logical and prudent to connect the joint affection with Koch's bacillus. Cytodiagnosis, peritoneal inoculation in the guinea-pig of the fluid obtained from the joints and cultures made from it, will result in settling a faltering diagnosis.

REVIEW OF LITERATURE

The Relation of the Arterial System of the Bones to Inflammatory Areas of that Tissue.—E. Lexer¹ concludes that tuberculous areas usually originate from infected emboli or from collections of bacteria in the circulation, both becoming localized in the epiphysis or the metaphysis, although the process may begin in the diaphysis as a result of an embolus. The shaft tuberculosis can take its origin as well from an embolus as from a deposit of bacteria that have suddenly acquired virulence. The lesions in the diaphyses are explained upon anatomic grounds: soon after the nutrient artery enters, it divides into many branches in which emboli become lodged. The tuberculosis following injuries to bones is dependent upon the awakening of a latent process or upon the accidental deposit of an embolus or a collection of bacteria. The suppurations caused by the staphylococcus, streptococcus and pneumococcus also have their sites in the ends of bones, and are due to emboli in instances. The marrow phlegmon of nontraumatic origin is due to deposits of virulent pyogenic bacteria or to emboli. The relation of trauma to the development of suppurating osteomyelitis Lexer explains in 3 ways: The cocci circulating in the blood lodge at the injured point where the resistance has been reduced, the influence of the trauma upon the bactericidal action of the marrow, the trauma may awaken an old latent process. The predilection of both tuberculosis and suppuration for young bones is due to its vascularity and also to the histologic nature of the young bone marrow. [J.F.]

Treatment of Sciatica.—O. Hartmann² recommends stretching of the sciatic nerve for sciatica. He practises massage and hyperflexion of the limb for some time; if unsuccessful, he operates. [E.L.]

Dietetic and Drug Treatment of Tuberculosis.—D. L. Smith³ gives the results of treatment in the Manchester Sanatorium. Creosote, guaiacol, and arsenic were tried with varying effect. Urea had no influence at all on the course of the disease. Diet was of paramount importance, and especial stress is laid on a meat diet. This latter must be modified for patients with gastric disturbances. The object is not to increase the amount of fat on the individual, but to make him solid and robust. A gain in weight may occur without improvement of the pulmonary condition. [B.K.]

Relation of the Boas-Oppler Bacillus to Lactic Acid Fermentation.—G. Sandberg⁴ finds that the predominance of the "long" bacilli, described by Boas and Oppler, in certain diseases of the stomach, is due to the fact that these bacilli possess a special resistance to the higher lactic acids. This resistance is not even second to that of yeast. They may therefore flourish after all other organisms, which form lactic acid, have been destroyed. The fundamental type of this bacillus is a short rod; but it develops into a long form as soon as its ability to form lactic acid is fully developed, or when lactic acid has been produced through the agency of other bacteria. The long and short varieties produce characteristic colonies, between which certain experimentally produced transition forms may be placed. The short variety may be experimentally transformed into the long, and vice versa. [B.K.]

Negative Widal in Newborn, of Typhoid Mother.—G. B. Allaria and C. Bozzolo⁵ show that the *Bacillus typhosus* may be recovered from the spleen and other organs of the newborn on necropsy, when before its death the Widal had been negative. Other cases (4 out of 11) show a positive reaction at varying days following birth. Sooner or later the reactive pos-

¹ Archiv für klinische Chirurgie, 1903, Bd. lxxi, Heft 1.

² Archiv für Orthopaedie, Mechanotherapie und Unfallchirurgie, 1903, No. 1.

³ Lancet, October 10, 1903.

⁴ Zeit. für klin. Med., Bd. 11, p. 80.

⁵ Il Policlino, Rome, October 24, 1903.

sibility is lost, apparently. In 2 cases the placental blood gave a positive and the blood of the newborn a negative reaction. There is some relation of agglutinative power shown to the period in gestation when occurred the typhoid complication. The views of Staebli oppose those of Achard and agree with Widal and Sichert in the matter of transmission as seen in tests on animals. The specific gravity of fetal blood is known to be less than after birth, as is the relative quantity of fibrin. The authors point this out as the most important of several differences, and as bearing on the solution of the questions at issue. [T.H.E.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

The Radical Cure of Bunions.—Bunions, next to corns, are probably the most common of the various causes of foot discomfort, and in persons whose occupations require them to be constantly on their feet they may cause actual disability. The term is generally used to denote a painful swelling which frequently grows over the inner aspect of the ball of the great toe. In the first stage there is a partial outward dislocation of the great toe, the deviation from the middle line being caused almost always by faulty fitting shoes which are now commonly worn. Most shoes on sale, no matter how broad the toes and supposedly sensible they are, crowd the great toe outward and thus make the base of the toe more prominent and subject to abnormal pressure. By placing the inner side of the foot of a healthy child against a straight edge it will be seen that the inner border of the foot forms almost a straight line from the toe to the heel. Few modern shoes are made with a straight line from the heel to the toe though there has been much improvement in foot-wear of recent years. The abnormal pressure over the base of the great toe forms a bursa and frequently there is a chronic periosteitis which causes the head of the metatarsal bone to enlarge. Pressure on the bursa makes it sensitive and often intensely painful. Very few doctors are consulted for bunions and it must be confessed that this is partly because many do not understand their proper treatment, indeed, the subject is given most inadequate attention in many of the most popular modern textbooks on surgery. If physicians appreciated the importance of proper foot-wear as emphasized by Sampson in perhaps the most important paper¹ which has appeared on this subject they might do much to prevent numerous painful affections of the feet by using their influence to introduce proper footwear and if people were provided with suitable shoes from their earliest years there would be no necessity further to discuss the treatment of bunions. Taken at an early stage, hallux valgus, which precedes the formation of bunion, may perhaps be partly corrected by apparatus, but toe posts, springs and levers which are used to prevent or correct such deformities are of use only when the condition has not passed the early stage. Freeland,² in a recent monograph, believes that of the numerous operations which have been introduced to remove the boss of bone which gives rise to bunion none gives such uniformly good results as excision of the head of the first metatarsal bone. The relief from pain, restoration of function and reduction of deformity which follow are striking. This method is also recommended by Rose and Carless in the latest edition of their "Manual of Surgery." While palliative or less radical measures may be tried and may give relief in many cases, we believe that excision gives far the more satisfactory results in the treatment of very bad cases of bunion. We are surprised that this method is not mentioned in several of our modern American textbooks of surgery.

REVIEW OF LITERATURE

Excision of the Cecum.—F. T. Paul¹ reports 3 cases. The first was a man of 32, who had suffered for the past 6 months from colicky pains, flatulence, dyspepsia, and the other symptoms of progressive partial obstruction. Operation was performed, an incision being made over the cecum. The latter was found infiltrated with malignant disease. This, together with the lower end of the ileum and the whole of their attached mesentery, was removed; the ends of the bowel were brought out, and glass tubes inserted. The result was unfortunate, sloughing of the bowel occurring owing, perhaps, to too much of the circulation having been cut off. The next was a patient of 53, who looked much older. His symptoms were of the same type as in the preceding case. A soft tumor could be detected in the region of the cecum, which the operation proved to be a cancerous condition of that pouch. It was excised, and a glass tube inserted. The patient's condition was good for a few days, when he took a turn for the worse, and died from exhaustion, 3 weeks after operation. Necropsy showed the wound had healed perfectly about the stump. The third patient was a woman of 51. Her symptoms were again of the same general type. A large movable tumor could be detected in the cecal region. Laparotomy was performed, the cancerous cecum excised, and the patient made a good recovery. Attention is called to the fact that in these cases, as well as in malignant obstruction anywhere in the bowel, symptoms as a rule appear only after the tumor is of such size as to offer mechanical obstruction to the fecal current. Unfortunately, at such time the case has progressed so far that the condition is almost hopeless. [A.B.C.]

Sarcoma of the Undescended Testicle.—M. N. Shewandin² reports the result of a microscopic examination of a tumor originating in an undescended testicle. The growth revealed itself as a sarcoma, and the author remarks that the majority of growths of the retained testicles are sarcomas, with a malignant tendency, usually appearing in middle-aged men and ending fatally in most instances. These remarks apply to the testicles retained within the abdominal cavity, which location is about 5 times less frequent than the inguinal. When dealing with an abdominal growth of obscure origin we should always bear in mind the possibility of a retained testicle. The author also discusses the tumors of the testes in general. [L.J.]

Surgery of the Stomach in Nonmalignant Conditions.—A. B. Mitchell³ reports having operated on 12 patients for perforating gastric ulcer, with 8 recoveries. He reports also in some detail operation in 6 instances for hour-glass stomach. There were 5 recoveries, and one death from shock. His work in these cases illustrates 2 methods of dealing with this condition; (1) gastrogastrostomy, which he has found safe and efficient, but has the disadvantage of leaving an abnormal double-barrelled stomach; and (2) gastrojejunostomy, which is only applicable to cases in which the lower pouch is very small and the pylorus is involved in the adhesions. The author also reports operation in 6 instances for dilated stomach, due to pyloric obstruction, nonmalignant in character. With these cases the mortality was high—3 of the patients dying,—one death was chargeable to the operation, again 6 other cases are reported in which operation was done on the stomach, for various purposes, such as adhesions, excision of gastric ulcer, etc. All the patients recovered. [A.B.C.]

The Dangers of the Trendelenburg Position.—P. Kraske⁴ recognizes the value of this position in numerous operations on the pelvic and abdominal organs; but he has also found certain dangers to be connected with it. In persons with degenerative changes in the heart muscle, the high pressure of the column of blood in the inferior vena cava may produce an acute, irreparable dilation of the heart. In persons with a large amount of fat in their tissues, mesentery, and omentum, a marked and permanent displacement of the viscera may be produced, that may lead to intestinal obstruction. The pressure of the heavy viscera against the liver may produce stasis of the portal circulation, with consequent gastric hemorrhages. [B.K.]

¹ American Medicine, 1902, Vol. III, p. 105.

² Bale, Sons & Danielsson, London, 1903.

³ British Medical Journal, August 15, 1903.

⁴ Medizinische Obosrenie, IX, No. 11.

⁵ Lancet, August 29, 1903.

⁶ Archiv. für klin. Chirurg., Bd. lxxi, p. 453.

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

EDITORIAL COMMENT

Local Edemas in Pregnancy.—The eclampsia and icterus which sometimes manifest themselves as consequences of the occasional autointoxications of pregnancy are well known to all experienced practitioners to rank among the most serious complications of that condition. The characteristic tint of jaundice can hardly be well mistaken for an indication of anything but what it pathologically indicates; but the *partial* edemas which sometimes inaugurate the onset of renal disorder, functional or organic, occasionally display themselves in a manner which proves highly misleading. Their occurrence and the causes which lead to such development have recently received a good deal of attention from some of our French confreres. In the early part of the past year, M. Budin communicated to the Obstetrical Society of Paris a paper which dealt with the subject of "Partial Edemas in the Puerperal State," and just recently Dr. Lop has reopened the discussion of the same subject. In one of the cases observed by the latter, there developed, in the course of pregnancy, a persistent edema of the back of the right hand; and in the other, of the eyelids of the right side. Those appearances led to an examination of the renal secretion in each case, and there was discovered a notable quantity of albumin, with some indican, and a marked degree of hypoazoturia. The liver was in each case enlarged, and there was a subicteric tint of the cutaneous surface. The condition of the eyelids in one of the cases had led to the mistaken diagnosis of a local lesion of the visual apparatus. It is interesting to note that the patient who presented the edema of the eyelids was observed in 2 pregnancies; in both the eyelids of the same side were affected, and in one of the pregnancies there was also edema of the back of the right hand, which had been attributed to rheumatic exudation. There was also dyspnea and some other less significant coexisting symptoms in both cases. In a third case observed by Dr. Lop, the patient presented palpebral edema, and also edema of the lobule of the ear on the right side, followed by puffing of the back of the hand and fingers on the left. Some little albumin and a good deal of biliary pigment were found in the urine. Rest, a milk diet, and the use of saline purgative brought the pregnancy in each case to a happy termination. Drs. Budin and Lop both attribute those phenomena to neurovascular disorders, produced by introduction of the toxins of puerperal infection into the renal circulation. Having regard to the possible mistakes of diagnosis in such cases, and the very serious results which are prone to ensue, we must regard the communication as a very important one.

REVIEW OF LITERATURE

Four Cases of Eclampsia.—Dr. Windisch-Odon¹ reports 4 cases of eclampsia in which morphin was given to control the nerves, hypodermoclysis of hot normal salt solution and warm packing to induce profuse perspiration. In 3 instances the treatment was successful; but in 1 case in which the profuse saline infusion and warm pack failed to induce perspiration the result was fatal. And he concludes that in those cases in which by means of hot saline infusion with warm packs and baths, abundant perspiration is induced, with corresponding use of morphin and early ending of labor under anesthesia, the prognosis of eclampsia is essentially improved. [w.k.]

Extrauterine Gestation.—H. Croom² says that primary abdominal and ovarian pregnancies are only curiosities so far as the general practitioner is concerned, and devotes his entire paper to the consideration of tubal pregnancy. This condition he asserts can be diagnosed before rupture has occurred. The important signs are: 1. The subjective signs of pregnancy. 2.

There is a long interval between extrauterine pregnancy and the pregnancy which precedes it. 3. There is a history of some uteroovarian disease. 4. What is called "disordered menstruation." This is a misnomer, the condition being generally that of amenorrhea for 1 month, and then irregular hemorrhages every 10 or 14 days. 5. Localized pelvic pain. 6. Vaginal examination reveals, on one or other side of the uterus, a cystic swelling, sensitive and pulsating. 7. The expulsion of the decidua at the end of the third month is one of the most striking signs, if not the pathognomonic sign of extrauterine pregnancy. Croom also considers the symptoms and treatment of rupture. [A.G.E.]

The Septum Stitch in Prolapse Operation.—R. Gersuny¹ describes an operation for prolapse, in which a longitudinal incision is made in the anterior vaginal wall in front of the cystocele, which is loosened by blunt separation; then after introversion of the bladder, the defect in the septum is lessened or entirely closed by a pursestring suture, and the longitudinal incision also closed with interrupted sutures, strengthening and supporting the septum. [w.k.]

Blood Alterations During Pregnancy.—G. Resinelli and Caruso² consider that any normal pregnancy, if favorably managed as to diet and hygiene, should present no diminution in number of red blood cells; the percentage of hemoglobin may slightly decrease. Anemia is pathologic during pregnancy. There may be a hydremia proper to normal gestation, which is an integral part of blood alterations incident to that process and absolutely physiologic. These changes of the blood bring about a condition of lessened resistance. With this, any disturbance of metabolic equilibrium may develop into an actual anemia. And, similar to renal, cardiac, or hepatic insufficiency, there may occur a hematopoietic insufficiency. Simple anemia ordinarily brings no difficulties; progressive pernicious anemia is grave. The writers advise induction of premature labor in case of the latter. Some writers suggest oophorectomy as a final course in obstinate cases. Merletti and Raineri speak of the urobilinuria as evidence of modified hematopoiesis. They find a different coagulability of the maternal blood, due to a deficiency in calcium salts. Retention of a dead fetus brings about a lessened coagulability of the maternal blood, and is partly diagnostic, according to Gelli. Mangiagalli does not advise induction of labor prematurely in progressive pernicious anemia, believing that causes of the disease lie in the ovarian origination of toxins, which are prejudicial to the blood. The results of interference are not satisfactory. Ferrari suggests bovine bone marrow and claims good results. [T.H.E.]

Eclampsia with Enormous Placenta.—R. Koenig³ reports a case of eclampsia in which the placenta had assumed very unusual proportions, weighing 1,620 g. The literature accessible to the writer indicates that a large placenta usually accompanied a large fetus, and chiefly occurred in multipara with large joints and flabby uteri. But in the case reported the abnormal size of the placenta seemed to be independent of fetal condition since the placenta weighed half as much as the child. [w.k.]

Combined Use of Finsen Light and X-ray in the Treatment of Uterine Carcinoma.—G. G. Hopkins⁴ believes that in the combined use of the Finsen light and the x-ray, the principal dependence being the Finsen light, he has devised a very satisfactory method for the cure of uterine carcinoma, especially when that disease originates in the cervix. Great caution must be observed in the use of the x-ray, particularly in recurrent cases in which hysterectomy has been done. He has found that an hour's exposure to the Finsen light and 5 to 8 minutes exposure to the x-ray is a good proportion in which to employ the 2 agents. He describes very carefully an apparatus for carrying the tubes, so constructed that the patient need not be placed in a constrained position during treatment. None of the many substitutes for the Finsen light has given as good results as the original apparatus. The clinical histories of cases is to be given later, but the results have been such as to place this method above any other yet devised for the treatment of uterine

¹ Wiener klinische Wochenschrift, October 1, 1903.

² Il Politecnico (sez. prat.), Rome, November 7, 1903.

³ Zentralblatt für Gynäkologie, October 3, 1903.

⁴ Brooklyn Medical Journal, December, 1903.

¹ Zentralblatt für Gynäkologie, October 3, 1903.

² The Practitioner, November, 1903.

carcinoma. Hopkins believes that we may hope to cure the majority of these cases, as he has not yet seen a case not benefited, and in all but one, the indications are that cure has been accomplished, though the time (2 years) is too short to claim that cure is perfect. The result in cases recurring after operations of greater or less magnitude is not so good. [A.G.E.]

Recurrence of Ovarian Cysts.—J. D. Malcolm¹ reports 4 cases in which a cystic ovarian tumor, which was not malignant, developed after a similar growth of the ovary on the same side had been removed. In these cases the tumors removed were, in fact, cystic growths of some portions of ovarian tissue, which were left behind at the first operation. The newgrowth in all the cases developed in the broad ligaments where the ovarian tissue would be, if any were left at a previous operation. Cases 3 and 4 illustrate another somewhat rare point, namely, that an innocent growth developing in the neighborhood of the uterus after the menopause, may bring about discharges of blood from the endometrium, just as ovarian tumors growing before the menopause may induce a very free menstruation, which may lead to an erroneous diagnosis of uterine fibroma. [W.K.]

Diabetes and Surgery.—Otfried O. Fellner² relates the history of a woman of 40, who, after going through 2 normal pregnancies, developed diabetes, then had pain and an abortion followed by excessive bleeding, for which curetment was done. Fellner believes that in all probability there was some relation between the abortion and the diabetes. The patient was operated upon twice for an abscess of the "scheiden gewalbe," after which the urine cleared up. He reports a second case in a woman of 36, who had conceived 5 times and aborted 3 times. After the last abortion she developed an endometritis, which required curetment. Later a myoma was successfully removed, but 4 months later she developed diabetes. Fellner differentiates 2 groups of cases: (1) Those in which surgical conditions follow diabetes; (2) those in which the diabetes is the result of diseases of the genital organs. The literature of this subject is fully reviewed. [J.H.W.R.]

Puerperal Eclampsia before Delivery.—J. Lithgow³ reports 2 cases of eclamptic convulsions before delivery, and is convinced from his experience that in immediately emptying the uterus the obstetrician is doing the best for both mother and child. [W.K.]

The Vaginal Route in Ectopic Pregnancy.—W. W. Preobrajensky⁴ has made a thorough study of Professor Ott's method of illuminating deep cavities, and comes to the conviction that the method considerably facilitates vaginal operations, giving them many advantages of their own. The entire operation can be performed under control of the eye; any source of bleeding can easily be found and checked, a feature specially valuable in the wellknown tendency of ectopic pregnancy to hemorrhages. Therefore he prefers the vaginal route in all stages of extrauterine gestation under 4 to 5 months. The best course is to perform posterior colpotomy, reserving anterior colpotomy only for special indications. The utmost conservatism is enjoined in regard to the tube, which ought to be left *in situ* whenever feasible. Formerly, the risk connected with the operation for extrauterine gestation often led to procrastination and disaster; the new method enables us to interfere with but little danger, and therefore every case of ectopic pregnancy should receive surgical treatment. [L.J.]

Successful Celiotomy for Ectopic Gestation with Forced Abandonment of Placenta.—Calderini⁵ reports such an occurrence with the delivery of a living child. An abdominal fistula has remained, but health of the mother and child is good. Pestalozza differs as to time of operative interference. The author feels justified by results. The placenta could not be removed, however, on account of uncontrollable hemorrhage. Ghezzi gives 2 cases in one of which a macerated fetus was removed, in the other the mother succumbed from shock. Ten successful cases are on record in Italy since 1814. [T.H.E.]

TREATMENT

SOLOMON SOLIS COHEN

H. C. WOOD, JR.

L. F. APPLEMAN

REVIEW OF LITERATURE

Organotherapy in Arterial Hypertension.—H. Huchard¹ points out that among the hypotensive glands which may be used in arterial hypertension are the liver, thymus, testicle, ovary, and thyroid gland. Lancereaux and Paulesco have used thyroid extracts, and especially iodothyryn, in scleroderma, vasomotor troubles of the extremities, and in arteriosclerosis. The action of these preparations is sudden and rapid; it may be accompanied by weakness and collapse, and for this reason should be carefully watched. Huchard has been able to produce vasodilation by the administration of thymus gland. No unfavorable symptoms followed its use, while its action lasted for considerable time. Ovarian extract has been used at the time of menopause in patients who suffered from arteriosclerosis and high arterial tension. All means employed for the relief of high arterial tension should be accompanied by proper modification of the diet and other hygienic measures. As a result of the action of various animal extracts, it would appear that the normal vascular tone depends not only upon the myocardium, the blood and bloodvessels, but also upon proper glandular activity. [L.F.A.]

Local Uses of Hot Air.—Holländer has, since 1897, applied hot air to the treatment of lupus. According to his opinion, hot air acts by reason of its antiseptic and hemostatic power. He employs either absolute or relative cauterization. The area affected by lupus becomes supplied by newly formed vessels and forms a distinct prominence above the level of the healthy tissues. In the course of several days the healthy skin resumes its normal aspect, while the diseased areas begin to undergo necrosis. A long metallic rod terminating in a point is pierced by a central opening, through which a current of air may be passed by means of a rubber bulb. By utilizing a source of heat sufficiently intense, the current of air, which, after having traversed the opening in the incandescent metallic rod escapes through the free opening, may attain a temperature of more than 300° C. (572° F.). For a long time dentists have employed hot air by means of an exceedingly simple apparatus. This consists essentially of a bulb and a metallic tube provided with a wooden handle to which the bulb is adjusted. The tube is continued in a convoluted form into a closed metallic sheath, and ends in a point. It is contained in a hard-rubber case, from which only the pointed extremity projects. The tube is heated for several minutes over an alcohol lamp at the point where the convoluted portion is contained in the sheath, and is then placed in its case. The bulb is then compressed, and the air is heated in passing through the convoluted tube. F. Jayle has employed aërothermotherapy at the Hôpital Broca in a certain number of cases of simple and specific ulceration situated in different portions of the body. He experienced complete failure in some cases, amelioration in others, and favorable results in still others. He employs an ordinary thermocautery, with certain modifications. The air from the bulb divides into 2 currents; one portion supplies the thermocautery and maintains it at red heat, the other enters the sheath and is heated in passing over the cautery. Each compression of the bulb acts at once upon the thermocautery and upon the current of air. By this means a current of hot air is provided at the extremity of the thermocautery, which is thus converted into a sort of aërothermogen. By providing the sheath with a conical attachment having an orifice varying from 0.5 mm. to 1 cm. in diameter, different temperatures can be obtained, which are almost constant for each opening. The current of hot, dry air carries with it the products of combustion of the thermocautery, so that if one wishes to have pure air he may substitute for the concentric sheath a tube placed in juxtaposition with the thermocautery. This becomes heated by contiguity, and the air that passes through it becomes heated in its course. Balzer successfully employed the method of Holländer in the treatment of chancroid. Before him,

¹ Lancet, October 31, 1903.

² Wiener klin. Wochenschrift, No. 34, 1903.

³ Lancet, November 7, 1903.

⁴ Journal Akousherstwa, August and September, 1903.

⁵ Il Policlinico, Rome, October 24, 1903.

¹ Journal des Praticiens, Vol. xvii, No. 34, 1903, p. 532.

Bourgeois had applied hot air in the treatment of infectious ulcers of the cornea. Gautier and Larat, and after them Löwenberg, have treated ozena with hot air. A current of compressed air is passed through water charged with medicinal substances into a short convoluted tube connected with a flexible metallic tube, the free extremity of which, finally, is provided with another short rubber tube and a glass nasal canula of special form. The source of heat may be electricity, gas, or alcohol. A lamp placed beneath the convoluted tube is sufficient for heating purposes. E. Larue Vansant (1897) employs insufflations of hot air in the treatment of otorrhea, otalgia, eustachian catarrh, and certain other affections of the nose, the pharynx, and the larynx. For the relief of the pain (headache) that is so frequently observed when the openings of the sinuses in the nasal cavity become obstructed, the insufflation of hot air is often quickly effective. Vansant uses an instrument in the form of a revolver, which the physician holds in his hand by the curved end. At the point of union of the handle and the straight portion there is a bulbous enlargement, which may be heated by means of an alcohol lamp. The air is conveyed to this point by means of a bulb or a compressed air reservoir. It is heated at this point, and, with the aid of a capillary tube adapted to the anterior portion of the instrument, is directed to the diseased spot. Vansant must be given credit for the systematic use of superheated air in the treatment of affections of the upper air passages and of the ear. The writers who have followed him have either modified his instrument or have defined more exactly the indications for the method. Thus, Amberg, in 1893, successfully employed aerothermotherapy in the treatment of ozena and various other nasal affections. Hessler, in 1900, following Andrews, employed hot air without much success in the treatment of chronic supuration of the ear. Lately Lermoyez has repeated these attempts, and concludes that aerothermotherapy yields the best results in cases of spasmodic rhinitis, congestive rhinitis, hypertrophic rhinitis, hydrorrhea with nasal obstruction, rhinorrhea, sneezing, asthma, nasopharyngeal catarrh, otalgia, tubal and tubotympanic catarrh with deafness, vertigo, nausea, or ringing in the ears. The cure is permanent, and the condition is not one merely of transitory amelioration. Acute coryza and hay-fever may also be advantageously treated by this method. Lichtwitz has obtained good results in cases of spasmodic and subacute rhinitis. Aerothermotherapy, so-called, undoubtedly yields good results in the treatment of certain affections of the nose; but Tissier does not think that this should be credited to aerotherapy. He would prefer to use the term "thermotherapy," because the quality of the air is of little importance; it is the temperature alone that is effective. Similar comment may be made concerning the application of superheated dry air to the extremities or other portions of the body, inclosed in special "cabinets," "cylinders," "thermophors," and the like. Tallermann and others use very high temperatures—400° F. (205° C.)—in these apparatus; principally for the treatment of affections of the joints, but also to induce perspiration and to influence metabolism in certain diathetic disorders, such as gout, rheumatism and the like. W. T. Hedley has not exceeded temperatures of from 60° C. (140° F.) to 100° C. (212° F.). He has employed hot air with rapid relief of pain in the treatment of subacute articular rheumatism and in cases of chronic articular rheumatism.—[Paul Tissier, "Aerotherapy," Blakiston, 1903.]

Accidents Due to Lumbar Puncture.—Lumbar puncture is usually not accompanied by unfavorable complications.¹ It may be followed by pain in the legs, headache, vomiting, vertigo, and syncope, but these are not serious as a rule. When followed by fever and tachycardia in association with meningeal symptoms, the situation is grave, and death may occur. Henneberg reports a death from hemorrhage following a lumbar puncture. Andre Maystre² indicates the precautions that should be taken. The patient should be prepared as for a major operation. He should be given a purge and a diuretic, the diet should be light, and he should avoid all worry; after the operation the patient should be placed in bed

with his head low and allowed to remain in this position for 6 hours or more, according to the needs. Asepsis should be practised with scrupulous care. When the needle is withdrawn the cutaneous orifice should be touched with tincture of iodine or a thermocautery; a little collodion may be used to close the wound, and this in turn covered with a layer of cotton and a bandage which is left in place for 48 hours. The puncture is made in the lumbosacral region. Not more than 7 cm. to 10 cm. (2 dr. to 2½ dr.) of liquid should be drawn off, as larger quantities may lead to serious consequences. It should be withdrawn very slowly, never aspirating to hasten the flow. The face and the pulse of the patient should be watched, and at the least faintness or complaint the needle should be withdrawn. These precautions will reduce the complications to a minimum, but the operation should only be performed in urgent cases. This treatment may be used in cerebrospinal meningitis when hot baths seem to produce no improvement. Certain cases of cephalalgia due to Bright's disease are relieved by lumbar puncture. As a means of diagnosis it should be used only in indecisive cases in which a definite knowledge is necessary, and in such cases a consultant should be called. [L.F.A.]

Favorable results from collargolum per rectum are recorded by Dr. H. S. Loeb in Schlesinger's Division of the Franz-Josef Spital.¹ Sometimes the intravenous injection of collargolum was impossible, because of obesity or smallness of the vessels. Collargolum enemas of .14 gm. to .27 gm. (2½ gr. to 4½ gr.) in 75 cc. (2½ oz.) of distilled water were therefore given twice daily for 8 days, after a cleansing enema. This method was successfully used in sepsis, a puerperal infection, and thrombophlebitis following typhoid. In 4 cases the enemas had to be stopped, because of negative effects or because of complications. In 6 febrile tuberculous cases conclusive results were not obtained. The advantages of the rectal use are its safety and simplicity and the ease of increasing the dosage. Discussing Loeb's report, Dr. Frank and Professor Schlesinger held that collargolum is a most effective remedy for septic conditions. Schlesinger has seen in apparently hopeless cases cure follow its intravenous use. In his experience the rectal application is also effective. [w.e.] [These reports deserve attention. s.s.c.]

The Nernst Lamp for the Production of Ether Waves for Use in Therapeutics.—Wm. Rollins² states that of the 2 forms of electric lamps used most extensively for the production of ether waves the arc is the more suitable for the production of short waves. In this lamp the temperature is higher, making the proportion of short waves greater, as there is no glass covering to absorb these waves, as in the incandescent lamp. Rollins has experimented with Walter Nernst's lamp, in which a rod containing a preparation of zirconia is heated by an electric current. This lamp requires no glass covering, although it is supplied with one. Loss of short waves is therefore avoided. This light is suitable for use in therapeutic cabinets in which an even distribution of radiant energy is desired and usually obtained by the use of many incandescent bulbs, in some cases over 90. Another advantage over incandescent bulbs is that the consumption of current for the same number of light waves is greater, less of the current being converted into the longer heat waves. [L.F.A.]

Treatment of Furunculosis.—The patient should be ordered to drink a glass of purgative mineral water before breakfast for 3 or 4 days. At the end of this time he should be given fresh brewer's yeast; 1 teaspoonful in a glass of water before each meal. This must be continued for a week. The diet should be restricted; no pork and no wine or other alcoholic beverage should be allowed. His general health should be improved. Locally, the furuncles may be aborted by painting them with tincture of iodine or by the application of compresses dipped in camphorated alcohol. Gallois³ recommends a solution of iodine in acetone, as follows:

Metallic iodine 4 gm. (1 dr.)
Acetone 10 gm. (2½ dr.)

A cotton applicator should be dipped in this solution and applied to each of the inflamed points. A pimple which has

¹ Journal des Praticiens, Vol. xvii, No. 43, 1903, p. 682.

² Thèse de Montpellier, 1903.

¹ Wiener klin. Wochenschrift, October 29, 1903, No. 44.

² Boston Medical and Surgical Journal, Vol. cxlix, No. 2, 1903, p. 37.

³ Journal des Praticiens, Vol. xvii, No. 34, 1903, p. 636.

not suppurated will usually disappear by the following day. The remedy must be used with care, owing to its caustic action. [L.F.A.] [For ordinary staphylococci or streptococci infections of the skin, a 4% solution of formaldehyd is usually the best application—not painful and quite effective. S.S.C.]

Lactovegetarian Diet.—The suppression of meat from the diet necessitates the administration of vegetable articles which shall furnish the body with sufficient nutrient principles to maintain normal nutrition.¹ In establishing a milk-vegetable diet, it is necessary to include butter, sugar and certain farinaceous articles as these are of great caloric value. In cases of cardioarterial disease or in nephritis large quantities of milk should be given between meals to act as a diuretic and aid in the elimination of toxins. The following diet is recommended: For breakfast, beside milk, a little fresh butter and bread. At midday, two dishes may be given, the first of macaroni, pea-soup or an omelet souffle, which are the most nutritious foods; the second should be composed of less nutritious articles such as potatoes, carrots, turnips and cabbage. Fresh fruit and nuts are very beneficial. Fermented cheese should not be allowed. For dinner, soups containing turnips, onions, carrots, celery or cabbage may be given; these vegetables are rich in potash and act as stimulants to oxidation and as diuretics. These vegetable soups may be replaced by those containing milk and other farinaceous articles. After the soup, eggs, legumes and fruit may be given. A small quantity of Bordeaux wine may be allowed if the patient has been accustomed to some alcoholic beverage with his meals. [L.F.A.]

FORMULAS, ORIGINAL AND SELECTED.

Local Treatment of Leukorrhea and Gonorrheal Vaginitis.—

Cerevisin (*saccharomyces cerevisæ*) . . . 90 gm. (3 oz.)
Glycerin of starch (cold) 60 gm. (2 oz.)
Make into a paste.

This is recommended for persistent vaginal discharges (especially old standing cases), by Chapelle, of Paris. A portion of the paste made up in a ball about the size of a walnut, should be placed in the vagina, well up against the cervix, and retained in position by a tampon of absorbent cotton. The patient is sustained by liberal diet and tonics. Cerevisin is a pure form of the yeast plant, desiccated at a low temperature.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 8, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	San Francisco.....Dec. 21-27.....	7	
Illinois:	Chicago.....Dec. 26-Jan. 2.....	3	
Iowa:	Dubuque.....Dec. 26-Jan. 2.....	1	
Louisiana:	New Orleans.....Dec. 26-Jan. 2.....	1	
Maine:	Athens.....Dec. 31.....	Present.	
	Brighton.....Dec. 31.....	Present.	
	Madawaska Co.....Dec. 1-31.....	39	
Maryland:	Baltimore.....Dec. 26-Jan. 2.....	1	
Michigan:	Flint.....Dec. 26-Jan. 2.....	1	
	Port Huron.....Dec. 26-Jan. 2.....	2	
Missouri:	St. Louis.....Dec. 19-Jan. 2.....	6	
New Hampshire:	Manchester.....Dec. 26-Jan. 2.....	1	
New Jersey:	Camden.....Dec. 26-Jan. 2.....	5	
	Trenton.....Dec. 26-Jan. 2.....	2	
New York:	Buffalo.....Dec. 21-Jan. 2.....	12	1
	New York.....Dec. 26-Jan. 2.....	1	
Ohio:	Dayton.....Dec. 26-Jan. 2.....	4	
Pennsylvania:	Altoona.....Dec. 26-Jan. 2.....	1	
	1 death at county hospital.		
	Erie.....Dec. 26-Jan. 2.....	2	
	Johnstown.....Dec. 19-Jan. 2.....	4	1
	McKeesport.....Dec. 26-Jan. 2.....	3	
	Philadelphia.....Dec. 26-Jan. 2.....	74	11
	Pittsburg.....Dec. 26-Jan. 2.....	17	6
	Reading.....Dec. 25-Dec. 31.....	1	
Tennessee:	Memphis.....Dec. 26-Jan. 2.....	8	2
	Nashville.....Dec. 26-Jan. 2.....	1	
Utah:	Salt Lake City.....Dec. 26-Jan. 2.....	3	
Wisconsin:	Milwaukee.....Dec. 26-Jan. 2.....	2	
All Imported			
SMALLPOX—FOREIGN.			
Austria:	Prague.....Dec. 5-12.....	21	
Brazil:	Pernambuco.....Nov. 1-15.....	20	
	Rio de Janeiro.....Nov. 29-Dec. 6.....	58	

Great Britain:	Birmingham.....Dec. 12-19.....	1	
	Liverpool.....Dec. 12-19.....	1	
	London.....Dec. 12-16.....	6	
	Manchester.....Dec. 12-19.....	4	
	Newcastle.....Dec. 12-19.....	5	
Italy:	Cutania.....Dec. 10-17.....		3
Russia:	Odessa.....Dec. 5-12.....	2	
	Warsaw.....Nov. 7-14.....		10
Turkey:	Smyrna.....Nov. 29-Dec. 13.....		13

YELLOW FEVER—UNITED STATES.

Texas:	Laredo.....Dec. 30-Jan. 2.....	2	
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YELLOW FEVER—FOREIGN.

Brazil:	Rio de Janeiro.....Nov. 22-Dec. 6.....	1	
Ecuador:	Guayaquil.....Dec. 6-12.....		1
Mexico:	Ciudad Victoria.....Dec. 12-19.....	3	2
	Merida.....Dec. 13-19.....	6	
	Tehuantepec.....Dec. 13-19.....	1	1

PLAGUE—FOREIGN.

Brazil:	Rio de Janeiro.....Nov. 29-Dec. 6.....	27	22
China:	Hongkong.....Nov. 21-27.....		3
Egypt:	.....Nov. 28-Dec. 4.....	3	3
India:	Bombay.....Dec. 1-8.....		51
	Calcutta.....Nov. 28-Dec. 5.....		14
	Karachi.....Nov. 28-Dec. 6.....	6	6
	Madras.....Nov. 28-Dec. 4.....		1
Japan:	Yokohama.....Nov. 21-23.....	1	1

CHOLERA—FOREIGN.

India:	Calcutta.....Nov. 28-Dec. 5.....	42	
	Madras.....Nov. 20-Dec. 4.....		3
Turkey in Asia	.....Nov. 30.....	59	

Changes in the Medical Corps of the U. S. Army for the week ended January 9, 1904:

ALLEN, First Lieutenant JOHN H., assistant surgeon, is granted leave for one month.

OWENS, GEORGE F., contract surgeon, having reported to the surgeon-general of the Army, is relieved from further duty in the division of the Philippines, and will proceed to his home, Upper Marlboro Md., for annulment of contract.

SPRINGWATER, SAMUEL A., contract surgeon, leave granted September 8 is extended one month.

O'REILLY, Sergeant First Class PATRICK, Cabana Barracks, Havana, Cuba, will accompany the troops leaving that station to Fort Barancas. Upon completion of the duty he will proceed to the Army General Hospital, Washington Barracks, for duty.

JOHNSON, Major RICHARD W., surgeon, will, in addition to the duties heretofore assigned him in connection with the Louisiana Purchase Exposition, St. Louis, Mo., supervise the sanitary conditions on the exposition grounds until April 1.

POLHEMUS, Major ADRIAN S., surgeon, extension of leave granted December 7 is further extended two months.

Orders of November 19 are amended to direct Contract Surgeon Victor E. Watkins to report to the commanding general, department of California, for assignment to duty in that department.

ENDERS, WILLIAM J., contract surgeon, will transfer the medical property at Fort Delaware to the post surgeon at Fort DuPont, and will then proceed to Fort Morgan for duty.

Changes in the Public Health and Marine-Hospital Service for the week ended January 7, 1904:

IRWIN, FAIRFAX, surgeon, detailed as member of Revenue Cutter Service retiring board, to be convened at Philadelphia, Pa., January 5, 1904.

ROSENBAUM, M. J., passed assistant surgeon, is granted four days leave of absence from January 1, 1904, under paragraph 189 of the regulations.

KORN, W. A., assistant surgeon, detailed as member of the Revenue Cutter Service retiring board, to be convened at Philadelphia, Pa., January 5, 1904.

AMESSE, J. W., assistant surgeon, is granted leave of absence, on account of sickness, for seven days.

ASHFORD, F. A., assistant surgeon, is relieved from duty at Chicago, Ill., and directed to proceed to Milwaukee, Wis., and assume temporary command of the service at that port.

BROCK, G. H., pharmacist, is granted leave of absence for one day.

MAGUIRE, E. S., pharmacist, is granted leave of absence for seven days from January 1.

Boards Convened.

Board convened to meet at the Marine-Hospital, Chelsea, Mass., January 11, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon R. M. Woodward, Chairman, Assistant Surgeon W. C. Rucker, Recorder.

Board convened to meet at Washington, D. C., for the purpose of considering revision of medical books on contract, and preparation of list of professional books, etc. Detail for the Board: Assistant Surgeon General L. L. Williams, Chairman; Assistant Surgeon-General H. D. Geddings; Assistant Surgeon-General A. J. McLaughlin, Recorder.

Changes in the Medical Corps of the U. S. Navy for the week ended January 9, 1904:

BEYER, H. G., surgeon, upon completion of board duty in connection with barracks, ordered to Boston, Mass., for special temporary duty, and thence to the Naval Museum of Hygiene and Medical School, Washington, D. C.—January 6.

PECK, A. E., assistant surgeon, ordered to the Pensacola—January 7.

ELMER, M. K., assistant surgeon, detached from the Pensacola and ordered to the Hancock—January 7.

¹ Journal des Praticiens, Vol. xvii, No. 43, 1903, p. 682.

American Medicine

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\$5.00 YEARLY.

Criticism of Dr. Kober's Statistics as to Disease and Drunkenness in the Army.—Several correspondents have written *American Medicine* in mild or vehement criticism of the figures given in Dr. Kober's article concerning the influence of the army canteen in the production of disease, etc., published in our issue of December 5, 1903. So far as pertains to temperance, this journal has always been outspoken in its advocacy. There are, of course, few or no greater sources of disease and degeneracy than intemperance, and every good physician will do all he can to lessen these by lessening the abusive use of alcoholic drinks. If prohibition were possible, we would seek to realize it by every means in our power. For that very reason, and trusting in the accuracy of the statistics given by so reliable an authority as Dr. Kober, we expressed our astonishment at the increased drunkenness, venereal and other diseases, etc., consequent upon the abrogation of the army canteen. But partisanship must not govern scientific opinion, and one must not be carried away by an irrational zeal for a silk banner with a resounding war-cry and in the name of patriotism desert to the enemy. This some of the over-zealous temperance people seem to be in danger of doing. If there is more disease, etc., from the canteen, then the canteen must stay abolished. But if the canteen decreases the evils, then it should be reestablished. There can be no question that as a result of the abolition of the canteen the statistical tables show an increase of drunkenness, vice, venereal diseases, desertions, etc., and a decrease of savings deposits. The figures have been verified, and with a single unimportant exception not affecting the result, and due to a typographic error, they have been found correct, and according to the official reports. We refer to letters in another column. Until falsity in the figures is proved, we cannot give further space for opinions in our columns.

Physicians should encourage temperance—and even teetotalism—this seems the certain trend of present professional opinion. The experience of certain English life insurance companies which we epitomized last year in several editorials make the lesson clear that longevity is much greater in the total abstainers than even in the moderate drinkers, and, of course, drunkenness is evil in itself, and a source of greater evils. The contention that alcohol is an essential part of a healthy diet, or

that it has any considerable food value is no longer supported by scientists or moralists whose opinion is of much value. That it helps the drinker to do work, physical or mental, is also disproved. Whether it contributes to "sociability" or not, and whether the kind of sociability it may encourage is of any value to the individual or to society is hardly a medical question. But that it is one of the great causes direct and indirect of many diseases, and especially of those most loathsome and impossibly controlled ones, which are called venereal; of this there can be no doubt in the minds of experienced medical men. The great function of the profession is to cure disease, but one still more binding is to prevent it. This is the solid and sufficient reason why the influence of the profession is more and more being thrown with all those sane and feasible agencies that make for temperance. But as scientists the methods we advocate must be governed by experience, and by the choice of the lesser evil, when the absolute good is found to be impossible, or when the attempt to realize it begets the very evil to be cured. The resolute support of the feasible reform—that by legal and educational methods—should not be lessened because of the extremism and prejudice which multiplies the abuse it blindly seeks to uproot by force and passion.

No Monopoly in the Manufacture of Diphtheria Antitoxin.—The newspapers for the past weeks have contained a great many articles and reports as to increased prices demanded by a trust, which is said to control the supply and to regulate the price of the diphtheria antitoxin made in this country. If this is true, or if it should become true in the future, the medical profession would be the first to stop it. There should not be any such a monopoly, nor should the price be made higher than will yield a just profit to the manufacturers of a pure and standardized product. From a letter published in another column, it would seem clear that the alarm is not justified. Certainly the truth as to a reported monopoly or "combine" can be ascertained, and just as certainly can the cost of manufacturing a trustworthy antitoxin be ascertained. Our correspondent says that the price has been lowered instead of raised, and that the erroneous report has been caused by the change in the strength of the preparation and the method of distribution. We would suggest the appoint-

ment of a committee of experts, medical men and pathologists, whose names would alone be a guarantee of confidence in their report, and who should at once investigate the facts and end a doubt, which is harmful alike to the manufacturer, the physician, the patient, and the community.

Corporations and Vaccination.—The order of the Pennsylvania Railroad requiring its employes to be vaccinated, should be followed by similar orders on the part of the transportation companies and other great corporations of the country. It is, when closely viewed, for their self-interest, and it is strange that a policy so good alike for the employer, the employed, and for the general public, should have been delayed so long. Were the large employers of labor of the nation to follow this policy it would be the grandest step toward universal vaccination yet made, and would undoubtedly be followed by an immediate lessening of the number of cases of illness and death from the disease. The men would be encouraged by the order to carry out vaccination in their families, and it would not be long before a condition of public sentiment would exist which would demand laws and rigidly enforce their execution for compulsory vaccination. America may be freed from the curse of the disease as perfectly as Germany, when she takes the same precaution. There can be no further parleying and let-alone with the antivaccinationists. One antivaccination journal editor says he has been producing nitric acid sores for over 15 years, and will continue to do so, to fool the doctors. The Boards of Health and the law should attend to such people.

To Prevent Pneumonia.—The increase of pneumonia is attracting the attention of some Boards of Health, and of all public-minded citizens. But in many places there are no boards and no public-minded citizens. The first rule for the prevention of the disease would be to make the people understand that though not as contagious as smallpox, it is nevertheless sufficiently so to render notification necessary, and proper precautions not to "catch" it, and to keep the system in such a condition of health that the germs cannot find a nidus. Of "corrupt and contented" Philadelphia and Pennsylvania, little may perhaps be expected. For another century our street cars will probably not be heated, our water not be purified, our streets not cleaned, nor the masses of filth, snow and ice in winter removed. The health of the people does not, of course, concern our political rulers. In Chicago the energetic commissioner keeps up his tireless crusade. In most of the nation there is silence concerning the matter. In New York the Board of Health is trying to instruct the people how they may individually avoid the disease. These are some of its *Don'ts*:

Don't stop treating a "slight cold" until it is completely cured.

Don't go into the cold air in an overheated condition.

Don't go out of an overheated room into the street without wrapping up.

Don't stay in an overheated room any longer than you can help it. A moderate temperature is more healthful.

Don't sit in an overheated car too tightly bundled up.

Don't drink too much.

Don't go without a proper amount of sleep; rest is necessary to keep the body in a proper state of resistance.

Don't hesitate to see the doctor. A step in time may save an undertaker's bill.

The Increase of Insanity.—London, says Dr. Robert Jones, is responsible for the production of over 70 insane persons a week. In 1859 there were in England 36,762 insane, or 1 to 536 of the population; there are today 113,964, or 1 to 293. The recovery rate from all cases of mania is also decreasing, being now 38.4%. Melancholia is increasing, and also premature dementia. The same complaint comes from the continent. Some statisticians contend that the increase is not real, but due to better census taking, segregation, and the great increase of the population, but there is a general conviction that the increase is altogether too definite to be explained in those ways. For the past six years the total increase of the insane in both public and private institutions of New York has averaged 708, but the increase up to October 1, 1903, was 941 over the previous year. The increase in the State hospitals, not including the two asylums for the criminal insane, was 918, as against 663, the average of the past six years. There are at present nearly 26,000 patients in the insane asylums of the State. Dr. White, of Washington, contends that there is more insanity in New England than elsewhere; and the amount decreases steadily as one goes from Boston west, or from Boston south. The statistics follow the figures being given in a sort of reverse form and representing the number of sane people, in each locality, for one insane:

New England	359
New York and Pennsylvania	424
Virginia, Maryland, Kentucky and Tennessee	610
Ohio, Indiana, Illinois and Michigan	610
The Middle West	750
The Southern States	935
Rocky Mountain States	1,263
Pacific Coast States	385

The explanation of the fact is found to be that the number of large cities—density of population—is greatest in New England, and decreases regularly in the same directions as insanity. The following figures, showing the density of population in the various parts of the country, correspond regularly with the proportion of insanity. The figures represent the number of inhabitants per square mile:

North Atlantic division	107.37
South Atlantic division	32.98
North Central division	29.68
South Central division	18.94
Western division	2.58

The conclusion is clear that in some way the increase of insanity is due to, or connected with city life. But that is too vague to satisfy the mind that seeks for real causes. Is it due to dissipation and vice? To poverty and overwork? To lack of sleep? To intellectual and educational strain? To the reckless fury of the desire for wealth and success? These appear to be the causes most commonly mentioned. Or can there be some overlooked factor which, beside all of these, or in all of them, is secretly at work?

Another iniquity of the Trades-Union spirit was the recent rule of the Chicago teamsters, who refused to allow milk to be brought into the city except once a day. One who knows that the freedom of milk from disease germs and its nutritional powers are entirely dependent upon its freshness, realizes what death-dealing this doubling of the time of kept milk brings to the children of the city. Apparently the teamsters prefer to kill their own children for the sake of the wage-scale. The *British Medical Journal* recently discussed a local epidemic of sore throat and fever traced to the use of the putrescent milk of four cows in the dairy of a farmer who, with others of his household, had suffered from "quinsy sore throat" about three weeks before the beginning of the local outbreak. Examination of the cows showed one or more teats of each animal inflamed and suppurating and the milk from these teats contained a large admixture of pus. The wives and mothers of the striking teamsters should get after them and teach them to value properly their own children. The great duty of women is child-raising and education. They are the housekeepers of the home, and properly, also, of the nation, and when they are once aroused to fulfil their office in a communal way there will be pure, fresh milk straight from the cow to the babies in the quickest time possible. Regard for health must govern all strikes.

An example of the noble work of preventive medicine is offered by the Commissioner of Health of Chicago, who says that of the city the aggregate ages of the 28,353 decedents of 1903—exclusive of the theater-fire victims, not yet reported to the department—was 910,982 years, or an average of 32.1 years each. In 1892 the total deaths were 27,754; aggregate ages, 612,588 years; average, 22.6 years each. In 1882, total deaths 13,696; aggregate ages, 264,998 years; average, 19.5 years each. In 1872, total deaths, 10,203; aggregate ages, 153,678 years; average, 15.2 years each. These figures show an increase in the average duration of human life in Chicago in less than a single generation—81 years—more than double in 1903 that of 1872. In 1903 the average age at death was 42% greater than in 1892; 60% greater than in 1882, and 111% greater than in 1872.

History of Circumcision.—The history of circumcision is one of the curiosities of ethnology and of antiquarian research. Till comparatively recent times, it was almost universally believed in western Europe that the origin of the operation as practised by primitive peoples originated with, and radiated from, the time and place of the Mosaic dispensation to the "chosen people." The scientific researches and the higher criticism of the past century have combined to explode that view. The researches of Welcke in this connection led, among other results, to the discovery of a true specimen of circumcision on the mummified person of Amen-en-hab, who lived between the years 1614 and 1555 B. C. The belief in the Jewish origin of the practice has, however, been even more hopelessly demolished by the discovery of the widespread practice of circumcision among the aborigines of the Australian continent and of the Malayan Archipelago. And at the present day circumcision pervades the troubled Balkan regions, and tra-

verses the whole extent of Asia Minor; crosses the Persian tableland, on which it has firmly fixed its hold; and still retains possession of a great portion of the vast peninsula of India. We have the evidence of Philostorgius that it prevailed among the Arabs as early at least as 342 B. C. The practice is so nearly universal among the primitive tribes of Central Africa that it has been truly remarked that it would be far easier to enumerate the tribes who do not use circumcision than those who do. And its extraordinary prevalence over the greater part of the Dark Continent is further illustrated by the fact that it is used by the Abyssinian Christians as well as by the Bogos and the Copts. And dear to the heart of the antiquarian and of the ethnologist is the fact that the aboriginal Australian was found to circumcise his male child with a sharp stone—as did Zipporah, the wife of Moses, even before the children of Israel were led up out of the land of Egypt! While to crown the obstruction to the acceptance of the older notion of an exclusively Jewish origin, latter-day researches have proved the existence of the practice of circumcision among some native American Indians, even preserved to the present day.

Ritual Practice of Circumcision: Its Dangers.—The hygienic and operative importance of the ritual practice of circumcision has recently attracted a good deal of attention and discussion both within and without the Jewish community. This is due to the fact that two deaths of Jewish infants were reported, which occurred under circumstances that left no room for possible doubt of their being in each case the direct result of the operation. Whether it was that the occurrence of such accidents were hushed up it is difficult, or rather impossible, to decide; but deaths from such causes had been so seldom heard of till within the last few years that many Jews believed that a fatal case never occurred as a consequence of this, the oldest as well as the most sacred of all surgical procedures. Of course, every cutting operation endangers life when the individual happens to be the subject of hemophilia. And the possible occurrence of sepsis must be considered as in all other operations, although the chances are less than in most others.

But even when the infant is not a "bleeder," copious hemorrhage is one of the things to be dreaded, on account of the fact that children do not bear the loss of blood so well as grown-up individuals. For this reason, some Jewish surgeons who have discussed the question recently, still recommend the old tearing method of carrying out the second stage (*peri'ah*) of the ritual circumcision, by which the lining membrane of the prepuce is divided along the dorsum of the glans, after the conclusion of the first stage (*milah*), which consists of the removal of the cutaneous flap of foreskin. Such tearing, according to the familiar manner of lacerated wounds, is almost free from hemorrhagic sequels in all cases; and this advantage is held by some good judges to compensate for the greater danger of sepsis—the tearing being always carried out by the Jewish operator by seizing each lateral segment between the thumbnail and index finger, and then using forcible divulsion. The third (and final) stage of the Jewish ritual operation consists in the sucking of the wound (*mezizah*) by the operator. The latter (*mohel*), before applying his lips, takes some wine in his mouth, and then sucks the wound vigorously, after which he expels the mixture of wine and blood into a special receptacle, which is always placed in readiness for the purpose. This proceeding is repeated several times, and completes the

operation, excepting the control of troublesome bleeding and the dressing of the wound. For the former purpose, various astringent applications are used in different parts of the wound. They are usually applied by moistening or powdering, as the case may be, small circular pieces of linen, each of which has a central orifice through which the glands is drawn. They are closely applied to the cut surface, secured by a few turns of a small bandage, and usually allowed to remain in place till the third day. They are kept covered by a diaper, and the wound is usually found to have almost or quite healed on their removal. The mohel usually remains for an hour or so with the child, lest any traces of recurring hemorrhage should arise.

Considerable opposition to the continuance of the practice of meizah has arisen of recent years, on account of its nonconformity with the principles of asepsis in the treatment of wounds. Also on account of a sensational case which occurred in Cracow of a mohel who in this way inoculated a number of infants with syphilis, his mouth having been the seat of specific ulceration.

The Opticians' "Optometry" Should be Made Illegal Instead of Being Legalized.—The "Optical Society of the State of New York" has prepared a bill which it is seeking to have made law and it is actually asking physicians for their help in securing its passage. The first section of this bill is a definition of "optometry," which reads as follows:

The employment of any means, other than the use of drugs, for the measurement of the powers of vision, and the adaptation of lenses for the aid thereof.

Section 9 of this proposed bill makes a distinction between optometrists and "those who sell spectacles or eyeglasses on prescription from any duly qualified optometrist or physician," from which we learn much! In the letter seeking the aid of physicians there are these paragraphs:

As the measure does not invade the domain of medicine, we desire the support of all medical practitioners, believing that the compulsory education of those engaged in fitting spectacles and eyeglasses will prove a pronounced public service. . . . We want all who practise optometry to be able to recognize disease for the sole purpose of urging the importance of consulting qualified physicians.

This is the rankest hypocrisy and deceit. "Optometry" practised by any but physicians should be made illegal instead of cunningly legalized. No "optometrist" can possibly "recognize disease" except after a medical education. It is as important that the treatment of diseases of the eye should be solely in the hands of medical men as that druggists should be disqualified from prescribing for other diseases. Moreover there is a double deceit in all this, for almost no spectacles or eyeglasses are prescribed by the medical man for the sole purpose of "aiding vision." Myopia is a disease itself, and astigmatism and farsightedness, if not always of themselves diseases, do produce many and profound diseases, directly and inevitably. There are no instruments of the *materia medica* more powerful for good or evil than lenses used in spectacles. The eye is the most valuable of the sense organs of the body; and its diseases and the function of vision are indissolubly bound together. The disorders of vision cannot be treated apart from the diseases of the eye, and also from the diseases of the brain and of the whole body which result from optometry good or bad, or from the want of it. Every physician should labor to make optometry illegal by any other than the physician.

BOOK REVIEWS

Functional Diagnosis of Kidney Diseases, with Especial Reference to Renal Surgery.—By LEOPOLD CASPAR and PAUL FRIEDERICH RICHTER. Translated from the German by ROBERT C. BRYAN and HENRY L. SANFORD. P. Blakiston's Son & Co., Philadelphia.

This is a small volume of over 200 pages in which the authors discuss the various surgical affections of the kidney, together with their clinical aspect. They recite, in some detail, a number of cases occurring in hospital practice as illustrative of the matter under discussion. The latest investigations concerning renal sufficiency or insufficiency; ureteral catheterization; cryoscopy; the quantitative estimation of single chemic elements, especially nitrogen; the phloridzin test, etc., are taken up and discussed at length. The volume contains many valuable suggestions concerning the latest methods and investigated kidney diseases.

Elements of Surgical Diagnosis.—By A. PEARCE GOULD. Third edition, revised and enlarged. W. T. Keener & Co., Chicago.

This little volume of some 600 pages needs no introduction to the profession. Sufficient to say that the third edition has appeared, in which the whole text has been revised; much has been rewritten, and many additions have been made. A section on the diagnosis of the intracranial complications of middle-ear disease has been added, and chapters on the diagnosis of abdominal tumors, and of certain acute abdominal diseases have been introduced. The general plan and scope of the work remains unaltered, and its brevity, terseness, and recitation of the essentials in surgical diagnosis are important factors worthy of comment. All the important surgical affections are taken up, the symptoms given, and the treatment indicated. The new edition will be well received.

Infectious Diseases.—By G. H. ROGER. Translated from the French by M. S. GARRIEL. Lea Brothers & Co., New York and Philadelphia.

This book contains about 900 pages devoted to a scientific discussion of infectious diseases, their etiology, pathology, and treatment. Special attention is directed to the author's consideration of the influence of infection upon the various organisms of the body. His research in experimental appendicitis, pseudotuberculosis, variola, and the vesicatory diseases are particularly interesting and noteworthy, as are also his treatment of the pathology of fevers and the defense of the organisms against infection. The final chapters, comprising about one-fourth of the volume, are devoted to a discussion of the therapeutics of infectious diseases. This is a feature which will be much appreciated by practitioners, and will add to the value and popularity of the work. The author's reasoning and deductions concerning infectious diseases, suppuration, gangrene, septicemias and pyemias, nodular infections, cellular degenerations, etc., are philosophic and classic. We predict for the work a hearty reception from the profession.

Operative Surgery.—By WARREN STONE BICKHAM. W. B. Saunders & Co. Philadelphia, New York and London.

This is a volume of almost 1,000 pages devoted to the surgical anatomy and surgical technique which applies to all the important surgical affections of the human body. It is arranged systematically, tersely expressed and well written. It contains many splendid illustrations illustrative of surgical procedures. It is thoroughly up-to-date and modern in every respect. For ready reference on any surgical subject it will prove of great value to the surgeon. It is practical and deals with all surgical procedures in a simple, direct, concise and thorough manner.

Surgery: Its Theory and Practice.—By WILLIAM JOHNSON WALSHAM. Eighth edition by WALTER GEORGE SPENCER. P. Blakiston's Son & Co., Philadelphia.

This is a volume of some 1,200 pages devoted to the whole subject of surgery. The fact that more than 38,000 copies of this work have heretofore been published is sufficient guarantee of its appreciation by the profession. The new edition is enlarged,

many new illustrations have been added and the work brought thoroughly up-to-date. More than the usual space is devoted to infective processes, tumors and cysts. The author has not followed the usual custom of entirely omitting the various specialties correlated to surgery, such as laryngology, otology, gynecology, etc., but has included sections dealing with the surgical aspect of these various affections. The work is well written, contains many valuable illustrations, and covers the whole subject of surgery.

A Manual of Operative Surgery.—By Sir FREDERICK TREVES. New edition. Revised by the author and Jonathan Hutchinson, Jr. In 2 volumes. Volume I published by Lea Brothers & Co., Philadelphia and New York.

Since the first edition of this work in 1891, it has been much appreciated by the profession. The new edition is revised, enlarged, and presented in 2 volumes. The volume under consideration is devoted to general principles, ligation of arteries, operation upon nerves, amputation, operation upon the bones and joints, and tenotomy. The author describes in detail the various operations included under the several headings enumerated, and gives specific directions as to proper surgical procedures in each instance. The work meets every expectation that would be entertained in a volume coming from the hands of a man so prominent in the profession. It is well written, forcible, particular in details, and sufficiently exhaustive without being cumbersome and laborious. Its numerous illustrations add materially to the elucidation of the subject matter. It should be in the library of every surgeon.

Clinical Discussions on Minor Surgery.—By JAMES G. MUMFORD. Published by the Old Corner Book Store, Boston.

This is an interesting handbook of something more than 100 pages, consisting of clinical talks on what is ordinarily denominated minor surgery. The subject matter is embraced in 10 lectures under the following headings: The examination and study of cases; incised wounds; simple fractures; lacerated wounds; compound fractures; granulating wounds and varicose ulcers; felon, whitlow, paronychia, and palmar abscess; boils and carbuncles; bunions, ingrowing nails, corns, and warts; and massage. The writer's experience as a clinician and teacher has enabled him to place before his hearers and readers the main points in the successful treatment of the subjects under consideration. While, of course, the work covers a very limited field, it is essentially practical and common sense in that part to which it is devoted.

Nurse's Guide to Surgical Bandaging and Dressings.—By WM. JOHNSON SMITH, F.R.C.S. Philadelphia: J. B. Lippincott Company.

This little book contains 162 diminutive pages filled with elementary instructions regarding antiseptic and aseptic surgery, the modern treatment of wounds application of bandages, etc. There are 70 illustrations. It forms a handy pocket reference book for nurses in surgical wards that should prove of distinct value.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Nineteenth Annual Report of the Bureau of Animal Industry: For the year 1902. Government Printing Office, Washington, D. C., 1903.

Transactions of the National Association of United States Pension Examining Surgeons: Vol. I, 1903. Published by the Association, Rochester, N. Y., 1903.

Electro-Diagnosis: Scheme for the Differential Testing of Nerves and Muscles.—By J. MONTGOMERY MOSHER, A. M., M.D., Clinical Professor of Insanity, Neurology, and Electrotherapeutics, Albany Medical College; Attending Specialist in Mental Diseases, and Physician to the Outpatient Department for Nervous and Mental Diseases, Albany Hospital. Illustrated. Brandow Printing Company, Fort Orange, Press, Albany, N. Y., 1903. Price, \$1.00, net.

Diseases of Women.—By GUSTAVUS M. BLECH, M.D., Professor of Operative Surgery, Jenner Medical College, Surgeon-in-chief and Attending Gynecist Moimonides Polyclinic, etc. M. Robertson & Co., Chicago, 1903.

AMERICAN NEWS AND NOTES.

GENERAL.

A Wise and Practical Frenchman.—A French automobilist proposes that all motorists carry a compact pharmaceutical and surgical outfit for the purpose of rendering "first aid to the injured." This, in view of the fact that accidents usually occur on open roads, distant from cities and villages where medical attendance can be had, seems to be an excellent suggestion.

Miscellaneous.—AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY: The annual meeting will be held at Fall River, Mass., January 30. PROFESSOR W. S. HALSTED, of John Hopkins University, Baltimore, has been tendered the invitation to deliver the Cavendish lecture before the West London (Eng.) Medico-Chirurgical Society, at its annual meeting at Hammersmith, Eng., in June.

Professional Manufacture of Diphtheria Antitoxin.—Several cities, especially the largest ones, have rendered any monopoly in the manufacture of this antitoxin an impossibility by making and selling it through the local Boards of Health. Physicians are given the preparation for use among the poor. In Philadelphia a somewhat novel method of carrying on the manufacture of the city's antitoxin has been devised. The horses are those used by the mounted police. They are first given a good rest and fattened up, and the care, etc., during the inoculation period leaves them in excellent condition for subsequent police service. There is said to be a saving of about 60% to the city by this method.

An Admirable Suggestion.—It is not generally known that the work of Dr. Robert Fletcher, the editor of the lately revived *Index Medicus*, is entirely a work of love, and has been for many years. Dr. Fletcher has not received one dollar of compensation for all his editorial work, which involves the personal reading of the proof 3 times over, a labor which only those who have dealt with the unusual foreign languages represented in the *Index Medicus* can appreciate. A number of his friends and admirers have combined to have his portrait presented to the library of the Surgeon-General's office where, in the scene of his labors, it will always remind later generations of his splendid work. A committee has been appointed, which is doing active work to secure funds for this purpose. The fund is not yet complete, and any who feel disposed may contribute thereto.

Physician May Charge Maximum or Minimum Fees.—In rendering judgment concerning a point in litigation between a Philadelphia physician, claiming the right to charge a fee in accordance with the patient's financial standing, on one hand, and a belligerent patient on the other, Judge Ashman, of the Orphan's Court, said: "In my opinion, a physician may fairly demand, as the exceptant admitted was his practice, a maximum and a minimum rate of pay, just as the circumstances of his patients shall seem to indicate will be proper. It is true that a physician is unlike a tradesman, who has different qualities and therefore at varying prices; he is bound in every case to give his best service. But it does not follow that this service is worth the same in every case. Where it saves a human life its value is unestimable, for it is as true as in the days of Job that a man will give all that he has for his life. With somewhat of unanimity the rhetoricians from Socrates to Ingersoll, have agreed with the inspired patriarch that human life, whether of high or low degrees, is equally sacred, and every sane man and every court in Christendom admits the truth of the proposition. No flight of rhetoric, however, can escape the plain fact that life has a pecuniary value of variable quantity, greater, for instance, in the case of the millionaire than in that of the laborer. The question before us is one of values, and the law which must govern it is a thing of common sense rather than of sentiment. The practitioner who boasts that his terms are one and invariable must choose between the 2 rates; if he adopts the lower one he will probably starve; if he selects the higher one he will be compelled very often to make large reductions at the risk of wounding the self-respect of his poorer patients. The moral distinction between the code of the doctor who in theory has but 1 charge, and in practice 2, and his ruder but more candid brother who declares at the outset that he has a maximum and a minimum charge, fades away on the slightest analysis into a play upon words."

EASTERN STATES.

The Control of Tuberculosis.—The *New York Times* of January 7, commenting upon this subject editorially, quotes Dr. W. Gilman Thompson with the following statement: "Within the past decade, in the State of Massachusetts alone the mortality from tuberculosis has been reduced exactly one-half." It then says: "In view of the fact that between 1890 and 1900, the population of Massachusetts increased from 2,093,889

to 2,855,346, a net gain of 791,457, this statement was so startling as to demand verification. This we have been at pains to make and the official facts are as interesting as the generalization to which they relate. Between 1885 and 1902, notwithstanding the increase of population above noted, the number of deaths from tuberculosis in Massachusetts shows a decline from 5,955 to 4,685. During the period of 50 years since 1853 the deathrate per 10,000 inhabitants of that State has declined from 42.7 to 15.9. This is full of encouragement, and shows without argument the value of State medicine intelligently directed. Its (Massachusetts) deathrate from tuberculosis during 10 years, per 10,000 of population, has been as follows:

Years.	Deathrates from Tuberculosis.
1893.....	23.1
1894.....	2.23
1895.....	21.9
1896.....	21.7
1897.....	20.8
1898.....	19.7
1899.....	19.0
1900.....	18.5
1901.....	17.5
1902.....	15.9

The "white plague" is obviously controllable, and its extinction will be a beneficent achievement of medical science.

NEW YORK.

A Useful Official Retained.—President Darlington of the Board of Health, has announced the appointment by the Board of Dr. Ernest J. Lederle, former Health Commissioner, as Consulting Sanitarian of the Board of Health. The position is honorary, there being no salary.

The New York Women's Infirmary Fifty Years Old.—The fiftieth anniversary of the founding of the New York Infirmary for Women and Children was held at the Waldorf-Astoria, January 16. Addresses were made by Dr. William Welch, Dr. Emily Blackwell, Dr. Annie S. Daniel, Miss M. Carey Thomas, and others.

Active Measures to Prevent Smallpox.—News from Lockport, N. Y., under date of January 12, says: The Board of Health has ordered all local theaters, amusement halls, dance halls, and other public meeting places closed and the public library to cease issuing books, in order to guard against any epidemic of smallpox or other contagious diseases prevalent in Niagara and adjoining counties.

Mortality in New York City.—For the week ended January 9 there were 364 deaths in Greater New York from pneumonia, 143 more than from the same cause for the corresponding week last year. Altogether there were 1,635 deaths recorded last week, as against 1,320 for the corresponding week in 1903, and of all the diseases which were responsible for the large total last week, pneumonia had by far the largest number of victims.

Pneumonia and Other Diseases in New York.—Following the bitter cold weather of the early part of last week there were 364 deaths from pneumonia in the 5 boroughs of the city. The hospitals are crowded with pneumonia patients, and grip is also prevalent. The deathrate for New York City for the week ended January 9 was 22.23, and for the same week last year, 18.45. Last week's record is the worst since March, 1900, and during the corresponding week last year there were only 22 deaths from pneumonia. The Health Board, alarmed at these figures, is preparing to battle with the disease. As a precaution against the spread of pneumonia, the antisputting law will be vigorously enforced. An investigation will also be made of the temperature of the cars on the surface and elevated roads.

PHILADELPHIA, PENNSYLVANIA, ETC.

The Medical Club of Philadelphia.—Nearly 300 physicians of Philadelphia were present at the quarterly meeting of the Medical Club at the Hotel Bellevue January 15. Officers were elected for the year 1904, Dr. E. E. Montgomery being elected president.

In Memory of Dr. Morton.—An oil painting of the late Dr. Thomas George Morton was presented to the Pennsylvania Hospital by the Association of Resident Physicians of that institution, to commemorate the long connection of Dr. Morton with the hospital and his services as a surgeon and physician.

Assign Cause for Pneumonia in Philadelphia.—The crowded and unheated condition of the trolley cars, the smoke nuisance, slush in the streets, and the inclement weather have caused the epidemic of pneumonia which now prevails in the city of Philadelphia, according to opinions expressed by physicians.

Must be Vaccinated.—During the week just ended a list has been made of all the men in the University of Pennsylvania who have not been vaccinated, and they will be shut out from classes and the dormitories until the regulations shall have been complied with. The same orders also apply to the faculty and the University employees.

\$500,000 for a Hospital.—The estate of Henry B. Ashmead, valued at \$500,000, according to the terms of his will, probated recently, reverts to the Episcopal Hospital as a memorial to his wife after the death of his widow and daughter. Mr. Ashmead, who was a prominent printer, died recently at his home in Philadelphia.

Mortality in Philadelphia.—Deaths from all causes last week numbered 736, the highest deathrate in any 7 days for 3 years. Of this number 26% were the result of throat and lung diseases. Heart and kidney diseases caused 14% and pulmonary tuberculosis 9%. There were 9 deaths from grip. New cases of contagious diseases were 102 less than for the previous week.

Municipal Hospital to be Destroyed by Fire.—It has been suggested from influential sources that the old Municipal Hospital of Philadelphia, when abandoned for the new institution, shall be completely destroyed by fire as the best means of preventing future epidemics of contagious diseases in the vicinity of the old institution. It is likewise advocated that the construction of new buildings shall be such that after a term of years they too can be destroyed by fire.

Smallpox near Delaware City.—It is reported that smallpox is epidemic among the boys of St. James' Rectory, a Roman Catholic institution near Delaware City. A few weeks ago one of the sisters of charity at the rectory was stricken with the disease and was removed to the emergency hospital at Farnhurst. Recently it was discovered that 5 of the inmates had contracted the disease, and they were removed to the isolation hospital. A careful watch is being kept over the other boys at the home.

Improvement at the Polyclinic Hospital.—New buildings and improvements have lately been added to the Polyclinic Hospital at a cost of \$108,965.07. New equipment for the nurses' home, new private rooms, cost \$3,347.42 additional. The maintenance cost of the institution for the year has been \$63,331.78. Total income and receipts, \$56,255.93, leaving a deficit of \$7,075.85. Unpaid building contracts, amounting to \$44,005.95, are still outstanding. Applicable to this purpose, the institution is shortly to receive legacies amounting to \$13,500, which leaves \$30,505.95 still to be provided for. The total outstanding indebtedness of the institution on December 31, was \$101,304.54.

Councils Ask for Warm Cars.—A resolution has been introduced in the City Councils of Philadelphia, which reads as follows:

WHEREAS, The unheated condition of the trolley cars in this city has endangered the health of the people, and has gone far to render of no avail the valuable services of Dr. Edward Martin, Director of Public Health, in promoting the well-being of this community; and,

WHEREAS, Street cars in New York and other large cities of the country are heated in winter time; now be it

Resolved, By the Select and Common Councils of the city of Philadelphia, that the Philadelphia Rapid Transit Company is hereby respectfully requested to provide for the heating of all street cars during winter weather, so that it will be impossible for the temperature of any car to sink below 32° F.

No Scarcity of Antitoxin in Philadelphia.—The report that because of a monopoly in diphtheria antitoxin the city of Chicago is not able to buy any, Dr. A. C. Cairns, of the Health Department, said it does not affect Philadelphia, because nearly all of the antitoxin used here is made by the city. The horses of the Police and Fire Bureaus are the subjects used to create it. The antitoxin is furnished free at the Bureau of Health to all physicians who apply for it. The application must be made in writing on a blank that requires the physician's as well as the patient's name and address, together with a history of the case. The city saves \$5,000 a month by preparing its own antitoxin. The preparation is put up in 1 ounce bottles, and the same quality would cost \$2.50 at a drug store. The city saves about 60% by making instead of buying the antitoxin.

Phipps Institute will Make an Exhibit.—Physicians of the Phipps Institute and the managers of the White Haven Sanitarium will take part in the American crusade against tuberculosis by making an exhibit at the Maryland Tuberculosis Exposition. The exposition is to be held in Baltimore, commencing January 25. Dr. Lawrence Flick, who is at the head of the Phipps Institute and the White Haven Sanitarium, will deliver an address on January 28. These institutions propose to show in a graphic way the results of their investigations. This is in keeping with the general plan of the exposition, which is attracting the attention of the tuberculosis experts in all parts of the world. The Phipps Institute will have an exhibit of those materials used to prevent tuberculosis. Among these will be paper napkins, which all infected persons are taught to use; paper bags in which the napkins must be placed preparatory to burning them, and sputum cups. The display from the sanitarium, which is situated on a mountain side at White Haven, Pa., will be the more interesting. It will consist of photographs of the patients in the open air, where they are compelled to spend most of their time, summer and winter, and will show them in the various stages of the cure.

SOUTHERN STATES.

Cocain Habit in Washington.—In his annual report to the District Commissioners, Major Sylvester declares the drug habit within his jurisdiction to be vastly on the increase. "While there has been no general increase in the opium habit," he says, "that of cocain has taken a firm hold on the lower classes. It is bound to become a destructive agency unless something is done to prevent its sale by druggists. Two years ago the drug was hardly known, but the habit has grown, and the wreck of lives which accompanies the use of this deadly drug and its sister drugs, morphin, chloral, and other pharmaceutical preparations, and even patent medicines, is becoming apparent. The police are powerless to raid the opium joints save on the charge of disorderly conduct, and the fine for this misdemeanor is inadequate to check the scourge." He urges the necessity for the prohibition of the sale of these drugs save upon the prescription of a physician.—[*Washington Times.*]

WESTERN STATES.

The Medical Fortnightly.—The first number for the year 1904 of this biweekly magazine appears in an altogether new form and dress, which adds very materially to its appearance.

Indiana Medical Journal.—A portion of the leading editorial in the January number of this journal says: With the present issue, the *Journal* drops its modest Quaker gray and robes itself in the white ermine characteristic of its elements of justice and purity. A heavier paper has been selected, the size increased and arrangements made for better and more abundant illustrations.

Mortality of Michigan during December, 1903.—There were 2,942 deaths returned to the Department of State for the month of December, or 319 more than reported for the previous month. The deathrate was 14.1 per 1,000 population, as compared with 12.9 for November. There were 490 deaths of infants under 1 year, 191 deaths of children aged 1 to 4 years, and 944 deaths of elderly persons over 65 years of age. Important causes of death were as follows: Tuberculosis of the lungs, 158; other forms of tuberculosis, 33; typhoid fever, 48; diphtheria and croup, 96; scarlet fever, 17; measles, 16; whooping-cough, 23; pneumonia, 376; influenza, 49; cancer, 151; accidents and violence, 182. There was a decrease in the number of deaths reported from typhoid fever, and the usual seasonal increase in deaths reported from pneumonia and influenza. There were no deaths from smallpox during the month. One death from chickenpox was reported from Highland township, Osceola county.

To Combat the Antitoxin Trust.—An exchange says the Chicago Medical Society and the Illinois State Medical Association are expected to begin legal proceedings against the Antitoxin Trust under the antitrust law. An official statement regarding the trust in antitoxin has been issued by Secretary Pritchard, of the Health Department. The statement says: "The Antitoxin Trust is nothing more nor less than a traffic in human life. Three concerns, which manufacture and practically control the antitoxin supply of almost the entire country, have seen fit, arbitrarily, to advance the price of their product 100%. This discovery was made by the Department of Health of the city of Chicago when, in ordering its needed supplies for charity work, it was met with the increased quotations. The department felt compelled to call public attention to the evidence that a combine had been formed which effectually controlled the price of the only known remedy for the most dreaded scourge to the child life of the country. The horizontal increase in the price made by the trust means that the city of Chicago will be compelled to appropriate double the sum to do the same amount of charity work in diphtheria cases for 1904 that it did in 1903. But it must be remembered that this burden will fall heaviest on the self-respecting, self-supporting heads of families of modest incomes. To all such, should diphtheria invade their homes and they be compelled to pay the increased prices, the burden put upon them by the Antitoxin Trust will indeed be grievous. This applies not only to Chicago, but practically to the entire country."

CANADA.

Healthful Conditions in Winnipeg.—Dr. A. J. Douglas, city medical inspector, has reported his work for the year 1903 to the civic health committee. During the 12 months he attended 1,490 cases and vaccinated 781 people. In 1902 he attended 1,342 patients and vaccinated 3,330. The difference in the number of vaccinations for the 2 years is caused by the action of the public school board which in 1902 made vaccination compulsory, and excluded unvaccinated children from the public schools. During the past 2 years smallpox cases have been very infrequent, while cases originating in the city were a rarity. Disease has been rampant only on a few occasions, when it was not serious. Of epidemics there have been none, and taking the public health as a whole it has been about average, and compares favorably with that of any other city.

FOREIGN NEWS AND NOTES

GENERAL.

Honor Robert Koch.—The sixtieth birthday of Dr. Robert Koch was celebrated on December 11. A portrait bust was unveiled in the Institute for Infectious Diseases, Berlin, a museum for bacteriology was established and a "Festschrift" is in press. Dr. Koch expects to return from South Africa in March.

Well-merited Prize.—Professor Karl Schleich, of Berlin, has received from the University of Würzburg a medal and a 1,000-mark prize for the discovery of a method of making surgical operations painless by what he calls the "Infiltrationsanästhesie." This is the wellknown "Schleich's fluid," used for the purpose of producing local anesthesia.

Rats and Bubonic Plague.—News from Hamburg under date of December 30, says the inquiry into the mortality among rats on the German steamer Cordoba, from Santos, Brazil, November 25, via Bahia, December 2, confirms the report that they died of bubonic plague. The vessel has been towed to Strandhafen and quarantined. There is no sickness among the crew, and it is officially announced that the precautions taken preclude the possibility of public danger.

The Health of London.—The report of the health officer for the county of London for 1902 has just been issued. It shows that London is one of the healthiest of the great cities of the world. The deathrate from all causes in 1902 was 17.2 per 1,000 persons, compared with a rate in St. Petersburg of 23, Rome 21.9, Vienna 19.4, New York 18.7, and Paris 18.4. Berlin is superior, with 16.1. But while the deathrate has steadily decreased, the birthrate fell also. The births numbered 132,810, or 22.5 per 1,000, the lowest recorded since the institution of civil registration. In the period between 1861 and 1890 the rate was 35.4, between 1881 and 1890 it was 33.2, and between 1891 and 1900, 30.3. The marriages show a slight increase.

Mission Hospital in Turkey.—Central Turkey is the subject of an article by Dr. F. D. Shepard, in the *Missionary Herald* for January, in which he says: Our hospital at Aintab is the only one in an area twice as large as New England, and we draw patients from all that area and occasionally from beyond. The German Mission in Oorfa has a missionary physician and a dispensary. Aleppo has an English medical missionary and dispensary and some well-qualified native physicians. Thirty-two beds in the hospital at Aintab will accommodate only half our surgical cases. Taking all the departments of the work together we find that we have had during the year a grand total of 38,801 calls upon our attention, not including the work of dispensers in putting up prescriptions. Our present hospital building is wholly inadequate to this great amount of work.

From Professor Robert Koch.—An exchange states that Professor Robert Koch, the German scientist, has written from South Africa a letter to a member of the Committee on the Prevention of Tuberculosis of the New York Charity Organization Society, expressing great satisfaction that at last some one has arisen to interfere with the swindlers who have been trading upon his name and reputation. He says: "For my part, whenever opportunity offered itself, I have never neglected to declare that I had nothing whatever to do with Koch Lung Cure, and that these concerns used my name for fraudulent purposes. I would long since have brought suit against these swindlers, but friends familiar with the conditions in America advised against it, saying that according to the law in the United States these impostors could not be prosecuted. I, too, begin to believe that the only rational way to deal with them is the one taken by your Committee on the Prevention of Tuberculosis. The public should be informed through the press of the outrageous manner in which these unscrupulous people cheat and fleece the unfortunate tuberculous."

Babes Killed by Ignorance.—An exchange says: The French, and the Parisians in particular, are becoming alive to the urgent necessity of arresting the destruction of infant life. A hundred and fifty thousand infants of the age of 12 months or under die every year in France—a high proportion in a population of about 38,000,000. The statisticians, including the chiefs of the medical profession, hold that the lives of at least 100,000 of these infants can be saved. Myriads of babies die because their mothers—belonging principally to the working class—do not know how to take care of them, or because poverty prevents them from taking sufficient rest before and after birth. As a remedy for this last evil the Senate has just given its approval to a proposal prohibiting the employment of laboring women during the 2 weeks preceding and the 4 weeks following the birth. The prefect of the Seine has just inaugurated in every one of the 20 arrondissements of Paris a permanent system of conferences in maternity for the instruction of women of the working classes, or of any others in need of enlightenment. These conferences are to be held at the headquarters of every municipal division of the capital. They will be presided over by the local mayors and by the leading scientific men of Paris.

Deathrate in French Army.—During the recent debate on army estimates in the French Chamber of Deputies some interesting but somewhat alarming statistics relating to the health of the troops were given. It appears that last year 50,000 cases of sickness were treated in the different barracks, and 125,000 more at hospitals. There were 3,500 deaths, and more than 19,000 men were discharged from the army unfit for military service. Most of the trouble can probably be traced to the bad condition of the soldiers' quarters, many of which are undoubtedly contaminated. Typhoid fever and tuberculosis are spreading to an alarming extent. Comparatively few barracks are so constructed as to provide a proper allowance of air to the soldiers, and in some dormitories the beds actually touch each other. There seems to be an inadequate medical service, there being but 1,500 doctors in the French army, while that of Germany has 3,000.

OBITUARIES.

Pulaski F. Hyatt, at his home in Jersey Shore, Pa., January 17, aged 67; a graduate of the medical department of the University of Georgetown, Washington, D. C. in 1875. He was surgeon to the Carver Hospital, Washington, D. C., during the Civil war; in 1876 he was sent to Florida as the personal representative of Samuel J. Tilden, to superintend the counting of votes in that State. In 1891 he was appointed trustee of Danville Hospital, and in 1893 he was appointed by President Cleveland, U. S. Consul to Santiago de Cuba, which position he retained until the outbreak of the Spanish-American war.

William H. Ireland, at his home in Camden, N. J., January 18, aged 60. He was one of the oldest practitioners of Camden, and served as county physician for three years; a graduate of the University of Pennsylvania, in 1867. He had been president of the county and city Medical Societies, and was a permanent or life delegate to the State Medical Society from the county society.

John Kost, formerly a professor in Adrian College, and at one time chancellor of Heidelberg University, died January 11 at his home in Adrian, Mich. He was 86 years of age. His writings and original researches had brought him prominence in international scientific classes. He had lived in Adrian for 40 years.

Fred. W. Keehl, at his home in Waterloo, Iowa, January 1, from typhoid fever; a graduate of the University of Iowa, in 1897; a member of the county, district, and State Medical Societies, and of the American Medical Association.

William H. Bryant, at his home in Savannah, Mo., December 24, aged 71; a graduate of the Kentucky School of Medicine, Louisville, in 1858; a member of the Missouri State Examining Board for many years.

Charles Merrill Clark, at his home in Chicago, December 28, aged 69; a graduate of the medical department of the University of New York in 1857; surgeon of the Federal Army during the Civil war.

Henry L. Tolman, who had a national reputation as a microscopist, January 14, aged 55. He was a member of the faculty of the Chicago College of Physicians and Surgeons.

John Scott Hughson, at his home in Sumter, S. C., December 29, aged 63; a graduate of the Medical College, of the State of South Carolina in 1867; one time mayor of Sumter.

Frederick W. Vandersloot, at his home in York, Pa., January 18, aged 70; a graduate of the medical department of the University of Maryland, in 1855.

Theo. F. Sterling, at his home in Petersburg, W. Va., December 29. He was surgeon to the First Virginia Volunteer Infantry during the Civil war.

Richard F. Scruggs, at his home in Sweetwater, Tenn., December 28, aged 70; a graduate of the Jefferson Medical College, Philadelphia, in 1859.

Daniel Devine Cunningham, at his home in Cold Water, Mich., January 4, aged 41; a graduate of the University of Michigan in 1892.

E. J. Stille, at his home in Hope Church, Pa., January 3; a graduate of the Western Pennsylvania Medical College, Pittsburgh, in 1889.

Robert McIntyre, at his home in Cobourg, January 4, aged 66; a graduate of the University of Victoria College, Cobourg, Ontario.

Henry C. Ahlborn, at his home in Boston, January 9; a graduate of the New York Homeopathic Medical College and Hospital.

S. Foster Quimby, at his home in Salem, Mass., December 23, aged 68; a graduate of Harvard University Medical School in 1864.

P. H. Woolsey, one of the best known physicians in Orange, Sullivan and Delaware counties, New York, January 12, aged 80.

J. Fenton Underwood, at his home in Penn Yan, N. Y., December 20, aged 49; a graduate of the University of Vermont in 1896.

Daniel Voorhees Scott, at his home in Jeffersonville, Ind., January 6, aged 32; a graduate of the University of Louisville in 1894.

T. Erskine Todd, at his home in Laurens, S. C., December 25, aged 49; a graduate of Jefferson Medical College in 1874.

Philip H. Greir, at his home in Trenton, January 2, aged 74; a graduate of the University of Pennsylvania.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

A CRITICISM OF MOOR'S CLAIMS FOR "UREINE" AND HIS METHOD FOR THE QUANTITATIVE DETERMINATION OF UREA.

BY

WILLIAM J. GIES, M.S., PH.D.,

of New York.

Adjunct Professor of Physiologic Chemistry at Columbia University, and Consulting Chemist at the New York Botanical Garden.

It is now nearly 4 years since Dr. William Ovid Moor first announced to the Thirteenth International Medical Congress, convened in Paris, "the discovery of ureine, the principal organic constituent of urine, and the true cause of uremia."¹

In his earlier papers, Dr. Moor stated that "ureine is the most characteristic component part of urine," that it existed in "a quantity superior to urea," that it "belongs to the group of alcohols of the aromatic series," and "at a temperature of about 80° C. begins to split into several bodies belonging to the class of oxyacids;" that "it is a ferment with a potential energy of at least 130° C.," and "is the principal cause of the ammoniacal fermentation of urine, for without its presence urea cannot be decomposed into ammonia and carbon dioxide;" that "none of the known organic or inorganic components of urine," except ureine, "could account for the intense blue reaction given by the human urine with potassium ferrieyanid and ferric chlorid;" that "it is this constituent (ureine) of urine which is the cause of its specific odor;" that "it is the true cause of uremia," etc.

A careful examination of Moor's papers on the subject of ureine failed to reveal any substantial chemie evidence of the truth of any of the foregoing claims. There were, however, so many striking indications in them of chemie crudity in the manipulations leading to the separation of "this wonderful organic fluid," this "mysterious chemie body," as Moor termed it, that I found it impossible to accept *any* of Moor's special conclusions, least of all the absurd deduction, based apparently on nothing but imagination, that "without ureine all organic matter would become converted into urea, which would remain in nature without any use, and thus within a limited period of time all vegetation, and animal, as well as human, life would cease."

That the discovery of such a remarkable substance would be an event of world-wide interest and importance goes without saying, and in order to ascertain how large might be the kernel of truth in what seemed to be a preposterous jumble of psychology, chemistry, and biology, we made in our laboratory a careful study of the methods used by Moor and the products obtained with them.

This study² demonstrated conclusively that "ureine is not a chemie individual, but a mixture containing several of the organic substances³ and a considerable proportion of inorganic salts⁴ ordinarily found in normal urine," together with materials introduced⁵ in Moor's purification process. We concluded further, that "its toxicity may be referred to some of these normal urinary constituents.⁶ Consequently, our knowledge of the cause of uremia, much as it is to be regretted, has been in no way increased by Moor's work on ureine, nor can any of his deductions regarding the biologic significance of this urinary complex be accepted."

The experiments in this laboratory were completed in December, 1900. About the same time several other investigators were making independent observations that led to the same general conclusion—that "ureine" is at best merely a mixture of urinary constituents.

¹ Moor: Medical Record, September 1, 1900, lviii, p. 336, and September 22, p. 471.

² Chace and Gies: Medical Record, March 2, 1901, lix, p. 829; also Gies and collaborators: Biochemical Researches, 1903, i, p. 595 (Reprint No. 31).

³ Urea, creatinin, pyrocatechin, phenol, alkaloidal bodies, purin bases, etc.

⁴ Sodium, potassium, ammonia, phosphate, etc.

⁵ Mercury, nitrate, oxalate.

⁶ Potassium, alkaloidal bodies.

Weatherson¹ soon followed with a paper in which he stated that "not succeeding in proving that the ureine of Moor is a constituent of urine, he began a series of experiments to prove that it is not." "In this," he says, "I was more successful."

Wiesener² stated that "after going over Moor's article very carefully, I find that there is no chemistry whatever in his paper. In fact, it is an article made up simply of words, and facts relegated to the background."

Haines and Woods³ entitled their paper, "Is there such a constituent of the urine as ureine?" and gave an emphatic "No" as the answer necessitated by the results of their own experiments. They said: "Moor's article on ureine is a presentation of hasty conclusions based upon unskilful and inadequate experimentation, and upon insufficient acquaintance with the known chemistry of the urine."

Kuljabko⁴ found that ureine is a mixture of creatinin, pigments, urea, inorganic salts, and unidentified substances, and regarded it as identical with "Pouchet's urinary syrup" ("matière extractive de l'urine").

No less than 4 different experimental investigations, conducted independently at about the same time in as many laboratories, led to results that were practically identical, and to the conclusion that the claims put forth by Moor for ureine were unfounded. No one known to me has been able to confirm Moor's results.

Moor seems to have paid no attention to the conclusions in this connection of his American colleagues, but answered Kuljabko with a repetition of the old claims,⁵ and a presentation of a modified method for separating ureine more perfectly. The modified method is no more convincing, however, than the first, and appears to have as little real chemie foundation. Lately Moor⁶ has again referred to ureine as a substance about which no further doubt need be felt.

It will be cheerfully admitted by all who may have looked into the matter, that what Moor calls "ureine" contains unknown substances of undescribed characters, just as is the case with most urinary extracts, but the same may be said quite as definitely of the urine itself. Until Moor gives conclusive evidence that his oily product is something more than merely a residual mixture, and shows that it is a single substance of definite chemie properties and composition, it cannot be admitted that any advance has been made by him chemically or biologically.

If "ureine" is the "most characteristic component part of urine," and "superior in quantity to urea," as Moor claims it to be, our present-day information on the quantity of urea in the urine needs decided revision. Moor has fully appreciated this fact, and has at last succeeded in finding a method⁷ which he seems to think will show that the urine contains only about a half or a third of the amount of urea heretofore believed to exist normally in it, the difference in urinary nitrogenous matter consisting of ureine. But this method also appears to have important defects.

The work of Erben⁸ indicates that Moor has failed to substantiate his claims with respect to the amount of urea in urine, although Moor⁹ in a reply to Erben holds to his original position, but indicates in a footnote that he did not succeed in fully separating urea from ureine after all.

In determining the amount of urea in the urine, Moor oxidized with zinc permanganate, evaporated at about 50° C., extracted urea from the residue with amyl alcohol containing 10% of ethyl alcohol, and then ascertained the quantity of urea in the alcoholic extract by titrating with a modification of Liebig's method. "Even if the urea itself may not be decomposed in part by the zinc permanganate, it is still to be shown,"

says Schulz,¹ "that extraction of the urinary residue with amyl-ethyl alcohol, as stated by Moor, effects quantitative separation of the urea."

Folin² has also pointed out an important assumption in Moor's conclusions. Moor states that the oxidized urinary residue, after extraction with the amyl-ethyl alcohol, no longer contains any urea, and bases this conclusion on his failure to obtain from solutions of this residue any crystals of urea nitrate on treatment with concentrated nitric acid. But, as Folin points out, the formation of crystals of urea nitrate, even from concentrated urea solutions, is hindered by just such inorganic substances as this residue surely contained. Sodium chlorid, for example, will do so. Consequently one of the main props under Moor's method falls to the ground, and the method with it.

These facts make it very obvious, we think, that better chemie methods must be devised to establish the deductions which Moor has been publishing so widely with regard to the properties of "ureine" and the quantity of urea in urine. Until then revision of former views is neither called for nor possible.

DISEASE, DRUNKENNESS, ETC., AND THE POST CANTEEN.

BY

GEORGE M. KOBER, M.D.,

of Washington, D. C.

To the Editor of *American Medicine*:—I have carefully gone over my statistics, and they agree with the original sources. The introduction of the statistical tables was done to show what the conditions in the army were before the introduction of the canteen, during its actual operation, and what the indications are since its abandonment.

The statistics furnished by Mr. Johnson in the *New Voice*, December 17, with the exception of a few unimportant errors, are correct, but the use he has made of them is misleading.

While the first canteen was established with the consent of General Howard as a temperance measure at Vancouver Barracks in 1880, and a few other canteens may have been established, the system was not officially recognized by general orders until February 1, 1889, hence it is not fair to include statistics prior to 1890 as belonging to the canteen period. When Mr. Johnson's figures on desertions are classified in accordance with the facts, we find that the average percent of desertions before the canteen period was 10.1%, the average during the whole canteen period 1890-1900 (11 years) was 4.9%, and for the years 1902 and 1903, i. e., during the operation of the anticanteen law, the average was 6.4%.

A similar classification of the court-martial table shows the average during the anticanteen system to be 78 per 1,000, during the canteen system 64.9, and for the 2 years 1902 and 1903, 68.5 per 1,000.

The admissions for alcoholism were for the respective periods 45.78, 28.03, and 25.12, but please note in each instance the direction where we are drifting.

In regard to saving deposits, my deductions were based upon the figures reported by the paymaster-general and quoted by Dr. Munson, on page 89 of his "Military Hygiene," showing that the average number of men annually making such deposits for the 7 years 1885-1891 was 7,273, while for the 6 years 1892-1897 the average so depositing was 8,382, an increase of 13.3%. This indicates not only increased contentment, but a decidedly improved moral tone, and means that over 1100 additional depositors were created, thus practically giving bonds to the Government for good behavior. The real good accomplished, therefore, was not so much a question of the average amount deposited, but the number of men cultivating the habit of making such deposits. You will observe from the enclosed letter dated September 25, 1903, from Dr. Lynch, of the Surgeon-General's Office, that I have taken special pains to secure reliable information upon all points where there was a

¹ Weatherson: The Journal of the American Medical Association, March 16, 1901, xxxvi, p. 782.

² Wiesener: Ibid, p. 785.

³ Haines and Woods: Medicine, April, 1901, vii, p. 298.

⁴ Kuljabko: Chemisches Centralblatt, 1901, li, p. 497; Biochemisches Centralblatt, 1903, p. 427.

⁵ Moor: Ibid, p. 438; Biochemisches Centralblatt, 1903, p. 386; The Journal of the American Chemical Society, 1903, xxv, in "Review of American Chemical Research," p. 396.

⁶ Moor: Zeitschrift für Biologie, 1902, xlii, p. 121; Zeitschrift für physiologische Chemie, 1903, xl, p. 162.

⁷ Moor: Zeitschrift für Biologie, 1903, xlii, p. 121.

⁸ Erben: Zeitschrift für physiologische Chemie, 1903, xxxviii, p. 544.

⁹ Moor: Ibid, xl, p. 162.

¹ Schulz: Chemische Zeitschrift, 1903, lii, p. 189.

² Folin: Zeitschrift für physiologische Chemie, 1903, xxxvii, p. 548.

reasonable doubt, and I have only to add, that the statistics presented by me for the several periods, and the conclusions drawn therefrom must speak for themselves.

Dr. Day's figures and arguments are evidently taken from *The New Voice* of December 17, which I returned to you with comments, clearly indicating that if any juggling with figures has been done it can be charged to the author of that article. I have simply given the figures from official sources, and the conclusions drawn by the committee must speak for themselves. In regard to table in first column, p. 908, please consult Munson's *Hygiene*, p. 819; the information for subsequent years was obtained from the office of the Judge Advocate-General, and is correct with the exception of a typographical error in 1901, which should be 5,973, instead of 6,065, without a change, however, in the second column, which is the important column. The classification of the table in the second column on p. 908, is in accordance with the facts, as the canteen was not recognized officially until February 1, 1889.

I know nothing about the delayed expenditures for the soldiers' club-rooms and gymnasiums, and cannot believe that whisky was ever sold to our soldiers in the canteen, and, in fact, so far as my personal observations extend, very little wine was ever sold.

The enclosed letter from Paymaster-General, dated September 24, 1903, indicates that the table regarding the soldiers' deposits was prepared at his office.

WAR DEPARTMENT, PAYMASTER-GENERAL'S OFFICE, WASHINGTON.

September 24, 1903.

Dr. George M. Kober, 1600 T street, N. W., Washington, D. C.

Sir:—Enclosed please find a statement in regard to deposits by soldiers of the U. S. Army for the past 5 years, also copy of my letter to the Adjutant-General of November 28, 1902, in regard to the increase in collections on account of fines and forfeitures since the abolishment of the canteen; and supplemental to the letter, a statement of collections for the past fiscal year.

Very respectfully,

A. E. BATES, Paymaster-General, U. S. Army.

MEMORANDUM.

1898.

Regular Army, number of soldiers tried for all offenses1,242
Volunteer Army, number of soldiers tried for all offenses 623
Total.....1,865

Regular Army.

Drunkenness on duty102
Drunkenness..... 64
Drunk and disorderly 54
Drunkenness, etc., causing arrest by civil authorities..... 5
Total.....225

Volunteer Army.

Drunkenness on duty..... 34
Drunkenness 11
Drunk and disorderly 41
Drunkenness, etc., causing arrest by civil authorities..... 2
Total..... 88

Total regulars and volunteers convicted of drunkenness 313

1899.

Regular Army, number of soldiers tried for all offenses.....2,677
Volunteer Army, number of soldiers tried for all offenses.....3,017
Total.....5,694

Regular Army.

Drunkenness on duty372
Drunkenness 161
Drunk and disorderly.....227
Drunk on guard..... 1
Drunkenness, etc., causing arrest by civil authorities..... 4
Total.....765

Volunteer Army.

Drunkenness on duty261
Drunkenness268
Drunkenness..... 89
Drunkenness, etc., causing arrest by civil authorities..... 1
Drunkenness on post 1
Total.....621

Total regulars and volunteers convicted of drunkenness.....1,386

1900.

Regular Army, number of soldiers tried for all offenses.....5,424
Volunteer Army, number of soldiers tried for all offenses.....1,194
Total.....6,618

Regular Army.

Drunkenness on duty..... 676
Drunk and disorderly..... 418
Drunkenness..... 314
Drunkenness, etc., causing arrest by civil authorities..... 9
Drunkenness incapacitating for duty 35
Drunkenness on duty (Sixty-second A. of W.)..... 44
Total.....1,496

Volunteer Army.

Drunkenness on duty 149
Drunk and disorderly..... 138
Drunk on duty (Sixty-second A. of W.)..... 9
Drunkenness..... 48
Drunkenness incapacitating for duty..... 2
Total..... 841

Total regulars and volunteers convicted of drunkenness.....1,837

1901.

Regular Army, number of soldiers tried for all offenses.....4,806
Volunteer Army, number of soldiers tried for all offenses.....1,167
Total.....5,973

Regular Army.

Drunkenness on duty 574
Drunk and disorderly..... 276
Drunkenness..... 159
Drunkenness, etc., causing arrest by civil authorities..... 11
Drunkenness incapacitating for duty..... 29
Drunk on duty (Sixty-second A. of W.) 58
Total 1,107

Volunteer Army.

Drunkenness on duty..... 182
Drunk and disorderly..... 121
Drunkenness..... 35
Drunkenness incapacitating for duty..... 2
Drunk on duty (Sixty-second A. of W.)..... 11
Total 351

Total regulars and volunteers convicted of drunkenness.....1,458

REGULAR ARMY.

	Year 1898	Year 1899
Whole Army.		
Alcoholism.....	15.16	18.70
Gonorrhea.....	46.42	93.18
Chancroid.....	38.29	38.29
Syphilis.....	10.08	14.77
United States.		
Alcoholism.....	15.95	18.35
Gonorrhea.....	50.40	99.66
Chancroid.....	24.92	24.92
Syphilis.....	10.69	13.85
Pacific Islands.		
Alcoholism.....	21.70	7.46
Gonorrhea.....	36.86	66.92
Chancroid.....	40.18	40.18
Syphilis.....	5.51	13.26
Cuba.		
Alcoholism.....	.52	32.25
Gonorrhea.....	9.97	106.53
Chancroid.....	48.88	48.88
Syphilis.....	4.20	15.87
Porto Rico.		
Alcoholism.....	18.65	49.89
Gonorrhea.....	54.40	174.48
Chancroid.....	92.32	92.32
Syphilis.....	16.58	28.38

Mean strength 1898..... 46,635
Mean strength 1899..... 61,446

VENEREAL DISEASES AND ALCOHOLISM, UNITED STATES ARMY, REGULARS.

	Year 1900.	Year 1901.	Year 1902.	Decade 1890-1899.
Regular Army.				
Alcoholism.....	18.38	23.80	22.65	26.11
Gonorrhea.....	93.68	99.25	106.68	55.60
Chancroid.....	46.44	37.18	31.99	17.78
Syphilis.....	18.46	20.98	22.37	12.67

	Year 1900.	Year 1901.	Year 1902.	Decade 1890-1899.
United States				
Alcoholism	22.43	26.25	24.02	
Gonorrhea	102.42	104.21	108.54	
Chancroid	33.35	26.40	29.57	
Syphilis	19.62	19.35	23.03	
Philippine Islands.				
Alcoholism	12.16	21.07	18.56*	
Gonorrhea	77.67	98.64	102.50	
Chancroid	46.46	40.15	33.34	
Syphilis	14.75	19.81	20.36	
Cuba and Porto Rico.				
Alcoholism	32.01	34.42	48.26	
Gonorrhea	14.67	12.12	129.81	
Chancroid	67.90	58.91	45.82	
Syphilis	29.99	28.99	37.57	

* Including scouts.

Respectfully furnished Dr. Kober at his request.

WALTER D. McCaw,
Major, Surgeon, U. S. Army.

The figures for alcoholism have been verified and found to be correct. The rate for the Pacific Islands, not including the Philippine Scouts for 1902, is 21.10, and that of the whole army not including the scouts is 24.02.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE, WASHINGTON.

September 25, 1903.
Dear Dr. Kober:—Please find enclosed the statistics you requested from me yesterday. I think I have found our error, and that alcoholism has in fact increased. By reading the note at the foot of page 1 you will see that the rate for the Philippines has really slightly increased for 1902, and the rate for the whole Army is really somewhat higher than for 1901. In both the Philippine Scouts have been excluded, which should be done, as alcoholism is very rare among them, and would not be affected one way or the other by a canteen. Scouts were first included in the latter part of 1901, but they were not separately tabulated for that year, and I am unable to give the figures. They would not greatly change the percentages as written.
If I can be of any service, please command me.
Very respectfully, CHARLES LYNCH.

THE ARMY SALOON.

BY
GRAFTON E. DAY, M.D.,
of Millville, N. J.

To the Editor of *American Medicine*:—As one who has taken a lively interest in *American Medicine*, I have been much pained by the attitude taken by your journal on the canteen question. So far as my memory serves me I do not recall seeing a word favorable to the action of Congress and unfavorable to the failure of officials to carry out the provisions of the anti-canteen law, by which nearly 2 years ago Congress appropriated \$500,000 for gymnasiums, libraries, etc., for the army posts, and how last winter another \$500,000 was appropriated for the same purpose, and how from this entire million dollars not a trapeze is in operation, not a solitary book has been bought, not a single dumb-bell has been added to the army equipment. This money was appropriated for the purpose of giving the soldier boys recreation and a place for the same, apart from the influences of the army saloon, for as Lieutenant-General Miles says: "Now that liquor has been removed from the military reservations, those not addicted to its use are free from its demoralizing influences. The temptation to use it is made very remote." Further, he says, "It is folly to suppose that a man is going to drink as much liquor if he has to go from half a mile to 5 miles to get it as if it were constantly served in the room where he is located. There is no more reason for a saloon at an army post than at any well-conducted college or university, or at West Point, or at the Soldiers' Home at Washington."

Your editorial comment of December 12 accepts as facts what Dr. Kober says, and you proceed to say things that had better been left unsaid, were the facts known to you. Permit me to say first, that Lieutenant-General Miles has given his unqualified endorsement to the present law, and in several

reports he has taken an advanced position against the army saloon. We have not heard that General Miles was particularly noted as a temperance reformer, but the General has acquired some reputation as one who knows what is best for the army of the United States. In your editorial comment referred to, you assume that only light wines and beer are sold in the army saloon, whereas incontrovertible evidence in abundance has clearly proved that whisky was sold in very many, if not all the army saloons.

Allow me, if you please, to take up very briefly several tables given by Dr. Kober, and in doing so let us frankly face the situation that there has not been a single authentic instance where any brewer or distiller has favored the present law relating to the canteen. This, too, in the face of statements that have appeared in *American Medicine*. In the first table of "alcoholism," Dr. Kober gives "admissions to hospitals," which seems scarcely fair since all reputable authorities use "admissions to sick list." Yet in Dr. Kober's figures we have an average of 36, against 25.13 for the no-canteen period, and taking the canteen period beginning with 1889, we have an average of 29.59, against our 25.13.

The table on page 908, first column, must be one arranged for the occasion, since I am reliably informed that there are no such tabulations compiled officially, my authority stating positively that there are no such statistics compiled in the army as given in the second column of the table referred to. The first table in the second column, page 908, is garbled by making an entirely new classification of the canteen years to make the figures come out right. The table in regard to "statement," showing the savings deposits, is especially crooked, "the scamps have taken the deposits for the entire army and divided it by the number in the regular army alone." Can one who would do this be trusted to treat the rest of the question fairly? And now we come to the figures relating to venereal diseases, and here the author proves our case clearly since the increase of venereal diseases can be very satisfactorily explained when we remember that the canteen theory is in operation in the Philippines, as to vice, they having never really abolished the certified prostitute business there.

Their figures for insanity are against them. The figures given by Dr. Kober are from a book that weighs about 4 pounds and contains briefs in favor of the army saloon and army prostitutes. It is hardly honest to quote such a one as authority when trying to consider this question fairly.

Then, too, it is more than unfair to clamor for the restoration of the army saloon when the provisions made by Congress to provide places of recreation and relaxation safe from the seductive influences of liquor have not been availed of. Just one remark as to the record of the canteen when provided with a saloon. After Dewey's victory, when the army saloon had been in operation practically for 13 years and officially for 8 years, the very flower of the army was sent to the Philippines. The result was that in the first 10½ months more than one-half of this army had been court-martialed, as was shown by the first annual report of Major John A. Hull, Judge Advocate of the Military Department of the Philippines. The report covered a period up to the close of the fiscal year, June 30, 1899. During these months there was an average number of 21,078 enlisted men in command, yet during this time there were 12,481 cases of courts-martial of various sorts. Thus, according to official reports, covering the first 10½ months of the American occupation, there was held an average of 38 courts-martial a day for the entire period, among the average total of 21,078 soldiers. This was a canteen record. It was solely because of its deadly work that Congress outlawed it, and for no other reason.

Congress did not deprive the soldier of his beer.
Congress did not close up the exchange or club.
Congress did not forbid the soldier to drink beer.

But Congress did order the army to get out of the saloon business.

Finally, allow me to quote further from Lieutenant-General Miles. "For a long time the army has been without what is known as the liquor feature of the canteen. The army posts are much better off without it, I find. That element having once been discarded it would be an injury and a backward step

to reintroduce it. The canteen, so-called, is a recreation room or building established or set apart at nearly all military posts for the comfort of the enlisted men. It includes a recreation room which gives the men opportunity for social intercourse, the playing of games, and the reading of magazines and books. It also affords them light refreshments of various kinds which they may desire, in addition to the good wholesome food furnished by the government. There are certain men in the service as in every community, who will have liquor if it is possible to obtain it. Of course these are not the best men in the ranks. Beside, the amusement rooms where the men may study or read, or have orderly recreation, are not disturbed by men wholly or partly under the influence of liquor.

"In other words, the canteen is made inviting to decent, self-respecting men. This I say positively from my own observation. At one of the large posts in the West, the present canteen is so well patronized that it has paid dividends of \$1.00 a month to every man. This shows that the argument that the canteen cannot be sustained without the liquor feature is wholly false. Many years ago liquor was furnished as a part of the rations of each soldier and officer. Gambling and dueling were formally prevalent in the army, but both have disappeared. Efforts have been made to make the young men in the army orderly, sober, and intelligent, giving them all the facilities for recreation, athletic sports, and outdoor exercise." When asked as to what influence was working for the restoration of the saloon feature, while General Miles did not positively implicate the liquor trust, he said, "certain influences I would not care to discuss, but not in the best interests of the army, however."

Now, Mr. Editor, will you give more credence to "Munson" with his unsavory book, to Dr. Kober, who has juggled with figures, or will you give Lieutenant-General Miles credit for knowing most about this question? The "Reports of Officers," as you know, may be entirely unimportant, depending upon circumstances, and further, many of us know that in that document, favorable reports for the law from General Joe. Wheeler, General Shafter, and Lieutenant-General Miles were not allowed to appear. It is unbelievable, if it were known (and who did not know?), that Secretary Root and others in authority were working for the restoration of the army saloon, that any number of Colonel Nobody's, Captain Somebody's father's sons, etc., could be found to send just such reports as were desired.

THE PRICES OF DIPHTHERIA ANTITOXIN OF THE SO-CALLED "TRUST."

To the Editor of *American Medicine*:—Our attention has been called to a sensational article appearing in the Chicago papers, in which the manufacturers of antitoxin are charged with having formed a trust and advancing the prices of diphtheria antitoxin, this advance being prejudicial to the best interests of the public health, and inimical to the best interests of the medical profession.

It is not true that the antitoxin manufacturers have combined in a trust; it is not true that the prices of antitoxin have been advanced, but to the contrary the prices of antitoxin have been reduced when quality of serum is considered.

So that you may have a clear understanding of the situation we beg to advise the following:

For a long time the different manufacturers have endeavored to improve the quality of diphtheria antitoxin. It has formerly been the custom to manufacture 2 strengths, known as Standard and Concentrated, or X and XX. There were also supplied certain sizes, known as 500 units and 1,500 units packages. There is now but one strength of antitoxin that will be placed on the market, and that will be practically the highest strength, formerly known as Concentrated Serum. This is the best quality of serum obtainable, and on this quality, instead of the prices being advanced, they have been materially decreased. For instance: For the 1,000 units there is now a charge of \$2.00, against a former charge of \$2.25; for the 2,000 units there is now a charge of \$3.50, against a former charge of \$4.00; for the 3,000 units there is now a charge of \$5.00, against a

former charge of \$5.75; for the 4,000 units there is now a charge of \$6.50, against a former charge of \$7.50.

The 500 units and 1,500 units packages have been discontinued, the 500 units being insufficient to insure thorough immunization, and the 1,500 units on account of its small demand.

You will thus see that the interests of the medical profession have been safeguarded, inasmuch as but one strength—and that the best—will insure the highest quality of antitoxin being furnished. The revision of prices is also decidedly in favor of the physician and his patient, because the physician is now able to get the best grade of antitoxin at a lesser price than formerly charged.

Instead of marketing antitoxin by number as heretofore, it is sold by the units package, 1,000 units representing an immunizing dose; 2,000 units, a small curative dose; 3,000 units, a moderate curative dose; 4,000 units, a full curative dose. This style of nomenclature makes it easier for the physician than heretofore, and since the best quality of antitoxin is sold at a lesser price, it will prove an additional incentive to use full doses, which all authorities recommend in order to secure the best results from antitoxin.

Every manufacturer today is striving to meet the demand for the most convenient means of administering antitoxin, and while the improvement in package by which every dose of antitoxin is furnished in an aseptic serum-syringe, including sterile needles, has entailed considerable expense to the manufacturer, it is offered at a less cost to the physician.

There was formerly some of a lower grade serum used, and we feel sure that its discontinuance will be of material advantage.

It is possible that the Chicago Board of Health may be compelled to pay more for its antitoxin. If so, it is only just, as it had been quoted a price that does not yield sufficient remuneration to anything like cover the expense involved in producing. However, the Chicago Board of Health will now be able to get a better quality of serum than was formerly used, as the weaker strength, which it formerly used, has been entirely discarded.

We hope that you will place this matter in the true position before your readers, in order that they may understand that there is no truth whatsoever in the sensational reports relative to the so-called "trust or combination" of the manufacturers of antitoxin, and the statement that the prices have been raised when, as a matter of fact, the former prices are considerably reduced.

Very truly yours,
H. K. MULFORD COMPANY.

By
H. K. MULFORD.

NEED OF A WARD IN GENERAL HOSPITALS FOR INSANE PATIENTS.

BY
THEODORE DILLER, M.D.,
of Pittsburg, Pa.

Neither Dr. Rhein nor Dr. Peterson, in discussing the need of a ward for insane patients in general hospitals, seems to be aware that St. Francis, a general hospital in Pittsburg, has for a number of years provided several wards for this purpose. These wards have been of the greatest benefit to the insane of this city. Those who leave St. Francis Hospital do not carry with them the stigmas of insanity in anything like the same degree as do those who leave a regular "lunatic asylum."

I sincerely trust that Dr. Rhein's plea may bring forth fruit. If one or two general Philadelphia hospitals were to provide wards for sick persons who exhibited the symptom-complex called "insanity," much practical and theoretic advantage would be gained for the city, for the "insane," their families, and for the profession in the city.

Such a ward in connection with one of the hospitals associated with one of the medical schools in Philadelphia would be of inestimable value as an object lesson to students. May Dr. Rhein's plea stir up at least one of the Philadelphia hospitals to adopt his suggestions!

ORIGINAL ARTICLES

ACUTE LOBAR PNEUMONIA: AN ANALYSIS OF 486 CASES, AND OF 100 AUTOPSIES.

BY

JOHN McCRAE, M.B. (Tor.),

AND

J. C. FYSHE,

AND

W. E. AINLEY,
of Montreal, Can.

From the Montreal General Hospital.

PART I.

The cases here tabulated constitute undoubted cases of primary lobar pneumonia admitted to the wards of the Montreal General Hospital, from January 1, 1895, to August 1, 1903; the autopsy analysis has not been made as a continuation of the clinical observations, but as a distinct series, which, in many particulars, gives the truer frequency of a complication, or the higher percentage of occurrence of some detail which is difficult to observe during life.

The entry into hospital by months is tabulated, and it is worthy of remark that the weather from December 1 to March 15, is generally steady cold; March 15 to June 1, very changeable, with considerable rain, June 1 to October 1, warm and dry; October and November, cool and dry. The heavy snowfall of winter melts in April, and during that month, though bright overhead, it is scarcely ever dry under foot.

	No. of cases.	Percent of cases.
January.....	39	8
February.....	55	11.3
March.....	58	11.5
April.....	74	15.2
May.....	80	16.4
June.....	33	6.8
July.....	26	5.4
August.....	15	3
September.....	14	2.8
October.....	27	5.5
November.....	25	5.1
December.....	42	8.6

The largest number of cases occurs in these changeable spring months, but as soon as summer is established the prevalence gradually lessens throughout the whole season, only attaining a moderately high figure after the setting-in of winter. It is not improbable that wet streets have a large share in the causation of spring pneumonia, and the intense steady cold of winter a less effect than would be expected.

Sex.—Three hundred forty-eight (71.6%) were males, 138 (28.4%) females.

Mortality.—The deaths numbered 104 (21.2%).

Whereas less than 20% of cases in the male were fatal, more than 25% of the cases in the female were fatal.

Age.—The ages divided into periods are given:

Age in years.	No. of cases.	Percent of cases.	No. of deaths.	Percent of total deaths.	One patient died in every
1 to 3.....	16	3.3	5	4.9	3
4 to 15.....	67	13.9	5	4.9	13
16 to 22.....	70	14.5	5	4.9	14
23 to 31.....	98	20.3	19	18.4	5
32 to 41.....	92	19.1	19	18.4	5
42 to 51.....	84	17.4	29	28.1	3
52 to 61.....	33	6.8	11	10.7	3
62 and over.....	22	4.5	10	9.7	2

It will be noticed that after the age of 40 the chances for recovery are gravely lessened, whereas the mortality in youths, 16 to 22, is a comparatively low one, although the number of cases is perhaps greater than in any other half decade. Yet as an indication of the fallacy of making a prognosis upon the youth of the patient, it may be

said that the approximate average age of patients who died was 37.7 (average of 100 autopsies, given below, 38.8), while the average age of the patients who recovered was 35.5; these 2 averages show much less difference than one would expect.

Etiology.—Previous attacks had occurred in 53 out of 425 cases, 12.4%, or approximately 1 in 7, a percentage of occurrence much lower than is usually found (Osler's "Practice of Medicine," iv ed., p. 109); in 372 cases, previous attack is noted as not having occurred. Of the 53 cases, 3 patients had had 3 or more previous attacks, one had had 2, and the others 1.

Tuberculosis.—Of 462 cases, family history of tuberculosis was present in 31, personal in 20, and 9 had had previous pleurisy, a total of 60 (13%) in whom there is likelihood of tuberculosis having preceded the disease.

Race.—During the summer and autumn months a large number of immigrants pass through Montreal, and it has been a frequent comment in the hospital that a good many poorly-nourished Europeans, chiefly Italians, are brought in suffering from pneumonia, shortly after landing. Of 456 cases of our series, 74 (16%) were immigrants, defined as having been less than 6 months in the country. From the Government statistics of the number of immigrants, and the most careful estimate at which we can arrive of city population, this indicates that the immigrant is at the very least thrice as liable as the native.

Occupation.—We have endeavored to ascertain what proportion of the population of Montreal is employed in outdoor work, and this we find difficult, because of the great differences of conditions, due to climate, between summer and winter. Of 444 patients, 126 (28.4%) were engaged in outdoor work; 318 (71.6%) in indoor occupations; if we allow that a fifth of the population is engaged in outdoor work, (this figure is probably too high), the outdoor worker has suffered 1½ times as frequently as the indoor worker; if we allow that 1 to 10 only of the population is so employed, the outdoor worker is 3½ times as liable. In any case our figures tend to show that the outdoor worker is more frequently attacked.

The Use of Alcohol.—Of 190 cases in which the records are explicit, 62 (32%), were alcoholics, 92 (46%), moderate users of alcohol, and 32 (19%), were teetotalers. This question of the liability of alcoholics to pneumonia, is so complicated by other questions of etiology, such as poverty, irregular habits, etc., that it is impossible to set a positive value upon figures.

Influenza.—Acute influenza preceded the disease in 5 cases.

Catarrh.—Catarrh, defined as chronic inflammation of the upper air passages, was present in 90 cases (20.3%), in 90% of which cough was present.

Duration.—The average length of time from onset until discharge from hospital (at which time the patient is presumably able to return to work), was in 351 cases, 27.5 days.

Crisis and Lysis.—Two hundred and twenty-six (60%) ended by crisis, 106 (28%), by lysis. In 48 cases (12%) the fall of temperature was atypical. The fatal cases have, of course, been excluded from this calculation.

Of 211 cases in which the precise time could be determined, crisis occurred after the lapse of 7.1 days; in 106 cases of fall by lysis, the fall of temperature began after the lapse of 8.4 days; the cases of early crisis are not sufficiently authentic to state. Delayed resolution was found in 9 cases, 1.9%.

Fever.—The height of the fever is classified below:

	Degrees.	No. of cases.	Percent of cases.
Low.....	99 to 102	81	17
Moderate.....	102 to 104	245	52
High.....	104 and over.	146	31

Onset.—It has been noted that in 90 cases there were previous catarrhal symptoms, 72 of these patients having cough. Of the usual symptoms of onset, the frequency was as follows:

	Percent.
Cough (including patients with cough previously).....	100
Pain.....	92.1
Chilly sensations.....	70
Vomiting.....	35
Rigor.....	6.1

The pain was never referred to a region other than the seat of disease.

Symptoms.—Respiratory system. Rusty sputum was present in 195 cases out of 434 (44.9%), bloody sputum in 7 cases, and dilated *alae nasi* in 190 (40%).

Nervous System.—The border line between delirium and mania is not a distinct one:

	Cases.	Times.	Percent.
Headache in.....	437	184	42
Delirium in.....	447	157	35
Mania in.....	447	8	1.8
Convulsions in.....	447	8	1.8

The cases of delirium were analyzed with respect to an alcoholic history; 93 cases (59.2%), occurred in non-alcoholics; 64 cases (40.8%), occurred in alcoholics. Of 62 heavy drinkers, 37 (59.6%) were delirious; of 92 moderate drinkers, 27 (29.3%) were delirious; of 154 users of alcohol, 64 (41.5%) were delirious.

All the cases of convulsions mentioned occurred in children with the exception of one, a girl of 25, nonpregnant, who recovered without apparent complication.

Alimentary System.—The condition of the bowels, if at all disturbed, has tended toward constipation.

Of 460 cases, the bowels were normal in 242 (57%); diarrhea in 55 (12%); constipated in 143 (31%).

Jaundice is remarkably infrequent in this series, having occurred in 465 cases but 18 times, a frequency of 3.8%.

Urine.—In view of the likelihood that every case of pneumonia is attended with a temporary kidney damage, it is interesting to note that this does not appear in the routine examination of the urine. Of 450 cases, albumin was found in 22%, casts in 1.5%, both together in 25.7%; pus, dependent, in all likelihood, upon associated conditions, was present in 6.6%.

Quantitative examination of the chlorids has been made in a disappointingly small number of cases; of 16, 4 showed normal, 3 increased, and 9 (56%), decreased excretion of chlorids. Examination of the sediments, though tabulated in more than 100 cases, does not seem to be of sufficient value to merit reproduction.

Various.—Sweating, sufficiently profuse to be recorded, exclusive of the sweating of crisis, was found in 139 out of 434 cases, a frequency of 32%. Herpes was present 124 times in 475 cases (26.1%); epistaxis occurred 12 times (2.5%); the spleen was found to be enlarged in 30 cases (6.4%); the liver in 3 cases, excluding chronic cirrhosis. Erythema occurred twice, and a petechial rash once.

Vascular System.—From stated measurements which we have gone over in 465 cases, it was determined that definite cardiac dilation was present in 85 cases (18%); this, no doubt, marks the number of extreme dilations, and entirely fails to include the slight rightsided dilation that must accompany every case of pneumonia with large involvement of lung. Considering the difficulty of observing slight degrees of dilation at autopsy (see below), it is not strange that they should not be observed in life while the chest wall intervenes. That cyanosis is noted in 15% of all cases, and accentuated pulmonary second sound in 16%, implies failures to record these almost invariably present signs.

Leukocytosis.—Considering 7,500 as normal, leukocytosis occurred in 43 out of 45 cases (95.5%); 32 patients

who recovered showed figures varying from 8,400 to 34,000, average 22,000; 11 patients who died varied between 9,800 and 50,000, and averaged exactly the same, viz., 22,000. Of these 11 deaths it should be mentioned that in 5 there were severe septic complications, which would in every case naturally lead to leukocytosis.

Distribution of Disease.—Of 473 cases the involvement was as follows:

	Cases.	Percent.
Right lung only.....	226	48
Left lung only.....	141	30
Both lungs.....	106	22

Of bilateral cases, 31% terminated fatally, 15% of the left lung cases, and 21% of those in which the right lung was affected. In 5 cases all lobes were affected, and 2 (40%) recovered. It is a coincidence that the number of cases in which 3 or more lobes were involved, was 104, exactly the number of deaths in the series.

	Cases.	Percent.
One lobe was affected in.....	190	40.1
Two lobes were affected in.....	179	38
Three lobes were affected in.....	94	20
Four lobes were affected in.....	5	1
Five lobes were affected in.....	5	1

The most frequent involvements were as follows (473 cases):

	Cases	Clin. series. Percent.	Autopsy series. Percent.
Lower left.....	81	17	5
Lower right.....	67	14	7
Middle and lower right.....	53	11	4
Whole left.....	46	10	17
Whole right.....	44	9	18
Upper and middle right.....	25	5	2
Both lower.....	25	5	3
Upper right.....	22	5	5
Whole left and lower right.....	16	3	2
Lower left and middle and lower right.....	15	3	3
Upper left.....	14	3	4

The mortality for 3 lobes or more was 46.1%.

If any one should be interested in the frequency of any given combination of lobes, we append our full figures, asking the forbearance of the general reader for the following table:

	Clin. series. Percent.	Autopsy series. Percent.
Lower left and upper and lower right.....	1.6	5
Whole right and lower left.....	1.2	3
Upper left and upper right.....	1.2	1
Whole of both lungs.....	1	1
Lower left and upper right.....	1	0—
Whole left and lower and middle right.....	.6	0—
Upper left and upper and middle right.....	.6	1
Upper left and lower right.....	.6	2
Whole left and upper right.....	.4	0—
Whole right and upper left.....	.4	3
Upper left and middle and lower right.....	.4	0—
Lower left and middle and upper right.....	.4	1
Whole left and upper and lower right.....	.2	3
Whole left and upper and middle right.....	.2	0—
Lower left and middle right.....	.2	2
Upper left and upper and lower right.....	.0—	1
Middle right.....	.2	0—
Upper and lower right.....	1.6	0—

It will be observed that there is little or no correspondence between the figures of the 2 series, a fact which is explained by the comparative rarity of all these combinations.

In the autopsy series, the lobes have been involved in the following order of frequency, beginning with the one most often attacked—lower right, upper right, lower left, middle right, upper left.

As to how far the prognosis is based upon the extent

of lung tissue involved, we may state the following: In the clinical series, 22% had 3 lobes or more involved (mortality in these cases 46.1%), and in the autopsy series, 41% had this involvement, which figures, so far as they go, tend to show that prognosis is in some degree based upon the amount of lung tissue implicated.

Treatment.—The methods are very variable, and have been tabulated without any comment. In 40 there was practically no treatment. Hydrotherapy (baths) was used in 45 cases, all within the last 2 years; expectorants were given in a third of the cases, medicinal analgesics (morphia, heroin, coaltar products, etc.) in one-tenth of the cases; ice and heat were used in one-fourth of the cases; stimulants in three-fourths; venesection was practised in only 1 case. The above really indicates a prevailing tendency throughout the series toward a symptomatic treatment with ready recourse to stimulants.

Complications and associated conditions.	No. of cases.	Percent of cases.
Pleuritis.....	163	34.3
Meningitis.....	23	4.7 (8 cases proved by autopsy.)
Otitis media.....	19	4.1
Empyema.....	18	3.8
Emphysema.....	28	6
Ac. endocarditis.....	16	3.4
Ac. pericarditis.....	11	2.3
Myocarditis.....	14	3
Thromboses.....	4	
Saphenous.....	2	
Cerebral.....	1	
Sup. long sinus.....	1	
Tonsillitis.....	6	
Parotitis.....	4	
Erysipelas.....	4	
Peritonitis.....	3	
Abscess (of back).....	1	

Associated conditions.	No. of cases.	Percent of cases.
Arteriosclerosis.....	39	8.3
Cardiac valvular defect.....	32	6.8
Mitral stenosis.....	2	
Mitral regurgitation.....	19	
Tricuspid regurgitation.....	1	
Anemia.....	8	
Angina pectoris.....	1	
Paralyses.....	6	
Aphonia.....	3	
Facial.....	1	
Third nerve.....	1	
Paraplegia.....	1	
Neuralgia.....	2	
Facial.....	1	
Sciatic.....	1	
Epilepsy.....	1	
Cirrhosis liver.....	5	
Pregnancy.....	5 (abortion in 4.)	
Nephric abscess.....	2	
Orchitis.....	1	
Gonorrhoea.....	1	
Syphilis.....	2	
Malaria.....	2	
Typhoid.....	2	
Measles.....	2	
Rheumatism, chronic sic].....	4	
Rickets.....	2	

We have purposely refrained from comment upon these complications, because we feel that in many cases such as pleuritis, empyema, etc., the autopsy findings are distinctly more valuable. One cannot be sure that the so-called complications are really such, or should more properly be included in associated conditions. At the same time we have not felt justified in omitting them from a strictly statistical article.

PART II.—ANALYSIS OF 100 AUTOPSIES.

The autopsies are partly comprised in the cases analyzed from the wards, but to complete the number it was necessary to go back as far as the record of 1890; so that for purposes of comparison the 2 series are essentially different. All the cases are selected with a view to the exclusion of those in which the pneumonia could be considered secondary to any other disease, by which carefulness one doubtless rejects many cases which are

true lobar primary pneumonia, occurring in those slightly debilitated by some other cause; so that the series is really a synopsis of cases of pneumonia arising in the comparatively healthy. It is obvious that one must not rule out cases occurring in those past middle life with marked kidney change, or else the search for cases would be interminable. The numbers throughout designate percentages, as well as numbers of cases; in many cases comparisons are instituted between these figures and the figures of the same conditions obtained by clinical observation.

Sex.—Seventy-seven cases were in the male and 23 in the female.

Age.—The average age of the patients was 38.8 years. The average age of all the patients in the previous series was 31 years.

Age by periods.	Autopsy series. Percent.	Clin. series. Percent.
1 to 3.....	3	4.9
4 to 15.....	1	4.9
16 to 22.....	6	4.9
23 to 31.....	17	18.4
32 to 41.....	26	18.4
42 to 51.....	28	28.1
52 to 61.....	11	10.7
62 and over.....	8	9.7

It is to be noted that there is a striking similarity in the percentages, especially after the age of 15, when the number of cases in each period becomes at all considerable.

Involvement of	Autopsy series. Percent.	Clin. series. Percent.
Right lung.....	43	48
Left lung.....	26	30
Both lungs.....	31	22
Five lobes.....	1	1
Four lobes.....	9	1
Three lobes.....	31	20
Two lobes.....	38	38
One lobe.....	21	40

The conclusion derived from this comparison is, that the amount of lung tissue involved has a very direct bearing upon prognosis, since so comparatively few one-lobe cases, and so many three-lobe and four-lobe cases appear in the autopsy records.

Stage of Disease.—Of the cases in which the color of the lung is mentioned, red hepatization was present in 23%, gray in 55%. This indicates roughly that in a majority of cases the lung is gray in color, due oftener at autopsy to purulent infiltration than to a true gray hepatization, which we are accustomed to think of as a first stage in resolution. It might be said in this connection that the classic division of pneumonia into stages, has misled, and will continue to mislead, many into the supposition that these are hard and fast sequences following a rule, rather than hazy indications of the progress of the disease, which in most cases encroach upon one another so greatly as to lose their individual characters.

Infection.—Of about 60 cases in which bacteriologic examination has been made, pneumococcus was present in 65%, in 5% of which it was mixed with other organisms to the extent of being a "mixed infection;" 20% were mixed infections of other kinds, while streptococcus was the main agent in 8%. While dealing with the kinds of infection, it is of interest to note the effect of the different ones upon the size of the spleen. The late Dr. Wyatt Johnston on one occasion remarked that he had observed that the spleen was rarely enlarged in cases of infection by pneumococcus, while it was frequently enlarged in other infections. With a view to determine this, we have tabulated the results as follows:

In 23 cases infected by pneumococcus alone, the spleen was not enlarged in 19 (83%), and was enlarged in 4 (17%);

in 12 cases of mixed infection, without pneumococcus, it was not enlarged in 4 (33%), and was enlarged in 8 (66%). Of 6 cases of mixed infection, including pneumococcus, it was enlarged in 3 and not enlarged in 3. Whatever the size of the spleen (180 gm. in the male adult was the standard), it was in the large majority of cases (64%) soft and pulpy. So far as the figures go, the truth of Dr. Johnston's observation is strongly supported.

Complications and Associated Conditions.—The relative frequency of certain complications in the 2 series is of interest; the discrepancies which will be seen to exist in pleuritis and pericarditis will be easily understood, when one remembers the comparatively short time in which a friction rub may be present, and the small amount of fluid which is effused in many cases. The second column exists only for comparative purposes.

	Percent.	Clin. series for comparison. Percent.
Pleuritis, total.....	91	38
Pleuritis, purulent ("empyema").....	12	
Pleuritis, serous ("effusion").....	28	
Pleuritis, fibrinous.....	51	
Pericarditis, total.....	17	3.4
Pericarditis, purulent.....	10	
Pericarditis, fibrinous and serofibrinous.....	7	
Endocarditis, acute.....	8	3
Endocarditis, chronic (associated condition).....	23	
Myocarditis, acute.....	4	2.3
Myocarditis, chronic (associated condition).....	8	
Arteriosclerosis, extreme (associated condition).....	8	
Dilation of right heart.....	18	18
Dilation of left heart.....	10	
Clots in heart chambers.....	42	
Meningitis, purulent.....	5	4.7
Bronchitis, acute.....	61	
Bronchitis, chronic (associated condition).....	6	
Nephritis, total.....	78	
Nephritis, acute parenchymatous (cloudy swelling).....	45	49
Nephritis, acute, suppurative.....	1	
Nephritis, chronic.....	52	

Of the cases of pericarditis, 7 occurred with involvement of both lungs, 4 of the left, and 5 of the right lung, supporting the frequency of occurrence with disease of the left lung.

Of the 5 cases of meningitis, pneumococcus was found in the meninges in 4; it also was found in 1 case of ulcerative endocarditis upon the heart valves, and in 4 cases of septic pericarditis.

Seven cases of abscess of the lung occurred, and 1 case of abscess of the abdominal wall; mediastinitis occurred twice; peritonitis, once; icterus was noted but once; and tuberculosis, obsolete, or obsolescent, 8 times.

NOTE.—Special interest attaches to the following points in this series:

1. The liability of immigrants to the disease.
2. The frequency with which people of outdoor occupations are attacked.
3. The infrequency of the rigor of onset.
4. The nonenlargement of the spleen in most cases of pneumococcus infection.

The apparently awkward divisions of the age tables may be better understood if we explain that a patient is classified in the column in which belongs the figure he states as his age in years.

Results in Manipulative Treatment of Congenital Hip-joint Dislocation.—According to newspaper reports, comparisons showing success in the treatment of congenital hip disease by manipulation were made in a report presented before the Society of Medical Improvement, at a meeting in Boston, January 7. The results noted were obtained by investigation and study of cases by the surgical staff of the Boston Children's Hospital. They showed that previous to the treatment by manipulation, from 1896 to 1902, only 12 cases resulted successfully, while 13 were failures. Under manipulation in 1902, 11 cases were successful, and 4 failed. In 1903 the successful cases numbered 24, and the failures 6. The doctors state that they now believe that patients up to 10 years of age may be successfully treated by manipulation.

THE BLOOD IN ACUTE LEUKEMIA.

BY
LOUIS V. HAMMAN, M.D.,
of Baltimore, Md.
Former House Physician, New York Hospital.

CASE I.—Lucia M., aged 37, an Italian, married, was admitted to the New York Hospital (service of Dr. Lambert), July 31, 1901. She died August 3, 1901. The following history was obtained from her husband. Since their marriage 8 years ago she has never been ill. Husband denies venereal contagion. Patient had 2 miscarriages after her second child. Has never had any bleeding before. The husband thinks his wife is 6 months' pregnant. She has not menstruated for this length of time. She had been quite well before the onset of this illness. Two weeks ago she had some uterine pains and thought she was about to abort, but they quickly subsided. On July 26 she had pain in the left side of chest, which soon disappeared, but was followed by pain in the left shoulder and all over the body. On July 27 the husband noticed her gums were bleeding, and this has persisted since then. She has had a little fever and profuse perspiration, but no chills. Her legs have been a little swollen since the onset of the illness. Complains of severe headache and cannot sleep. Has had no cough. Vomited only once on day of admission. Bowels have been moved twice daily by injections. Stools have been black.

Examination on Admission.—Patient is a well-nourished woman, but very anemic. Respirations are rapid and a little labored. Tongue is swollen, dry, and cracked. Gums are swollen, soft, and bleeding. There is marked dilation of the veins of the chest. Areas of hemorrhage into the skin, over the upper part of each buttock, over the right thigh, and at both ankles, are seen.

Lungs are negative. Heart: Systolic murmur is heard over the aortic and pulmonary areas. Otherwise normal. Pulse is rapid, regular, and of diminished tension. Abdomen is distended; slight movable dullness is observed in the flanks. There is no fluid wave. Pregnant uterus is felt at the level of the umbilicus. Liver: Edge is felt an inch above the umbilicus. Dullness starts at the fourth rib. Area occupied by the liver is very tender. Spleen: Edge is felt 3½ inches below the costal margin. Temperature 103.6°. Respirations 48. Pulse 132.

The patient was in a dull, stupid condition on admission, and this gradually developed into profound coma. Her respirations became more rapid and her pulse weaker, and she died without any appreciable change in the physical condition. During the 3 days she was in the hospital there was constant oozing of blood from the gums. A stool on August 1 consisted of dark decomposed blood.

Urine: Pale, cloudy, slightly reddish sediment of urates. Specific gravity 1.011, acid, no sugar, distinct trace of albumin. Microscopically: Small number of pus and epithelial cells, many uric acid crystals, amorphous urates.

Temperature varied between 101° and 104°. Respirations varied between 40 and 52. Pulse varied between 112 and 164.

Blood, July 31: Hemoglobin 35%. Red blood cells 2,050,000. Leukocytes 89,000.

DIFFERENTIAL COUNT OF 1,000 LEUKOCYTES.		Percent.
Large mononuclear cells.....		77.3
Small mononuclear cells.....		16.2
Polymorphonuclear neutrophiles.....		3.7
Polymorphonuclear eosinophiles.....		0.7
Myelocytes.....		2.1
Normoblasts.....		8

August 2: Leukocytes 111,000. August 3 (45 minutes before death): Leukocytes 46,000.

DIFFERENTIAL COUNT OF 500 LEUKOCYTES.		Percent.
Large mononuclear cells.....		73.8
Small mononuclear cells.....		22.2
Polymorphonuclear neutrophiles.....		2.0
Polymorphonuclear eosinophiles.....		0.4
Myelocytes; neutrophilic.....		1.4
Myelocytes; eosinophilic.....		0.2
Nucleated red blood cells 5.		

CASE II.—George H., aged 56, German, carpenter, was admitted to the New York Hospital (service of Dr. Loomis), May 17, 1902. He died June 1, 1902. He complained of loss of strength, shortness of breath, and sore mouth.

History obtained in large part from his daughter, as patient's attention cannot be held long enough to obtain a consecutive narration.

Family History.—Father died of pneumonia; mother living and healthy.

Past History.—Patient denies syphilis. Has never had rheumatism or malaria. Daughter says he has always been a strong, healthy man. Was overcome by heat last summer, and was confined to the house for 2 weeks, after which he returned to work and appeared in good health until 2 months ago.

Habits.—Drinks moderately; never to excess.

Present illness began 2 months ago, when a swelling appeared on the right side of the neck and face, followed in from 10 to 14 days by a similar swelling on the opposite side. Then

glands in groin and axilla became a little enlarged. From the first he has lost rapidly in flesh and strength. Dyspnea has been a constant complaint. After a month under medical treatment his mouth became very sore, his gums swollen and tender, and his teeth loose. He has had a foul breath and marked salivation. Appetite has been poor and bowels loose—2 to 3 watery movements a day.

Physical Examination.—The patient is poorly nourished and anemic. Tongue is dry, brown and fissured. Gums are swollen and hypertrophied, and show small, shallow ulcerations. Teeth are loose and lie imbedded in a furrow in the gums, which almost cover them. Breath is offensive. Mucous membrane lining the cheeks shows numerous small ulcerations. In the right submaxillary triangle are felt much enlarged glands, each about the size of a hickory nut and fairly movable. Below this and along the anterior edge of the sternomastoid are felt several enlarged glands smaller in size and also freely movable. Similar condition on left side of neck. There is slight enlargement of the inguinal and axillary lymph glands.

Heart percusses from right border of sternum to 1 inch outside of nipple line, this point being 5 inches from median line. Upper border is at third rib. Apex beat visible and palpable in fifth interspace $4\frac{1}{2}$ inches from median line. No thrill felt. On auscultation, no murmur heard. Second aortic sound accentuated. Action strong and regular. Pulse occasionally intermits a beat and is of high tension.

Lungs are negative except for a few coarse rales over both lower lobes. Liver percusses from upper border of sixth rib to $3\frac{1}{2}$ inches below costal margin in mammary line, and its edge is indistinctly palpable $4\frac{1}{2}$ inches below costal margin. Spleen: Edge is felt about 3 inches from costal border. Abdomen is slightly distended, and shows signs of a small amount of fluid; no tenderness.

Extremities: There is slight edema of the ankles; reflexes are normal.

After admission to the hospital, patient's condition became slowly but progressively worse. His dyspnea increased, and he was soon unable to assume a prone position. His mind, which was dull and wandering on admission, became more and more clouded. Toward the end he passed into coma with Cheyne-Stokes breathing, and died a typical picture of uremia.

There was practically no change in his physical condition.

Urine: (May 20) amber, clear, sandy precipitate, acid; specific gravity, 1.014; heavy trace of albumin; abundant finely granular and hyaline casts and a few coarsely granular casts. May 21: Amount for 24 hours, 37 ounces. Albumin, 5 grams per liter. May 26: Twenty-four-hour specimen; amount, 35 ounces; amber, clear, acid. Specific gravity, 1.010; heavy trace of albumin (not measured); no sugar; few hyaline and finely granular casts; numerous uric acid crystals; total urea, 315 grains. May 28: Amount, 28 ounces in 24 hours. Total urea, 260 grains.

After this, urination became involuntary, and specimens were not collected.

Patient had a continuous fever, the temperature varying between 100° and 103.6° . Shortly before death it rose rapidly to 106.2° . Pulse varied between 112 and 138, and rose to 160 shortly before death. Respirations varied between 24 and 36, and rose to 60 shortly before death.

Blood: May 28. Hemoglobin, 42%; red blood cells, 2,800,000; leukocytes, 116,200.

DIFFERENTIAL COUNT.

	Percent.
Large mononuclear cells.....	81
Small mononuclear cells.....	5.75
Polymorphonuclear neutrophiles.....	8.25
Myelocytes.....	4.75
Eosinophiles.....	0.25

May 29: Leukocytes, 119,200.

DIFFERENTIAL COUNT.

	Percent.
Large mononuclear cells.....	67.8
Small mononuclear cells.....	10.5
Polymorphonuclear neutrophiles.....	14.5
Myelocytes.....	5.2
Eosinophiles.....	2.0

CASE III.—Julia McG., aged 23, American, married, was admitted to the New York Hospital (service of Dr. Loomis) June 4, 1902. She died 4 hours after admission. On admission the patient was in collapse, and practically moribund. She was cyanosed and bathed in a clammy perspiration. Nose and extremities were cold. Respirations were rapid and somewhat labored. She is a well-nourished woman—face puffy. Mucous membranes and skin are very pale.

Lungs: Just below the angle of the left scapula near the median line there is a small area over which are heard numerous subcrepitant rales without any signs of consolidation. Heart: Action is rapid; not enlarged; no murmurs are heard. Pulse is rapid, regular, fair size, diminished tension. Abdomen is distended and tympanitic. Liver and spleen can not be felt. Cervical glands palpable, discrete, not very hard, size of small marbles. No glands are felt in the axillas or epitrochlear regions. Few small glands in groin. Numerous petechial spots the size of pin heads are seen about the neck, sides of chest, and upper part of abdomen. Temperature is 105.6° ; pulse, 156; respirations, 52.

On the day after her death the following history was obtained from the patient's physician. He recited the facts from memory, but was sure of their accuracy.

He was called to see the patient May 24, and found her complaining of severe pain in the left side, increased on deep inspiration. Temperature was 103° . Respirations about 32. The patient had been taken ill May 23 with a chill, followed by high fever and a stitch in the left side, and rapid breathing. So far as he knows, the patient has always been strong and healthy, and the day before the onset of the illness was apparently in perfect health. She was always rather pale, but strong and well nourished. On May 25, the patient still complained of pain in the left side. Respirations were frequent, and pulse about 120 and feeble. On May 26, an area of dullness was made out over left back with bronchial breathing. On May 29, the signs in the lung had disappeared, but the patient's general condition had not improved. During the 3 previous days she had had a slight hacking cough and a very little sputum, which was not blood-tinged or rusty in color. Her temperature during this time had ranged between 102° and 105° , being lowest in the morning. It continued at about this level up to the time of her admission to the hospital. On May 30, her condition was worse than previously, and the physician noticed several spots on the abdomen, which he describes as "rose-colored." During the night she became delirious. Her general condition continued to grow worse up to time of admission to the hospital. On each of the 3 mornings preceding admission she complained to her physician of having had a slight chill, followed by sweating and symptoms of collapse. On 1 day during her illness the patient had slight diarrhea, but was otherwise constipated. Her spleen was never palpable.

On admission the diagnosis was suggested of a severe infection, probably of either the typhoid bacillus or the streptococcus.

Blood: Hemoglobin, 45%; red blood cells, 2,474,000; leukocytes, 958,000.

DIFFERENTIAL COUNT OF 3,000 LEUKOCYTES.

	Percent.
Large mononuclear cells.....	90
Small ".....	5.37
Polymorphonuclear neutrophiles.....	1.63
Myelocytes.....	2.77
Eosinophiles.....	0.13

Several nucleated red blood cells seen. Widal reaction negative.

DESCRIPTION OF BLOOD.

The red blood-corpuscles stain well, taking a deep orange color in the triacid stain. There is no polychromatophilia and no granular degeneration (methylene-blue). Many corpuscles have become crenated in the process of spreading, but there is practically no poikilocytosis. A few normoblasts and intermediate forms of nucleated red blood cells are seen but no true megaloblasts.

In counting the leukocytes the following classification was adhered to.

1. As small mononuclear cells, are grouped the typical lymphocytes cells, smaller than a red blood-corpuscle and having a very deeply-stained nucleus, some apparently without any cell body, others surrounded by a narrow zone of protoplasm staining faintly pink in the triacid stain. In eosin methylene-blue slides the nuclei stain very deeply, show one or more nucleoli and a rich network of chromatin and a very narrow granular-looking zone of still more deeply staining protoplasm.

2. As polymorphonuclear neutrophiles, are classed the cells with polymorphous nuclei and neutrophilic granular protoplasm. Many of these cells are much smaller than those normally found in the blood—some scarcely as large as a red blood-corpuscle, and in these the neutrophilic granules are remarkably scanty.

3. As myelocytes are grouped the typical large round or oval cells, with oval or indented nuclei eccentrically placed and with profusely granular neutrophilic protoplasm. These vary in size from that of an ordinary polymorphonuclear neutrophile to cells twice that size, the large form predominating. Many of the nuclei have a definite bean shape, and some are so large that they almost fill completely the cell body, leaving only a small area of granular protoplasm visible at the indentation.

4. As eosinophiles, are grouped the polymorphonuclear and mononuclear form. Some of these are very large and are typical eosinophilic myelocytes.

5. All the remaining cells representing numerous varieties are grouped in this class, and they give the blood a truly polymorphous appearance.

(a) Triacid stain: The prevailing leukocyte is an irregularly round mononuclear cell, staining very faintly, and from 2 to 3 times the size of a red blood-corpuscle. The nucleus is round or oval, stains a very pale green, and in most instances nearly fills the cell body. It is usually centrally placed, but many of the oval forms lie to one side. Some of the nuclei contain from 1 to 3 small unstained areas resembling vacuoles. About some of the nuclei is seen a very narrow halo of unstained protoplasm. The cell body stains a very pale pink, and is in most instances fairly definitely outlined. Occasionally it stains more deeply, taking on a lilac tint and having a

stippled appearance, and in some of the cells there are neutrophilic granules, staining so faintly and so few in number that one hesitates to call them true myelocytes. The smaller cells tend to stain more deeply. Some are small round cells only a little larger than a red blood-corpusele, but their nuclei stain not so deeply as in the lymphocytes, and are surrounded by a more abundant cell protoplasm. In the cells of intermediate size the nuclei tend to become irregular, varying from indentations and projections to true polymorphous forms. Some of these cells are identical with the polymorphonuclear neutrophils save in the absence of granules.

(b) Eosin methylene-blue stain: The nuclei of the large cells stain pale blue and look vesicular, but have a fine mesh-work of chromatin fibrils running through them. The protoplasm stains more deeply than the nucleus, varying in color from a deep blue to a paler blue, mixed with a distinct tint of eosin. No basophilic granules seen in any of the cells. No mitotic figures observed.

EPICRISIS.

Fraenkel, in 1895, reported under the heading of acute leukemia, 10 cases, which he had observed, and drew particular attention to the blood picture which he considered typical for such cases, and in itself sufficient to establish the diagnosis. He describes the predominating cell as varying greatly in size from that of a red blood-corpusele to those twice as large and showing every

acute symptoms can be very conveniently accounted for by the portal thrombosis. Two cases of Jewett and another of Bloch and Hirschfeld are certainly more nearly related to von Jaksch's infantile anemia, although both authors prefer to consider them cases of leukemia. Green reports 2 cases in sisters, the first being in all probability true leukemia, but the second case which results in recovery is too imperfectly reported to be identified. Cases preceded by a severe anemia (Litten, Senator, Kormoczi, Gottlieb) and cases presenting the clinical features of Hodgkin's disease, terminating with a blood picture of leukemia (Fleischer and Penzoldt, Mosler, Martin and Mathewson) have also been excluded. The relation of such cases to leukemia has given rise to very interesting discussions and suggestions which cannot be rehearsed here, but until their position is more distinctly determined, it is advisable to exclude them from the list of leukemia.

This revision leaves 111 cases to be considered, and these have been divided into the following groups: 1. Cases in which the blood picture corresponds to that formulated by Fraenkel, 57. 2. Cases in which the small lymphoid cell (the typical lymphocyte) is the predomi-

Author.	Year.	Hemoglobin.	R. B. C.	W. B. C.	Nucl. R. B. C.	Mononuclear leukocytes.			Polymorphonuclear.			
						Nongranular.		Granular.	Neutr.	Eosin.	Basoph.	Degen. cells.
						Small.	Large.	Myelo.				
Fraenkel.....	1895	40	1,907,000	220,000	.....	.....	99	.....	1	.....	.....	.....
Bradford and Shaw (1)...	1898	40	2,360,000	780,000	.....	6.9	80.4	0.6	0.5	1.6	.....	.....
" " (2)...	1898	36	1,480,000	34,400	.....	12.2	61.8	One doubtful	2.6	Scarce	.....	.....
" " (3)...	1898	.....	.....	.....	.....	16.8	82.2	0.2	0.2	0.6	.....	.....
Cabot (1).....	1898	17 to 23	1,440,000 to 912,000	23,000 to 120,000	Few	15 to 25	82 to 73	0.5 to 0.8	2.4 to 0.5	0.1	.....	.....
" (2).....	1898	55	3,000,000 to 3,608,000	31,500 to 40,000	.....	.....	96.5 to 93.6	0.6	3.2 to 5.8	0.2 to 0.3	.....	.....
Gilbert and Weil.....	1899	V. G. 0.49	4,487,000	22,010	.....	25.0	48.0	.....	27.0	Scarce	.....	.....
Hirschlaff.....	1899	25	960,000	43,500	Few	.....	90.0	Few	Scarce	Scarce	.....	.....
Bradley.....	1899	18	1,850,000	85,000	.....	28.0	69.0	.....	3.0	.....	.....	.....
Fussell, Jopson, etc. (1)...	1899	32	1,273,000	362,500	2,100 per cmm.	.....	79.37	5.54	11.0	0.09	.....	.....
" " (2).....	1899	.....	800,000	134,000	4,615 per cmm.	.....	94.32	.....	1.5	.....	.....	4.16
Janeway (1).....	1900	.....	840,000	77,000	Few	.....	90.0	Few	.....	.....	.....	.....
" (2).....	1900	.....	.....	.....	Few	.....	97.0	Few	2+	.....	.....	.....
Brandenburg.....	1900	75	4,100,000	29,900	.....	.....	72.0	1.0	25.0	2.0	.....	.....
Bauer.....	1901	70	4,056,000	217,333	Few	.....	80+	.....	Scarce	Scarce	.....	.....
Brown.....	1902	.....	.....	40,000	.....	.....	82.0	.....	.....	.....	.....	.....
Bromwell.....	1902	80	4,041,000	529,000	Few	10.0	85.0	?	4.8	0.2	.....	.....
Nichols.....	1903	73	3,686,000	134,800	One doubtful cell	7.0	91.3	0.2	1.5	.....	.....	.....
Hamman (1).....	1903	35	2,050,000	89,000	712 per cmm.	16.2	77.3	2.1	3.7	0.7	.....	.....
" (2).....	1903	42	2,800,000	116,200	.....	5.75	81.0	4.75	8.25	0.25	.....	.....
" (3).....	1903	45	2,474,000	958,000	Few	5.37	90.0	2.77	1.63	0.13	.....	.....

grade of transition between the two. The large cells contain voluminous nuclei which nearly fill the cell, leaving only a narrow zone of protoplasm about them. The nuclei are usually round or oval, but many show indentations, and some are even polymorphous. The typical small lymphocytes are much less numerous than these large elements, but are still absolutely increased above the normal. He notes further the absence of myelocytes and eosinophiles and the relative and even absolute decrease in the number of polymorphonuclear neutrophils.

Since the report of the first case of acute leukemia by Friedreich, in 1857, I have been able to collect 124 cases reported in the literature before July 1, 1903. In this list I have not included cases reported as acute Hodgkin's disease, even when associated with a high leukocyte count (Franssa-Dreschfeld). It is very probable that such cases belong more properly to the group of acute leukemia, and they are so included by Fussell, Jopson and Taylor, but the blood description is so meager that I have hesitated to admit them. Other cases included in the number above given I think it advisable to omit. Waldstein's case was associated with a chloroma. In Eichhorst's case all of the

nating element, 12. 3. Cases in which the blood description is too meager to allow of any classification, 35. 4. Cases with a very irregular blood picture, 7.

Of the 57 cases in the first group the relative proportion of the leukocytes is fairly definitely stated in 18 cases, and from these the accompanying table is constructed.

A synopsis of the blood picture in all 57 cases is as follows: The red blood-corpuseles are usually very much diminished in number, the decrease progressing gradually to the end. Not infrequently they fall below a million (Hirschlaff, Fussell, Jopson and Taylor, Janeway). However, the disease may be well advanced and the leukemic blood condition established while the red cells are only slightly diminished (Bauer, Bromwell, Brandenburg, Gilbert, and Weil). The hemoglobin is relatively more diminished than the red corpuseles, giving them a low *valeur globulaire*. Nucleated red cells are usually present, but only in small numbers. Exceptionally they are more numerous, and as many as 4,615 per cm. have been counted (Fussell, Jopson and Taylor). Normoblasts are always more numerous than megaloblasts, but the latter may be present in small numbers (Janeway, Brandenburg, Fussell, Jopson and

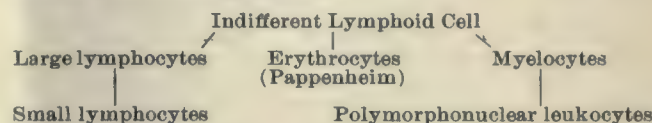
(Taylor). In some of the most typical cases the entire absence of nucleated red cells has been noted (Bradford and Shaw, Gilbert and Weil).

The number of leukocytes is usually not excessive, and falls generally below 200,000 per cm. The lowest counts, excluding cases associated with an infection, are 20,000 (Denning) and 22,000 (Gilbert and Weil). Some of the highest are 700,000 (Hindenburger), 790,000 (Bradford and Shaw), and 958,000 (Hamman). The cells characteristic of this blood condition varying in size from a red blood-corpuscle to the largest myelocyte have been described. The large forms predominate, but even the small cells may be distinguished from the typical lymphocytes by their more vesicular nuclei and more abundant cell protoplasm, which has a tendency to take more or less deeply the acid dye (Reed). The nuclei in the large forms may be indented or even polymorphous (Fraenkel, Bauer, Rosenblath, Reed). All transition forms from the small to the large cells can be traced and in many instances there is an apparent transition of the large cells to myelocytes (Rosenblath, Hamman, also Simon). Nuclear figures have been frequently observed in the large cells (Fraenkel, Obrastzow).

The polymorphonuclear neutrophils are proportionally very much diminished, and often even absolutely (Fraenkel, Reed, Bradford and Shaw, Bauer, etc.). They are often deficient in neutrophilic granules (Fussel, Jopson and Taylor, Hamman). Their entire absence is reported by Kauert. The eosinophiles, while present in most cases, are generally extremely few. In many cases they are entirely absent (Fraenkel, Bradley, Denning, etc.), and the highest percentage given is 2% (Brandenburg). Myelocytes are also generally present, but in small numbers. They are often absent (Fraenkel, Bauer, Denning, Reed, etc.). The highest percentage present in any case was 5.54% (Fussel, Jopson and Taylor). The small lymphocytes are usually present in numbers absolutely greater than normal, but are relatively much diminished. Their percentage varies very greatly. Mastzellen have been observed in none of the cases.

There has been considerable discussion as to the proper position of the large lymphoid cells, described in the list of leukocytes. Fraenkel while ranking them as lymphatic cells thinks they may come in part from the bone marrow. It was following the sharp distinction drawn by Ehrlich between the marrow cells and the lymph-gland cells that they became universally placed in the latter class and were considered derivatives of the small lymphocyte. Their occurrence in the bone marrow was considered an invasion. These views have been severely contested in the past few years. Not only can we entrench ourselves more obstinately than before behind the assertion of Neuman that it still remains to be shown that the leukemic process has in a single instance spared the bone marrow, but very valuable positive evidence has been furnished in the light of certain cases of lymphatic leukemia in which postmortem there was found no enlargement of the lymphatic glands and no evidence microscopically of any unusual activity on their part, while the marrow showed the characteristic cells in great abundance. (Pappenheim, Walz, Reed). The possibility of such an occurrence forerun the fact when Nageli and Benda demonstrated the presence of both the large and small lymphoid cells in normal bone marrow. Benda calls these cells myelogonion and Nageli myeloblasts, both of which terms imply their view as to their destiny. In a study of experimental leukocytosis Rubenstein found that the first change in the marrow after a discharge of the leukocytes into the blood was a great increase in large homogeneous mononuclear cells which are normally present in small number. After the leukocytosis has persisted for some time there is a marked rise in the percentage of myelocytes. He considers these large lymphoid cells the forerunners of myelocytes and derives them in turn from a smaller lymphoid cell—the mother

cell. These large lymphoid cells found in the marrow have morphologic analogs in Flechsig's Keimcentrum of the lymph glands and the attempts of Nageli and Rubenstein to separate them by staining characteristics do not bear confirmation (Michaelis). To separate the two Benda proposed for the gland cells the term lymphogonion. Wolf has gone a step further and links the two functionally as well as morphologically. His views are very attractive. In early embryonic life the blood cell is a large mononuclear lymphoid cell similar to the one found in the lymph glands, spleen, bone marrow and leukemic blood in the adult. This cell wherever found he classes as the indifferent lymphoid cell—differentiable but its destiny depending on environment. In postembryonic life the hemopoietic organs become differentiated so that there is a division of labor, the marrow being concerned in the production of granulocytes, the lymph glands of lymphocytes and the spleen being concerned principally in phagocytosis. Each of these organs however, retains the indifferent lymphoid cell from which the mature cells are produced and under some circumstances may functionate vicariously. It has been shown in animals that the spleen may take on a myeloid function and such an activity of the spleen has been observed in man. Fraenkel reports having found myelocytes in the glands in a case of scarlet fever and there is now evidence enough that typical lymphocytes may come from the marrow (Pappenheim). Wolf constructs the following scheme:¹



It would seem from such evidence that the large lymphoid cells present in the blood in leukemia come in all cases from the bone marrow, and indeed that they bear as close a relation to the myelocytes as to the typical lymphocytes. The term lymphoid is used advisedly, as it has a morphologic significance alone and no reference to their origin or destiny.

In the absence of any definite pathologic basis our only means of classifying leukemias is according to the blood picture. Ehrlich was the first to adopt this method, but he uses the blood picture merely as a gauge to certain anatomic seats of the disease. Evidence being in favor of the absence of such an indication, it has been proposed to replace the terms myelogenous and lymphatic by the more uncompromising ones, myelocytic and lymphocytic, which have reference to the blood picture alone. It appears, however, unjust from the evidence at hand to relegate a blood picture as distinctive as that of Fraenkel to a sub-group under the lymphocytic variety. It is as characteristic and the clinical symptoms accompanying it as definite as in either of the chronic leukemias. As Naunyn suggested many years ago, and as Wolf more earnestly urges, we must recognize 3 classes of leukemia, between which exist every grade of transition. For the third class he proposes the name lymphoid-cell leukemia.²

The most important clinical characteristic of cases having the blood picture of Fraenkel is acuteness. I have been able to find only four instances in the literature in which this blood type is said to have been associated with a chronic course. Hirschlaff's case is the

¹ Pappenheim will not allow that the lymphoid cell described by Wolf is the starting cell of leukocytic development. He insists that these cells show azurophilic granules and are to be grouped with the large mononuclear leukocytes and cannot be held to develop into strongly basophilic lymphocytes on the one hand and basophilic, neutrophilic, eosinophilic leukocytes and myelocytes on the other. In his scheme the large lymphocyte is the mother cell.

² Pappenheim recognizes only two forms of leukemia—the lymphocytic and the mixed-cell varieties, and opposes the introduction of the lymphoid cell type with very ingenious arguments. His explanation of the intermediate and transition forms is purely hypothetical, and whether leukemia be a single nosologic entity or a group of various pathologic processes, it is an advantage clinically to recognize the three classic blood pictures, each associated with a distinct clinical course.

most important, as the patient, a woman of 58, maintained a great increase in the large mononuclear non-granular cells for 4 years. Grawitz speaks of a very similar case in his book on the blood, and Lenhartz after reporting 4 cases of acute leukemia with Fraenkel's blood picture, before the "Aerztlichen Verein," Hamburg, demonstrated slides made from the blood in a chronic case showing the same condition. Rosenblath reports the case of a woman, aged 32, who died after an illness of about 8 months. The blood taken toward the end of the disease showed 900,000 red cells and 40,000 leukocytes, of which the majority were large mononuclear nongranular cells. It may be suggested that the occurrence of this blood picture was associated with the aggravated symptoms, which led rapidly to death, but such an explanation cannot cover the cases of Grawitz and Hirschlaff. A case reported by Palleri is unique, as it seems to represent a transient occurrence of this blood picture in the course of a chronic leukemia. A patient, who had been ill for some time, came under observation after the onset of fever and hemorrhagic tendencies. The large mononuclear lymphoid cell was the predominating white blood element, but under the administration of arsenic the polymorphonuclear leukocytes became very abundant and the "cure" had continued at the end of several months.

It is a more difficult problem to decide whether a blood picture as found ordinarily in chronic leukemia may be associated with an acute clinical course. Of the 11 cases referred to in which the small lymphocyte was the predominating cell, those of Pappenheim and Cabot alone can be accepted as presenting the typical picture of lymphocytic leukemia. Zumpe, Craig, and Rieder give no further description of the blood than that the prevailing cell was the small lymphocyte, and it is possible that Rieder may have been dealing with a chronic case, for although marked symptoms lasted only 7 weeks, the patient had had enlarged glands and swelling of the abdomen for some time before their onset. The cases of Herrick, Theodor, McCrae, Mixa and Walz seem to represent blood pictures intermediate between the lymphocytic and lymphoid-cell types. Of 1,000 leukocytes counted by Herrick, 868 are classed as small lymphocytes, and 121 as large mononuclear forms, but between the two there is every grade of transition. Theodor states that in his case the largest number of cells are small lymphocytes, but there are also present in great number large mononuclear cells with voluminous, poorly-staining nuclei. In McCrae's case the large mononuclear cells amounted to 45% of all the cells in the first count, but the small lymphocytes became much more numerous later. The cases of Mixa and Walz showed beside the typical lymphocytes very many large mononuclear forms. Although we have included the case of Guinan and Jolly in this class there is much reason for considering that the blood picture coincides more closely with Fraenkel's type. They say the principal variety of cell is a leukocyte having the character of those one calls lymphocytes—with this one peculiarity—they exceed in size appreciably these cells as found in normal blood. They add "this is a fact found constantly in parallel cases." No objection can be found to Pappenheim's case in a woman of 35, which ran its course in a little over 6 weeks. The blood showed hemoglobin, 28%; red cells, 1,024,000; leukocytes, 20,000; polymorphonuclear neutrophiles, 1.5%; large lymphocytes, 2.5%; small lymphocytes, 96%; eosinophiles, 0. Many normoblasts. In Cabot's case, the duration of which is not stated, there was 97.9% of small lymphocytes. Perhaps Reiman's case must be admitted beside those of Pappenheim and Cabot, but in the first count he gives, he states that the polymorphonuclear cells predominated. Toward the end of the disease most of the cells are lymphocytes about the size of red blood-corpuscles.

In the literature there are a number of cases of leukemia running an acute course, with a blood picture

resembling more or less the ordinary type of chronic myelocytic leukemia.¹ Thompson and Ewing report the case of a woman, aged 21, who, 7 months after parturition and 6 weeks before admission, was taken ill with severe sore throat, followed by swelling, pain, and redness of the whole right arm. This subsided and she entered the hospital complaining of pain in the abdomen after a fall on the left side. She died 11 days after admission, having had a high temperature and severe vomiting, followed by collapse. Her blood showed hemoglobin, 20%; red cells, 1,290,000. Nucleated red cells were absent on admission, but became gradually quite numerous, and immediately after death normoblasts were abundant, and many megaloblasts present. The leukocytes were estimated to vary between 50,000 and 100,000. The two differential counts were as follows:

	Percent.	Percent.
Mononuclear forms.....	38	17
Myelocytes.....	12	32
Polymorphonuclear neutrophiles.....	55	48
Eosinophiles.....	An occasional cell	3
Mastzellen.....	Absent	Absent

Another case is reported by Hirschfeld and Alexander:

A man of 21 has pain and slight swelling on the outside of the right foot followed in one week by severe toothache. The tooth is drawn and the wound bleeds profusely. Three days later a rapidly spreading ulcer develops on the left lower lip. He enters the hospital on the fourteenth day of his illness and dies on the fifty-ninth day. After admission the swelling on the foot disappears and the ulceration on the lip heals rapidly. In spite of apparent well-being he grows paler and more prostrated. He has considerable toothache necessitating the drawing of 4 apparently healthy teeth. A fresh ulceration commences on the right side of the lip and cheek and with severe swelling of the face and glandular enlargement in the neck and the development of a slight splenic tumor he dies. The observations on the blood are very interesting. On admission there was a moderate grade of secondary anemia, the leukocytes being present in normal numbers, absolutely and relatively. One month after admission the anemia had progressed and a few normoblasts were present. The leukocytes were 30,800 and showed an increase of lymphoid elements and the presence of myelocytes. The differential counts on the 5 days preceding death were as follows:

Polymorphonuclear with neutrophilic granules.....	68.5	75.5	75.5	63.1	73.2
Polymorphonuclear without granules.....		4.7	2.2	1.6	1.1
Large lymphocytes.....	20	13.2	17.4	19.2	16.1
Small lymphocytes.....	4	3.5	3.6	7.4	1.1
Myelocytes.....	5.8	2.9	1.1	8.6	5.0
Eosinophiles and mastzellen absent.....					

It is evident at a glance that neither of these blood pictures correspond very closely to the average type of chronic myelocytic leukemia. The large number of lymphoid elements in both cases, the small number of myelocytes in the second, the absence of mastzellen in both cases and of eosinophiles in the second are the striking points of difference. Simon has shown, however, that even a chronic case of myelocytic leukemia may run its course without eosinophiles or mastzellen. In both of the foregoing cases the autopsy showed the great mass of marrow cells to consist principally of myelocytes, and the mouth ulcer in the second case was made up almost entirely of myelocytes. The autopsy is after all the deciding point and although one might suggest the possibility of an acute infection causing death in a case of chronic leukemia in Thompson's case and of an acute infection suppressing for a time the blood picture in Hirschfeld's case there are no grounds for urging such a view consistently. The most typical case is reported by Grawitz in which of 190,000 leukocytes 60% were myelocytes, 10% eosinophiles, 10% polymorphonuclear neutrophiles, 5% small lymphocytes, and 15% large mononuclear basophiles.

It may be necessary here to refer to an error that has

¹ Since this was written, an article has appeared collecting the cases of reported acute myelocytic leukemia. Billings and Capps. Amer. Jour. Med. Sciences, September, 1903,

got into the literature. Cabot, in an article on acute leukemia abstracts briefly 2 cases previously reported by Obrastzow which Lazarus in his monograph on leukemia (p. 114) erroneously refers to as cases of acute myelogenous leukemia presented by Cabot himself. Probably from this source the mistake has been copied into the literature. It is safe to say that Obrastzow's cases are not myelocytic leukemia and Fraenkel has accepted them as confirmatory of his blood picture. Obrastzow's description of the leukocytes is as follows and was probably made from unstained specimens.

CASE I.—Their diameter is a little larger than a red blood-corpuscle although there are smaller forms. They are for the most part finely granular and enclose a round nucleus.

CASE II.—Their diameter is a little larger than a red blood-corpuscle; there are also present, but in smaller numbers, very large cells (epithelioid) and finally cells of smaller dimensions.

Accepting the suggestions of the intimate relation of the various types of leukemia one is prepared to meet blood pictures intermediate in type between the 3 principal varieties. We have shown how common such mixed blood pictures are between the lymphocytic and lymphoid-cell type and they are equally as striking if not as numerous between the lymphoid-cell and myelocytic variety. The most important case is that of Michaelis.

A woman of 50, is taken ill 10 weeks before admission, with slight cough, a stitch in the side and general malaise. Examination on admission showed a much enlarged spleen. She ran an afebrile course, the general prostration and pallor increasing rapidly and she died 39 days after admission, of edema of the lungs. The blood a few days after admission showed hemoglobin 40%, red cells 3,450,000, leukocytes 16,000.

	Percent.
Lymphocytes connected by transition forms	{ Small 20.0
	{ Large 56.0
Neutrophilic myelocytes	7.2
Neutrophilic polymorphonuclears	16.0
Eosinophiles	0.4
Mastzellen	0.4

The blood picture changed very little during the course of the illness. Arneth describes in detail the blood of a child. A brief abstract of this case follows:

The patient was taken ill 14 days before admission to the hospital with vomiting and general malaise which confined him to the house for 7 days after which he was able again to attend school but became extremely pallid. On the day of admission he had severe epistaxis with pains in the neck, teeth and abdomen. He grew very apathetic and became unconscious on the same day. He regained consciousness after admission, but grew rapidly weaker and died after 4 days. The blood showed the following picture:

Hemoglobin, 10%; red cells, 256,000; leukocytes, 10,600.

	Percent.	Percent.
Lymphocytes	{ Large 4.9	5.8
	{ Small 35.3	22.9
Polymorphonuclears	{ Neutr. 43.9	53
	{ Eosin. 0.2	0.3
Myelocytes	{ Neutr. 13.0	15.1
	{ Eosin. 0.6	0.5
Large mononuclear cells	2.1	2.4

A very large number of nucleated red blood-corpuscles was present, the majority being megaloblasts. Very marked changes in red cells characteristic of severe anemia were noticed.

It must be admitted that the extreme anemia, the extensive changes in the red corpuscles and the low leukocyte count suggest that this case may be more nearly related to the grave anemias than to leukemia. Two more unusual blood pictures are reported by Spencer, and Stewart and Campbell. Spencer's case is in a man of 38, and runs a rapid course with great increase in the leukocytes in the following proportions:

	Percent.
Polymorphonuclear neutrophiles	34
Lymphocytes (of various sizes)	63
Eosinophiles	2.5
Mastzellen	0.25

Numerous nucleated red cells present. It comes nearest to Fraenkel's type, but the large number of polymorphonuclears and the presence of mastzellen is anomalous. The case of Stewart and Campbell, in a

child of 6, ran its course in about 2 months. The blood toward the end of the disease showed:

Hemoglobin, 21%; red cells, 750,000; leukocytes, 40,000.

	Percent.
Lymphocytes (small)	25
Polymorphonuclear neutrophiles	45
Myelocytes	30

The red blood cells showed disproportion in size, but no poikilocytosis. Normoblasts were fairly numerous.

Cases of transition from one type of leukemia to another are reported, but are unusual. Fleischer and Penzoldt examined the blood in a case of chronic leukemia, and found the large mononuclear cells (very probably myelocytes) greatly increased. When the same patient was examined a year later the leukocytes were less numerous and consisted almost entirely of small lymphoid cells. Von der Wey describes the following changes in his case:

On admission in July there were 33.5% of polymorphonuclear leukocytes, 1.9% of eosinophiles, and 66.5% of mononuclear cells, consisting of a small number of lymphocytes, but mostly myelocytes. In August the patient's condition became much worse, and with the onset of hemorrhagic tendencies the blood picture rapidly changed. At the end of August the count was, 3.7% polymorphonuclears, 0.33% eosinophiles, and 96.3% of mononuclear cells, which are now principally lymphoid cells larger than typical lymphocytes, although some myelocytes persist.

It is interesting to note with what frequency the blood picture of lymphoid leukemia occurs toward the end of the course of chloroma. Indeed, the two diseases resemble one another very strikingly, anatomically as well as clinically. The bone marrow is always involved when the blood assumes leukemic characters, and the blood type in all the cases reported with precision corresponds to that described by Fraenkel. Byrom Bramwell reports an interesting case in which the leukocytes numbered only 8,000, but 95% of these were "lymphocytes," and chiefly large forms. Such an observation suggests that the blood picture may be easily overlooked. The subject is fully reviewed by Rosenblath.¹

CONCLUSIONS.

There are 3 types of leukemia, each associated with a typical clinical picture. Between the blood pictures and the clinical pictures there is every grade of transition. Leukemia running an acute course is nearly always associated with the blood picture described by Fraenkel. When the blood picture described by Fraenkel is observed it is almost certain that the case will run an acute course. The presence of either of the other typical blood pictures is an assurance—however, not absolute—that the disease will run a chronic course.

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A COMPARATIVE STUDY OF FRACTURES OF THE EXTREMITIES.¹

BY

M. I. WILBERT, PH.M.,

of Philadelphia.

Director of the Radiographic Laboratory at the German Hospital, Philadelphia, Pa

In the introduction to his book on fractures, Stimson says: "A fracture, in the surgical sense of the word, is the breaking of a bone or a cartilage."

If this rather liberal definition of a fracture be accepted as correct, we must recognize as fractures quite a number of injuries that were formerly classed as sprains. This would also agree with the definition of the word sprain as usually accepted.

"A sprain is the violent straining or wrenching of the soft parts surrounding a joint, without dislocation, and without a fracture of the bony structure."

While it is true that so far as a verbal definition goes, there is no possibility here of mistaking the one for the other, this is not so readily done in actual practice, where it not infrequently happens that even an extensive injury to the osseous framework may be, and sometimes is, mistaken for the more simple lesion. That many cases of actual fracture, particularly at or near the articulating portion of the long bones, have gone unrecognized and untreated, is evidenced by the wellknown popular saying that "a sprain is oftentimes worse than a fracture." This saying is well founded on the fact that when a fracture has been diagnosed as a sprain, and treated as such it usually results in an exuberance of callus that almost invariably causes subsequent impairment of function.

Every Röntgen ray operator has, no doubt, had ample opportunity to learn the variety, and also the frequency of these mistaken diagnoses, so that it will not be necessary to go into this phase of the question at greater length at this time. As an additional proof of the correctness of the statement, however, we should like to call attention to the following table of figures comparing our statistics of total fractures with those published by Stimson:

TABLE NO. 1.—GIVING COMPARATIVE FIGURES OF FREQUENCY OF FRACTURES.

	Stimson.	German Hospital.
Head and neck.....	15	7
Trunk.....	11	5
Upper extremity.....	52	57
Lower extremity.....	22	31

It will be noted that there is quite a marked discrepancy between the comparative numbers of fractures of the extremities and fractures of the remaining portions of the body.

While this difference may, to some extent, be due to our own peculiar environment, and to the class of industrial establishments from which many of our patients come, these purely local conditions will not account entirely for the variations in the figures, particularly as these figures have proved fairly constant over a period of now nearly 8 years.

We believe that the difference in frequency of fractures of the extremities is entirely due to the more accurate diagnosis of injuries to the osseous structure that has been made possible by the introduction and systematic use of the Röntgen rays.

One other feature in connection with the statistics emanating from the radiographic laboratory of the German Hospital that we should like to call your attention to, is the fact that they differ from those ordinarily published,

¹ Read at the meeting of the American Röntgen Ray Society, December 9 and 10, 1903.

in making a distinction between a fracture in the shaft of a bone and an injury at or near a joint.

This, we believe, to be justified by the greater relative importance of a fracture at or near a joint, and also by the fact that injuries at a joint, in a large number of cases, involve more than one bone. The recognition and correct diagnosis of joint fractures, therefore, beside being of practical importance to the rational treatment of a patient, is also of considerable interest and of vital importance from an economic point of view.

TABLE NO. 2.—SHOWING COMPARATIVE FREQUENCY OF FRACTURES IN A SERIES OF 2,000 CONSECUTIVE CASES, COMPARED WITH FIGURES QUOTED BY STIMSON, BECK AND OTHERS.

	German Hospital.	Stimson.
Upper extremity:		
Hand.....	12.5	10.0
Wrist.....	25.5	
Arm.....	5.0	22.25
Elbow.....	12.5	
Humerus.....	1.5	10.0
Shoulder.....	7.5	
Scapula.....		1.25
Clavicle.....		19
Total.....	64.5	62.5
Lower extremity:		
Thigh and hip.....	2.5	7.5
Thigh.....	4.5	
Knee.....		2.5
Patella.....		18.5
Leg.....	5.5	
Ankle.....	14.5	
Foot.....	9.0	9.0
Total.....	36	37.5

This table (No. 2) well illustrates the importance of the subject of joint fracture. If any additional argument were needed, it might be found in the comparative frequency of fractures of the carpus. In textbooks on surgery, carpal fractures are usually dismissed in a perfunctory way, with the statement that they are unusual or very rare. In our experience at the German Hospital we found them to be comparatively frequent. In 1,000 consecutive cases that have been reported, no less than 82 had a fracture involving one or more of the carpal bones, making a total of 8.2% of all fractures.

To appreciate the significance of the figures quoted still more, let us consider for a moment the composition and mechanism of a joint.

In its simplest form a joint is composed of 2 or more bones suitably shaped and arranged. The articulating surfaces of these bones are covered with cartilage and protected by or enveloped in a fibrous tissue, which in turn is lined with a delicate secreting membrane. The different bones constituting the joint are held together by ligaments of various kinds, and are acted upon by muscles that are so distributed and attached as to facilitate movement in the required direction. There is a liberal supply of bloodvessels and nerves to furnish nourishment and to control the motion of the various parts. These, on account of the limited space available, are usually in close proximity to or enveloped in the surrounding structures. If we can conjure up a proper picture of any particular joint, realize its wonderful complexity, and its thorough adaptation to the particular purpose for which it is designed or used, we will readily appreciate why a comparatively slight injury may, and will, occasion considerable disarrangement to the normal function of the joint.

In connection with injuries to or near the articulating surface of a bone, too much stress cannot be laid on the caution to be careful in handling the part. Hamilton, in his justly far-famed treatise on fractures, calls attention to this fact, and says that "the rude and reckless handling of a limb may result in serious additional damage that can never afterward be wholly remedied—augmenting the pain and inflammation, and not infre-

quently, no doubt, determining the occurrence of suppuration, gangrene, and death."

In a later paragraph, the same author adds that "the surgeon should not forget that while a patient is under the influence of an anesthetic, violent manipulations are no less liable to rupture bloodvessels and to lacerate other tissues than if employed when the patient is conscious."

Experience will fully justify these statements, made by Hamilton more than 30 years ago, in counterdistinction to the advice given by some later writers, to administer an anesthetic in all cases that do not admit of ready manipulation for making a complete and accurate diagnosis.

The necessity of a complete and accurate diagnosis of an injury will readily be admitted. Some additional suggestions to the value of a correct diagnosis, particularly of injuries about a joint, may be had from Table No. 3, which gives the approximate age at which the various fractures occurred.

TABLE NO. 3.—GIVING THE APPROXIMATE AGE AT WHICH THE INJURY OCCURRED IN A SERIES OF 1,000 CONSECUTIVE CASES OF FRACTURE OF THE EXTREMITIES.

Age	1-10	11-20	21-30	31-40	41-50	51-60	61-70	Over 70
Upper extremity:								
Hand.....	3	30	26	24	11	3	1	
Wrist.....	5	60	59	35	36	32	14	2
Arm.....	8	20	5	6	4	3	1	
Elbow.....	36	33	14	10	13	4	1	2
Humerus.....	1	4	5	4	1			
Shoulder.....	4	7	19	19	9	15	8	4
Lower extremity:								
Thigh and hip.....	1	5	3	1	6	5	4	
Knee.....	3	5	9	7	6	5	2	
Leg.....	9	6	9	10	12	12	2	
Ankle.....	6	24	46	50	27	19	6	1
Foot.....	2	5	38	26	24	7		2
Total.....	78	199	233	192	152	96	39	11

A glance at this table will suggest the fact that nearly one-fourth (23.3%) of all the fractures occurred in persons between the ages of 21 and 30; 43.2% between the ages of 11 and 30. The economic value of these figures will appeal to us more when we stop to think that the average age in this particular number of cases would not be more than 22, and that at this age the computed expectancy of life is at least 40 years.

When we remember that the earning capacity of the average individual depends very materially on the full and complete use of the various joints of the extremities, and that it may be, and usually is seriously impaired by the loss or impairment of this complete use of the joints we begin to realize the value and importance of the Röntgen rays as a diagnostic agent.

TABLE NO. 4.—GIVING THE SEX AND THE SIDE INVOLVED, IN A SERIES OF 1,000 CONSECUTIVE CASES OF FRACTURE OF THE EXTREMITY.

	Sex.		Side.		Total.
	Male.	Female.	Right.	Left.	
Hand.....	88	10	55	43	98
Wrist.....	195	48	118	125	243
Arm.....	38	9	20	27	47
Elbow.....	92	21	48	65	113
Humerus.....	16	3	8	11	19
Shoulder.....	70	15	59	26	85
Thigh and hip.....	20	5	15	10	25
Knee.....	28	9	21	16	37
Leg.....	43	7	27	23	50
Ankle.....	157	22	80	99	179
Foot.....	99	5	64	40	104
Total.....	846	151	515	485	

Table No. 4 has been introduced as offering some additional and interesting data in connection with a study of frequency of fractures of the extremities.

Among other interesting suggestions the marked, and in many respects distinct difference in the number of fractures involving the right as compared to the left

shoulder, will immediately call to mind the more general use that is made of the right shoulder joint in attempts to protect from possible injuries. The marked difference in the number of fractures of the hand or foot occurring in males, as compared to females is, of course, explained by the extra hazard taken by males in many of their occupations, particularly by those engaged in the manufacturing industries in which iron and other heavy metals play an important part.

Another discrepancy, found in the figures given for fractures of the leg and ankle, can also be attributed to conditions more or less closely connected with the occupation of the individual. Aside from these exceptional cases it is rather interesting to note how closely the remaining figures approximate the frequently suggested ratio of 4 males to 1 female.

There is one other feature in connection with fractures of the extremities that should not be lost sight of, this is embodied in a caution found in many textbooks, usually accredited to Nélaton, to examine the remaining joints of the same extremity for additional injuries, as it not infrequently happens that an adjacent joint may be involved. This is particularly applicable in cases of fracture involving the shaft of one of the long bones in which the resulting deformity may, and frequently does, cause considerable disturbance at the adjoining articulating surface.

Fractures are frequently complicated by the deformity from an old injury; for some occult reason patients will rarely call attention to the previous deformity, and even when questioned will deny having had a previous injury until confronted with unmistakable evidence of the presence of an old deformity. These same unrecognized, or unremembered, injuries to or near a joint, not infrequently play a very important part in the subsequent development of diseases of the bones.

Diseases of the joints are usually ascribed to some constitutional taint; there can be no doubt, however, that in a large number of cases they can be directly traced to a more or less extensive bone injury, received at some earlier period.

This, of course, suggests the question as to how many of these diseased joints could have been averted by the recognition of the true nature of, and the proper treatment of, the initial lesion. Without going at all into a discussion of the treatment of fractures, we should like to call attention to the possible damage that may be done, in this direction, by the not uncommon mistake of keeping a joint at rest for an inordinate period of time. The changes that may be brought about in the composition of a joint are of a grave and oftentimes of a serious nature.

The connective tissue that fills up the interspaces of the joint is most likely to be affected, as it is either compressed or unduly relaxed; in the former case it is likely to become dense, and hard, in the latter, it is more likely to fill with fluid, become soft and pulpy, and eventually undergo further changes and ultimately cause more or less interference with motion, complete ankylosis, and possible degenerative changes in the part.

In conclusion, we would like to say that while it must be admitted that the Röntgen rays, even at the present time, will not indicate the exact nature of all of the possible injuries to the extremities, they do, when properly applied, invariably show all serious lesions of the osseous structure and in a number of cases will indicate correctly the nature and extent of the injuries to the soft parts, particularly when this injury involves the denser portions of the tendons.

It is reasonable then for us to assert that precision and exactness of diagnosis, without incurring any additional risk of injuring surrounding tissues, are practically impossible without the use of the Röntgen rays, and that, without a complete and correct diagnosis of an injury, the accompanying treatment must necessarily be entirely a matter of chance.

In this connection we feel satisfied that a more general adoption of the routine use of the Röntgen rays in all cases of possible injury to the osseous structure will do much toward helping the human race onward toward that ultimate, and perhaps ideal, possibility of freedom from grave ills and unnecessary deformities.

FRACTURE-DISLOCATION OF THE SPINE.*

BY

J. SHELTON HORSLEY, M.D.,

of Richmond, Va.

Professor of Principles of Surgery in the Medical College of Virginia;
Surgeon to Memorial Hospital, Richmond, Va.

The history of laminectomy has been one of many vicissitudes. Dating from the seventh century and the time of Paul d'Egine, it has been alternately held in high favor or condemned as worthless. Its present status with many surgeons may be represented by a quotation from Sir Astley Cooper. In 1823 he said:

If you could save one life in ten, aye, one in a hundred by such an operation, it is your duty to attempt it, notwithstanding any objections which some foolish persons may have urged against it. Though I may not live long enough to see the operation frequently performed, I have no doubt that it will be occasionally performed with success. There is no reason why it should not, and he who says it should not be attempted is a blockhead.

Bolton¹ concludes an article on principles of treatment in injuries of the spinal cord as follows:

Cells and fibers of the cord are readily destroyed, and once destroyed, never regenerate. 1. Extradural hemorrhage does not give rise to cord lesions or symptoms, and requires no treatment. 2. Total lesions of the cord are immediate. The lesion is permanent and requires no treatment. 3. In hematomyelia the clot is absorbed, its site persists as a cavity, or is filled by newly-formed tissue; irregularities of the circulation in surrounding positions of the cord adjust themselves. 4. In partial contusion of the cord the lesion results in permanent destruction of cells and fibers. No treatment is available. 5. In open injuries of the cord there are destruction of cells and fibers, and disturbance of circulation. But here active operative interference is indicated to remove foreign bodies, to facilitate disinfection, to prevent more extensive necrosis, and to facilitate drainage.

This view of Bolton's, pessimistic as it seems, was that of perhaps a majority of surgeons at that time, though Victor Horsley and others advocated laminectomy in these cases, and stated that the only danger was from sepsis. The *New York Medical Record*² in an editorial on the subject says:

The present status of these cases of spinal injury seems to be expressed by saying that nothing can be done for those patients who have the symptoms of crush of the cord at any level, while in other patients the advisability of operating must depend upon the apparent requirement of the individual case, with the chances of doing much good at best but dubious.

John C. Munro³ reports 18 cases of laminectomy, and concludes that the operation is nearly hopeless in acute injuries to the upper half of the cord, though it should be done as giving the only chance of cure. Robert Abbe⁴ reports 4 cases of spinal fracture, and advocates operating under cocain. He says if loss of motion and sensation below the injury is instantaneous and complete, recovery is almost hopeless, though he has had a patient with these symptoms who recovered.

Perhaps the most important papers of late in giving a more hopeful view of the influence of laminectomy on spinal injuries are those of A. J. McCosh,⁵ and Harte and Stewart.⁶ McCosh reports 10 cases of trauma to the cord, and of this number 4 patients showed only partial paralysis of the portion of the body below the injury, or else marked improvement within 24 hours after the injury. The remaining 6 cases were severe and were subjected to laminectomy. Four of these patients died and two recovered completely. In one of the patients

*Read at a meeting of the Southern Surgical and Gynecological Association at Atlanta, December 15, 1903.

who recovered the injury was at the fourth cervical vertebra; in the other at the seventh dorsal vertebra. From their histories it seems most probable that without operation all of these 6 patients would have died.

The case reported by Harte and Stewart in a paper read before the American Surgical Association is of great interest as being one of the few cases recorded from thoroughly reliable sources in which the spinal cord regenerated. The cord was severed by a 32-caliber bullet, and complete paralysis followed at once. Operation was performed 3 hours later. After removing the bullet at the seventh and eighth dorsal vertebrae, there was an interval of $\frac{3}{4}$ inch between the segments of the cord. These were approximated with catgut sutures. Sixteen months afterward the patient could voluntarily flex the toes, flex and extend the legs and thighs, and rotate the thighs, and had the sense of touch, temperature, pain, and position all over. She could stand, by partially supporting herself with a hand on the back of a chair. In the discussion, W. L. Estes reported a somewhat similar case in which there were positive evidences of regeneration of the spinal cord.

It is certainly true that every case of fracture-dislocation of the spine does not need operation. There is no hard and fast rule universally applicable to the treatment of any surgical disease, and surely fracture-dislocation of the spine offers no exception. No one should say that all patients ought to be operated upon; it is equally bad policy never to operate on any. As in all other important surgical conditions, judgment should be exercised as to when to operate. The similarity between injuries of the spinal cord and injuries of the brain should be emphasized, as well as the fact that without an operation or a necropsy, no one can always tell when the cord is completely destroyed.

The plan of McCosh seems excellent. He operates in all cases of complete paralysis below the injury unless there is improvement within 24 hours after the injury; when the trauma is especially marked, he operates sooner. He points out that the danger of delay lies in degenerative changes in the spinal cord which set in soon after the injury. Early operation may arrest or at least lessen this degeneration.

Frequently severe injury of the cord may not kill immediately, but it nearly always leaves the patient a permanent invalid. The following 2 cases illustrate this:

CASE I.—A Mexican girl, of 15, was referred by Dr. M. P. Schuster, of El Paso, Texas. I saw her for the first time June 29, 1903. She gave a history of having been healthy previous to the accident; family history was negative. About 2 years ago she fell from a high swing, striking on her buttocks. There was immediate paralysis of her legs, both as to motion and sensation. The bladder and rectum were slightly disturbed. After 6 months some improvement began in motion and sensation, and the bladder and rectum acted normally. When I saw her 2 years after the accident the bodies of 3 lumbar vertebrae were twisted sharply to the right on an axis running through the spinous processes, which were not greatly altered in their position as far as their tips were concerned. The girl was thin and the bodies of these vertebrae were so rotated that the right transverse processes could be distinctly palpated and seemed just beneath the skin. The sacrum was dislocated forward so the last lumbar vertebra was very prominent and immediately beneath the skin. It had a very small spinous process. The bladder was acting normally; there was a tendency to constipation. There was absence of patellar and ankle reflexes in both legs. In the right leg there was complete loss of all sensation (touch, pain, and temperature) below the knee, and there was an area of anesthesia extending up the posterior surface of the thigh to the gluteal fold. In the left leg there was total anesthesia below the knee, excepting a small strip along the inner side of the leg, inner side of foot, and inner side of great toe. In the left thigh the area of anesthesia corresponded to that of the right. There was no movement of either foot. Both legs could be extended and flexed quite readily, but not forcibly. She could not bear any weight on the feet. Over the lower part of the sacrum there was an ulcer that had a tendency to heal, but when one part of it healed it seemed to spread at another point. She could sit comfortably. Both legs and both thighs were much atrophied and she was emaciated, but seemed in tolerably good health. No operation was deemed advisable in the condition in which I saw her.

CASE II.—R. S., of Las Cruces, New Mexico, is an American boy, aged 14. Previous health before accident was good, excepting that he had always been nervous. When about 10 years of age he was thrown from a horse and dragged some distance. Dr. B. E. Lane, of Las Cruces, was sent for. He found his head fixed to one side; it could not be moved in any direction. Closer examination showed there was a dislocation of an upper cervical vertebra, which it was impossible to reduce. There was considerable pain, but no paralysis. He recovered from the immediate effects of the injury in a few weeks, and the following winter went to school. His head remained in the fixed position. About May, 1901, 2 years after the accident, he began to suffer from pains in his body and limbs; after 2 months there was paralysis of some of the muscles of his hands and arms, and an inability to stand on his legs, though there was no complete paralysis. He did not improve, and was referred to me by Dr. Lane in September, 1902. He was excessively emaciated and nervous. The head was firmly fixed in one position; a bony protuberance, probably a displaced portion of the axis, stuck out to the left of the middle line; his legs seemed almost completely paralyzed, both as to motion and sensation; motion was very slight, and only after great effort; there was weak voluntary movement of the thighs. There was weak motion in arms, forearms, and hands. Sensation seemed impaired over his whole body and neck, though existing in various degrees. He could not turn himself in bed. Bladder and bowels acted regularly and normally. A Röntgen ray picture taken at the time showed a forward dislocation of the axis, and a probable fracture of its spinous process and a part of its lamina. No operation was advised. I regret that the circumstances were such that I could not make a more complete and accurate examination of this interesting patient. I



Case 2.—Forward dislocation of the axis with the atlas.

have been unable to hear from him for 6 months, but believe that he is still alive (see cut).

The next 2 cases are instances of a rapidly fatal result following what was symptomatically complete severing of the cord. I have no notes of these 2 cases, and shall have to give them from memory.

CASE III.—A young man, American, aged about 25. He was a lineman for a telephone company. While stretching the wire he fell from a telephone pole and struck on his shoulder, doubling up like a jack-knife. There was immediate complete paralysis of motion and sensation in both legs. The bladder and rectum were completely paralyzed. I saw him for the first time about 4 weeks after the injury. There was a deformity in the lower dorsal vertebrae about the tenth or eleventh. Paralysis was still complete. There was a rise of several degrees of temperature, probably from a large sloughing pressure-sore, covering practically all of the posterior surface of the sacrum. No operation was advised. He died a week later, and I made a postmortem examination of the spinal canal. At the site of deformity there was no trace of a spinal cord. The canal at this point was filled with old blood clots and a semifluid grayish substance.

CASE IV.—A Mexican laborer, aged about 20, having the appearance of previous good health was shot with a load of buck-shot. One struck in the shoulder and one in the spine about the third or fourth dorsal vertebra. There was immediate complete paralysis of both legs and of that portion of the body below the level of the injury. Motion, sensation and the action of the bladder and the rectum were entirely abolished. The patient was referred to me for treatment by his physician, Dr. D. H. Huffaker, and I saw him with Dr. Huffaker a week after the injury. Pressure sores were forming, and in view of his bad condition and the fact that several days had elapsed since the accident, operation was not advised. He died a few days later.

In the following 2 cases operation was performed after symptoms that seemed to indicate a complete destruction of the cord where the spine was injured. The technic followed was that generally recommended, viz., a straight incision over the spinous processes, pushing back the muscles by blunt dissection, biting off the spinous processes and then removing the laminae with a chisel or preferably a rongeur forceps. No plaster cast or other support was used after operation.

CASE V.—L. C., a Mexican laborer, aged 50. Previous health good. On January 31, 1902, he fell from a wagon loaded with hay and struck on the upper part of his back. There was immediate paralysis of sensation and motion in both legs. He was referred to me by Dr. G. Wehrle, of El Paso, Tex. There was complete paralysis of sensation and motion below the injury, bladder and rectum were paralyzed and patella reflex lost. He suffered considerable pain. There was a marked protuberance at the site of the first lumbar vertebra, with a depression immediately above it. Temperature 99.5°; pulse 80. I operated upon him August 1, making a straight 6-inch incision over the spinous processes at the site of the injury. The spinous process of the last dorsal was fractured, and the dorsal spinal column was dislocated forward on the lumbar spinal column, so that the spinal canal of the dorsal vertebrae rested partly on the body of the first lumbar vertebra, thus partially occluding the canal. There was no fracture except that of the spinous process of the last dorsal. The cord had been caught between the last dorsal and the first lumbar as between scissors, but was not completely crushed because the dislocation had not been extensive enough. It was impossible to reduce the dislocation, so the laminae of the twelfth, eleventh, and tenth dorsal vertebrae were removed. This released the cord and removed all pressure from it; the procedure of chiseling and biting away the laminae was quite difficult, owing to the unnatural depth of the wound from the dislocation. It was important to leave no projecting spicule of bone. The dura was opened and the cord found to be somewhat mashed, but much less seriously injured than had been anticipated. A probe introduced under the dura for 2 inches up and then down the canal met no obstruction. Dura was sutured with catgut, and wound closed with small drain. Patient suffered great pain, after recovering from the anesthetic, but showed only slight shock. The following day his temperature rose to 103°, with pulse 129, but it rapidly subsided and by August 4 (3 days after operation) pulse was 88 and temperature 99.2°. Pain continued severe. There was no improvement of paralysis of motion, sensation or bladder. Bowels moved after many enemas. It was impossible to keep him covered, he would even tear his night-shirt off. On August 7 his temperature and pulse rose slightly. He complained of severe pain in the right chest; there was dulness and impaired breathing in the lower lobe of right lung. He rapidly weakened and without his temperature becoming much elevated or pulse going over 100, died rather suddenly on August 9. A postmortem showed the wound in excellent condition, primary union having taken place except at the small drainage point, and no suppuration had occurred there. The cord seemed distinctly softer than it was at the time of operation. The whole of the lower lobe of the right lung and part of the middle lobe were consolidated and showed all signs of pneumonia.

CASE VI.—T. H., a Mexican laborer, aged 19; previous health good. April 15, 1900, he fell about 30 feet from a house, and struck on his back, probably on the upper dorsal region. There was immediate paralysis of motion and sensation in both legs, and complete paralysis of bladder and rectum. Examination showed absence of patella reflexes. There was deformity at the eleventh and twelfth dorsal vertebrae. His condition did not improve and he was referred to me for operation by Dr. M. P. Schuster 4 weeks after the injury. He was operated upon May 17, under chloroform anesthesia. A 10-inch incision was made over the spines of the lower dorsal and upper lumbar vertebrae. The spines and laminae of the eleventh and twelfth dorsal were fractured and some of the fragments driven in. Part of an articular process had also been fractured and driven in the canal. These fragments were removed and the rest of the laminae of the tenth, eleventh and twelfth bit and chiseled away. The cord was almost severed, only a few fibers of its anterior portion remaining. The dura which had been torn was sutured, a probe having previously demonstrated the absence of other obstructions for 2 inches above and below the injured portion of the cord. The wound was closed with silkwormgut, a small catgut drain having been put in. Recovery from immediate effects of operation was rapid. Temperature had been elevated 1° or 2° before operation, but gradually fell, and a week after operation was practically normal. Three weeks after operation his pulse became rapid and weak, going up to 120 with but little temperature, and his general condition seemed to be failing. This continued for 2 weeks, and without special treatment other than ordinary tonics and feeding, he began to improve. Sensation and motion slowly returned, though there was no sign of either for 2 months after operation. The first definite symptom of improvement was his passing urine voluntarily. This occurred 6 weeks after the operation. He had several bed-

sores, none of which was severe, and all showed a tendency to heal. His condition, as represented by the last report I received from him, June 27, 1903, about 3 years after injury is as follows:

Sexual desire was abolished at first but is now normal, having returned in the last few months. The muscles of both thighs appear practically normal. Sensation in both thighs is also satisfactory. The legs have improved but little if any in either motion or sensation. The muscles are atrophied, flabby and without power. Recently a nail has come off a toe on each foot, leaving a raw surface. With some assistance he can stand, and with a great deal of support on each side he can walk. His bladder and rectum act regularly and normally. His general condition now is best expressed by a quotation from a letter of Dr. H. T. Safford, to whom I am indebted for the notes on this case. "The patient is at present in fine physical condition, with the exception of the degree of paralysis which remains and has not shown any marked improvement of late. He is fatter now than before the injury and quite comfortable except for occasional pains he feels in his legs. His present weight must be nearly 200 pounds."

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PHYSICAL OVEREXERTION, AND ITS EFFECTS ON HEALTH.

BY

JOHN KNOTT, M.A., M.D. (UNIV. DUB.), M.R.C.P.I.,
M.R.I.A.,

of Dublin, Ireland.

I believe that every person who has lived actively in this world for the period of 3 years or upward knows the unpleasant feeling of being "very tired." The same exciting cause carried to a further stage leads to the more advanced experience of being "completely done up." In early life these conditions, like those dependent on most of the other ills to which human nature is liable, are comparatively easily recovered from; when adult age has been reached, they become more serious. As the intensity of the struggle for existence in this world is, far too obviously, on the increase—with the increase of the census returns, the broadcast spread of education, and the general advancement of human intelligence—the regulation of the amount of exertion called forth in the exercise of the duties of life, daily becomes a subject of more important consideration. In the present democratic age the dignity of labor is well recognized, and the importance of regulating the capabilities and energies of the human machine can hardly be overestimated.

The evils of excessive physical exertion must have been well known to humanity ever since the expulsion of Adam from Paradise, with the accompanying penalty of having to earn his bread by the sweat of his brow. Those whom fortune has gifted with independence are never likely to know them, except through their own fault or folly. To the laboring classes of all ages and of all nations they have been only too familiar. This is especially true of the tillers of the soil, whose exertions, depending so largely, as they do, on season and on atmospheric changes, are necessarily more irregular and spasmodic. The descendants of Abel are less likely to become acquainted with the ills of overexertion than the unhappy offspring of Cain. On the other hand, the city artisan is far less liable to the evil results of physical overstrain, for he is regularly accustomed to definite hours of employment at some specialized form of labor, to which his muscles have become habitually accustomed; and such labor ultimately tends to become so much of second nature as to make it a necessity. It is among those members of the community who are called upon to perform prolonged and exhausting physical exertion, of some kind, at irregular intervals, and without requisite preliminary training or sufficient supply of properly chosen nutriment, that the mischievous results of

muscular exhaustion are especially likely to display themselves.

I have elsewhere called the attention of nonprofessional readers to "The Value of Exercise," as a necessary factor in the maintenance of health. Its refreshing and exhilarating effects are, almost invariably, fully appreciated by every one physically capable of enjoying it. But like all the other good things which life affords, it must, in order to do good, be partaken of with moderation. The good and the evil of physical exertion were well indicated in classic times by Ovid, whose reputation in the domains of philosophy and poetic mythology is too much overshadowed in modern times by the notoriety of his amatory productions.

Otia corpus alunt, animus quoque pascitur illis;
Immodicus contra carpit utrumque labor.

"Relaxation strengthens the body and invigorates the mind"—this, of course, refers to the rest which follows well-directed physical and mental effort; "while immoderate exertion exhausts both." The object of the present communication is to show the why, the how, and the how far of the exhaustion so induced.

The muscles of the body are the agents of all voluntary exertion. The activity of muscle is shown in the contraction of its fibers. Like all other tissues of the body the muscles are under the control of the nervous system. The will, whose central organ is placed in the cortical layer of the brain, ordinarily governs muscular action. The cells of this layer telephone their orders to the muscles through the connecting threads which are known as the nerves. The ends of the muscles are attached to the bones. Acting under orders, a muscle shows its obedience by contracting, thereby bringing its more movable end nearer to its more fixed one. In this way all our voluntary movements are performed.

As in the case of all the other tissues of the body, muscle derives its nutrition from the blood, which is continuously pumped by the heart through the branching vessels called arteries, to the microscopic tubes called capillaries, which form a dense network throughout every part of the system. Through the thin and leaky walls of the latter the fluid part of the blood is constantly oozing. Like all other animal tissues, muscle possesses the power of abstracting from this fluid the materials which are necessary for its repair, and letting the rest go. Like the other tissues too, and especially the more complex, its molecular constituents are continuously changing; the older material crumbling down, and the new taking its place. On this account a continuous supply of nutritive fluid must be kept flowing around and between its fibers. It is a wellknown physiologic law that every tissue or organ of the body receives a larger supply of blood when in a state of activity than when in a state of rest. When a muscle is in a state of activity the bloodvessels which convey the nutritive fluid to and through its substance are found to be dilated, and the fluid portion of the blood leaks through the capillary walls in increased quantity; the molecular changes within the constituents of the muscle fiber take place with greater rapidity, and the waste products are washed off in larger quantity, to find their way into the general circulation; partly into the capillary bloodvessels by osmosis, and partly into the open mouths of the minute vessels (lymphatics) which are placed in the interstices of all the tissues to receive the impoverished plasma and convey it away, to be poured at last into the large veins. Accordingly, the nutritive changes take place much more rapidly, and on a larger scale, in an active muscle than in a resting one.

Those molecular changes, which are continuously occurring in living muscle, are, like other chemic changes, necessarily accompanied by the production of heat. Complexity of composition and instability of structure are the leading characteristics of the more highly organized tissues of the animal body. In these

the molecular changes proceed more rapidly, and, accordingly, on them more especially depends the maintenance of the "animal heat" to which living bodies owe their characteristic warmth. Now, the muscular tissue is, after the nervous, the most highly organized of the constituent structures of the animal body. And muscle forms so large a proportion of the mass of the body that it is known to physiologists as the great furnace of the animal economy—about four-fifths of the total heat of the system being evolved within its substance. A knowledge of this fact should forcibly impress upon the reader the immense importance of the maintenance of the healthy functional activity of muscle on the general economy of the whole body.

The muscular debris detached during the continuous waste referred to is finally washed out of the system with the watery excretions in the form of urea, and other less important organic compounds; with various soluble salts of simpler composition, carbonic acid, and water. Now, with the increase of muscular action, the amount of these effete products is proportionally increased. Up to a certain point, the system is able to eliminate by the usual process of chemic change. But with overexertion of the muscular system, a point is soon reached, beyond which the waste products begin to accumulate in the circulation and in the tissues. The various phenomena of *fatigue* then begin to manifest themselves. When the quantity of muscular waste becomes so great that it cannot be removed from the system in the usual way by the emunctory organs, the circulating blood and lymph, which—to use a slightly metaphoric expression—had previously been clear, become muddy. When this stage has been reached, the healthy nutrition of the other organs and tissues, all of which derive their pabulum from the blood, can no longer be maintained. This state of things tells with special effect on the nervous centers. Now as every tissue of the animal body is placed under the government of the nerve centers, it necessarily follows that when the nutrition of the latter becomes deranged, the nutritional changes and functional capacities of the whole system are thrown into a general state of anarchy. This is precisely what happens when muscular fatigue is carried to excess.

In the lower part of the brain—at a little distance above its junction with the spinal marrow—are placed centers which regulate the caliber of the bloodvessels and the temperature of the body. The heat-governing center has a threefold function; it regulates the production, the distribution, and the discharge. When the nutrition of the nerve cells of this triple center is healthily maintained, the result is the exquisite adjustment by which the temperature of warm-blooded animals is so uniformly balanced—the contemplation of the phenomena and mechanisms of which opens up one of the wonderlands of physiologic science.

Let us now direct our attention to the phenomena of excessive muscular exertion—such as we see in the exercise of running. In the earlier stage, the respiration and circulation are both accelerated, and before the amount of exercise passes the "salutary dose," the individual simply enjoys a phase of greater intensity of life, without feeling any trace of discomfort, or incurring the slightest danger. In the advanced stage, respiratory distress sets in; the individual experiences a sensation of constricting tightness about the chest; and a feeling of discomfort in the head, which goes on to the development of the appearances of clouds and flashes before the eyes, ringing sounds in the ears, a general bluntness of sensation, and confusion of impressions and ideas. In a still further stage, a sensation of overpowering anguish overspreads the whole system; the head feels as if bound by an iron band; distressing giddiness sets in; "the brain is overcome by a kind of drunkenness," and finally, the individual loses consciousness, and falls in a fainting state. The heart's action is feeble, and syncope

may prove fatal. Recovery will be more or less rapid and complete, according to the previous state of "training."

Some 15 years ago, the febrile phenomena which sometimes follow violent muscular exertion were, for the first time, described and examined at some length by me, under the name of "The Fever of Overexertion." The condition is well known in the remote parts of Ireland. In some districts it is called "the pleurisy," in others, "the surfeit," etc. The reason for its frequent occurrence among farm laborers in the country is not far to seek. They are mostly in bad training, and their diet, even when sufficient in quantity, is seldom well chosen. Spasmodic efforts are likely to be called for in spring and autumn. Such calls specially affect the owners of small farms, whose families depend largely on their personal exertions. A very heavy day's work is not infrequently followed by an attack of high fever. With rest and proper treatment at the start, it rapidly subsides; but, in such cases, the unhappy patient is often too anxious to allow himself time to recover completely before going back to work. He does enough—for some days or weeks—to feed the slow fever. When this occurs, recovery is hardly ever complete. The poor patient lingers some months, perhaps a year or two, and dies. The explanation is, I believe, to be found in the poisoning of the nerve centers by the passing into the general circulation of an excessive quantity of muscular waste. The heat-regulating centers lose their governing power, and the body wastes with slow fever.

Of the local affections which are likely to be produced by excessive exercise, there are many of importance, but space will not permit more than the mere mention of the principal. Hypertrophy and dilation of the heart are among those oftenest spoken of. Aneurysm is often referable to the same cause. The production of hernia is also notably liable to occur in subjects anatomically predisposed. Varicose veins are also said to be often produced in the same way, but this is much more doubtful. Hemoptysis, emphysema, and other lung troubles have often followed violent exertion. Certain deformities of the body—such as lateral curvature of the spine—may follow the ill-restricted use of certain groups of muscles. Permanent lordosis has been observed in an accomplished acrobat. Cerebral or spinal apoplexy sometimes results from violent exertion. Rupture of muscles and fracture of bones is an obvious result of excessive strain.

I have now, perhaps, said enough to indicate to the general reader the principal ill effects which are likely to follow the abuse of physical exercise. The subject is at present a more important one than it has been at any previous period of the world's history; now that the struggle for existence is more intense, and physical exercise is given so prominent a place in the education of youth. The moral lesson to be derived from this study is an obvious one. It is necessary for even those who have been best endowed by Nature with her physical gifts to remember that their overuse may lead to a sudden and permanent breakdown of health. It is still more desirable for the naturally delicate and weakly to remember that the violent exercises and brilliant gymnastic feats which are so easily and so gracefully performed by their athletic companions are not for them to imitate. Ill-advised efforts in such directions would tend to results nearly as deplorable as those which befell the ambitious frog in *Æsop's* familiar fable. The burden should be, so far as possible, suited to the back which bears it,—in physical exercise as in the other duties and callings of life. Every healthy individual can improve the physical, as well as the mental gifts of nature; by judiciously taking to use, without abusing them. While a fair amount of well-regulated muscular exercise is one of the very best agents for retaining and improving a healthy state of both body and mind, indulgence in excessive and ill-arranged feats of muscular exertion is one of the surest ways of permanently impairing their functions.

THE MODERN TREATMENT OF WOUNDS.¹

BY

WALTER LATHROP, M.D.,

of Hazleton, Pa.

Superintendent and Surgeon, State Hospital, Hazleton, Pa., Surgeon,
L. V. R. R.

In these days of asepsis and antisepsis, the treatment of wounds of various kinds, aside from operative incisions, is of sufficient importance to merit our consideration.

Railway surgeons meet most of the wounds classified as contused, lacerated, incised and punctured, while those connected with hospitals, see in addition, stab and gunshot wounds. To treat these various kinds, in the manner best calculated to secure good results, and primary union if possible, should be our aim.

During the past 4 years it has been my privilege to have under my care, directly and indirectly, nearly 2,000 wounds of various kinds, ranging from simple incisions, to severe lacerations, from the cut of a razor to the tearing by teeth in the rollers of a coal-breaker.

In this series of cases there were 1,032 lacerated; 392 incised; 277 infected; 114 stab and punctured, and 102 gunshot wounds.

Lacerated Wounds.—The majority were situated on the hands and fingers, the wounds being caused usually by the hand being caught in machinery, or lacerated by coal or rock. Of these lacerations of the hand there were 412, and I have not included many that required amputation, or partial amputation, as when the injury was caused by the explosion of dualin caps. Next in frequency were scalp wounds, of which there were 366; these were due to a fall of coal or rock, or debris from a blast, or explosion. Following the scalp wounds, there were 93 of the foot; 75 of the face; 28 of the back; 26 of the leg; 11 of the arm; 9 of the thigh, and 2 of the groin.

Incised wounds in order of frequency follow: Scalp, 120 cases; fingers, 70 cases; hand, 47 cases; leg, 31 cases; wrist, 28 cases; face, 16 cases.

Infected Wounds: The initial injury, or wound, was located in the fingers in 115 cases; hand, 87 cases; forearm, 42 cases; scalp, 13 cases; foot, 14 cases, and leg, 6 cases.

Punctured wounds were nearly all located in the sole of the foot, or in the heel. Of these there were, heel or sole, 80 cases; ball of thumb, 9 cases; thigh, 7 cases; calf, 2 cases; back, 2 cases; brain, 1 case.

Stab Wounds: Abdomen, 5 cases; chest, 3 cases; back, 4 cases; brain, 1 case.

Gunshot Wounds: Hand, 26 cases; back, 18 cases; chest, 16 cases; head, 14 cases; foot, 11 cases; buttocks, 9 cases; abdomen, 8 cases.

The majority of wounds which railway surgeons are called upon to treat are of the lacerated variety, and the sooner we get these patients the better are our results, for in no class of wounds, except poisoned wounds, does delay mean more. Many cases of extensive laceration of the soft parts require considerable conservatism, care, and patience in order to restore the injured member to nearly former usefulness, and I have seen parts saved by modern methods that would have required amputation or partial amputation a few years ago.

In treating an ordinary lacerated wound, we should check hemorrhage, and then carefully cleanse the wound and surrounding parts. If too painful, we should etherize the patient, and proceed to do a careful and thorough cleaning; all foreign bodies, such as coal dirt, splinters, etc., are removed. I prefer formaldehyd soap, 10%, to begin with, followed by mercuric chlorid solution and sterile water. The lacerated skin is next trimmed where necessary, and the wound converted into an incised one as nearly as possible. Any severed tendons are united, the edges carefully sutured, and the injured member dressed with the usual sterile gauze and cotton—a dusting powder may be used if deemed advisable. A splint may be applied when immobility is desired, and it is often a most excellent procedure. The dressings should not be removed for several days, unless rise of temperature gives warning that sloughing or infection is taking place. When the laceration is very extensive, and we expect considerable oozing, and probable sloughing, we should provide for drainage, by tube

¹ Read before New York State Association of Railway Surgeons, Academy of Medicine New York City, November 12, 1903.

or gauze; my preference is for strips of gauze, either sterile, or iodoform 5%. The subsequent treatment is familiar to all, and needs no mention other than thorough irrigation when the dressings are changed, if drainage is used. In my experience, many incised wounds have been due to brawls, in which bottles and knives have been used, while others have been caused by a fall of sharp bony coal or rock; or falling on or through glass, and by injury in factories. Wounds of this class have usually clean-cut edges, and may be very deep or only superficial. The preliminary care or preparation is very essential, for in these cases we should get primary union if our aseptic procedure is thorough. These wounds, unless very extensive, are sutured carefully, and then sealed with gauze and collodion; cotton and bandage may or may not be applied, at the discretion of the surgeon. Nearly all scalp wounds of this character may be sealed up, and no further trouble experienced. As before stated, thorough asepsis is the keynote of success.

The subject of infection is of great importance, and in this class of wounds, if properly treated, we have an opportunity to achieve considerable success. In my locality we see a great many of these cases among the foreign element, and often, I am sorry to say, among intelligent Americans, who have attempted home cures by some old-fashioned remedy. A miner will cut his finger or hand with a piece of coal or a piece of rusty iron, then take his quid of tobacco from his mouth, plaster it over the wound, and tie a rag around it till he gets home, or sees a doctor, or he will put leaves or salve on it and wait for developments. The injured part usually begins to get sore, and on the advice of some friend and alas, at times a physician, he will apply a flaxseed poultice, and then the trouble begins, ending with a diffuse cellulitis, a localized abscess, or a bad case of septicemia.

I believe the injudicious use of poultices is the cause of more cases of infected wounds, abscesses, diffuse cellulitis, and septicemia than any other agent, except direct infection. I have not ordered or used a flaxseed poultice in a long time, and hope never to use one surgically. They are hotbeds of infection, germ-breeders, and relics of preantiseptic days. Nicholas Senn¹ says: "The ordinary filthy poultice of flaxseed, slippery elm, bread and milk, has no longer a place among the resources of the aseptic surgeon. The common poultice is a hotbed for bacteria, and as such should be discarded. In the treatment of an ordinary furuncle with poultices, I am sure that almost every surgeon must have seen occasionally the development of innumerable minute daughter-furuncles in the surface covered by the poultice. In phlegmonous inflammation of the fingers or hand, the prolonged use of the poultice is followed by maceration of the skin, extensive edema of the superficial structures, a flabby condition of the granulations—in fact, all the evidences which point to the poultice as a means of favoring the extension of the infected process." In the early stages of the infection, or cellulitis, the use of cold applications is of great value. It produces a needed contraction of the capillaries, and inhibits to a certain extent the growth of bacteria. The ice bag is a most useful means of applying cold, and by its timely use serious trouble may often be averted, but when the structures are deeply involved and the capillaries are more or less obstructed, it may do harm. My own experience with infected wounds and pus has convinced me that incision and drainage is the *sine qua non* of success.

The one great agent in combating infection, either preventing it when suspected, or checking its course when started, is carbolic acid, and I am a firm believer in most of the teachings of Powell in regard to the use of this drug. In dispensary work we have many cases

of infected wounds, the patients appearing for treatment from 1 to 10 days after the wound was received. If no pus is present, the wound is cleaned and thoroughly swabbed with the acid (usually a dram to the ounce), or if not severe, a 5% solution is used; the wound is then dressed, usually with a wet gauze, $\frac{1}{10}$ carbolic, and the patient told to report in 24 hours, when we usually find a healthy surface, which can be dressed dry and heals rapidly, or in many instances, sutures can be inserted, and a better scar obtained. If suppuration is present and extending up the hand or forearm, the patient is etherized, a free incision made, the pus evacuated, and wiped dry; hydrogen dioxid is freely used, followed by sterile water, or normal salt solution (sterile), and after this the entire cavity is carefully mopped with pure carbolic acid, care being taken to get it in contact with every part that is infected. The cavity and surface is then washed with alcohol, and the usual dressings applied, drainage being inserted if deemed necessary. These patients, as a rule, all do well, and the spread of infection is almost certain to be checked. If you have not tried this method, take the first opportunity that presents itself, and watch the results. My assistant, Dr. H. S. Ballard, was a great sceptic on the subject of infected wounds, but after an honest and thorough trial in a large number of cases, he is now an enthusiast and a convert to carbolic acid.

It may be well to remark that in cases seen late, and in which the septic process has invaded the system, the use of antistreptococcus serum is very valuable. It should be given in full dose, 10 cc., and repeated once or twice in 24 hours, unless the condition improves. I have used it in a number of bad cases, with excellent results, and also had 3 injections myself, during a severe attack of blood-poisoning contracted while operating on a septic patient. In regard to stab and punctured wounds the treatment is usually very clear. First, stab wounds, in most instances, are caused by a stiletto, used by men who understand how to cut, and the great danger and frequently fatal results are due to the fact that when the blade is driven into a victim, the instrument is quickly turned and made to cut in various directions with great rapidity; it is then withdrawn, and only a small valve-like opening is seen, looking like a trivial wound. By those who have had experience with these cases they are approached with the expectation of severe internal hemorrhage, probably injury of viscera, with frequently a fatal outcome. The patient, as a rule, should be promptly anesthetized, the wound enlarged, and thorough exploration made, under rigid asepsis, and the damage repaired so far as possible. Shock is frequently very marked, and when present you may be sure of internal bleeding and probable injury of the viscera. Some months ago there was brought to the hospital a young man who had been stabbed in the right groin by an Italian. The wound of entrance was about $\frac{1}{2}$ inch long, and shock was severe. He was rapidly prepared for operation, and a laparotomy performed; we found the intestine nearly severed, mesenteric vessels cut, and the bladder opened fully an inch. Considerable time had elapsed between the infliction of the wound, and his coming to the hospital. He lived 48 hours. I mention this case to illustrate how stab wounds can do so much damage. Drainage should be the rule in these cases.

The usual punctured wound is made by some blunt instrument, generally a nail, and the foot is the most frequent location of these injuries. The entrance closes like a valve, while any foreign substance is buried in the deeper tissue. These wounds should be freely opened to the bottom and cleansed, after which a solution of a dram to the ounce carbolic is used, and the wound dressed. Drainage is of value, though rarely necessary if the case is seen soon after the injury. I have had 1 case of tetanus due to a rusty nail penetrating the foot; flaxseed poultices were freely used, and 5 days after the

¹ Principles of Surgery, p. 122.

injury the patient was brought to the hospital with symptoms of tetanus, which rapidly increased, and he died 2 days later. In regard to gunshot wounds, so much has been written upon the subject by able men that it would be superfluous to dwell at any length on their treatment. In the community where I live strikes have been of frequent occurrence, and the gunshot cases have been quite numerous. The only rational treatment of bullet wounds of the abdomen is immediate laparotomy. The last patient I had was shot near the umbilicus, and I found 9 perforations of the gut; the man was operated upon in less than 2 hours from the time he was shot. He recovered and appeared in court later on. I mention this case to show the benefit of early interference. In gunshot wounds of the extremities, the Röntgen ray is of great help in locating the bullet, and makes its removal easy. In wounds of the chest, provide drainage and wait for nature to cure, unless you have clear and urgent reasons for operating. Most of these patients recover; at least, that has been my experience in more than a dozen instances. The same is true of bullet wounds of the skull and brain—provide free drainage by enlargement of wound, and remove all spicules of bone; rigid asepsis is essential to prevent infection.

I would emphasize the efficacy of carbolic acid in the prevention of infection in wounds, and its extension in those already infected.

SPECIAL ARTICLES

A BACTERIOLOGICAL STUDY OF THE INTESTINES OF FISH.¹

BY

EDITH LOEBER, A.B.,
of New Orleans, La.

The bacteriologic examinations of water that have been reported do not seem to take into account the influence, if any, of the fauna of these waters on their bacterial contents. The significance of the bacterial flora of the intestines of fish has received very little attention. The fact that their digestive tracts might furnish a place for the multiplication of certain species, which would be given off to the water, does not seem to have received any special attention. It seems very desirable to determine the species of bacteria normally existing in the digestive tract of fish, not merely those in the contents, and which must be considered of transitory duration and which will vary from time to time with the food and the extent of the contamination of the water, but also those that have become more permanently localized in the mucosa. It is also a matter of more than general interest to determine whether *B. coli communis*, which is found so constantly in the digestive tract of mammalia and fowls, is also present in these cold-blooded creatures.

The immediate objects of this investigation, therefore, were to determine, (1) the bacteria that have become localized, and to that extent parasitic, in the intestinal mucosa of fish, together with their distribution on the mucosa, and (2) to determine the relation existing between these bacteria and those present in the feces.

Source of Material.—The fish examined were medium-sized perch, suckers, and bass obtained from Cayuga Lake and two of its tributaries (Fall Creek and Six Mile Creek). Cayuga Lake receives the sewage of Ithaca, and Fall and Six Mile Creeks, the drainage of several small hamlets.

Some of the fish were obtained and examined during October and November, 1902, and the others in March, April, and May of this year (1903). This divides the subject matter of this article practically into two parts. The fish, in most instances, were alive when received at the laboratory. They were killed,

washed, and placed in a sterile pan. With aseptic instruments a median abdominal incision was made exposing the viscera. The alimentary canal was then carefully dissected and transferred to a sterilized vessel. The intestine was opened from gullet to anus, the feces removed, leaving the mucosa practically free from intestinal contents. The mucosa was gently scraped with a sterile knife, and tubes of bouillon were inoculated with an oese of the scrapings from the duodenum, ileum, and colon. The tubes were placed in an incubator at 37° C. for 24 hours, and gelatin and agar plates were made with an oese of bouillon from each of the tubes.

After 36 hours the plates were examined for the purpose of identifying species irrespective of the number of colonies. This method was followed in the examination of a few fish. In two instances the entire intestine was placed in a flask of bouillon grown in the incubator, and subsequently several series of

TABLE SHOWING THE NUMBER OF COLONIES ON AGAR PLATES.

Number of fish.	Location.	Number of colonies.
1	Entire intestine placed in flask of bouillon.	
2	Entire intestine placed in flask of bouillon.	
3	Duodenum.	Innumerable.
	Ileum.	11
	Colon.	2,980
4	Duodenum.	180
	Ileum.	Surface growth.
	Colon.	3,720
5	Duodenum.	600
	Ileum.	2,580
	Colon.	1,740
6	Duodenum.	53
	Ileum.	52
	Colon.	7,920
7	Duodenum.	2,160
	Ileum.	4,260
	Colon.	712
	Feces.	Innumerable.
8	Duodenum.	Surface growth.
	Ileum.	2,860
	Colon.	No growth.
	Feces.	Innumerable.
9	Duodenum.	30
	Ileum.	420
	Colon.	2,640
	Feces.	Innumerable.
10	Duodenum.	38
	Ileum.	27
	Colon.	Surface growth.
	Feces.	Innumerable.
11	Duodenum.	220
	Ileum.	2,220
	Colon.	3,800
	Feces.	Innumerable.
12	Duodenum.	56
	Ileum.	480
	Colon.	480
	Feces.	Innumerable.
13	Feces.	No growth.
14	Duodenum.	Innumerable.
	Ileum.	1,620 and 2 moulds.
	Colon.	1,679
	Feces.	Innumerable.
15	Duodenum.	Innumerable.
	Ileum.	1,540
	Colon.	138
	Feces.	33
16	Duodenum.	Innumerable.
	Ileum.	57
	Colon.	Spilled.
	Feces.	19
		Innumerable.

plates were made from the flasks. With the larger number of fish, however, plate cultures in agar and gelatin were made directly from mucosa and the number of colonies and the species were determined for each individual. The results of these examinations showed that the following organisms were present: *B. proteus vulgaris*, *B. fluorescens liquefaciens*, *B. mesentericus*, and *B. zopfi*. *B. proteus vulgaris* was the predominating organism. It appeared in some of the plates in almost pure culture.

The fish obtained in the spring were treated in the same manner as those first examined with the exceptions that after removing the feces, the mucosa was thoroughly washed with sterile water, then scraped, and the scrapings from each of the three portions (heretofore mentioned) of the intestines were directly inoculated into liquid agar and gelatin with which plates were made. Each plate contained an oese of the fresh material.

¹ This work was done in the Bacteriologic Laboratory of the Medical Department, Cornell University, Ithaca, N. Y.

After 21 hours' growth in the incubator the colonies on the agar plates were carefully examined and counted and the species carefully determined. Subsequent examinations of cultures did not show appreciable change in numbers of colonies or the addition of new species. In all cases tubes of bouillon were inoculated. These gave very vigorous growths. In most cases the colonies on the gelatin plates were more numerous than those on the agar plates after a period of from 3 to 4 days. The tendency to liquefaction, however, rendered it impossible to determine the exact number of colonies. The appended table contains the number of colonies obtained from each portion of the intestines when a single oese of its mucosa scrapings was used.

The species identified were *B. proteus vulgaris*, *B. proteus zenkeri*, *B. subtilis*, *B. mesentericus*, *B. fluorescens liquefaciens*, and *B. lactis aerogenes*. A few fungi were also present. *B. proteus vulgaris* was present in the colon of every fish, in the duodenum of all but two, and in the ileum of all but one. *B. fluorescens liquefaciens* appeared in small numbers and *B. mesentericus* in relatively large numbers. *B. proteus vulgaris* predominated.

As observed in the table, the number of bacteria in the feces was very large in every instance examined. *B. lactis aerogenes* and *B. subtilis* seemed to be the organisms predominating in the feces, although *B. proteus* also appeared. The *subtilis* bacillus in one instance was demonstrated in the mucosa of all three portions of the alimentary tract as well as in the feces. *B. lactis aerogenes* only appeared in very small numbers, and in but a few fish. As a rule, the bacteria in the feces corresponded to those most commonly found in the water, while those present in the mucosa were not those appearing in large numbers in the water, as determined by examinations heretofore made in this laboratory.

In conclusion, I would state that from the findings of the examinations thus far made, it appears that in the fish taken from Cayuga Lake, Fall and Six Mile Creeks, *B. proteus vulgaris* is a normal inhabitant of the mucosa of the alimentary tract (duodenum, ileum, and colon), but especially in the colon. As a rule, this organism was the predominating form. It is of special interest to note that *B. coli communis* was not found in a single instance in these examinations.

In closing, I desire to acknowledge my indebtedness to Dr. V. A. Moore for helpful suggestions and valuable assistance, which have materially aided in this investigation.

Mortality in Chicago.—The Bulletin of the Chicago Health Department for the week ended January 2, says: "Including the 587 theater fire deaths, accounted for by the Coroner's office and the Police Department, but not yet reported at the close of the year to the Bureau of Vital Statistics of the Department, the total deaths for 1903 will number 28,940 instead of the 28,353 given in the appended Statement of Mortality for the year. This will increase the deathrate from 15.04 per 1,000 to 15.35 per 1,000. Deaths from violence were already more than 12% in excess of the average for the period since the census year 1900; but these 587 theater deaths swell the excess to 41.5% over the yearly average of violent deaths. Even with this addition to the total mortality the deathrate is 6% lower than the yearly average since 1892, although it is 8.2% higher than that of 1901, and 5.3% higher than that of 1902."

Severer Examination for Pharmacists.—The State Pharmaceutical Board will hold a more severe examination for applicants to practise pharmacy, at the examination, January 16, than previously. Heretofore the examination has been a written one only, but this year all those applying for a regular pharmacist certificate will have to undergo a laboratory examination as well as a written one. This will be the first time this examination has been given. Those applying for a qualified assistant certificate will be asked to pass the written examination only, as the laboratory test only applies to prescription clerks and pharmacists. There were many applicants in former years who had the practical ideas but were unable to express them in a theoretic manner. The board will determine by the average attained in each of the examinations. Formerly examinations were held at Pittsburg and Philadelphia and 2 members of the board were present in Pittsburg and the other 3 were present at Philadelphia. In the January examination all the members of the board will be present at Philadelphia, there being no other examination. The board requests all applications to be sent to Secretary Charles T. George, at Harrisburg, 10 days before the examinations are held.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

January 16, 1904. [Vol. XLII, No. 3.]

1. The Importance of Medical Organization in Securing and Enforcing Medical Laws. T. J. HAPPEL.
2. Sources of Plague. W. J. CALVERT.
3. The Prophylaxis of Plague. J. J. KINYOUN.
4. Orthodontic Facial Orthomorphia. Importance of Differentiation in Cases of Apparent Mandibular Protrusion. W. E. WALKER.
5. The Dental Pulp—Viewed without the Microscope. THOMAS E. CONSTANT.
6. The Immediate Relief of Hysterical Manifestations of the Larynx. HANAU W. LOEB.
7. The Trend of Modern Psychiatry and its Relation to General Medicine. JOHN PUNTON.
8. Arthritis Deformans: The Report of a Series of 110 Cases from the Johns Hopkins Hospital. (From the Clinic of Professor Osler.) THOMAS MCCRAE.
9. The Necessity for Medical Trusteeship and for a Central Laboratory in State Medical Institutions. A. P. OHLMACHER.
10. A Plea for Unification and Uniform Organization. J. N. MCCORLACK.
11. The History and Etiology of "Migraine." GEORGE M. GOULD. (Continued).

1.—See *American Medicine*, Vol. VI, No. 17, p. 654.

2.—See *American Medicine*, Vol. V, No. 22, p. 858.

3.—See *American Medicine*, Vol. V, No. 22, p. 859.

4.—See *American Medicine*, Vol. V, No. 20, p. 784.

5.—**The Dental Pulp.**—T. E. Constant describes the macroscopic embryologic appearances of the pulp with the surrounding alveolar crypts. Contrary to description, in the 9 months' fetus and at birth the crypts are entirely closed. The roof is very thin, although complete before the bony septa between the various teeth. He does not accept any of the current theories as to the cause of the eruption of the teeth, but believes this process is due to the mechanical force of blood-pressure. The pulp forms a fleshy column of vascular tissue on which the crown rests. Under the calcifying margins of the crown is the pad of tissue which forms the junction of the sac and pulp and between the crown and walls of the crypt is the vascular tooth sac which is injected from the same source as the pulp. Above the crown is the mucous membrane and submucous tissue. Thus it is obvious that the blood-pressure exerted in the pulp acts at mechanical advantage in comparison with the pressure in tissues overlying the crown and thus blood-pressure makes room for the developing root in the direction of least resistance. That the pulps exercise a trophic influence on the alveolar process is shown in the case of unopposed teeth. When the pulp is dead, elongation is unaccompanied by any down or up growth of the alveolar ridge, whereas in the case of living teeth this ridge is deepened. Another trophic function is the pulp's influence on resorption of the roots of the temporary teeth. When the pulp has been destroyed absorption is much slower and this is one reason we find the apices of the roots protruding and causing ulceration of the mucous membrane, they having been deflected by the advancing crown of the permanent successor. [H.M.]

6.—See *American Medicine*, Vol. V, No. 22, p. 863.

7.—See *American Medicine*, Vol. V, No. 20, p. 777.

8.—See *American Medicine*, Vol. V, No. 23, p. 900.

9.—**Medical Trusteeship and a Central Laboratory.**—A. P. Ohlmacher thinks the contact between the medical profession and State medical institutions not close enough. The medical and scientific work in these is not what it should be. There should be at least one progressive medical man on each board who could educate his fellow trustees to the needs of the institution. A central pathologic institute as part of the State hospital system would help to bring the profession into sympathetic relationship with the latter. New York already has one. The initiative in the establishment of such an institute should be taken by the State Medical Association. [H.M.]

10.—See *American Medicine*, Vol. VI, No. 17, p. 654.

Boston Medical and Surgical Journal.

January 14, 1904. [Vol. CL, No. 2.]

1. Cardiac Displacement. ARTHUR K. STONE.
2. Intermittent Hydronephrosis; Uterine Fibroid. M. H. RICHARDSON.
3. Some Cases of Intussusception. FRANKLIN G. BALCH.
4. The Bicycle as a Therapeutic Agent. LUTHER HALSEY GULICK.

5. Mercuric Cyanid as a Surgical Disinfectant. CHARLES HARRINGTON.

1.—Cardiac Displacement.—A. K. Stone reviews the teachings of the Lyons school and adds observations of his own. He describes the mirror heart, in which all the parts are congenitally transposed, but can find no case on record. Dextrocardia seen at autopsies in young infants has practically always been accompanied by malformation of the heart itself, most frequently shown in absence of the ventricular septum. Pericarditis has been found in a 7 months' fetus, and changes in the heart axis may possibly be started by such processes and not be due to real change in the development of the organ. All cases in which the heart points to the right, if there are traces of pleurisy or pericarditis having been present, must be considered as acquired conditions unless proved otherwise by autopsy. The writer presents cases, illustrating how marked dislocation can exist and yet give no symptom, either at the time of its occurrence or later, although the patient may lead a laborious life. While movements due to adhesions, cavities or sclerosed lung tissue with accompanying emphysema are often erratic, those caused by air or fluid in the pleural cavity or by the contraction of one lung in whole or in part are practically subject to certain definite laws. One reason why this has escaped notice is that the heart, if not held by adhesions, will often slip back into its proper position when the chest is open and the pressure within the pleural cavities has been made equal. [H.M.]

2.—Intermittent Hydronephrosis; Uterine Fibroid.—M. H. Richardson makes reference to a case already reported by him, in which he operated upon a patient for intermittent hydronephrosis. A similar case is reported by the author in the present paper. The patient was similarly operated upon, with equally happy results. A third case is reported with a diagnosis of intermittent hydronephrosis, which the author had decided to operate upon, but operation had not been performed at time of writing. The operation which Richardson calls ureteroplasty corresponds in principle to the Heinecke-Mikulicz operation for stricture of the pylorus. The junction of the ureter and the dilated renal pelvis is incised longitudinally, and this longitudinal incision is sewed into a transverse line. The effects of the kink or sharp bend at the origin of the ureter is thereby overcome. Absolute cure followed in both cases. He found this route for exploring the pelvis of the kidney so easy that he has used it a number of times since in preference to the usual one of going through the cortex for renal stone or for other reasons. In the same paper Richardson discusses the danger of malignant degeneration in uterine fibroids. He holds that these should be removed, because the danger of operation in skilled hands is far less than the danger of malignancy. It is only by promptest surgical intervention that malignant tumors of the uterus permit radical cure. Whenever we postpone operation on uterine tumors—no matter how benign these tumors may seem—we are running a risk beside which the dangers of operation are but trivial. The older the patient, of course, the more imperative is exploration, for the tendency to malignancy increases with age, just as, unfortunately, the dangers of operation increase. [A.B.C.]

3.—Cases of Intussusception.—F. G. Balch makes reference to a case of intussusception already reported by him in which 56 inches of necrotic bowel were resected and the patient recovered. In the present paper he reports another case occurring in an infant of 5½ months. The intussusception was of the enteric ileocecal variety; it was reduced by operation and the child recovered. Another case, occurring in an infant of 6 months, was operated upon. An intussusception was found in the ileocecal region, but its exact variety is not noted in the record. Six inches of gangrenous bowel were resected but the patient died 7 hours later. He states that since 1897 there have been 10 cases of intussusception at the Massachusetts General Hospital. One of these was reduced in bringing the child to the hospital, the 9 other cases were operated upon; 3 of the patients were over 21 years of age, 2 of whom recovered. Including the 2 cases reported in this paper and operated upon outside of the hospital it makes a series of 8 cases including the 6 at the Massachusetts General Hospital all occurring in children or infants; out of this number, 5 died. So far as it is possible to draw any conclusion from such a limited number of

cases, it would seem that the mortality decreases rapidly with the age of the patient. In children under 1 year of age intussusception is usually fatal. Very early operation offers the best chance of recovery. [A.B.C.]

4.—The Bicycle as a Therapeutic Agent.—L. H. Gulick recommends the bicycle in cases of depressed vitality with muscular weakness, ill-defined pains in the back and shoulders, inability to sleep satisfactorily, uncertain digestion, and general feeling of worry and depression. Muscular exercise increases vitality by increasing metabolism. The exercise should involve the large muscular masses. The neural expenditure involved to secure the same result is far greater when the muscles are small. When exercise is done with the legs it is done with ease; when with the arms it is accomplished, by women at least, with the greatest difficulty. Trembling of the hands indicates overexpenditure of effort. In bicycle riding the work is done by the large muscles. This explains why it is easier to affect appetite, sleep, circulation, and respiration by this as compared with formal gymnastics. The size of the load, too, is small in comparison with the strength, and the movements are automatic. This also conserves neural outlay. Pleasant psychic associations and fresh air increase the benefit. Success in this treatment depends on the adaptation of the dose to the individual. After 5 minutes' exercise the pulse-rate should be counted. If below 100 the exercise may be continued, if several such periods fail to increase the rate. If above 100 the exercise may be renewed after 5 minutes' rest, if in the interval the beats have gone down to 70 or 80. If consciousness of fatigue continues over night, too much exercise has been taken. [H.M.]

5.—Mercuric Cyanid as a Surgical Disinfectant.—Charles Harrington has experimented with solutions of varying strength of mercuric cyanid to determine its efficacy in surgical practice. It has been claimed that in 1-1,000 and 1-2,000 solutions it is a good substitute for mercuric chlorid over which it is claimed to possess the advantage that it does not precipitate albumins and it is rapid in action. His tests consisted in placing silk threads impregnated with 24-hour old bouillon cultures of *Bacillus pyocyaneus*, *Bacillus coli communis*, *Staphylococcus pyogenes aureus*, and *albus* in a 1-1,000 solution of mercuric cyanid. *Bacillus pyocyaneus* and *Bacillus coli communis* were killed in every instance within 1½ minutes; *Staphylococcus albus* survived exposure up to 25 minutes, but was destroyed in half an hour; *Staphylococcus aureus* was unaffected by contact for no less than 3 hours. Mercuric cyanid in combination with double its weight of borax was likewise tried, with similar results. Harrington says the above results can lead to but one conclusion concerning the practical value of mercuric cyanid, for a substance which, when employed in the strength recommended, cannot destroy all known species of pus organisms within 3 hours, and in double that strength accomplishes nothing in 30 minutes, can hardly be classed among the efficient germicides. [A.B.C.]

Medical Record.

January 16, 1904. [Vol. 65, No. 3.]

1. The Serum Treatment of Typhoid Fever. MAX EINHORN.
2. The Röntgen or Triultraviolet Rays, their Nature, Application, and Dermatologic Effects. FRANCIS LE ROY SATERLEE, JR.
3. Röntgen Ray Dermatitis as Influenced by Idiosyncrasy. A. D. ROCKWELL.
4. Liquefied Air. A. CAMPBELL WHITE.
5. A Case of Primary Carcinoma of the Lung Diagnosed from the Expectoration. FREDERICK F. C. DEMAREST.

1.—Serum Treatment of Typhoid.—M. Einhorn finds that in most cases the disease does not seem to be materially shortened. Either on the day after the first or the second injection a marked reduction of fever usually occurs; this is about 1° or 2° lower than previous remissions and lasts longer. The general condition, especially the sensory and nervous symptoms are much improved, so that some grave complications, as sleeplessness, headache, restlessness, delirium, disappear nearly entirely. In the cases reported, treatment began from the ninth to the fifteenth day. We may expect better results from earlier injections. They should be given even before diagnosis is certain. There seems to be no danger. A passing erythema

occurred in 2 cases and in 1 chills followed for a quarter to a half hour. [H.M.]

2.—Röntgen Rays: Their Nature, Application, and Dermatologic Effects.—F. L. Satterlee gives a brief history of the discovery of Röntgen rays, notes improvements which have been made to apparatus for developing the rays, and enters into a technical discussion of their nature. Directions are given for the application of the rays clinically. He says a good tube, a Kahibaum screen, and Wappler coil, would make as perfect a Röntgen ray outfit as any operator could desire. A portion of the article is devoted to a consideration of Röntgen ray dermatitis, which, it appears, will inevitably develop in a few susceptible cases, despite any known precautions. Such dermatitis is rebellious, but he has found the following very soothing and beneficial: One part of carbolic acid in 8 parts of rosewater ointment, applied to the inflamed part on retiring. Röntgen rays are not a positive agent for diagnosis. Proof of this is in the fact that radiographs were formerly admitted as evidence in the courts of New York, but are so no longer. Many conditions are cited in which the rays may be used with benefit. Satterlee says it is now 7 years since the Röntgen ray was made known to the world, and in that time its development has gone on almost uninterruptedly. The outcome of which is that thousands of persons are now perfectly well and strong who prior to this time had been suffering from chronic disturbances. Who can tell what the future of such an all-powerful agent is to be? [A.B.C.]

3.—Röntgen Ray Dermatitis as Influenced by Idiosyncrasy.—A. D. Rockwell maintains that beginners in Röntgen ray work should thoroughly appreciate that susceptibility to Röntgen ray effects vary as widely as do other physical influences. Idiosyncrasies exist here just as they do to the action of the sun's rays and to various external and internal methods of treatment. Unpleasant and unsatisfactory results are too often ignored in many elaborate clinical reports; failures as well as successes should be frankly recorded. In this way only, can medical and surgical procedure be perfected. The condition and position of the tube, and the time of exposure are the essential features in Röntgen ray treatment, yet with every ordinary precaution occasional cases are met with which defy them and a following dermatitis breaks forth. A marked instance is recorded by the writer. Every patient should be questioned as to any special idiosyncrasy to sunburn, ivy poisoning and external applications. In every case, unless there is important reason for haste, there should be an interval of rest after the first 2 sittings. He suggests that these 2 sittings be 3 days apart, with an interval of 10 days before the third and a week additional before the fourth and then 4 days before the fifth. In all cases of superficial nonmalignant skin diseases, especially in acne, eczema, favus, sycosis, hypertrichosis, etc., extreme caution should be taken at the beginning. Treatment of malignant disease is quite another matter. Here it is often necessary that no time shall be lost, and haste then becomes imperative. [A.B.C.]

4.—Liquefied Air.—A. C. White says: In liquid air we have the nearest approach to absolute zero ever obtained, excepting liquid hydrogen, which is many degrees colder, and is liquefied by the assistance of liquid air. If there is therapeutic value in cold, we have it in liquefied air 312° below zero, and from this we can obtain any desired temperature above that point. If there is therapeutic advantage in having dry cold, we have it in liquid air, for in anything colder than 32° below zero no moisture can exist. If it is desired to produce local anesthesia by cold, we have no means of obtaining the result equal to liquid air, for it is dry, rapid, thorough, clean, and under perfect control. It surpasses all other applications previously in use for the removal of all growths of benign or malignant character, because its application is practically painless, its action more rapid than electric methods, and there is no systemic effect whatever following its local use. If there is value in the therapeutic use of oxygen, we have it in its most concentrated form in liquid air, from which it has been demonstrated we obtain liquid oxygen, and oxygen of much higher percentage and purer quality than obtained in any other way. [A.B.C.]

5.—Primary Carcinoma of the Lung: Diagnosis from

the Expectoration.—F. F. C. Demarest reports that a man of 42, well nourished and apparently healthy, complained of hemorrhage from his throat and pain in the right side of the chest. Physical examination pointed to a normal condition, except an area of consolidation corresponding to the upper third of the right lung. Hemorrhage from the throat had occurred daily for the past 9 months to the extent of about a teaspoonful of blood in 24 hours. The sputum had been examined for tubercle bacilli, but none were found. At the suggestion of Demarest, the patient brought a glass jar containing bloody expectoration, and in this way found a lump of tissue the size of a peanut. The tissue was sent to a pathologist, who pronounced it a slough from a typical squamous-celled carcinoma. The patient was submitted to Röntgen ray treatment without much hope of relief. The patient's death took place 4 months after he came under Demarest's observation, though for some time previous to this there was incoordination in the movement of the right arm and leg, which indicated a metastatic involvement of the opposite side of the brain. No necropsy was secured. [A.B.C.]

New York Medical Journal.

January 9, 1904. [Vol. LXXIX, No. 2.]

1. Radium: Induced Radioactivity and its Therapeutic Possibilities. SAMUEL G. TRACY.
2. Some Observations on an Unusual Case of Scurvy. JOSEPH DAVIDSON.
3. The Treatment of a Certain Class of the Underfed. WILLIAM S. ELY.
4. Concerning the Accuracy of Percentage Modification of Milk for Infants. DAVID L. EDSALL and CHARLES A. FIFE.
5. A Bacterial Treatment of Tuberculosis, with Reports of Cases. STEPHEN J. MAHER. (Continued.)
6. The Röntgen Ray Technic of Dr. H. Albers-Schonberg. EUGENE R. CORSON.

1.—Induced Radioactivity.—S. G. Tracy has found normal salt solution to be one of the best fluids for the receptivity of imparted radioactivity. This fact he believes to be of considerable importance in medicine, as we have thus the hope that the internal administration of "radium fluid" will strike at the root of the disease, in tuberculosis, diphtheria, typhoid, and other infectious diseases; in the protozoal diseases, such as malaria, and perhaps scarlet fever. Another diseased condition in which the induced radioactive salt solution is likely to prove of service is fermentative, gastrointestinal indigestion, with its long train of symptoms, due to autointoxication. It is also hoped that the "radium fluid" will have a favorable effect on malignant disease of the stomach and intestine. It may be used as a local application on compresses, in sprays, gargles, inhalations, collyria, etc. In its use in surgical dressings, compresses can be saturated with this solution and applied over large areas, which could not be reached by the radium rays. As a spray, it may be found useful in catarrhal affections of the nose, throat, and lungs, by coating the membranes with a fine film of radioactive matter. This active matter is antiseptic and will remain in the tissues for several hours. The radioactivity of this active matter may be intensified by exposing the patient to the ultraviolet rays, and by the internal use of quinin. The author is not yet prepared to make a full report of cases under treatment, but announces marked improvement in many instances. [C.A.O.]

2.—Scurvy.—An unusual case of scurvy is reported by Joseph Davidson, in a boy of 17. He had been treated in a hospital for nephritis and mitral stenosis, and had been discharged improved. Later he was readmitted to the hospital as a doubtful case of pulmonary tuberculosis, and was again discharged improved. When seen some time later by the author, he presented a typical picture of scurvy. Hemorrhages into the skin and deeper tissues, ulcerated gums, nose-bleeds, bleeding from the lungs, swelling of the joints, emaciation, pallor, fever, pain, and prostration. He was put on antiscorbutic treatment, and at once began to improve. After 3 weeks he could sit up out of bed; after 6 weeks he could leave the house. His pulse was still small and accelerated and slightly irregular, but the temperature was normal. His heart was slightly enlarged, a systolic murmur was to be heard, the eruption had disappeared for the greater part, the ulcerations were cicatrized, the joints

were much smaller, the gums were healed. Some moist rales could be heard over both apices. His urine contained albumin and casts. He had a paralysis of ulnar and median nerves on both sides, right side worse than left; the thenar and hypothenar muscles, interossei, lumbricales, and the flexors on the front of the forearm were paralyzed and atrophic, there were disturbances of sensation, and partial reaction of degeneration. Since that time the author reports that his condition has not changed very much. Whether the multiple neuritis was caused by hemorrhages into the nerve-sheaths or was of toxic origin, the author is not able to state. He believes that the patient was suffering from a severe attack of scurvy from the very beginning, and that his hemoptyses, which created the suspicion of tuberculosis, his nephritis, endocarditis, and nerve lesion were all of scorbutic nature, and that the absence of the pathognomonic symptoms in the beginning prevented the recognition of the disease. [C.A.O.]

3.—Treatment of the Underfed.—W. S. Ely outlines the treatment for the underfed, or the subese, individuals who may never have been ill, and yet never have been well. They are mostly women, from 18 to 35, who have simply dragged on to adult life in an uneventful way, indefinitely weak, unequal to active exertion; thin; always under weight; comfortable when in repose, but quickly exhausted on slight effort. Good results in these cases are most quickly and surely reached by absolute rest and a diet of milk, chocolate, and raw eggs. The most satisfactory results have been obtained in a hospital, where every detail can receive attention. With the aid of a selected nurse, the treatment which S. Weir Mitchell has outlined in neurasthenic cases is at once instituted. The patient must remain in bed. We may begin with 4 to 8 ounces of milk, or chocolate made with milk, or 2 raw eggs every 2 hours. He prefers to alternate these foods in the order named. During the night the interval may be every 3 hours. In the first 24 hours the endeavor is made to give a quart of milk, a quart of chocolate made with milk, and 6 raw eggs. The amount of food taken is then increased daily. This increase can often be carried with advantage to, or above, 2 quarts of milk, 2 quarts of chocolate made with milk, and 12 or 14 raw eggs a day. To obviate the bilious tendencies of the diet mentioned and to overcome the constipation almost inevitably present, rhubarb and soda tablets may be given after each, or every other, portion of food, from 6 to 20 a day. A moderately coated tongue is expected and does not contraindicate the treatment. Daily baths, massage, passive and active movements of the joints, and the slowly interrupted faradic current, combine to consume the intervals between feedings, to shorten the days, and to impress the patient's mind with the treatment as a whole. So soon as the improvement is considerable, the patient, in summer, sits out of doors, masticates rare beef, and has some cereal added to her diet. [C.A.O.]

Medical News.

January 16, 1904. [Vol. 84, No. 3.]

1. The Social Evil in University Life; A Talk with the Students of the University of Pennsylvania. ROBERT N. WILLSON.
2. Case of Mastoiditis; Sinus Thrombosis; Pyemia; Two Operations; Recovery. THOMAS R. POOLEY.
3. The Surgical Treatment of Acquired Incontinence of Urine in Women. CHARLES GREENE CUMSTON.
4. Some Subjective Hints of the Morphin Habit. WILLIAM LEE HOWARD.
5. The Hemorrhagic Diseases and their Allies in the Light of Modern Pathology. F. L. WACHENSHEIM.

2.—Mastoiditis; Sinus Thrombosis; Pyemia, Etc.—Thomas R. Pooley reports that a woman of 25 complained that 2 weeks before appearing at the clinic she was taken ill with grip, and 3 days later developed earache on the left side; the following night there was rupture of the membrana tympani and free discharge. From the discharge, swelling, redness and tenderness, mastoiditis was diagnosed, and an operation deemed urgent. The mastoid cells were opened, and on making an attempt to open the antrum, the sinus was accidentally opened; profuse hemorrhage was stopped by a tampon, and the scraping out of the cells and diseased tissue completed. The patient

apparently did well for 2 or 3 days, and then the symptoms of pyemia became apparent, and arthritis developing in 1 finger, 1 ankle becoming swollen, choked disc appeared, and there were chills and fever. Ten days after the original operation a second operation was performed in which the entire lateral sinus was exposed and emptied of a purulent clot, which extended into the internal jugular; ligation of this vein could not be accomplished owing to the serious condition of the patient, but it was emptied in so far that blood could be forced back into the skull. The wound was dressed in the usual way, the patient remained in a precarious condition, abscess developed at several points, there was pneumonic consolidation of the right lung, and altogether the patient's condition seemed almost hopeless. Finally, however, she recovered sufficiently to be discharged from the hospital after 3 months of confinement, and at the time of writing is steadily gaining in strength. [A.B.C.]

3.—The Surgical Treatment of Acquired Incontinence in Women.—C. G. Cumston reviews the causes of acquired incontinence, classifies its forms anatomically and their proper treatment. If incontinence of urine is present with a congenital displacement of the uterus in antifixion, traction is exercised upward and backward on the urethral orifice by the cervix, and this can be corrected by making a transverse incision over the anterior aspect of the cervix and peeling the bladder off of the organ, as is done in vaginal hysterectomy. Then the wound is simply packed with gauze and allowed to granulate. Cumston has used this method with complete success. When there is destruction of the sphincter with persistence of the urethral canal, the operation may be simply a colporrhaphy, alone or combined with an elevation of the meatus. It is better not to open the urethra, because a fistula may result. When incontinence of urine appears to be due to a more or less complete destruction of the urethral canal, the rational indication is to repair the urethra and replace the organs in their normal relations as far as possible. When bits of mucosa or strips of tissue susceptible of being utilized are still present, they should be used in reforming the canal, otherwise an autoplasmic procedure must be employed. If the loss of substance is far forward, the labia minora may be utilized; but if the injury is farther back, flaps may be made from the vesicovaginal septum or simply from the vagina. If the entire urethra is destroyed, flaps must be obtained from both the vulva and vagina. [W.K.]

4.—Subjective Hints of the Morphin Habit.—W. L. Howard advises in obscure cases surprising the patient by house visits at unexpected hours of the day in order to note the psychic condition at different times, when under and emerging from the influence of the drug. If all accounts agree that the morale of the patient is constantly changing, that where she was formerly truthful she is now careless of her statements, that she makes promises and engagements that are not kept, that her sense of duty has become dull, and her ego exaggerated we can come to the conclusion we are dealing with a user of morphin. [H.M.]

5.—The Pathology and Classification of the Hemorrhagic Diseases.—F. L. Wachensheim holds that with a more thorough understanding of the pathology of the conditions classified under the loose term of hemorrhagic diseases, we should no longer use such classification, but employ a nomenclature in accordance with the pathology of the several conditions under the group before named. He discusses the auto-genetic hemorrhagic diseases, the scorbutic diseases, the exogenic hemorrhagic diseases, the chemic blood poisoning, and the infectious hemorrhagic diseases. He says: Summing up, we find that hemophilia, congenital or acquired, is a toxemia with secondary autoimmunization to a quasinnormal function; that the scorbutic affections are chemic autointoxications, hemorrhagic only because the blood is especially involved; and that the purpura rheumatica group is only a manifestation of ordinary rheumatism or sepsis. After this exposition of their very diverse nature, it seems clear that the old class of the hemorrhagic diseases has become obsolete, should be relegated to the domain of historic medicine, and cease to appear in our monographs and textbooks to further puzzle the student and physician. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

The Myelogenous Origin of Acute Lymphocytic Leukemia.—The nature and interrelations of the different varieties of leukemia are subjects of perennial interest, and while we have learned much during recent years, discussion is still rife and much remains to be learned. The conviction, however, is gaining ground that although the clinical manifestations and the blood pictures justify the almost universally employed division of the disease into two clinical varieties, generally called the lymphatic and the myelogenous (or splenomedullary), the sharp anatomic distinction between these varieties insisted upon by Ehrlich and his school is not tenable. To this phase of the subject, A. O. J. Kelly has contributed a paper¹ based upon the clinical and anatomic study of 4 cases of acute lymphocytic leukemia. The evidence that has tended to throw doubt upon the absolute nonidentity of the two clinical varieties of the disease may be summarized as follows: 1. The occurrence of cases of so-called acute lymphatic leukemia with little or no enlargement of the lymph-glands—of which a considerable number have now been reported by Pappenheim, Walz, Michaelis and Wolff, Dorothy Reed, Hirschclaff, Körnőczy, Spencer, Hayem and Bensaude, Kelly, and others. 2. The demonstration, particularly by the writers just mentioned, of the predominance of lymphadenoid changes in the bone marrow in every case of lymphatic leukemia in which the bone marrow has been examined—a demonstration, however, that merely emphasizes the original observations of Neumann made many years ago. 3. The fact that the distinctions between the lymphocytes and the granulocytes are of degree rather than of nature, since the lymphocytes are unquestionably ameboid, some of them possess granules in their protoplasm, and there is some evidence of the occurrence of an active lymphocytosis. 4. The fact that the lymphocytes and the granulocytes (myelocytes and the granular cells of the circulating blood) develop from a common ancestor in the bone marrow—at least in pathologic states. 5. The fact that even clinically there is no sharp dividing line between the two forms of the disease. Kelly points out that rather than two forms of the disease there are extremes of type, that atypical and transitional (intermediate or mixed) forms do occur, and that while we have hitherto thought that acute leukemia is always lymphocytic, and chronic leukemia either lymphocytic (the rarer form) or myelocytic (the common form), apparently trustworthy evidence has recently accumulated that tends to show that acute leukemia may be, though rarely, myelocytic, and contrary to the rule, certain of the chronic lymphocytic cases reveal an unusually large number of large lymphocytes, and some of the apparently acute cases may be of the small lymphocyte type.

The bone-marrow changes in acute lymphocytic leukemia are of extreme interest and importance, not only in themselves, but also because of their bearing upon certain moot points in the development of leukocytes. That which is of especial importance is that the bone marrow appears to be always involved in lymphocytic leukemia; furthermore, Kelly states that there is good evidence for believing that whether or not the lymph-glands are enlarged, the typical leukemic blood picture does not develop until the bone marrow becomes affected; that since, therefore, the bone marrow changes appear to be the lesions, both varieties of leukemia are myelogenous in origin, and he prefers the terms lymphocytic and myelocytic as suggesting the distinguishing features of the bone-marrow proliferation and the blood

changes in the two classes of cases. As regards the development of lymphocytes and granulocytes from a common ancestor in the bone marrow, it is stated that tentatively much importance is attached to the large mononuclear nongranular cell of the bone marrow which is thought to be capable, under the influence of divers stimuli, of assuming basophilia of its protoplasm and becoming a lymphocyte (the cell so numerous in the blood in lymphocytic leukemia), or of assuming neutrophilic granules and becoming a myelocyte (in the ordinary sense). Probably the development in one or the other of these directions is influenced by the nature of the chemotactic agent concerned, since it is believed that both types of leukemia are the result of chemotactic influences. The entire subject is of much interest, and while the myelogenous origin of acute lymphocytic leukemia seems to be open to little doubt, many points await solution—not the least important of which is the determination of the sequence of events in the development of the leukocytes, more especially the development of lymphocytes and of granulocytes from a common ancestor.

REVIEW OF LITERATURE

Palpation and Auscultation of the Normal Large Pylorus.—A palpable, normal large pylorus has frequently been mistaken for a tumor. There are certain definite points of difference, however. P. Cohnheim¹ briefly reviews the subject, showing that the palpable pylorus changes its consistency, and alternately vanishes and disappears. The pylorus can be differentiated from the transverse colon by the direction of peristaltic movements. These can sometimes be seen, but are more frequently felt; in the stomach they are always from left to right, while in the colon the movements are from right to left. The phenomenon is exclusively observed in persons with lean, relaxed abdominal walls. Very often there is enteroptosis, with diastasis and relaxation of the recti muscles. It frequently occurs after rapid emaciation, hence is especially common in patients with pulmonary tuberculosis. The author reports 16 cases observed by himself. A permanent hardness of the pylorus points to malignant disease. [B.K.]

Study of the Colon and Rectum.—In a clinical lecture on this subject, C. G. Stockton² speaks of its great importance, and suggests that the comparative leisure of the early years of practice should be partly employed in a study of this much neglected field. The ordinary practitioner has surprisingly little knowledge of the feces. While precise investigation of this material is a complex question, a great deal of important information may be gained by means of the unaided eye and experience. Among the points to be thus investigated are the weight of the feces as compared with the amount of food ingested, the completeness of the disintegration of the food substances found in the stools, and the consistency of the fecal matter. Attention is next directed to the importance of examination of the rectum, which should be made in all cases of intestinal disturbance. Precisely the right instruments should be employed for this work. Among them are a small tubular speculum, 1 inch in diameter, with a conical end and a fenestrum on one side. Another useful instrument is Martin's proctoscope and another of considerable value is the Wales sound. The treatment by inexperienced hands of some of the more important lesions of the rectum and colon is not recommended by Stockton, but he insists that every physician should be able to make the diagnosis. [A.G.E.]

Diabetes Insipidus in a Case of Diffuse Ependymitis of the Floor of the Fourth Ventricle.—This case, which is fully covered by the title, is reported by K. Pichler.³ [D.R.]

Involvement of the Red Bone Marrow in Acute Infections.—The investigations of E. Fraenkel⁴ show that in the vast majority of infectious diseases, organisms are found in the red bone marrow. These organisms are either those of the

¹ Deut. Archiv f. klin. Med., Bd. lxxviii, p. 291.

² Alpha Omega Delta Bulletin, October, 1903.

³ Zeit. f. inn. Med., August 1, 1903.

⁴ Mitt. a. d. Grenzgeb. d. Med. und Chirurg., Bd. xli, p. 419.

¹ Transactions of the Association of American Physicians, 1903, xviii, 481; University of Pennsylvania Medical Bulletin, 1903, xvi, 270.

specific disease, or those of a mixed or secondary infection. In cases of typhoid fever the author invariably found the typhoid bacillus in the marrow, in all stages of the disease. In chronic pulmonary tuberculosis, on the other hand, the organisms were very rarely found. The presence of the specific organism in the bone marrow is also very rare in diphtheria, but other organisms, especially the streptococci, are frequently found in this disease. In scarlet fever streptococci are almost invariably found. The period of the disease, at which the organisms reach the bone marrow, varies for each infection, as does also the length of time during which the organisms may be found there. In typhoid fever they may be found in the marrow even after the local lesions in the intestines have healed. In erysipelas also the organisms are found in large numbers after all local symptoms have subsided. These organisms may cause injury to the bone marrow in many ways, considerable pathologic change being found after death. The result during life is an alteration in the composition of the blood, since the bone marrow plays so important a part in blood formation. [B.K.]

The Part Played by Light in the Cure of Tuberculosis.—Baradat¹ says light enriches and nourishes the blood, produces a great reserve of energy, it stimulates the nerve ends and vivifies the nerves; it acts upon the skin, accelerates its action, and is able to renew the tissue. He says the light ameliorates and renews the tuberculous soil, it attacks the bacillus directly. He reports 2 cases that had been treated for 6 weeks; after 6 days' treatment the night sweats ceased, the cough diminished, in spite of the unfavorable weather and defective care, and the number of bacilli decreased in the sputum. Baradat says the sun baths can be given on the sea, where the light is reflected by a vast mirror—the waves. He further says there should be no curtains before the windows, since the light after passing through them is not so pure as the direct solar rays. [J.F.]

At What Age do Tabetics Die?—P. Marie and P. Mocquot² have investigated this question. They found that out of 66 tabetics, 51.5% died after 60 years of age, and 83.3% died beyond 50 years. Of 58 patients still living, 43.1% had passed their fifty-fifth year, and 68.9% were beyond 50 years of age. The conclusion is that locomotor ataxia is a disease which has little influence on the duration of life. [B.K.]

The Physiopathologic Effects of Electricity of High Tension and Frequency Upon Normal Cutaneous Surfaces.—Since demonstrations of d'Arsonval and of Tesla, it is known that the vital organism can endure immense discharges of electricity. The application of newer physiochemic ideas in our modern therapy makes it interesting to know by experiments the possibilities and chances we run in using electricity and other modes of ethereal motion. G. Arienzo and S. Fabozzi³ publish tests of the skin of rabbits subjected to electric currents under various conditions. A single application of 20 minutes after 24 hours induces a local hyperemia, which on microscopic examination shows an infiltration of mononuclear and polynuclear leukocytes whose protoplasm is markedly acidophile; this occurs mostly within the subcutaneous connective tissue. If the skin be not examined for 2 days, on the second of which another similar electric application is given, we observe the stratum corneum disintegrated and its place occupied by a granular substance which includes the outer layer of damaged epithelial cells, these undergoing a "pronounced necrobiosis, and with an exudate, as above, invading the connective tissue, and extending upward." Fusion of several cells and confusion of their nuclei develop a more or less advanced stage of pycnosis and of kariorexis. Hyperemia is intense. If the test is made 3 days, a crust forms on the skin, due to the detritus of disintegration. These crusts appear umbilicated, and with the further lengthening of the times of application, the effects are similar but greater. After 5 days the detritus contains a yellowish deposit derived from white cell invasion and disintegration. On the prolongation of recovery, after 10 days, these lesions are obliterated and regeneration

nearly complete. What value will these tests have in indicating a method of scar removal? [T.H.E.]

Diagnosis of Hepatic Abscess after Dysentery.—Schlayer¹ confirms the existence of a hyperleukocytosis in liver abscess, no matter from what cause. He made leukocyte counts in 11 cases; in 10 of these the white blood cells varied between 18,000 and 62,000 in the days before operation. Dysentery abscesses give a higher degree of leukocytosis than abscesses after other conditions. Dysentery alone will give a leukocytosis. [E.L.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

The Radical Cure of Corns.—The treatment of corns has largely fallen into the hands of irregular practitioners, partly from the false pride of some who have felt that such trivial ailments are beneath their notice, and partly because the possibility of speedily curing them has not been sufficiently appreciated. It is specially unfortunate that such is the case, for several reasons; not only do very many people suffer a great deal of unnecessary discomfort from them, but not unfrequently serious consequences result from paring corns, from the application of corn cures, or from the bad management of quacks, who set up as chiropodists. We have seen a case in which gangrene involved a large part of a foot, the result of infection from paring a corn. In numerous other cases we have seen infection of greater or less gravity result from the treatment of quacks and the application of patent corn cures. We know of one death resulting from infection following treatment by a so-called chiropodist. For the benefit of those willing to treat corns we refer to a recent contribution by E. Harding Freeland, F.R.C.S.² A fact brought out by histologic study which seems of some importance is that a small bursal sac sometimes exists in the subcutaneous tissue between the corn and the underlying bone. The methods of treatment in general use are unsatisfactory, for whether chemic agents or removal by instrument be employed, the separation is usually not deeper than at the junction of the stratum corneum and the stratum lucidum; the part from which the growth is reproduced is left behind and recurrence is inevitable. Removal below the horny layer is impossible by the usual means without giving great pain. Freeland finds that so-called soft corns do not differ in any way from hard corns, except that the surface is macerated by heat and moisture between the toes, where soft corns commonly exist. He has treated cases successfully by complete excision, carried entirely through the layers of the skin, and he calls special attention to the necessity for removing the bursa above mentioned, which if left behind frequently becomes inflamed and painful. When corns exist because of some deformity of the foot, such as bunions, hammer-toe, or some variety of pes cavus, the treatment should be directed to the deformity, and we should not be in a hurry to excise the corn. In other cases he has been successful in relieving patients by complete excision. It seems almost unnecessary to call attention to the necessity for specially careful, antiseptic precautions in any operation on the foot, no matter how trivial. We know from the experience of many generations of our profession, how frequently tetanus follows injury of the feet. It is also, perhaps, superfluous to mention local anesthesia with Schleich's solution (cocain, 1 to 1,000, with morphin in normal salt solution) in this connection. If members of the medical profession can convince the public that they are prepared to permanently relieve them of an affliction which in many cases is a source of constant misery, by a comparatively slight operation, they

¹ Zeitschr. für Tuberculose und Heilstaettenwesen, 1903, Bd. v, Heft 1.

² La Semaine Médicale, October 23, 1903, p. 349.

³ Annali di Elettività med. e terap. fisica, November, 1903.

¹ Münchener medicinische Wochenschrift, No. 32, 1903.

² Bale, Sons & Danielsson, London, 1903.

will not only add to their incomes what is now going to quacks, but they will also remove a grave danger of infection and increase their reputation. We do not condemn local applications, filing, scraping, pads to relieve pressure, or other palliative measures in the hands of careful, competent men, and in ordinary cases, but we believe palliative treatment will prove unsatisfactory in many large, deep corns, situated where subject to constant pressure. In such cases excision gives complete, permanent relief.

REVIEW OF LITERATURE

Three Successful Laparotomies for Intestinal Perforation in Typhoid Fever.—Richard H. Harte¹ reports a series of 13 operations for intestinal perforation in typhoid fever, with 3 recoveries. The histories of the 3 successful cases are given in some detail. The first was a male patient of 29, perforation occurring in the third week. This was recognized soon after its occurrence, but consent for operation was not gained for 5 hours. Under ether narcosis laparotomy was done and the perforation found and closed. Patient made a complete recovery, although an empyema developed which had to be opened and drained. The second was a male patient of 39, who was admitted to the hospital on about the tenth day with symptoms of peritonitis. Under ether, laparotomy was done, the perforation found and closed. The abdomen was flushed and the patient recovered. The third was a male patient of 13. Perforation occurred on the forty-sixth day of the disease. Ether was given, laparotomy done, gangrenous appendix found and removed, 2 perforations closed, and the patient recovered. The writer asserts, in discussing various symptoms, that abdominal rigidity as understood by the internist and the surgeon, are different things. It is the keynote to early detection of perforation in the large proportion of cases. Success depends, of course, on the early recognition of perforation and prompt operation, even in the presence of profound shock. Every hour delay proportionately decreases the chance of recovery. He prefers incision along the border of the right rectus, thoroughly flushing out the abdominal cavity with salt solution, and then with equal parts of salt solution and hydrogen peroxid, and finally douching with salt solution. He has collected 332 cases in literature. In 96 the median incision was made, with a mortality of 78%. In 123, has the right lateral incision shown a mortality of 68%. Mortality among males was 78%. Among females 61%. According to his tables, the mortality has steadily diminished. From 1884 to 1888 it was 90%; from 1889 to 1893, 87%; from 1894 to 1898, 74%; from 1899 to 1903, 69%. [A.B.C.]

Present Status of Stomach Surgery.—A. J. Ochsner² says that most diseases of the stomach which cannot be relieved by internal medicine must ultimately be treated surgically. In the majority of these cases there is faulty drainage, whatever be its cause. Of all the operations upon the stomach, gastroenterostomy is most commonly indicated, but it is yet too early to make a definite statement regarding the best method of performing it. In cases of excision of the pylorus the Murphy button secures ideal conditions. When the pylorus is not excised the opening made by the button is likely to contract and other methods are to be preferred. Ochsner has performed gastroenterostomy in 71 cases, 4 with needle and thread, 34 with the Murphy button, and 33 with the McGraw ligature. The latter method has given very satisfactory results but experience is too limited to justify definite statements regarding its real value. Ochsner gives minute directions for the employment of this device. Of the methods of performing pyloroplasty, that of Finney is undoubtedly the best but the operation has not been satisfactory in Ochsner's experience. The results of pyloroplasty will become more and more favorable as patients come to the surgeon before the malignant disease has become so far advanced as is usual at present. [A.G.E.]

Colotomy and Colectomy.—F. T. Paul,³ surgeon to the Liverpool Royal Infirmary, states that modern colotomy, for malignant disease, has gained in favor. This is due to a lowered mortality and an improved artificial anus, the latter being

the most potent factor. Following the recent improved operations usually a very fair control is established in most cases, and prolapse rarely occurs. Cripps' is a method which has met with much favor, but the writer prefers Allingham's in many instances. The results desired from colotomy are relief, safety, and comfort. He uses the glass-tube method, believing that this does not increase the risk to life and it permits the bowel to be opened at once, the patient relieved of the distressing condition, and the operation to be completed at one sitting. As regards comfort, the essentials are a high operation, a small wound, opening the highest portion of the colon available, the formation of a good spur, the use of a good plug, and the cultivation of a regular habit of the bowels. Even when colotomy only is intended before operation, sometimes colectomy is found to be necessary, or the reverse may be the case. It is the great misfortune that malignant disease of the bowel is usually discovered too late for colectomy to be practicable; generally malignant disease has progressed so far before symptoms appear that colotomy is the only operation which we can consider. [A.B.C.]

Adrenalin in Urinary Retention of Prostatic Enlargement.—E. F. Rodríguez¹ compares reports of its successful employment, notably, cases by Chassaignac, of New Orleans, who advises the preliminary injection of a suitable solution of adrenalin preparation, when sounds are to be passed, in order to minimize the chance of hemorrhage, which in prostatic cases often is severe and obstinate. Rodríguez gives technic, as in a case of his own, a patient, 75, male. Symptoms due to the prostatic lesion were progressively and easily diminished. Among other instruments, a Guyon sound and a Frank syringe are needed. Adrenalin 1.0 gm. of 1-1,000 solution, used with a Keyes-Ultzman syringe 5 minutes before the operative proceeding. [T.H.E.]

Hemorrhage into the Bursa of the Patella.—J. B. Christopherson² reports that a soldier fell from a horizontal bar striking his knee; no external scar or trace of bruise followed, but the knee became swollen and semiflexed, presenting the evidence later of a chronic synovitis without effusion; there was no fluctuation, but there were present 2 irregular thick transverse ridges across the patella simulating coils thrown out after fracture; they extended beyond the limits of the patella. It was thought to be a case of tuberculous disease of the knee-joint. No improvement followed immobilization, strapping, etc., and a 15 cm. (6 in.) vertical incision over the patella showed the bursa over the periosteum thickened to the extent of a quarter of an inch, which, on being opened, was found filled with an old extravasation of blood which had become partially organized. The bursa was dissected out, a small amount of fluid aspirated from the joint was found normal, the wound closed, a splint applied, and the soldier made an uneventful recovery. The author is of opinion that this accident is of sufficient frequency to warrant its being mentioned in the textbooks on surgery, to prevent a mistaken diagnosis of tuberculous disease of the joint or fracture of the patella. [A.B.C.]

Surgery of the Biliary Passages.—Maurice Richardson³ says that in some instances when symptoms point to gallstones none are found and in other instances symptoms pointing to other lesions are found to be due to the presence of gallstones. The practical point is that one seldom errs in exploring the right upper quadrant in these cases as some defect or active lesion will be found. In connection with the lesions of gallstones there are many questions of operation and technic yet to be settled. Richardson makes systematic exploration of the structures in the right upper quadrant of patients whose abdomens have been opened for other purposes, as a rule during aseptic pelvic operations. Incisions are not prolonged for this purpose and sepsis and shock are, of course, contraindications. The results of these examinations have been of value. In several cases gallstones have been found although the patient had never been conscious of a single unpleasant symptom. Questions concerning the connection between gallstones and digestive disturbances and the relation between gallstones and

¹ Annals of Surgery, July, 1903.

² Interstate Medical Journal, November, 1903.

³ Lancet, August 8, 1903.

¹ Revista Médica Cubana, October, 1903.

² British Medical Journal, August 22, 1903.

³ Cleveland Medical Journal, November, 1903.

enlargements of the pancreas are likely to be settled by these systematic explorations. As to the time for operation upon gallstone cases, Richardson compares the results of early and late operations, saying that the chapter of disaster and death in lesions of the biliary passages is a sequel to the chapter dealing with the prolonged effects of those lesions. His own success has been proportionate to the promptness of surgical intervention after the establishment of the diagnosis. [A.G.E.]

TREATMENT

SOLOMON SOLIS COHEN

E. LINDAUER

L. F. APPLEMAN

REVIEW OF LITERATURE

Treatment of Eczema of the Free Borders of the Eyelids.¹—The general treatment must consist in regulation of the diet and in aiding the elimination of effete materials. The diet should consist of nutritious and easily digested food, the avoidance of alcoholic beverages, fat meats, pork, cheese, salt fish and highly seasoned foods. A mild laxative should be administered every evening before retiring. Local treatment consists in cleansing the parts night and morning with a hot boric acid solution. This should be followed by the application of zinc oxid ointment to the margin of the lids. After the acute inflammation has subsided, the following ointment may be applied:

Yellow oxid of mercury . 0.5 gm. to 1 gm. (7 gr. to 15 gr.)
Pure vaselin 20 gm. (5 dr.)

The following preparations may also be used:

Lead acetate 0.25 gm. (4 gr.)
Benzoinated lard 25 gm. (6 dr.)

Or,

White precipitate 0.1 gm. (1½ gr.)
Oil of birch 0.1 cc. (1½ m.)
White vaselin 8 gm. (2 dr.)

These may be applied upon retiring. [L.F.A.]

Mineral Waters in Chronic Hyperemia of the Liver.

—Chronic hyperemia of the liver as a symptom of stasis in the portal circulation resulting from overfeeding, from a sedentary mode of life, or from habitual constipation, as well as the form induced by disease of the heart, the lungs, the spleen, or the uterus, is frequently subjected to mineral-spring treatment. Kisch (Physiologic Therapeutics, Vol. ix) advises that when the condition occurs in vigorous persons with good powers of resistance, and the liver is found to be large, hypostatic, and tender on pressure, drinking-cures at Carlsbad, Marienbad, Kissingen or Homburg be undertaken; for flabby, anemic, scrofulous individuals, drinking-cures at Franzensbad, Elster, Soden, Ems, and Gleichenberg are suitable. Hinsdale notes that among American waters suitable for the first group of cases are: Bedford Springs, in Pennsylvania; Ballston Spa and Saratoga Springs, in New York; Greenbrier White Sulphur Springs, in West Virginia; Crab Orchard Springs (Epsom Spring), in Kentucky; American Carlsbad Springs, in Illinois; Byron Springs, Gordon Springs, and Coronado Springs, in California; Cañon City Mineral Springs and Springdale Seltzer Springs, in Colorado. For anemic and scrofulous individuals the waters of Sharon Springs (Chalybeate Spring), in New York; Cresson Springs (Iron Spring), in Pennsylvania; Sweet Chalybeate Springs and Healing Springs, in Virginia; Geyser Spa and Harbin Hot Springs, in California; Manitou Springs and Royal Gorge Hot Springs, in Colorado; and Castle Creek Hot Springs in Arizona, may be employed. The springs of the first-named group—sodium sulfate and sodium chlorid waters—are indicated also in cases of fatty liver as a symptom of general obesity. In the presence of marked general obesity, and in combination with arthritis, Marienbad or, in the United States, the Hot Springs of Virginia, Las Vegas Hot Springs in New Mexico, or the Hot Springs of South Dakota are appropriate. When there is a tendency to diarrhea, the alkaline thermal waters of Carlsbad and Ems may be used with advantage. For scrofulous individuals, Homburg, Kissingen, and Wiesbaden are of benefit. In the presence of marked anemia, Franzensbad and Elster are to be preferred.

Urotropin in the Prophylaxis of Scarlatinal Nephritis.

—The disinfectant action of urotropin (ammonium-formaldehyd) as evidenced by its effects in vesical catarrh, pyelitis and phosphaturia, induced Widowitz¹ to employ it in scarlatina with a view of preventing nephritis, which is probably caused by the as yet undetermined scarlatinal microbe or its toxins; and an antibacterial agent applied to the site of the infection might prevent the pathologic changes which mark the renal affection. He administered from 5 cg. to 48 cg. (½ gr. to 7½ gr.) 3 times a day for 3 days at the onset of the disease and at the beginning of the third week when nephritis most commonly occurs. His 102 patients were children from 1 to 15, and an adult of 21. The remedy was always well borne. In none of them did nephritis occur, though Johannessen has seen it in as many as 90% of scarlatinal cases. Its absence in this series of unselected cases may possibly be an accident, but further clinical trials are worth while. [It has long been my practice to use this drug in typhoid fever to keep the urine disinfected and I have also used it in scarlatina, erysipelas, and other infections commonly attended with kidney complications: usually with beneficent results. s.s.c.]

Balneotherapy in Cardiac Disease.—The employment of baths in the treatment of cardiac disease must be governed by a thorough knowledge as to whether the patient is suffering from heart disease with hypertrophy and increased arterial tension, or with valvular disease of rheumatic origin.² In the first class of cases, sedative baths must be used which do not raise arterial tension; in the second class, stimulant baths which act as tonics to the heart must be used. Kisch directs that hot baths shall be used when it is necessary to obtain vasodilation, a decrease in arterial tension and increase in the pulse-rate. Cold baths produce opposite results. Carbonic acid in the bath acts as a distinct stimulant to arterial tension. Vapor baths have a very energetic effect upon the circulation. At first the pulse-rate is increased and the arterial tension raised; it is only after 10 or 15 minutes that the arterial tension falls; for this reason Kisch limits these baths to cases of obesity without myocardial or valvular lesions. [L.F.A.]

PATHOLOGY.

J. EDWIN SWEET

EDITORIAL COMMENT

Human and Bovine Tubercle Bacilli.—An important contribution to our knowledge of the biologic differences between the human and the bovine tubercle bacillus was made by Dr. Theobald Smith at the recent meeting in Philadelphia of the Society of American Bacteriologists. Dr. Smith has studied the effect of the growth of the bacilli upon the reaction of an acid glycerin-bouillon medium. Starting with a medium the acidity of which is equivalent to a 2% solution of phenolphthalein, it is found that both groups of bacilli cause a gradual neutralization of the acid until about the end of the first month's growth; at this time the acidity may have fallen to around 1% of phenolphthalein. From this time on, however, a marked change occurs; the bovine bacillus causes further neutralization of the acidity of the medium until a point is reached when the medium is but slightly acid, or even slightly alkaline, and remains during further growth at this point. The human bacillus, on the other hand, after having caused a gradual neutralization during the first month, begins to produce an increasing acidity of the bouillon, until after two to three months the acidity again equals or slightly exceeds the original acidity of about 2%. Sometimes the human bacillus does not cause a return to the normal acidity, but follows an irregular curve, the acidity of the medium rising and falling slightly around a point equal to about 1% of phenolphthalein. This method will not serve as a means of differential diag-

¹ Journal des Praticiens, Vol. xvii, No. 32, 1903, p. 504.

¹ Wiener klinische Wochenschrift, October 1, 1903.

² Journal des Praticiens, Vol. xvii, No. 32 1903, p. 507.

nosis because of the length of time required to construct such curves. The discovery is of no little interest, however, since it proves that the two groups of bacilli show a distinct difference in one at least of their biochemic characteristics, in addition to the wellknown differences in their biologic characteristics. It still remains a question for discussion whether the one group can be forced by artificial conditions to assume the biologic and biochemic characteristics of the other group.

The Occurrence of Diphtheria-like Organisms in Cow's Milk.—D. H. Bergey reported before the same society some interesting conditions which he has found during a regular examination of cow's milk direct from the udder. He had isolated in a number of instances, in several in pure culture, organisms which belong to the group of bacilli called by the meaningless term "pseudodiphtheria" bacilli—that is, bacilli which share to a greater or less extent the characteristics of the true diphtheria bacillus, the main difference being that they are not pathogenic, while the true organism is. If we consider bacteriology from the standpoint of evolution, there can be no doubt that these minute plant forms, now pathogenic, were once pure saprophytes; there is also no reason to suppose that the conditions which determine the parasitic or saprophytic existence of a microorganism do not still exist, and that many true sporadic cases of diphtheria are not to be explained by a coincidence of the conditions which make parasites out of such organisms as Dr. Bergey has encountered. The proof of these interesting problems will come with a more complete knowledge of the life history of bacteria.

The Artificial Cultivation of Trypanosomes.¹—The work described by Dr. F. S. Novy before the same society marks an advance in our knowledge of the disease producing parasites. Novy has succeeded in cultivating the flagellated protozoon known as the trypanosome, found quite generally in the blood of rats, in the water of condensation of an agar tube to which rabbits' blood had been added. The agar is necessary in this combination, acting possibly by absorbing the products of metabolism, which would eventually inhibit the growth of the organism. Two species, the trypanosome found in the common rat, and the Nagana parasite, have thus been carried through many generations; the later generations retain their full virulence. Organisms of this group have been identified as the cause of a number of diseases of animals, especially of horses, and in a few diseases of man, the best known of which is the so-called sleeping sickness of Africa. At a recent meeting of the Pathological Society of Philadelphia, Dr. W. M. L. Coplin demonstrated the trypanosome of Lewis, which he had found in the blood of rats caught at the Municipal Almshouse. Dr. Coplin described an important aid in finding the organisms; if suspected blood be placed in the centrifuge, the trypanosomes having a lower specific gravity than the red cells and a higher specific gravity than the white cells, will collect in a white ring between the erythrocytes and the superimposed ring of white cells. Dr. Novy thinks that careful observations may show the presence in our own country of the trypanosomes in the blood of man, particularly in the Southern States.

The Report of the French Yellow Fever Commission.—During the past 14 months a commission, composed of MM. Marchoux, Salimbeni, and Simond, has been at work in Rio de Janeiro upon yellow fever, under a subsidy of the French Colonial Ministry. The exhaustive report recently published² is of interest to American physicians, because it forms a magnificent testimonial to the thoroughness and accuracy of the American workers

in Havana. The results obtained by Reed, Carroll, Lazear, and Agramonte have been substantiated in every detail by the French scientists, and it must also be added that the work in Brazil has brought forward nothing new. The virus of yellow fever is found in the blood of the patient during the first three days; on the fourth day it has disappeared. The disease is transmitted by a mosquito, the *Stegomyia fasciata*; an incubation period of 12 days must intervene between the time of the infection of the mosquito and the time when it can cause the disease by infecting a human being. The organism of the disease passes through a Chamberland F filter—but not through a Chamberland B—a filter with finer pores; it is probably to be classed in the group of the so-called "invisible" microbes. The serum of convalescents contains preventive properties, which confer an immunity appreciable after 26 days; this serum can apparently be used as a therapeutic agent. The infectious agent could not be determined, but it is not a yeast, as has been claimed—a point also recently proved by Carroll (paper read before the meeting of the Society of American Bacteriologists). The report is very complete and reflects great credit upon the members of the French Commission; at the same time it reflects still greater credit upon the American workers in Havana—that they left nothing to be rectified and nothing to be discovered, except the organism which causes the disease, and this discovery doubtless awaits an advance in our technical methods.

REVIEW OF LITERATURE

The Histogenesis of Elastic Fibers at the Organization of an Aleuronat Exudate.—J. Schiffmann¹ concludes from his studies upon rabbits that elastic fibers develop synchronously with the young connective tissue fibrils, in an arrangement analogous to these, and that they develop before the newly-formed vessels are provided with elastic fibers; they are formed as continuous fibers, and are not derived from portions of the protoplasm; there is no impregnation of connective tissue fibrils with elastic granules.

Primary Carcinoma of the Extremities.—M. von Brunn² gives a collection of cases from the literature since the work of Volkmann, in 1890, and of 46 cases from his own clinic, 20 of which have never been described. The literature contains 99 cases since 1890, which together with those collected by Volkmann, make a total of 368 observations of primary carcinomas of the extremities. Of these, 227 arose on the basis of chronic inflammatory processes, 46 from warts and naevi, 16 from congenital warts, and 48 on apparently normal skin. The fingers and the backs of the hands are the parts of the upper extremity most often affected; the carcinomas of the lower limb are limited to the leg. Over two-thirds of the cases occurred in males. These carcinomas are the strongest proof of the fact that chronic inflammatory conditions favor the development of these tumors.

A Case of True Accessory Lung.—R. Lewisohn³ discusses the 12 recorded cases of this rare anomaly, and describes his own case. The accessory lung resembled in appearance the spleen, was attached to the basal surface of the lower lobe of the left lung, and received a large branch from the aorta. The accessory organ was completely atelectatic; microscopic examination revealed abnormal development of large blood-vessels; the alveoli are lined with cylindric epithelium, and contain a great number of desquamated cells; bronchi lined with ciliated epithelium were found. A discussion of the embryology of these malformations closes the article.

The Change and Transportation of Fats in the Cornea.—J. Arnold⁴ concludes that a part at least of the fat-forming material or the fat itself, which appears in the cornea during disease conditions, for example, in inflammatory processes, has been brought to the cornea, and may, therefore, be considered

¹ See also Novy and McNeal, The Journal of Infectious Diseases, Vol. 1, No. 1, January, 1904.

² Annales de l'Institut Pasteur, November, 1903.

¹ C. f. allg. Path., etc., 14, 20.

² Beitr. z. klin. Chir., 37, p. 227.

³ C. f. allg. Path., etc., November 15, 1903.

⁴ C. f. allg. Path., etc., 14, 19.

of exogenous origin. Soaps may be changed into fats by the granules of the cells found in the cornea.

Advance in Pathology in Relation to Dermatology.—E. Kromayer¹ gives the seventh yearly review of the literature bearing upon the phases of pathology in relation to dermatology. The number of publications is less than in former years. Kromayer calls especial attention to the discovery of the "syphilis bacillus" by Joseph and Piorkowski (the cultivation of a bacillus, probably *Bacillus xerosis*, upon placentas, the organisms being found in syphilitic sperma,² the inoculation of syphilis into swine by Neisser,³ the work of Matzenauer on noma,⁴ the publication of Matsura⁵ on the variations of the thickness of the hairs during health and disease, and to the paper of Kromayer⁶ on "New Biologic Relations between Epithelium and Connective Tissue, Desmoplasia." In this article Kromayer advances the idea that in the normal organism epidermal cells become dislocated into the connective tissue, and change by metaplasia into connective tissue cells. Kromayer claims that the soft naevi are due to such a change in the biologic characteristics of normal cells.

Sublamin as a Fixing Solution.—V. Klingmueller and F. Veiel⁷ claimed for the new salt of mercury, ethyldiaminsulfate of mercury, that it presents the following advantages over corrosive sublimate as a fixing agent; no precipitates are formed, the tissue is easily stained, and the natural color and nature of the organs are hardly changed.

Degeneration of Elastic Tissue Analogous to Fatty Metamorphosis.—L. Jores⁸ has encountered fatty metamorphosis of the elastic fibers of the intima of the aorta in arterial sclerosis, and in one instance in the elastic fibers of the trabeculas of the spleen. The granules in the fibers give the Sudan reaction, and also stain black with osmic acid. This discovery is of importance, since the condition of fatty metamorphosis has always been associated with the protoplasm of tissue cells and the elastic fibers are considered as belonging to the connective tissue. Jores does not consider the possibility of a pure fatty infiltration, a passive process, but thinks the elastic fibers are primarily affected.

The Presence of Chorioepitheliomas and of Cauliflower Growths in Teratomas.—F. Schlagenhauer⁹ describes a teratoma with the characteristic tissue of a chorioepithelioma, which was found in the testicle, and which caused metastases. He inclines to the theory that the chorioepithelial tumors arise from impregnated polar bodies, and since of fetal origin, such tumors can be found without any relation to previous pregnancy, and even in the male, as in this case. He further examined various teratomas, and concludes that tumor formations of the cauliflower type can be found in teratoid tumors of the testicle.

Studies on Sheeppox.—A. Borell¹⁰ reports the results of attempts to prevent the ravages of sheeppox, arising from endemic foci in France itself, and imported yearly into France with Algerian sheep. The methods perfected in the laboratory have been applied *en gros*, and thousands of sheep were treated. The disease must be combated both by an antiserum, since endemic foci of the disease exist, and infected animals must be treated, and by an active immunization to prevent infection from these endemic foci and from the Algerian sheep. The active immunity is conferred by inoculating with a virus which has been attenuated by age; the antiserum is obtained from animals treated with successive doses of the virus. The organism of the disease is not known—doubtless one of the "invisible" microbes. The results reported by Borell will result in the possibility of saving thousands of sheep yearly. [J.E.S.]

Beer Yeast and Suppuration.—E. Sergent¹¹ finds that the staphylococcus, when rubbed gently into the skin of the rabbit produces a great number of small pustules appearing on the

second day, which become surrounded with an aureole on the third day, begin to dry on the fourth, and heal with desquamation on the fifth and sixth days. If the rabbits are given per os large quantities of yeast, 20 gr. to 30 gr. per day, or 50 cc. to 80 cc. of a watery extract of yeast filtered through a porcelain filter, the development of these pustules is hindered. If given before the inoculation of the staphylococcus, the pustules are very limited. The same effect is obtained by using yeast in cases of furuncle in man, although there are persons who do not respond to such treatment. [J.E.S.]

Inoculation of Syphilis into the Ape (Bonnetchinois).—C. Nicolle¹ inoculated syphilitic material into 3 apes. After 15 to 19 days' incubation, papulosquamous eruptions appeared, in 1 instance a focus of subcutaneous induration accompanied by hypertrophy of the corresponding glands, healing after 10 to 23 days following the appearance of the symptoms. [J.E.S.]

Report on Bovine Tuberculosis.—V. A. Moore² has issued a reprint which contains beside a general discussion of bovine tuberculosis the conclusion that "the bacteria of human and bovine tuberculosis belong to the same species, but as they are found in the lesions of man and cattle they are differentiated from each other by distinct varietal differences. The bacterium of human tuberculosis is rarely the cause of death in cattle. There is much evidence that the disease is transmitted from cattle to the human species less frequently than was formerly supposed." [J.E.S.]

The Presence of Lymph-glands in the Substance of the Cheek and their Clinical Importance.—Trendel³ finds with relative frequency lymph-glands situated in the subcutaneous tissue of the cheek in front of the masseter and rarely below the buccinator, either on the buccinator, on the outer side of the lower jaw or of the upper jaw. These glands receive ducts from the nose, upper lip, regions of the eye, cheek, and temple, the mucous membrane of the cheek, the alveolar processes of the upper jaw, the tonsils, fauces, parotid, and lower lip. These glands may become infected alone, especially with tuberculosis, but their clinical importance consists in the fact that metastases of carcinomas may occur in them. These results are based on a study of 87 cases, fifteen of them new ones, from v. Brunn's clinic. [J.E.S.]

The Virulence of the Bacillus of Bovine and Human Tuberculosis for Monkeys.—MacFadyen⁴ fed tuberculous udders and human sputum to 15 monkeys. Some of the animals died after from 2 to 10 days, probably of intoxication with the toxic products of the sputum. The remainder of the animals died after from 1 to 2 months of general tuberculosis. In all the animals fed with sputum, tuberculosis of the intestines was found, which was absent from all the rest. [J.E.S.]

Etiology and Pathogenesis of Aortic Aneurysm.—H. Arnspurger⁵ separates aneurysm of the aorta pathologically from aneurysm of other vessels on account of differences in dimension, function, position, and structure. A congenital form must be recognized, due to congenital stenosis of the isthmus. Three further groups of causes for aortic aneurysm are recognized—traumatism, infections, and intoxications. The author believes that trauma, as an exclusive cause, plays an extremely small part in the etiology. The same is true of the acute infections, although rheumatism frequently does produce diffuse weakening of the arterial walls. The chronic infections, however, are much more important; these include syphilis, tuberculosis, and malaria, of which syphilis is by far the most frequent factor. Examination of the walls of an aortic aneurysm shows the pathologic condition to be very similar to that found in syphilitic aortic disease. The conclusion is reached that syphilitic aortitis is the usual forerunner of aneurysm. Among the intoxications, alcohol, tobacco, and lead are noted for their influence in producing degeneration of the bloodvessels. Such diffuse degeneration may lead to dilation of the aorta, but will probably not play a part in the production of saccular aneurysm. [B.K.]

¹ C. f. allg. Path., 14, 9.

² Berliner klin. Woch., 1902, pp. 257 and 598.

³ Archiv. f. Derm. u. Syph., 1902, p. 359.

⁴ Archiv. f. Derm. u. Syph., 60, p. 373.

⁵ Archiv. f. Derm. u. Syph., 62, p. 273.

⁶ Archiv. f. Derm. u. Syph., 62, p. 299.

⁷ C. f. allg. Path., etc., 14, 20.

⁸ C. f. allg. Path., etc., November 15, 1903.

⁹ Wiener klin. Woch., 1902, p. 571.

¹⁰ Annales de l'Institut Pasteur, November, 1903.

¹¹ Annales de l'Institut Pasteur, October, 1903.

¹ Annales de l'Institut Pasteur, October, 1903.

² State of New York, Department of Agriculture, reprint.

³ Belt, z. klin. Chir., 39, p. 538.

⁴ The Lancet, September 12, 1903.

⁵ Deut. Archiv f. klin. Med., Bd. lxxviii, p. 387.

Antiseptic and Germicidal Properties of Glycerin.—M. J. Rosenau¹ gives the results of extended experiments made to determine the antiseptic and germicidal properties of glycerin. On account of the universal practice of using glycerin in the preparation of vaccine virus and the great importance of tetanus as a contaminator of that material, special studies were made to determine the effect of glycerin upon the spores of this organism. The results show that glycerin has distinct but feeble germicidal and bactericidal antiseptic properties. The presence of 50% of this substance will restrain all bacterial growth. Less than this amount cannot be depended upon for the preservation of vaccines and other organic growths. As a germicide, glycerin probably acts by virtue of its great affinity for water, abstracting this substance from the germ. Glycerin seems to have been a selective poison for *B. diphtheria*, which in all the experiments died much more quickly than any of the other organisms tested. The experiments proved that glycerin cannot be depended upon to purify vaccine or other organic material containing tetanus spores, and that it has practically no effect upon tetanus toxin. [A.G.E.]

Possible Origin de novo of Bacteria.—H. C. Bastian² brings forth arguments in an attempt to prove that organisms may originate independent of preexisting organisms of like kind. He claims that under certain general or local conditions in the body the common microorganisms may be converted into the so-called specific or pathogenic organisms. For example, Davaine's septicemia may originate in a previously healthy animal by the injection of putrid blood into the subcutaneous tissues and may become so virulent that a minute quantity of the animal's blood may transmit the disease. By injection into the peritoneal cavity the same putrid blood will produce a different and much less virulent disease, Pasteur's septicemia. The latter may also be induced by a germ-free chemic irritant. In this case the organisms arise either by heterogenesis or by the waking up of latent germs. There is also proof to show that the typhoid bacillus may be merely an altered and virulent form of the common colon bacillus. The author claims that, as good hygienic conditions will cure tuberculosis, low vitality and bad hygienic conditions may suffice to produce it. The commonly accepted channels of entry of the tubercle bacillus will not account for its isolated presence in the glands of the axilla, the hip-joint, etc. The bacillus of tuberculosis may be a product, and not a cause, of certain inflammations occurring in lowly vitalized subjects. The bacillus of leprosy may also arise *de novo*; and the investigations of Hutchinson concerning the influence of tainted fish in the production of this disease, are considered by the author to be potent arguments in favor of his contention. [B.K.]

Detection of Bile Pigments in Urine.—A. Jolles³ publishes an improved modification of his method for the detection of bile pigments in the urine. It consists of shaking 10 cc. urine with 2 cc. or 3 cc. chloroform and 1 cc. of a 10% barium chlorid solution. The mixture is centrifugated and the supernatant liquid poured off. The remaining chloroform and precipitate are washed 1 to 3 times with distilled water, then shaken with 5 cc. alcohol, 2 or 3 drops of an iodine solution added, and filtered. The filtrate shows a characteristic green coloration in the presence of the minutest trace of bile pigment. The reaction may be hastened by placing the mixture before filtration over a water bath for a few minutes. The iodine solution is prepared by dissolving separately 0.63 gm. iodine and 0.75 gm. mercuric chlorid in 125 cc. alcohol, combining them, and adding 250 cc. concentrated hydrochloric acid. It must be kept in a dark bottle. [B.K.]

Pathology of Cutaneous Burns.—G. Scagliosi⁴ scalded a number of rabbits, killed them after various intervals, and details the microscopic findings of the individual organs minutely. The central nervous system shows hyperemia and degeneration of Nissl's cells; the peripheral nerves show various grades of neuritis; the heart shows acute myocarditis; the liver acute parenchymatous hepatitis and necrotic foci; the kidneys

acute nephritis; the bloodvessels show proliferation of the connective tissue cells within 6 hours, and after 36 hours necrotic foci. The latter changes are due to the action of bacteria and their toxins as well as to changes in the chemic composition of the blood. The changes in the nervous system are produced by reflex irritation, insufficient nutrition and action on the part of the cells to the toxins circulating in the blood. Bacteria are deposited secondarily in the tissues and form new toxins; the liver and kidney changes also react on the nerve-cells, as their functions are more or less inhibited by the lesions. The parenchymatous changes are due to bacteria and their toxins. [E.L.]

The Tonsils and the Uvula in Tuberculous Patients.—Escome!¹ has examined the tonsils and the uvula in 25 tuberculous and in 21 nontuberculous cases. He concludes that the tuberculous infection of the tonsils is very common, and occurs as well in adults with no lung lesions; it cannot be found in most instances by macroscopic examination of the surface or of sections of the tonsil, but can be readily found with the microscope. The infection of the uvula is very rare. He has no doubt that the tonsils are the portal of infection in a very large number of cases of glandular tuberculosis, and of tuberculosis of the lungs; the infection proceeds from the tonsils most frequently by way of the lymph channels. [B.K.]

Relation of the Status Lymphaticus to Sudden Death, Death under Anesthesia, and to Infection.—G. Blumer² concludes from the study of 9 cases and a study of the available literature that: 1. The condition known as the status lymphaticus is a definite pathologic entity. 2. It is probably associated with, if not due to, a condition of intermittent lymphotoxemia. 3. It may be associated with sudden death, probably as a result of lymphotoxemia alone in some cases, or a result of the action of toxic, physical, or psychic injuries, which are rendered much more powerful than usual by the predisposing action of the lymphotoxemia. 4. In some cases the sudden death is undoubtedly mechanical and due to asphyxia from pressure of the enlarged thymus on the trachea. 5. The subjects of the status lymphaticus can be recognized clinically in some instances. [A.G.E.]

Hereditary Dwarfism; Ethnic Achondroplasia.—A. Poncet and R. Leriche³ distinguish 2 classes of dwarfism, one the pathologic dwarf, due to more or less definite skeletal lesions; and the other the essential dwarf, possessing a normal skeleton of diminished size. The latter is of the type which occurred in the ancient race of pygmies, and the authors believe the modern examples to be an atavistic reversion to that type. They report 2 cases from the same family, in which the dwarfish tendency was evidently inherited from the paternal side. Apart from their small stature, these 2 dwarfs were perfectly normal, and quite intelligent. Radiographic examination of their extremities showed that the epiphyseal cartilages were entirely wanting. The hereditary character of the dwarfism, with the absence of all evidences of a pathologic achondroplasia, led the authors to designate the condition "ethnic achondroplasia." Concerning the existence in ancient times of a race of pygmies, there can be little doubt. Their extinction was probably due to an evolution toward a superior type. Examples of dwarfism, such as have been cited by the authors, doubtless form a reversion to this variation of the human species. [B.K.]

Aspergillus Infection of the Lung.—H. Nakayama⁴ reports a case in which the diagnosis during life was bilateral lobular pneumonia, in a man 71 years old. At autopsy there were discovered, among other lesions, two small colonies of aspergillus bronchialis. The growth of mold had taken place in the necrotic walls of an old hemorrhagic infarct. In the center of the growth were found necrotic bronchi, through the walls of which the mold had spread. The aspergillus bronchialis is a new species, which was first discovered in man and described by Blumentritt, in 1900. The aspergillosis is a process secondary to the hemorrhagic infarct, the mode of infection being through the bronchi. [B.K.]

¹ Bulletin No. 16, U. S. Public Health and Marine-Hospital Service, September, 1903.

² Lancet, October 31, 1903, p. 1223.

³ Deut. Archiv f. klin. Med., Bd. lxxviii, p. 137.

⁴ Deutsche med. Wochenschrift. Nos. 29-31, 1903.

¹ Rev. de Méd., 23, p. 459.

² Johns Hopkins Hospital Bulletin, October, 1903.

³ Lyon Médical, October 25, 1903.

⁴ Zeit. für Heilkunde, Bd. xxiv, Heft 9; Abth. f. Path. Anat., Heft 4, p. 348.

Syphilis of the Peripheral Nerves and Lungs.—C. M. Remsen¹ relates the case of a negro of 27, who died with symptoms of pulmonary tuberculosis. Repeated examination of the sputum had failed to disclose tubercle bacilli, and a microscopic study of sections of the lung showed neither tubercles nor tubercle bacilli. The lesions in the lung were predominantly those of the diffuse syphilitic consolidation described by Councilman, with definite areas of caseation, organization of part of the exudate, and induration of the lung by newgrowth of interstitial tissue. The occurrence of cavity formation by the disintegration of the caseous tissue, with erosion of a vessel and fatal hemorrhage, is of especial interest. The involved nerves contained no evidence of tuberculous infection, but had every character of a syphilitic neuritis with caseation of the new-formed tissue and nerves. [A.G.E.]

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 15, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	Fresno.....Dec. 1-31.....	2	
Illinois:	Belleville.....Dec. 19-Jan. 9.....	12	1
	Chicago.....Jan. 2-9.....	1	
	Danville.....Jan. 2-9.....	2	
Indiana:	Evansville.....Jan. 6.....	14	
Louisiana:	New Orleans.....Jan. 2-9.....	3	
Maine:	Milford.....Jan. 7.....	2	
	Orono.....Jan. 7.....	1	
Michigan:	Grand Rapids.....Jan. 2-9.....	1	
Missouri:	St. Louis.....Dec. 26-Jan. 9.....	6	
New Hampshire:	Manchester.....Jan. 2-9.....	6	
	Nashua.....Jan. 2-9.....	1	
New Jersey:	Camden.....Jan. 2-9.....	2	1
	Trenton.....Jan. 2-9.....	1	
New York:	Buffalo.....Dec. 28-Jan. 9.....	5	
Ohio:	Ashtabula.....Dec. 28-Jan. 4.....	1	
	Cincinnati.....Dec. 24-Jan. 8.....	6	1
	Cleveland.....Jan. 1-8.....	2	
	Dayton.....Jan. 2-9.....	1	
	Youngstown.....Dec. 26-Jan. 9.....	37	
Pennsylvania:	Braddock.....Jan. 2-9.....	6	
	Philadelphia.....Jan. 2-9.....	83	25
	Pittsburg.....Jan. 2-9.....	20	4
	Reading.....Jan. 4-11.....	1	
South Carolina:	Charleston.....Jan. 2-9.....	2	
Tennessee:	Nashville.....Jan. 2-9.....	1	
Texas:	San Antonio.....Dec. 1-31.....	6	
Utah:	Salt Lake City.....Jan. 2-9.....	1	
Wisconsin:	Milwaukee.....Jan. 2-9.....	10	

SMALLPOX—INSULAR.

Philippine Islands:	Manila.....Nov. 14-Dec. 5.....	2	1
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SMALLPOX—FOREIGN.

Austria-Hungary:	Prague.....Dec. 12-19.....	16	
	Trieste.....Dec. 5-12.....	21	
Brazil:	Pernambuco.....Nov. 1-31.....	20	
British Guiana:	Demerara.....Oct. 31-Nov. 28.....	62	
Chile:	Antofagasta.....Nov. 1-30.....	8	
France:	Paris.....Dec. 12-26.....	31	3
Great Britain:	Edinburgh.....Dec. 12-19.....	1	
	Glasgow.....Dec. 19-26.....	64	2
	Leeds.....Dec. 26-Jan. 2.....	1	
	London.....Dec. 19-26.....	7	
	Manchester.....Dec. 19-26.....	2	
	Newcastle-on-Tyne.....Dec. 19-26.....	1	
	Nottingham.....Dec. 12-26.....	11	
	Southampton.....Dec. 26-Jan. 2.....	1	
India:	Bombay.....Dec. 8-15.....	4	
Italy:	Catania.....Dec. 17-24.....	1	
	Messina.....Dec. 11-18.....	1	
Malta:	.....Dec. 5-19.....	8	
Netherlands:	Amsterdam.....Dec. 19-Jan. 2.....	1	
Russia:	Moscow.....Dec. 12-19.....	1	1
	Odessa.....Dec. 12-26.....	3	
	St. Petersburg.....Dec. 5-19.....	101	2
	Warsaw.....Nov. 21-28.....	3	
Spain:	Santander.....Dec. 28-Jan. 4.....	3	1
Turkey:	Smyrna.....Dec. 13-20.....	6	
Venezuela:	Maracaibo.....Oct. 24-31.....	1	1

YELLOW FEVER—FOREIGN.

Mexico:	Merida.....Dec. 20-Jan. 2.....	4	2
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PLAGUE—INSULAR.

Philippine Islands:	Manila.....Nov. 14-Dec. 5.....	1	1
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PLAGUE—FOREIGN.

China:	Hongkong.....Nov. 29-Dec. 5.....	1	
Egypt:	Alexandria.....Dec. 5-12.....	3	2
India:	Bombay.....Dec. 8-15.....	56	
	Calcutta.....Dec. 8-12.....	13	
	Karachi.....Dec. 6-13.....	8	7
Mauritius:	.....Oct. 9-Nov. 5.....	377	211
South Africa:	Cape Colony.....Nov. 14-21.....	1	

CHOLERA—INSULAR.			
Philippine Islands:	Manila.....Nov. 14-Dec. 5.....	13	11
Provinces:	.....Nov. 14-Dec. 5.....	643	567
CHOLERA—FOREIGN.			
Afghanistan:	Herat.....Dec. 21.....	Present.	
India:	Bombay.....Dec. 8-15.....	1	
	Calcutta.....Dec. 5-12.....	36	
Japan:	Nagasaki.....Nov. 30.....	130	64
Java:	Batavia.....Nov. 28-Dec. 5.....	14	2
Straits Settlements:	Singapore.....Nov. 14-21.....	87	30
Turkey in Asia:	.....Dec. 7.....		

Changes in the Medical Corps of the U. S. Navy for the week ended January 16, 1904:

CRANDALL, R. P., surgeon, detached from the Naval Station, Guam, and ordered to the Wisconsin—January 12.
MURPHY, J. A., passed assistant surgeon, commissioned a passed assistant surgeon from March 3, 1903—January 14.
Doctors R. C. Heiner and R. E. Stoops, appointed assistant surgeons with rank of lieutenant, junior grade, from December 26, 1903—January 14.

Changes in the Public Health and Marine-Hospital Service for the week ended January 14, 1904:

WHITE, J. H., surgeon, granted leave of absence for seven days from January 11—January 9, 1904.
GUITERAS, G. M., surgeon, detailed as inspector of unseviceable property at Havana, Cuba—January 12, 1904.
WICKES, H. W., passed assistant surgeon, granted leave of absence for two days from January 16—January 14, 1904.
GRUBBS, S. B., passed assistant surgeon, granted leave of absence for ten days—January 8, 1904.
AMESSE, J. W., assistant surgeon, granted extension of leave on account of sickness, for ten days from January 11—January 9, 1904.
DUKE, B. F., acting assistant surgeon, granted leave of absence for five days from January 14—January 14, 1904.
TIDD, R. M., acting assistant surgeon, granted leave of absence for seven days, under paragraph 210 of the regulations.
TUTTLE, JAY, acting assistant surgeon, department letter granting Acting Assistant Surgeon Tuttle leave of absence for ten days from December 21, 1903, amended to read five days from December 21, 1903—January 9, 1904.
WALKER, R. T., acting assistant surgeon, granted leave of absence for twenty days from January 5—January 9, 1904.
MAGUIRE, E. S., pharmacist, granted extension of leave of absence for ten days from January 8—January 12, 1904.
RICHARDSON, S. W., pharmacist, to proceed to New York, N. Y., for special temporary duty—January 9, 1904.

Changes in the Medical Corps of the U. S. Army for the week ended January 16, 1904:

MARRY, WILLIAM C., contract surgeon, is relieved from duty at Columbus Barracks, and will proceed to Fort Sheridan for duty.
BROWN, HENRY L., contract surgeon, now on temporary duty at Columbus Barracks, is assigned to station at that post.
CHAMBERLAIN, Captain WESTON P., assistant surgeon, is relieved from duty in the department of the East, to take effect upon the withdrawal of troops from Cabana Barracks, Cuba, and upon his arrival in the United States will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands on transport to sail from San Francisco about March 1.
BEVANS, First Lieutenant JAMES L., assistant surgeon, upon the withdrawal of troops from Morro Castle, Santiago, Cuba, will upon his arrival in the United States proceed to Fort Barrancas for duty to relieve First Lieutenant Reynold M. Kirby-Smith, assistant surgeon. Lieutenant Kirby-Smith will proceed to San Francisco and report for transportation to the Philippine Islands on transport to sail from San Francisco about March 1.
STEARNS, CHARLES H., contract surgeon, now at Nevada, Mo., is relieved from further duty in the division of the Philippines, and upon the expiration of his present leave will proceed to Fort Monroe for duty, to relieve First Lieutenant Haywood S. Hansell, assistant surgeon. Lieutenant Hansell will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands on transport to sail from San Francisco about February 1.
CORBUSIER, HAROLD D., contract surgeon, now on temporary duty at Fort Mansfield, is relieved from further duty at Fort Columbus, and will report at Fort Mansfield for permanent duty at that post.
IVES, Major FRANCIS J., leave for seven days granted is extended twenty-three days.
HUTTON, First Lieutenant, PAUL C., is granted leave for one month on account of sickness.
The following changes in the stations and duties of officers are ordered: So much of paragraph one, October 13, 1903, as relate to James W. Van Dusen, assistant surgeon, is revoked. Lieutenant Van Dusen is relieved from duty at Columbus Barracks, to take effect upon the expiration of his present sick leave, and will then proceed to West Point, N. Y., and report in person to the superintendent of the U. S. Military Academy for duty not later than January 20, to relieve Captain Alexander N. Stark, assistant surgeon. Captain Stark will repair to Washington, D. C., and report to the surgeon-general of the Army for duty as assistant to the attending surgeon in that city until April 1, when he will relieve Major William B. Banister, surgeon, from further duty as attending surgeon. Major Banister will proceed to Jefferson Barracks for duty.
BRANCH, FREDERICK D., contract surgeon, is granted leave for one month, from about January 26.
GREGORY, WILLIAM G., contract surgeon, is relieved from duty at Fort Apache, and will proceed to his home, Cave in Rock, Ill., for annulment of contract.
GREGORY, WILLIAM G., contract surgeon, is granted leave for one month.
BROWN, CLARK L., sergeant first class Fort Monroe, will proceed at once to St. Louis, Mo., and report to Major Richard W. Johnson, surgeon, in charge of the medical department exhibit, Louisiana Purchase Exposition, in that city, for duty.
BAIGENT, JOHN, sergeant first class, upon arrival in the United States with troops from Morro Castle, Santiago, Cuba, will proceed to Fort Monroe for duty.

¹ Johns Hopkins Hospital Bulletin, October, 1903.

American Medicine

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Union in New York at Last Realized.—Just as we are going to press we receive a telegram from Dr. McCormack, at Albany, bringing the news of the unanimous adoption of the report of the joint committee and the agreement for the consolidation of the Society and Association, including a constitution and by-laws. The committee was continued to complete the details of the union. The permissive act has been passed by the State Legislature and approved by the Governor. The adoption of the resolution was moved by Dr. Jacobi, and seconded by Dr. Roosa and Dr. Potter. Thus is finally ended the unfortunate division of the New York profession, and the greatest step is made toward the union and reorganization of the entire body of American medical men. The vast influence of this act for the good, both of the profession and of the entire people, cannot be estimated, at present not even conceived. The American Medical Association is now called upon to assume its destined role, to shape and bring about legislation, to reduce the evils of quackery and greed, both within and without its ranks, to realize the possible lessening of the deathrate by hygiene and preventive medicine, to encourage pure science, and to band all honorable physicians into a mighty force for promoting the national health and well-being.

Good Roads and the Country Doctor.—There is now pending in Congress a bill which appropriates \$24,000,000 as national aid for the building of wagon roads. This money is to be distributed according to the population of each of the States, except that the States having less than 700,000 people are to receive a minimum amount of \$250,000. Each State, county, or town receiving national aid must add a like amount. This bill will result in the spending of \$48,000,000 for the building of wagon roads, and will build from 100 to 500 miles of road in every State of the union. Every physician of the nation is directly interested in good roads. The lives of country physicians are made harder and shorter because of the bad roads, which are everywhere the rule. Even the city consultant has occasionally to realize personally how they add to the wear and tear of life. Four of our States (New Jersey, Connecticut, Massachusetts, and New York) have appropriated over \$16,000,000 for 2,418 miles of roads. The United States Government appropriated in 1903, \$32,000,000 for river and harbor improve-

ments, but nothing for good roads for the farmer. France has 23,608 miles of good wagon roads, Italy 5,000 miles, etc. Every consideration of health, civilization, and justice demands good country roads for the people. Hon. Walter P. Brownlow, member of Congress, will upon application send pamphlets to any address in illustration of the wisdom and benefit to be derived from the passage of the proposed bill. The members of our profession, both for public as well as for medical reasons, should unite in helping to make it a law. We should write our representatives at Washington, urging them to vote for the measure.

"No blacker stain on the civilization of the nation" exists, says an expert, than the sufferings of the animals in some of our Western States. They are turned out to freeze, hunger, and thirst for the winter, and hundreds of thousands endure greater agonies in one day than all the animals of eastern cities in a year. Enough will survive to make a profit for the comfortably-housed capitalists and trust-owners. All this time, if in a laboratory an animal is subjected to the prick of a hypodermic needle there is a howl of horror from all the science-hating antivivisectionists of two continents. In some States the owners of the tortured cattle have prevented the enactment of laws for their care, on the avowed ground that it would be bad for their business. "On one single ranch in Texas last winter," says Superintendent Whitehead, "\$500,000 worth of cattle died. On many ranches half were lost; on some, three-quarters; on almost all, many; while all the rest went down to the very verge of death, and suffered all its pain without its relief." Can anyone explain why a hundred forms of frightful cruelty, when committed for commercial profit, do not interest antivivisectionists, while a needle-prick in the cause of medical science arouses a violence of rage that is uncontrollable?

The passage of the Hepburn Pure Food Bill by Congress brings about one of the greatest possibilities of reform of the alarming conditions into which our people had fallen. Few knew or realized the extent to which adulteration and fraud in the manufacture of foods were practised. The most necessary articles of diet were debased and the only caution observed in the

infamy was that the criminals should not be found out. The injury to health from the use of their products did not apparently disturb the manufacturers any more than their own cheatings. The bill just passed, fixes the standards of foods and drugs as to their purity, strength and character and defines what shall be considered adulterations or misbranding of foods and drugs. It also prohibits interstate commerce in or importation and exportation of such misbranded or adulterated articles. It is proposed to enlarge the scope of the Bureau of Chemistry to include the Bureau of Foods, and impose upon it the duty of performing all chemic work for the other legislative departments. This bureau will be charged with the duty of inspecting food and drug products which belong to interstate or foreign commerce. The Secretary of Agriculture is given authority to employ such chemists, inspectors, clerks and laborers as may be necessary for the enforcement of the act. One section of the bill provides penalties for the introduction of adulterated or misbranded foods or drugs and another section requires the Secretary of Agriculture to prescribe rules and regulations to govern the Director of the Bureau of Chemistry and Foods in examinations of articles required to be inspected under the law. The whisky and liquor manufacturers, of course, are violent opponents of the bill—a fact that constitutes a good argument for it.

The Pennsylvania Society for the Prevention of Tuberculosis.—The report of this society, just issued, will give encouragement to all its members. The organization was the first of its kind in America, if not in the world, having been founded in 1892, by Dr. Flick, the present director of the Henry Phipps Institute. The present report is issued by its president, Dr. Howard S. Anders. From it one learns with regret of the failure, only temporary, let us hope, of the work of the society in trying to secure from the State Legislature the passage of a bill for the establishment of two State sanatoriums for poor tuberculosis patients. The politicians were found too indifferent to the matter, and too engaged in their own schemes to give any attention to this duty and interest of the people. In another direction the society's efforts should be more earnestly seconded to break up the wretched vogue of the quack tuberculosis cures. The report says that "legislation against these heartless, commercialistic triflers with the credulous and hopeful tuberculosis patient is sorely needed. The rude awakening and despair which the uniform failure of these nostrums to cure produces, operates sadly in causing patients to neglect or decline rational regimen and treatment, since they incline to think that if the much-testimonialized medicine does no good, there can be no use in trying further aid." Physicians of the State can aid the work of the society in a practical manner by becoming the distributing agents among patients, of the following tracts, issued by the society:

Tract No. 1.—How to Avoid Contracting Tuberculosis (Consumption).

Tract No. 2.—How Persons Suffering from Tuberculosis Can Avoid Giving the Disease to Others.

Tract No. 3.—How Hotel Keepers Can Aid in Preventing the Spread of Tuberculosis.

Tract No. 4.—How Storekeepers and Manufacturers Can Help to Prevent the Spread of Tuberculosis.

Tract No. 5.—Predisposing Causes of Tuberculosis, and How to Avoid or Overcome Them. (Printed also in Hebrew.)

Tract No. 6.—Registration of Tuberculosis.

"Above all Things, no Zeal!"—In reaction against zealotry in the promulgation of medical discovery and truth there is the caution of a wise restraint which is necessary and good—if it is based upon clinical facts, and not upon prejudice and vanity. But there is often a vanity as pernicious as that of the zealot in those who cry out against him and his "exaggeration" solely from policy, from avoiding extremes, and from the self-flattery that the rational and intellectual critic has a superior judgment and a better poise of mind. Careful choosing the middle or average truth in order to avoid the dangers of extremes, and utter recklessness as to the real facts, may be simply the cunning coward's way. Adding extremes together and striking the average never discovered any truth, or, in fact, anything in the world—not even the inaptitude of the averager. When Pasteur was making the most profound and revolutionary discovery of modern medicine, the great surgeon, Chassaignac, warned him that "everything could not be resolved into bacteria," and that his conclusions should be brought out "in a circumspect, modest, and reserved manner." These words were true enough as an abstract statement, but their real untruth and their special inapplication to the case in hand could never be known by the *surtout pas de zèle* Chassaignacs. The noteworthy fact about the Chassaignacs is that they are more interested in hitting the "exaggerator" over the head than in investigating his "little and partial truth," and finding out how far it will carry. That is to say, they are more concerned about their own standpoints and prejudices than about any truth, least of all the little one they ignore.

Carbuncle Contracted in the Barber Shop.—The transference to his customers, by means of his hands and instruments, of many parasitic skin diseases has long been recognized as one of the unnecessary accomplishments of the necessary barber. Among these affections are sycosis, impetigo, seborrheic alopecia, and furunculosis that is more or less chronic in type. Dr. Graham Chambers states that during the past five years impetigo circinata has been very prevalent in Toronto, scarcely a month passing without an outbreak of from two to thirty cases, generally traceable to a common source. The barber shop is so commonly the source that he designates the disease as "barbers' impetigo." Quite recently Dr. W. A. Hardaway has called attention to a point which he believes, and we think rightly, has been but little realized by the medical profession. That is the frequency with which carbuncles are acquired in barber shops. He has seen many cases of carbuncle in which the evidence of this means of transmission was to him indisputable. The relative importance of this serious affection as compared with the other diseases mentioned needs scarcely to be impressed. For the prevention of contagion in barber shops, Hardaway believes that we will be forced to rely upon an educated

public opinion rather than upon compulsory laws directed against the barber. He recommends that each patron of a barber shop provide himself with a box, containing his own brush and comb, a small package of absorbent cotton, and a 5% carbolic acid solution. The barber will then wipe his shears or clippers with the solution, and use the patron's comb and brush. For the man who shaves, his own soap, cup, and brush are necessities. These suggestions are sensible. To carry them out properly means some inconvenience, but it is worth while, especially to the aged and debilitated, or to those suffering from diabetes or similar diathesis. Physicians attending such patients should extend to them a warning in this regard.

The alarming increase of cocaineomania is not recognized nor the seriousness of the crime correctly estimated. Every druggist, if questioned closely, will admit the evil, and rightly or wrongly will lay the blame upon others. The number of nostrums and "patent" medicines containing the drug is increasing, and with one excuse or another, every one who wishes it can readily obtain it. A prominent physician from one of the southern States has stated that although its sale, except upon a physician's prescription, is illegal, many drug stores openly sell hundreds of ten-cent packages every day. The negroes by thousands are being ruined by the abuse, which is becoming a racial and a national problem. The more poor wretches there are who are thus reduced to destitution and degradation, the greater the expense to the community, and the more impossible becomes the solution of sociologic problems. The social wrecks and derelicts made by this illegal and criminal traffic must be cared for by the public, and hence the duty and the self-interest become imperative that for a petty profit these criminal druggists shall not be allowed to create the pitiful victims which must then be supported by the charitable, the city, or the State, until they die. One remedy for the scandal, which in other things has proved effective, is for the local Boards of Health to secure the easily obtained evidence of the illegal sales, and then to prosecute the shameless druggists to the full extent of the law. An aroused public sentiment is necessary for the extinction of the infamy.

Changing the form of medical words established by usage in order to make them conform to some supposed demand of etymology, is a dangerous and useless thing to attempt. It seems especially to afflict the ophthalmologists. Some years ago a heroic war was made upon the words *hemeralopia* and *nyctalopia*, with the object of reversing or exchanging their meanings. The result was the banishment of the words from the writing of any one who wished to be understood. Luckily they were not needed, and their death was desirable, and the artificial respirationists served in the excellent capacity of embalmers. The oculists are again hammering at one of their most used words, *astigmatism*, endeavoring to change it to *astigmia*, and as before, in the interest of etymology. One may have all the sympathy in the world for the scholarship and motive, and still smile at the futility of the attempt. A man of fifty may get the

Legislature to change his name, but unless he disappears from the places where he is known, he will hardly succeed in his attempt, and he will probably make failure ridiculous. But a word cannot leave all the places where it has been domiciled. Moreover, when looked into closely, the supposed interests of etymology are factitious and fictitious. The dictionaries will attend to the origin and histories of words; in our daily writing and speech we can pay no attention to etymologies. Those who would rechristen a few old words cannot succeed, and in almost all the other words of the language, they do not care a fig for etymology and history. There is hardly a word they use in daily speech and writing that would not have to be made over or its use discontinued if they carried out their principles. History and philologic evolution are utterly reckless of etymology and of scholastic principles. Every living word is constantly changing in spirit or meaning. Would the rechristeners and worshipers of etymology compel us to understand by the word *idiot* simply a *private* as distinguished from a *public* person? Does a *candidate* now dress in *white*? Is a *sincere* person one without wax? Would they lead *tarsus*, *carpus*, *thyroid*, *fornix*—any word of our hundred thousand—back to its original forms and meanings? It is impossible, and will end in failure. It is true that in forming a new word the coiner should be most careful about his designs and dies, but once coined, the word cannot be restamped without an utter remelting. To restamp the made coin with a new die would be crazy numismatics, would at least make numismatists crazy. The new-old coin would be very curious, perhaps, but wholly useless. Any form of word once accepted to denote astigmatism is understood, and should be left in peace. Almost all these modern scientific and medical terms were, in fact, not derived from the Greek roots. They were only said to have been derived, so that the attempt to change one form of an accepted word for another is merely to give a foundling the name of one assumed father instead of another which he has also falsely borne. It is most noteworthy in all these discussions that those who represent themselves so deeply reverent of etymology as to a few foundling words, are utterly indifferent to two greater classes of words, whose parents were really married: 1. The great mass of historically transmitted from classic sources, but changed in form and meaning from what they were in primitive times. 2. The Teutonic or Anglosaxon words which form the backbone of the language, about whose origin and history the pseudoclassic scholar is as ignorant as he is indifferent. Their spellings and meanings are also subject to the same false logic and criticism as in the case of *astigmatism*, etc. Fortunately they are too solidly settled to arouse useless and absurd controversy.

Care of the Discharges of Typhoid Fever Patients.—Moved by the sad experience of other cities as to contaminated drinking water the Wilmington, Del., Water Department has issued an admirable card for general distribution to the attendants of patients. It is herewith reproduced "for the benefit of all whom it may concern."

Typhoid fever is caused by a germ which finds its way into the food or, more frequently, the drinking water.

The germ causing typhoid fever is *invariably* derived from the stools and urine of persons suffering from the disease.

The disease may be also communicated through soiling one's hands with the discharges and then permitting the hands thus soiled to come in contact with the food.

Infection may be prevented by destroying the germs in the discharges by means of disinfectants.

Therefore, to save yourself as well as others from infection, observe the following precautions:

1. Keep on hand a 5-gallon jug or other suitable vessel filled with any one of the following solutions:

SOLUTION No. 1.—Chlorid of lime of the best quality, guaranteed to contain at least 25% of available chlorin and free from a strong odor on opening the box, 8 ounces to each gallon of water.

SOLUTION No. 2.—Formalin (40%) 5 fluid ounces to each gallon or a little over 1½ pints to the 5 gallons of water.

SOLUTION No. 3.—Carbolic acid 4 ounces to the gallon or 1½ pints to the 5 gallons of water.

The choice of any of these solutions should be determined by the ability to obtain the pure article. Whatever solution is used the vessel should be kept tightly corked.

2. Have the receptacles for the stools (bed-pan, night-chamber, etc.) provided with a closely fitting lid, or improvise a lid from several thicknesses of paper with some weight over it. It is better to have two receptacles of a kind so that a clean one may be always on hand for the patient's use.

3. When required for use, put 1 pint (2 glassfuls) of the disinfectant into the vessel (or if the urinal is used, a quarter of a pint) so that the discharges may come in contact with the disinfectant on their very issue from the body. No harm is done if some of the disinfectant should happen to spill on the bed-clothes.

4. Remove the vessel containing the discharges to some secluded place in the house, add enough of the disinfectant to completely cover the discharges, stir up the contents with a small stick, replace the lid and allow it to stand for at least two hours. Remember that the longer you permit the discharges to come in contact with the disinfectant the more harmless do they become and the less obnoxious to handle.

5. If there is no water-closet in the house, the discharges, after the disinfection, should be buried in the soil at least 100 feet from any well or stream.

6. When your hands become soiled with the discharges, they should be washed, first in the disinfectant (neither of the disinfectants will injure the skin) and then with soap and water.

7. All articles of the patient's clothing which have become soiled, and all the sheets, towels, napkins, etc., used by the patient should be kept in Solution No. 2 or 3 (not in Solution No. 1) until they are washed.

8. Use the disinfectant freely on all occasions requiring cleansing of soiled surfaces, and remember that "an ounce of prevention is worth a pound of cure."

Additional Prize Awarded.—The Osiris prize of \$20,000 has been divided between Mme. Curie and Dr. Edward Branly, the former receiving \$12,000 and the latter \$8,000. Mme. Curie first began the researches on polonium and radium. A study of uranic radiation by M. Becquerel had led her to these investigations. Her husband, finding her studies intensely interesting, helped her in her experiments, and thus together they discovered the properties of radium. The second part of the Osiris prize is awarded to Dr. Edward Branly. The French consider him the real inventor of wireless telegraphy, though they do not deny that Marconi was the first to practically apply it. He is the author of numerous scientific works, and is a practising physician. This Osiris prize, valued at \$20,000, was placed in the hands of a committee of the Parisian press as early as 1897, to recompense the greatest invention and greatest humanitarian work exhibited at the Exposition of 1900. The committee failing to find anything that merited it, has held it until now. Mr. Osiris pointed out that Mme. Curie, having the greater part in the discovery, merited a separate reward. Dr. Roux, of the Pasteur Institute, won the institute's \$8,000 Osiris prize this year, refusing it for himself, but accepting it for the institution.

AMERICAN NEWS AND NOTES.

GENERAL.

Bequests to Charity.—PHILADELPHIA: By the will of Harriet Richards, \$46,500 is left to various Catholic institutions, mostly in Philadelphia. By the will of Conrad B. Day, \$4,000 is left to public institutions in Philadelphia.—BALTIMORE: By the will of John Q. A. Holloway, \$9,100 is left to Catholic institutions, mostly in Baltimore.

To Display Antispitting Ordinance.—The Health Department of Baltimore has had 50,000 cards printed calling attention to the law prohibiting spitting on the floors of street cars and in public buildings. These cards will be distributed among car conductors and custodians of public buildings for proper display. Health Commissioner Bosley says he wants the public to know that there is an antispitting law and that the cards will act as a deterrent of the spitting habit.

Pure Food Bill Passed the House.—The House of Representatives has passed the pure food bill by a vote of 201 to 68. The amendment, inserting the word "willful" with reference to persons who sell adulterated or misbranded goods, and which would have compelled the Government to prove intent to violate the law by the vendors, was stricken out on a yeas and nays vote in the House. The bill fixes the standards of foods and drugs as to their purity, strength, and character, and defines what shall be considered adulterations or misbranding of foods and drugs. It also prohibits interstate commerce in or importation and exportation of such misbranded or adulterated articles.

Examination for Medical Clerk.—The United States Civil Service Commission announces an examination on February 17-18, 1904, at many places in the United States to secure eligibles from which to make certification to fill 18 vacancies in the position of copyist (male), at \$900 per annum, in the Bureau of Pensions, and other similar vacancies as they may occur. Age limit, 25 to 30 years. Only graduates of recognized medical schools may be examined. This examination is held to establish a register of eligibles with a knowledge of medicine, and is open to all citizens of the United States who comply with the requirements. Competitors will be rated without regard to any consideration other than the qualifications shown in their examination papers, and eligibles will be certified strictly in accordance with the civil service law and rules. Persons who desire to compete should at once apply to the United States Civil Service Commission, Washington, D. C.

Miscellaneous.—DR. YAMEI KIN, the first Chinese woman to take a medical degree in the United States, is on a visit to this country from her home in Ning-Po, where she was born. Dr. Yamei graduated from the New York Medical College about 10 years ago. Then she returned to China, where she practised medicine. The doctor, who is highly educated and well versed in languages, is an earnest worker in the cause of uplifting her fellow countrywomen. She will remain in America for a year or more.—PHILADELPHIA: Dr. THOS. G. ASHTON has been elected professor of clinical medicine in the Polyclinic Hospital to succeed Dr. Judson Daland, resigned. After February 1, Dr. Guy Hinsdale will practise at Hot Springs, Va.—"INTERNATIONAL MEDICAL JOURNAL": It is reported this journal will cease publication with the issue for January, having been consolidated with the *Archives of Pediatrics*. Both journals have been published by E. B. Treat & Co., of New York. The editorial and other management will be that at present in charge of the *Archives of Pediatrics*.—"INTERNATIONAL MEDICAL JOURNAL": The January number of this journal contains a critical review of the progress of medicine during the year 1903. The subjects of internal medicine, surgery, therapeutics, pathology, bacteriology, gynecology and obstetrics, pediatrics, orthopedics, neurology, genitourinary surgery, dermatology and syphilis, laryngology and otology, and ophthalmology are each taken up and reviewed critically, and the important discoveries and advancements of the year are interpreted and presented in a readable light. This represents a somewhat unusual variety in medical journalism—one which is commendable and instructive and interesting to the profession.—UNIVERSITY OF PENNSYLVANIA: At the December meeting of the trustees of the University of Pennsylvania the following physicians received appointments: Fred. M. Paul appointed assistant demonstrator of anatomy and prosector to the associate professor of applied anatomy; H. B. Aliyn, Bernard Kohn and Joseph Evans, instructors in medicine; R. Max Goepf, instructor in physical diagnosis. At the November meeting the following appointments were made: E. Hollingsworth Siter, instructor in genitourinary diseases; Albert P. Francine, instructor in clinical medicine; Chas. H. Hatfield, instructor in medicine; Tasker Howard, assistant demonstrator of physiology; Walter S. Cornell, assistant demonstrator of anatomy; Frank A. Craig, assistant demonstrator in medicine; Leo Loeb, William T. Cummins, and Henry R. Alburger, assistant demonstrators of pathology.—"THE JOURNAL OF INFECTIOUS DISEASES": The first number of this new journal is dated January 2, 1904. As understood, the purpose of this journal is to be

confined exclusively to investigations relative to the infectious diseases. It will not be published regularly, but at such times as is deemed wise by those in charge. The journal is unique in being the only endowed medical journal in the United States. The present number consists of more than 200 pages, and contains a number of scientific and valuable articles.—**BULLETIN OF THE AYER CLINICAL LABORATORY:** The first number of this Bulletin just issued is dated October, 1903. It is the result of the deep interest taken in the promotion of the laboratory by the late Dr. Thomas G. Morton, and the generosity of Frederick Fanning Ayer. Succeeding numbers will be issued as valuable scientific material is accumulated. Dr. Simon Flexner announces that the Bulletin will be sent to those making request for it. It is issued from the laboratory of the Pennsylvania Hospital, Philadelphia.

EASTERN STATES.

Health and Changed Methods of Living.—It seems that all the means once reckoned upon as sure to invite colds will have to be considered as obsolete as are the heroic remedies for these afflictions that our grandmothers used. Once it would have been thought extremely imprudent to wash even the face in cold water on a winter morning, and here we are, all of us, taking icy baths, sponge, plunge, or shower, every morning of our lives as a means of keeping ourselves free of colds, and in a generally healthy trim. Nowadays, there are all the boys and girls who go bareheaded and don't know what a "violent cold" is, and the persons who sleep out of doors and boast of it, and the army of folk of all ages who will have none of the heavy clothing, to show that the ideas of our ancestors on the matter of "getting cold"—all of them, except rare Ben Franklin, who held precisely the views of today—were all fudge. We wonder what the attitude of those who compose the generation 3 times removed from the present one will be on the subject of colds.—[Editorial, *Boston Transcript*.]

Public Health in the Philippine Islands.—According to the *Boston Transcript*, 2 significant facts are brought out in the report of the Board of Health for the Philippine Islands for last July. One is that the public health should not be placed in the hands of the local Filipino authorities for administration, and the other is that the climate is not so severe upon the Americans as has been generally understood in this country. The deathrate in Manila in July is remarkably high, varying from 37.88 per thousand in 1900 to 107.02 in 1902, and 83.21 last year. Yet the rate among Filipinos last year in July was 35.32 per thousand, and among Americans only 10.74. This high rate is largely due to the cholera, of which there were 24 cases in Manila last July, although only 1 was of an American. The cholera appeared near the source of Manila's water-supply, and threatened the city with an epidemic, as the local authorities paid little attention to it. The Americans promptly organized a sanitary service and quarantined the infected towns, stamping out the outbreak within 30 days. The difficult problem presented was handled with energy and discretion, 2 qualities which were noticeably absent in the local Filipino health officials. It is apparent, however, that the city of Manila needs some one to do for it the splendid sanitary work which was done for Havana by the late George A. Waring.

NEW YORK.

Cornell University Medical College.—The Faculty has inaugurated a new scheme in the lines of instruction given by the subordinate professors and their assistants, a number of whom are conducting more or less specialized lines of research in which they excel. In the department of general surgery, Professor Kammerer will lecture to students upon intestinal obstruction, and Professor A. B. Johnson upon the surgical disorders of the breast. In general medicine, Dr. Conner will take up the subject of the ductless glands, and Dr. Camac the practical aspects of infection and immunity. In general pathology, Professor Ewing will lecture upon the scientific mechanism of immunity. Dr. Schlapp will follow with a few lectures upon localization in the central nervous system, and Dr. Schultze will end the course with a few lectures upon cerebral hemorrhage.

Preventing Pneumonia.—The advisory board of the Department of Health has given out a statement, which, in part, is as follows: "The present increase in pneumonia of various types is a source of solicitude to those having the interest of the public health in charge, for it has been fully established that a certain proportion of cases of pneumonia are communicable and by proper care their spread may be prevented. The various forms of acute pneumonia which are now prevalent, both in adults and in children, are incited by bacteria. Exposure, cold, overexertion, lack of physical vigor, and abuse of the use of alcohol, predispose the individual to pneumonia, but are not its direct causes. The bacteria are usually conveyed in the dust of the air contaminated by sputum and nasal or other discharges. It is of urgent importance that the regulations of the Health Department for the suppression of the filthy and dangerous practice of spitting upon floors, pavements, or other unsuitable places should be rigorously enforced. Feather dusters should be abandoned and moist cloths used for dusting. When practicable sweeping should be done in the evening."

PHILADELPHIA, PENNSYLVANIA, ETC.

Hospital at Orange Quarantined.—Under orders from the Board of Health the Orange Memorial Hospital was placed under quarantine January 18, because of diphtheria in the institution. One of the rules of the hospital is that no contagious disease shall be received, but these cases developed in persons suffering from other illnesses.

Smallpox Increases in Philadelphia.—According to the report to the Bureau of Health, there were for the week 106 new cases, with 14 deaths, an increase of 44 cases and a decrease of 10 deaths, as compared with the preceding week. The week's returns establish a new record for the winter, the highest previous number for a week being 99 cases, in November.

Talks on School Hygiene.—Under the auspices of the Board of Education, a series of lectures on school hygiene are to be delivered by prominent physicians of Philadelphia. Dr. S. Weir Mitchell will deliver the first of this series and will discuss "Nervous Diseases, Their Causes and Effects." Later, during the winter and spring other lectures will be delivered on appropriate subjects by other physicians.

Typhoid Fever at Kittanning.—The State health authorities and the local Bureau of Health at Kittanning, Pa., are at loggerheads. On account of the prevalence of typhoid fever and the increasing number of new cases occurring daily the State representative had placards placed in the hotels, cafes and bars of the town warning the people against drinking the water from the taps. The local authorities ordered all the placards removed, which has been done.

Health Conditions in Pittsburg and Allegheny City.—Contagious diseases and deaths from same reported to the Pittsburg Bureau of Health for the 14 days ended January 9, 1904: Smallpox 36 cases and 8 deaths; diphtheria 35 cases and 10 deaths; scarlet fever 39 cases and 5 deaths; typhoid fever 200 cases and 23 deaths. There were 30 deaths from tuberculosis and 54 from pneumonia. Total deaths from all causes 348, in a population of about 354,000. Contagious diseases reported to the Allegheny Bureau of Health for the 14 days ended January 9, 1904: Smallpox 16 cases; diphtheria 44 cases; scarlet fever 15 cases; typhoid fever 18 cases.

The Noise of Trolley Cars.—An exchange says: "The health authorities in New York have rightly decided that the nerve-shattering thumping of the trolley cars caused by 'flat wheels,' is a subject calling for their intervention, and they have taken up the matter with the street railway corporation. It would be too much, perhaps, to say that every other car in Philadelphia is afflicted with this defect; but it is indisputable that the proportion is very large, and the evil is one which cries aloud for remedy every hour of the day and night. Those who live near the Rapid Transit lines can testify to this. Whether the subject calls for police regulation or for control by the Bureau of Health may be an open question; but no one will dispute the need for a remedy. Of course, to keep the car wheels in proper condition would mean expense to the companies; but, on the other hand, the wear and tear on the rails from the constant hammering would suggest the necessity for action without waiting for compulsion."

Milk Supply in Philadelphia.—Dr. Leonard Pearson, State Veterinarian, is reported as saying: "The great bulk of the milk at present being shipped into Philadelphia is wholesome enough, but notwithstanding the efforts of the inspectors, enough contaminated milk is sold here daily to destroy many lives. The reason is that the middleman, who is the dealer, seldom visits the farm where the milk which he distributes is produced, and in his dealings forces the farmer down to the last cent. I regret that we have no regular inspection of the dairies from which we receive our milk. One would naturally expect that the milk purchased by benevolent institutions like our hospitals would have been specially scrutinized, but when an inquiry was started, it was found that only 3 of our hospitals paid any attention to the purity of the milk they fed their patients. The others not only purchased the ordinary market milk, but the determining question as to who should be selected to supply it was the question of price. Through the efforts of the Health Bureau, all the hospitals are now using pure milk."

SOUTHERN STATES.

Bureau of Chemistry at Washington, D. C., to be Enlarged.—It is proposed to enlarge the scope of the Bureau of Chemistry to include the Bureau of Foods, and impose upon it the duty of performing all chemist work for the other legislative departments. This bureau will be charged with the duty of inspecting food and drug products which belong to interstate or foreign commerce. The Secretary of Agriculture is given authority to employ such chemists, inspectors, clerks and laborers as may be necessary for the enforcement of the act. One section of the bill provides penalties for the introduction of adulterated or misbranded foods or drugs and another section requires the Secretary of Agriculture to prescribe rules and regulations to govern the Director of the Bureau of Chemistry and Foods in examinations of articles required to be inspected under the law.

WESTERN STATES.

Typhoid Fever at Leadville.—It is reported that a serious epidemic of typhoid fever prevails at Leadville. There were 500 cases of the disease in Leadville on January 21. The situation is serious, not only because of the rapid spread of the disease in Leadville, but from the fact that there is danger of the Arkansas river becoming contaminated, which would jeopardize the health of thousands of persons along its banks.

Antitoxin Should be Made at the University.—The Bulletin of the Chicago Health Department says: "The earliest period at which relief can be afforded by the production of antitoxin at the State University—which would seem to be the proper agency—will not be much less than 4 months, but during this time all needed antitoxin for the treatment of diphtheria among the poor and destitute of the city will be provided in some way."

Prevention of Tuberculosis in Minneapolis.—Minneapolis is added to the cities leagued in active campaign against the ravages of tuberculosis. The base of operations will be the Department of the Associated Charities for the Prevention of Tuberculosis. The committee in charge of this department is just completing its organization, which is modeled somewhat on that of the similar committee of the New York Charity Organization Society.

Comparison with Reference to Tuberculosis.—The Bulletin of the Chicago Health Department says: "A comparison of the New York with the Chicago figures of deaths from pneumonia and tuberculosis up to January 2—date of the last New York report received—shows a close agreement as to pneumonia, but a wide difference as to tuberculosis. The pneumonia deaths formed 18.6% of the total mortality in Chicago and 18.7% in New York. On the other hand, while the tuberculosis deaths were 12.1% of the total deaths in New York, they were only 9.3% in Chicago. Chicago's deaths from tuberculosis were 30% less than New York's."

Inspection of Private Hospitals in Chicago.—The Bulletin of the Chicago Health Department says: "Another and more rigid inspection of private hospitals, with special reference to their precautions against fire, was begun during the week. The last previous inspection, in the spring of 1902, was made by the Building Department alone. The one now being made is under the joint direction of that Department and the Department of Health—a building inspector and a medical inspector working together in each investigation, and making joint reports to each Department. In this way it is hoped to secure better results in the matter of prompt remedy of defects discovered."

Infant Mortality in Chicago during 1903.—The Bulletin of the Chicago Health Department for the week ended January 2, says: "The disastrous effects on child life—threatened by the barbarous action of the milk-wagon drivers in refusing to make more than one delivery of milk a day—were largely overcome by the relatively cool weather of the summer, by unusual effort in milk inspection (including the employment of an emergency corps of inspectors, known as 'milk scouts'), and by an enormous development of the sterilized milk service fostered by the Woman's Club and Hospital Association. As a matter of record the mortality of infants and young children during 1903 was lower than ever before known—8.8% less than in 1902, 9.4% less than in 1901, and 57% less than the average of the period between the 2 census years, 1890 and 1900. In 1891 the deaths of children under 5 years of age numbered 110.38 in every 10,000 of population; in 1903 they were only 41.7."

Mortality and Morbidity in Indiana in December.—The monthly report of the Indiana State Board of Health says: Measles was reported from all parts of the State in December. There were 9 deaths, and the lowest estimate of cases is 10,000. Tonsillitis was second in prevalence, many of the cases, no doubt, being diphtheria. Pneumonia was third in prevalence, then rheumatism, bronchitis, influenza, smallpox, scarlet fever, typhoid fever, diphtheria, and diarrhea, in the order named. **Smallpox.**—Five hundred and twenty-three cases with 2 deaths, in 40 counties, was reported. In the corresponding month last year there was reported 642 cases with 17 deaths, in 40 counties. Almost half of the cases, 812 in number, were reported from Clay county. The first marked epidemic of smallpox occurred in Clay county 4 years ago, and despite many deaths and a great number of severe cases, it has been impossible to secure general vaccination. **Tuberculosis.**—The deaths in this month numbered 371, a rate of 173.9 per 100,000. In the same month a year ago, the deaths numbered 319, rate 149.5. Of the deaths 165 were males, and 206 females. Of the males, 29 were fathers, between 18 and 40, and left 58 fatherless orphans under 12 years of age. Of the females, 76 were between 18 and 40, and left 151 motherless orphans under 12 years old. How many of these will find their way into orphans' asylums, and how many of the 29 widows will now need aid from the public, cannot be told. Typhoid fever caused 65 deaths. In the same month last year 91 deaths were reported. Fifty-eight of the 92 counties reported the disease present, 701 cases in all. **Pneumonia** caused 392 deaths; rate, 183.8 per 100,000. In the same month last year, 267 deaths were reported, a rate of 125.1. The city rate was 275.1,

the country 136.5. By other causes than above, the deaths were: Diphtheria, 54; scarlet fever, 34; diarrheal diseases, 23; cerebrospinal meningitis, 34; influenza, 35; puerperal fever, 10; cancer, 91; violence, 153.

FOREIGN NEWS AND NOTES

GENERAL.

Smoke of Cigarets Harmful.—A German chemist, Dr. J. Pontag, has been analyzing the smoke of the cigaret and he finds therein a harmful amount of hydrocyanic, alias prussic acid, one of the most energetic poisons; pyridin, ammonia, nicotin, and carbonic oxid. The smoker will be interested, if not delighted, to learn that about half of the nicotin originally in the tobacco remained in the smoke, but the proportion was found to depend largely upon the length of the mouthpiece. The chemist or physician who has a good word to say for the physiologic effects of cigaret smoking has yet to be discovered, but the smoking goes on all the same.—[*London Telegraph*.]

OBITUARIES.

Needham M. Wilson, at his home in Philadelphia, January 19, after three months' illness, aged 67; a graduate of Jefferson Medical College in 1865. He was widely known in the vicinity in which he lived, where he had a secure place in the hearts of all those who knew him. He was a Mason and a member of Jefferson Medical College Alumni Association.

Edmund S. Hanna, at his home in East Orange, January 17; a graduate of Jefferson Medical College in 1850. He at one time practised in Pittsburg, and was surgeon to the Lehigh County Workhouse and Children's Church Home, the Baltimore and Ohio Railroad, and the Lehigh Valley Railroad for many years. He retired from practice in 1888.

Robert Sharp committed suicide at his home in Atglen, Pa., January 20, by shooting himself through the heart. Worry from being afflicted with Bright's disease is said to have caused the rash act. He was a graduate of Jefferson Medical College, Philadelphia, in 1881, and at the time of his death was 52 years of age.

James P. Henry, at his home in Independence, Mo., January 13, aged 85. He was a graduate from the Transylvania University, at Lexington, Ky., and began the practice of medicine in Independence in 1849. This venerable physician was widely and favorably known in the locality in which he lived.

Benjamin G. Dysart, at his home in Paris, Mo., from pneumonia, aged 70. He was a graduate of Jefferson Medical College in 1859; he was surgeon to Cockrell's Brigade of the Confederate army during the Civil war, and many stories are told of his personal bravery.

Edward B. Dana, Jr., at his home in Metuchen, N. J., January 21, of pneumonia, aged 43; a graduate of the College of Physicians and Surgeons, N. Y., in 1889. He was president of the Board of Health and of the Board of Education in his home city.

Harvey C. Fraker, at his home in Columbus, Ohio, January 9, from aneurysm of the aorta, aged 53; a graduate of the University of Wooster, Cleveland, in 1873, and professor of pathology in the Ohio Medical University.

Francis Woodley Harrell, recently, at the Waldorf-Astoria, New York, with double pneumonia, aged 44. He was a graduate of the University of Maryland, and had for a number of years resided in Mexico.

Alban Spooner, at his home in Beverly, N. J., January 18, aged 26; a graduate of Hahnemann Medical College, Philadelphia, with which institution he was connected at the time of his death.

Charles W. Bishop, was killed by a street car accident, in Chicago, January 11. His home was at Tinley Park, Ill. A graduate of the Bennett College of Eclectic Medicine and Surgery, in 1878.

J. E. Pierce, at his home in Middletown, Ind., January 9, from a gunshot wound of the head, aged 40; a graduate of the College of Physicians and Surgeons, Indianapolis, in 1895.

Virgil M. D. Marcy, at his home in Cape May, January 21, aged 81; a graduate of Yale College, in 1844 and of the University of Maryland, in 1846. He was prominent in masonic circles.

Galus A. Nash, for many years a wellknown physician in New York City, died on Saturday at his home. He was 78 years old, and had been practising in that city fifty years.

Frederick H. Stahle, of San Francisco, committed suicide by inhaling illuminating gas, January 5, aged 41; a graduate of Cooper Medical College, San Francisco, in 1888.

William H. Neville, of Philadelphia, died suddenly in a street car, January 22, aged 64. He was a graduate of the Hahnemann Medical College.

M. Marcus, at his home in Philadelphia, recently, in his 27th year; a graduate of the Medico-Chirurgical College. His death was caused by pneumonia.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

AN IMPROVED SNARE FOR THE REMOVAL OF THE FAUCIAL TONSIL.

BY

CHARLES NELSON SPRATT, B.S., M.D.,
of Minneapolis, Minn.

The removal of the faucial tonsil by means of the tonsillotome is so frequently followed by severe hemorrhage, especially in adults, that the use of this instrument involves considerable danger, and one that is too often underrated. Fatal cases are rare, it is true, but severe bleeding is frequent. The older the patient the greater is the danger. In the child the tonsil is generally soft, hemorrhage is brisk, but soon ceases. As adult life is reached, fibrous tissue is present in greater amount, the bloodvessels are larger, and their elastic walls collapse less easily. Hemorrhage is therefore frequent, profuse, and prolonged.

During my service on the house staff of the New York Eye and Ear Infirmary, over 900 operations were done for the removal of hypertrophied tonsils. Practically all of these were performed on patients under 12. In only 3 cases was there severe hemorrhage following the operation. During this period there were also 18 operations of the same nature done upon patients over 17. Among this comparatively small number, hemorrhages which were severe and alarming, at least to

loop rests in a groove in the ring and is not exposed until the slide on the handle is pulled. A pin in the instrument just back of the ring prevents the wire being pulled into the canula. This obviates the inconvenience of rewiring the instrument each time it is used. All that is necessary is to reform the loop and place in the groove. If the tissue is very fibrous, the screw wheel will bring sufficient tension on the wire to cut the toughest tonsil.

The advantage of this snare over the simple wire loop is that the tonsil is forced through the fenestrum and then cut by the wire. The loop being concealed in a groove inside the ring, is entirely out of the way until the tonsil is well engaged. I have used the slide on the handle on account of its simplicity. If desired, however, the more complicated and expensive Farlow handle can be used, the ring with the hidden wire loop being the important feature of the instrument.

In concluding, I wish to emphasize the following points:

1. The tonsillotome is not a safe instrument to use on adults.
2. The instrument described is just as convenient and simple in action as the tonsillotome, but is without its dangers.
3. As the tonsil is forced through the fenestrum by the pressure of the ring on the tissue about the gland, the use of the vulsellum forceps is unnecessary, and the operation may be done by the sense of touch.
4. The instrument does not require rewiring during the operation.

NOTE.—The illustration of the snare shows the screw wheel entirely too large. For this reason the instrument has a clumsy appearance. A properly made instrument is manufactured by Codman & Shurtleff, Boston.

CONCERNING PRODUCTION OF ANTITOXIN.

To the Editor of American Medicine:—Your editorial of January 23, in which you suggest "the appointment of a committee of experts, medical men and pathologists, whose names alone would be a guarantee of confidence in their report, and who should at once investigate the facts and end a doubt which is harmful alike to the manufacturer, the physician, and the community," on the question of a trust having been formed to raise the prices of antitoxin, is to the point.

Serum therapy proves one fact, that it is impossible to completely neutralize a toxin by an antitoxin, for free portions of both substances are always present in any mixture that may be made. It is therefore necessary that a surplus of the antitoxic substance be present to render the toxic substance inert. This means that large doses of antitoxin are necessary. Authorities are agreed upon the fact that whatever irritation may occur to the body of the patient is caused entirely by the serum; consequently, large doses of concentrated antitoxin are required to secure the best results.

We have been preparing antitoxin especially to meet the demand of American physicians for the past 9 years. At first there were 3 grades of antitoxin offered, known as "Standard," containing 100 units per cc.; "Potent," containing 250 units per cc.; "Extra Potent," containing 500 units per cc. The demand being principally for the 2 latter strengths, we, some years ago, cut out the weaker strength entirely, and placed but 2 potencies of serum on the market, known as Standard, containing 250 units per cc.; Concentrated, containing 500 units per cc.

The demand for the higher potency serum has largely increased during the past 2 years, while the demand for the weaker serum has materially diminished; consequently, on January 1 we decided to discontinue offering the lower potency serum, and offered but one strength, corresponding to the higher potency.

We had not supplied the Chicago Board of Health, nor would we, since the price at which they were purchasing their supply was less than what it could be made for; and as we discontinued offering the weaker product, when we were asked for quotation by the Chicago Board of Health, we quoted the high potency serum only. Had we been requested by the Secretary of the Chicago Board of Health to furnish a lower potency serum, we should have been pleased to quote a price at about cost of production.

In determining to offer but one potency of antitoxin we felt

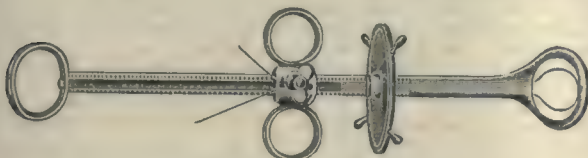


Fig. 1.—Tonsil snare.

the patient and his friends, followed in 6 cases. By a severe hemorrhage is meant a loss of 500 cc. or more of blood. In 2 cases each patient lost more than a liter by actual measurement. Two other patients, while not losing so much, showed signs of collapse. In children, after the combined adenoid and tonsil operation, a loss of 150 cc. of blood is unusual. The average amount is between 90 cc. and 120 cc. These facts convince me that the tonsillotome ought never to be employed in operating on adults. The cold wire snare is safer, and ought to be the instrument used, as the removal of a hypertrophied tonsil is then followed only by moderate oozing.

When the patient is not under a general anesthetic, the simple wire loop is quite satisfactory. If the patient is anesthetized, and is on his back, the instrument shown in the accompanying illustration (Fig. 1.) has proved more satisfactory, as no vulsellum forceps are required, and the operation can be done by the sense of touch, just as when a McKenzie

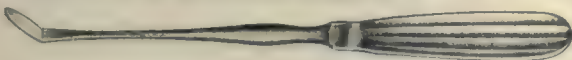


Fig. 2.—Tonsil separator.

tonsillotome is used. The instrument is similar to the tonsillotome, the sharp blade being replaced by a wire loop. Like all other snares, this is not suitable for the removal of the flat, submerged tonsil. In such conditions the punch forceps are to be used.

The tonsil is first well separated from the pillars by any suitable instrument. I use the one shown in Figure 2. This resembles an Asch separator with a longer shank and a larger handle. The patient's jaws are well opened and strong pressure is made by the assistant beneath the angle of the patient's jaw. The ring with the oval fenestrum is firmly pressed against the tonsil. The gland is thus forced through the opening, and the wire is drawn tight until the base is cut through. The wire

that the poor were entitled to receive the same advantage of concentrated serum as the well-to-do. We have, however, always endeavored to meet every reasonable demand that has been made for legitimate preparations, and if the Board of Health of Chicago, or any other city or State, request a low potency serum, we shall be glad to furnish it, and at about cost.

Meanwhile, if the city of Chicago, or any other city having a regularly organized health department, refuses to supply reputable physicians with antitoxin for the treatment of the needy poor, we shall be glad to donate sufficient antitoxin to meet such emergencies. The conscientious manufacturer recognizes the importance of saving life from diphtheria, and protecting those exposed to contagion by immunization, just as thoroughly as can the conscientious physician.

Every package of antitoxin is dated, and we exchange for a fresh supply any serum not used within the time specified on label.

Our experience having proved that American physicians demand the more concentrated product, since at least two-thirds of all the lower potency distributed was returned to us for exchange; and since this exchange added a very large expense to the cost of antitoxin, we believed that by having but one strength of serum, and that the higher potency, we would meet the demand of physicians and that returns would be largely controlled, and in this way we could save the expense of exchange and thus warrant the reduction in price. This is exactly what has been done. We are now offering but one grade of antitoxin, practically corresponding in strength to the former concentrated serum, and have reduced our prices as follows:

	Present Price	Former Price
500 units	\$1.10	\$1.25
1,000 units	2.00	2.25
2,000 units	3.50	4.00
3,000 units	5.00	5.75
4,000 units	6.50	7.50

or an average reduction of 15%.

The firms engaged in producing antitoxin have invested millions of dollars, and are safeguarding the production of the serum by every means that science, skill and money can command. Furthermore, we recognize that it is only by producing the highest standard of quality that such a business can be successfully continued.

The expense of preparing antitoxin during the past few years has increased enormously. To this expense must be added the cost of syringes, needles and the various devices for injecting the serum direct to the patient. In spite of this extra expense, however, we believe that the cost of distribution will be so materially decreased by reducing the returns for exchange of the lower potency serum, that the reduction in prices noted above, can be made.

We do not consider it practicable or desirable for city or State Health Departments, as at present constituted, to furnish antitoxin, because such departments are continually changing, through political influence. The experience of Naples, and the more recent one of St. Louis, show what may occur in municipal laboratories, where appointments are made irrespective of ability.

To the best of our knowledge, not a single accident can be traced to the products of private laboratories, where the directors and assistants are chosen solely by their scientific attainments and sterling integrity, and not through any political or outside influence. It never enters the manufacturer's mind to consider whether an employe is affiliated with either of the leading political parties, or if he has any political influence.

There is no trust existing among the manufacturers of antitoxin, nor do we believe such an organization is possible, since the preparation of antitoxin is only a portion of the general business of each firm.

The United States Government has strict regulations safeguarding the production of serum, and furthermore, the products are purchased, from time to time, in the open market and subjected to tests, and it would be little short of folly for any firm to attempt to place an inferior product on the market.

Relative to the profits accruing from the production of antitoxin, we shall be gratified to have any committee of

experts examine our books and ascertain the exact profits earned in the production of antitoxin.

As purveyors to the medical profession, we should consider that we were but poorly repaying the confidence which the American physicians have shown in our products, by not protecting and safeguarding their very best interests, and we hold that all efforts made to raise the standard or quality of a preparation such as diphtheria antitoxin, are to be regarded as a benefit to the physician and the general public.

H. K. MULFORD COMPANY,
H. K. MULFORD.

A CASE OF MULTIPLE ADENOMA OF THE PROSTATE, COMPLICATED BY VESICAL CALCULUS. PERINEAL PROSTATECTOMY.

BY

G. FRANK LYDSTON, M.D.,
of Chicago.

Professor of Genitourinary Surgery and Syphilology, State University of Illinois; Attending Surgeon, St. Mary's and Samaritan Hospitals, etc.

J. L., aged 59, a retired merchant, was referred to me by Dr. C. H. Stimson, of Newark, Ohio. Aside from his urinary disturbance, the patient had always been a very healthy and active man. For a period of more than 10 years he had been troubled with frequent micturition. For several years past urination had been very frequent and painful; the urine had been loaded with pus. There had been from time to time slight hematuria. For some time past there had been a gradual loss of flesh, the patient being some 20 pounds under normal weight. Examination showed a very marked, uniform enlargement of the prostate, with a large median tumor. There was 3 ounces of purulent residual urine which, aside from the pus, was normal. Careful examination failed to detect stone. No cystoscopic examination was made, as instrumentation was extremely difficult and painful, being also attended by hemorrhage. A further consideration was the fact that a long cystoscopic examination would only complicate matters, as operation was to be performed anyway.

Operation.—After 5 days' preparatory treatment, perineal prostatectomy was performed. A Y-shaped incision was made and my prostatic tractor employed. By the use of this instrument there was, as is usual, no difficulty whatever in bringing the prostate well down into the perineal wound. The operation was somewhat prolonged because of the number of tumors, although there was very little difficulty in shelling them out with the finger. The lateral lobes contained 15 distinct adenomas of varying size. After their removal, a large sessile median tumor was delivered by a volsellum, and freed from its attachments by the finger with great ease. Beneath the median growth, completely concealed by it, and occupying a concavity on its interior surface, was a good-sized calculus. This rolled out on to the floor of the bladder as soon as the median "lobe" was delivered, and was readily removed with the forceps. Including the median lobe there were 15 separate and distinct adenomatous tumors in all. The hemorrhage during the operation was very slight, as is usually the case when it is practicable to enucleate entirely with the finger. The bladder was drained by a large perineal tube, which was removed on the fifth day. On the eighth day following the operation, micturition occurred *per vias naturales* and on the fourteenth day the patient left the hospital and reported at my office, having almost complete control of the vesical sphincter, and micturition being normal in frequency.

RÖTHELN—UNPUBLISHED SYMPTOMS.

BY

J. D. MADDOX, M.D.,
of Rockport, Ohio.

To the Editor of American Medicine.—In an epidemic of röteln or German measles now under observation I notice two symptoms constant in every case so far, that I have failed to find mentioned by any author I have consulted; viz., a bloody discharge from the nose as if produced by rupture of the engorged capillaries; and soreness, stiffness and swelling of the fingers, soreness and sometimes stiffness of the wrists, elbows and knees, and less frequently of the ankles, as if there was present transient inflammation of the synovial membranes. In some cases also there seems to be the same condition present in the sheaths of some of the tendons. Have these been referred to by any writer?

ORIGINAL ARTICLES

THE DIAGNOSIS AND TREATMENT OF GALLSTONES.¹

BY

MAX J. STERN, M.D.,

of Philadelphia.

I spent the last spring and part of the summer with Professor Hans Kehr, in Halberstadt, Germany, at his private clinic and received my special training in the diagnosis and treatment of gallstones from him. I have imbibed his views, and in presenting this paper it must be understood that the vast majority of the opinions I present are those he has either communicated to me in person or has given me the privilege of freely drawing upon from his numerous writings.

There is an absolute essential to the correct understanding of the etiology of gallstones, and that is a thorough knowledge of the pathologic anatomy of the disease. No one can successfully—it would be better if I said intelligibly—treat a case of gallstones, certainly not operatively, unless such knowledge has been previously acquired. It is obvious, where this has been obtained on the living subject, it is of infinitely greater value than when acquired on the postmortem table or in the dissecting-room. When one considers that a keen observer like Kehr has operated in nearly 800 cases of gallstones it is not to be wondered at that he should have attained a remarkable proficiency in the diagnosis and treatment of this affection. I look upon myself as extremely fortunate in having been able to obtain my training from so ripe a teacher. While my experience in this affection has been infinitesimal as compared to his, yet it must be borne in mind that I had the advantage of his riper judgment and had the benefit of receiving maxims that he had to correlate from a vast experience.

Diagnosis.—Gallstones are probably one of the most common affections to which human flesh is heir. Kehr believes that one in every ten adults is the subject of gallstones. But it must be borne in mind that gallstones in themselves do not produce the phenomena with which we are familiar and which we associate with the diseases that are found in combination with these concretions. Riedel says that only about 5% of those affected ever have cause to consult a physician because of their presence. There is, then, another element which must exist in addition to the gallstones to produce the phenomena of gallstone disease. This element is inflammation, and inflammation is infection, hence gallstones plus infection are the essential features of gallstone disease. For want of a better term, the name latent has been applied to a collection of gallstones in the biliary passages which are not or have not been associated with acute or chronic inflammatory processes. Subjects afflicted with this condition may pass through life without ever experiencing any inconvenience from the concretions. We have then to deal with the 5% which become infected. It is now scarcely needless to say that when the term cholelithiasis is used by me it must be understood to apply only to cases in which there is infection with the concretions; the other cases are of absolutely no concern to either physician or surgeon. That this view has not yet received general acceptance can best be illustrated by a remark made to me recently by one of our eminent surgical associates. He stated that "if he knew his gallbladder contained calculi, colics or no colics, he would have them out at once." I sincerely hope for the good of humanity that this view will never prevail.

The first expression of cholelithiasis is pain—and this is the announcement of an acute infective process in the gallbladder. Pain is what we are summoned to allay and is undoubtedly in the vast majority of cases the most prominent symptom of gallstone disease. The

pain is infinitely variable, and may differ from a slight discomfort, a sensation of pressure in the epigastrium or the region of the gallbladder, a moderate cramp of the stomach, to the terrific colics which prostrate women who have stoically passed through the agonies of childbirth. While pressure will scarcely get a response from an acute serous cholecystitis, which may pass off in a few hours, the gentlest touch of the most skilful surgeon can not be borne without infinite agony over an acute purulent inflammation of the gallbladder. If a stone be lodged in the cystic duct, then there is superadded the pain of obstruction. This is probably more painful than when the stone passes the papilla of the duodenum. When the stones are confined to the gallbladder the pain is primarily restricted to the right hypochondrium. The pain may radiate to the breast and back, and this is more particularly true as the stones find an exit from the gallbladder. If they are lodged in the common duct we have pain upon pressure in the epigastrium and the left hypochondrium. The most common error is to confound this condition with cholera morbus. The pain of cholelithiasis is exquisitely cramp-like, but may, too, be boring, burning, nagging, and fixed in a well-defined place. It is generally on the right side and localized in the region of the gallbladder, whence it frequently radiates to the back, to the right shoulder-blade, and to the breast. It may be confined to a circumscribed area under the right rectus abdominis without assuming any radiation. It may also appear as a cramp in the stomach, but gentle palpation in the epigastrium will show that the middle line is free from pain, and that the sensitive area is confined to the locality of the gallbladder.

The pains in cholelithiasis always appear suddenly, and generally irrespective of the diet one has indulged in; one may with impunity have ingested the heaviest diet, drank champagne, whisky, or beer, to be suddenly attacked during a period of the most restricted diet. In gallstone disease the stomach contents will usually show either normal or deficient hydrochloric acid, unless there be a condition present not dependent on the cholelithiasis. The usual concomitants of gallstones are either adhesions or pyloric stenosis. The vast majority of those suffering from gallstones are the subjects of troublesome stomachic derangements; these are not dependent upon a primary gastric disturbance, but are due to peripyloritis, which is the common concomitant of cholecystitis. I believe it would be safe to say that the vast majority of the pains which are called cramps and cholera morbus are really gallstone colics. With a more diffuse knowledge of the disease and a requisite training in diagnosis, we shall hear less of these affections. All pains which are felt in the lower portion of the abdomen excite suspicion toward the appendix, so should all pains in the epigastrium and the right hypochondrium lead the physician to a most careful examination of the gallbladder. In no case of cramps or cholera morbus or gastric neuralgia or kindred affections should the physician fail to palpate carefully the lower border of the liver. Sensitiveness to pressure over the region of the gallbladder should at once be sufficient to differentiate and lead one to believe that they are dealing with gallstones. I recently saw a patient with gallstone colic who had been treated by the attendant for intercostal neuralgia. Kehr informed me that he once had a patient with lead colic sent to him to be operated upon for gallstones. Similar mistakes may occur oftener than one should be led to believe; the differentiation between ulcer ventriculi and gallstones is more difficult, yet even here it is generally possible to come to a clear understanding of the case, unless it should happen as it sometimes does that ulcer ventriculi and cholelithiasis occur synchronously. When the infiltrated ulcer is accessible to palpation, as occurs when the ulcer occupies the anterior wall of the lesser curvature of the stomach, the demonstration of the ulcer should occasion no great difficulty. The pain of

¹ Read before the Northern Medical Society of Philadelphia.

ulcer is more particularly dependent upon the quantity and quality of the food ingested, and begins either immediately or very shortly after eating. It rarely occurs when the stomach is empty, while the most usual time for gallstone colic is either during the night or at some other time, generally some hours after eating. In differentiating between appendicitis and cholelithiasis great difficulty may be met if the appendix is turned upward, so that its extremity may reach to the lower liver border. In such cases, certainly in the acute form, the points given for differentiation are more fanciful than real. The patients vomit in either instance, the pain is alike, flatus ceases to pass, the bowels are constipated, the fever in either may be moderate or high and both give a tumor in the same region. There are probably minute points in differentiation which lead the trained surgeon to arrive at a correct diagnosis, yet it is doubtful if they could be enumerated sufficiently clearly to aid the general practitioner to arrive at a correct conclusion. In such instances it is fortunate that both conditions require the same treatment. It would be entirely beyond the limits of this paper to differentiate between gallstones and all the diseases with which they may be confounded, yet there is one more I must mention, that between cholelithiasis and right-sided floating kidney. According to Kehr the most important point in the differential diagnosis is the characteristic sensation which one experiences with the reposition of a floating kidney; the kidney suddenly darts upward and backward with a flop, like when one reduces a hernia, often to remain in its new position. The gallbladder, if it be not bound down by adhesions, may also be pushed upward and backward; yet the moment that pressure be released it will return to its original position, immediately behind the anterior abdominal wall. In the case of the floating kidney, if it be replaced and the patient be quiescent in bed, it will usually retain its new position throughout quiescence. The gallbladder always returns to the anterior abdominal wall. The gallbladder may be moved laterally, but has a fixed pendulous point at the lower liver margin. The kidney, too, may be moved laterally, but has no fixation point at the liver border. Fortunately lithiasis pancreatica is an extremely rare affection, for the passage of a pancreatic stone into the intestine will naturally occasion the same train of symptoms as those aroused by a gallstone passing the papillæ of the duodenum; these affections cannot be differentiated. No error in diagnosis should ever occur in cholelithiasis when a tumor exists in the right hypochondrium whose form and movement are inherent to a distended gallbladder. In women who have borne children and thin individuals the distended bladder lies so closely to the abdominal wall that one cannot only recognize its dome-like prominence, but follow its movements as it rises and falls with the liver in the respiratory participation of the diaphragm. In the obese and occasionally in athletes with very rigid abdominal walls the determination of the site of the gallbladder is often impossible, yet I have seen the gallbladder beautifully outlined in a case of hydrops in a woman weighing nearly 300 pounds. The less often the bladder has been the seat of a pre-existing inflammation, the more distensible will be its walls. A bladder which has been the seat of frequent inflammations has had the elasticity of its walls so diminished that the severest acute purulent cholecystitis may occasion only a slight tumor. The size of the tumor, therefore, can give no indication of the gravity of the affection. The locality of the gallbladder must always be sought at the liver margin; it can only be found at the ninth or tenth rib, when the liver occupies the normal position. If the liver be greatly enlarged it goes without saying that the gallbladder must be sought for lower in the abdomen, indeed in deeply dependent livers it may be sought for as low as Poupart's ligament. Liver enlargements rarely occur in

acute cholecystitis. The swollen liver is usually an accompaniment of a cholangitis. At times the gallbladder does not occupy its normal site with reference to its usual position at the liver margin. It may be more internal or external than usually sought for, or it may lie very deep in the liver bed. Again I recall seeing a case in Professor Kehr's clinic, in which the bladder was sought for in its usual site and not found. A week later the gallbladder was found on the left side at the eighth or ninth rib. The shapes of gallbladders vary greatly, even those not the subject of inflammatory process. They may be more or less irregularly spheric, or ovoid or elongated like a pickle, and vary in size from a cherry to an apple. It should always be borne in mind that one may be suffering from a severe acute empyema of the gallbladder and yet it may be impossible to demonstrate a tumor of the infected organ. There is just one other source of error to which attention might here be called. Tumors of the gallbladder need not necessarily participate in the respiratory movements. It sometimes happens that the bladder is so firmly bound down by adhesions that its movements are extremely limited—and if in addition to this the pain be very severe the breathing on the affected side is very shallow and we have practically an immobile tumor.

We now come to jaundice, a symptom which curiously enough is associated in the minds of many practitioners as the most important point in the diagnosis of cholelithiasis, and yet occurs least frequently. It is absent in the vast majority of cases and probably occurs in not more than, if as many as, 10% of all cases of cholelithiasis. I have been taught to believe that jaundice is not an expression only, of a damming up of bile by an obstruction below the orifice of the hepatic duct, but that it is probably a disease of the individual liver cell, communicated by an extension of an inflammatory invasion from the biliary passages or some affection of the liver *per se* in which no obstruction to the flow of bile exists in the biliary ducts. Kehr is fond of citing a case of obstruction in the common duct in which he removed a calculus and drained the hepatic duct. In spite of the passage through the tube of enormous quantities of bile the icterus constantly became more intense until the day of the patient's death, some time subsequently. Then again, *per contra*, cases are occasionally met in which a stone the size of a walnut has been recovered from the common duct, and which seemed to occlude it absolutely, and yet the patient had had but a fleeting jaundice or none at all. Therefore too much reliance must not be placed upon jaundice, its presence not only frequently does not help to clear up a doubtful case, but indeed often adds materially to the difficulty of arriving at a satisfactory diagnosis.

Colics dependent upon the presence of an acute obstruction by a calculus in the common duct are those familiarly known to almost every practitioner. The patient is suddenly, without any premonition, seized with a violent colic. The pain is usually most intense in the right hypochondrium, radiating toward the back and shoulder, toward the stomach, and toward the breast. It may be so severe that those inured to pain give vent to the most heartrending cries, and piteously beg of their attendants for relief from the intolerable suffering. The colic is due to the passage of the stone through the tortuous cystic duct, the common duct and then on through the papilla into the duodenum. With the entrance of the stone into the intestine spontaneous relief occurs. During this stage we may have fever, usually, however, not of a very high grade, nausea, vomiting, hepatic enlargement, and jaundice. The jaundice in these acute cases sometimes, not always, appears after the stone has passed through the common duct. Sometimes the onset of the colic in cases of acute obstruction of the common duct, particularly in those who have been the subjects of frequent attacks, is not so sudden as described above, but there may be exhibited

premonitory pains generally referred to the stomach which warn the patient of an approaching attack.

There is another point of great importance in connection with diagnosis in cholelithiasis. It is this: The results of cholelithiac inflammations, patients from whom the stones have passed, have resulting conditions which so closely resemble true gallstone colics that it is impossible to differentiate them. These are generally either adhesions with neighboring organs, bands of adhesions crossing the ducts, kinks or stenoses, due to preexisting inflammations within the tubes or bladder.

For arriving at a diagnosis in cholelithiasis too much attention cannot be given to the history and no point is too unimportant or too minute to be omitted. It must always be borne in mind that the history of the case is the most, I state this unequivocally, the most important factor in arriving at a correct solution of the case. Bear in mind, too, that jaundice is so rarely associated with inflammatory processes of the gallbladder that it would almost be safe to say that it never occurs. It is very rare, too, at the onset of any gallstone disease. A true gallstone colic may have taken place and recovery have been effected, and no stone subsequently recovered by the most careful sieving of the feces. The stone in such cases has not passed through the common duct, but been returned from the cystic duct to the bladder.

It frequently happens that cholelithiasis is complicated by affections in neighboring organs. Particularly is this true of the stomach and pancreas. In a recent communication sent me by Kehr he stated that he found the head of the pancreas affected in 66% of the patients operated upon by him during the last year. The most horrible complications that the surgeon meets are diffuse cholangitis, sepsis and perforation peritonitis. It should be borne in mind by the physician that these are always the results of delay, and might have been avoided by early operation. The unfortunate factor is that the patient almost invariably succumbs to the disease.

The various forms of cholelithiasis so frequently fuse from one to the other that a sharp line of demarcation cannot always be drawn between them. We may be dealing today with a condition of acute cholecystitis which tomorrow will develop into an acute obstruction of the choledochus and in two months have become a chronic common duct obstruction. A recurrent cholecystitis which has existed for years may develop suddenly into an acute sterile and completely latent hydrops of the bladder. A chronic obstruction of the common duct may at any time have added to it an empyema of the gallbladder. In an acute obstruction of the common duct we may suddenly have a perforation of an empyemic gallbladder. Cases of cholelithiasis will at times present themselves which are impossible to classify under a specific head; while one of several forms or a combination of them may be surmised, a positive conclusion can at times only be reached after the abdominal incision has been made.

From the foregoing, conclusions can be drawn that any schematic presentation of the various forms of cholelithiasis must be accepted with reservations. Hard and fast drawn lines are not always present, therefore the following must be accepted as only embodying the more salient points of the various types of gallstone affections. I will name the diffuse variations in which the disease is generally found, its more prominent symptoms, the diagnosis, and the line of treatment for its relief.

I.

(a) *Variety of Disease.*—Stones in the gallbladder, the movements of which affect but slightly or not at all their relative positions. The cysticus is patulous. The bile is clear, free of virulent bacteria, and there are no adhesions.

(b) *Symptoms.*—Symptoms are almost constantly absent (latent state). Occasionally epigastric pain, due to a transient obstruction of an otherwise patulous cystic duct. Jaundice is absent, no passage of stones. No swelling of the liver.

(c) *Diagnosis.*—Results of palpation are negative, at most a

slight sensitiveness to pressure, by bimanual examination, in the region of the gallbladder. This condition may frequently be confounded with ulcer rotundum, intestinal colic, floating kidney and hernia of the linea alba.

(d) *Treatment.*—Medical treatment is sufficient; a course of treatment of the kind and in the manner of that employed at Carlsbad, to establish permanently if possible the period of latency of the cholelithiasis.

II.

(a) *Variety of Disease.*—Acute cholelithiasis in a relatively healthy gallbladder. A large stone usually occupies the neck of the gallbladder. The fluid exudate is found in a condition between cloudy (?) and purulent (?). The walls are thickened.

(b) *Symptoms.*—Tumor of the gallbladder or a prominent Riedel's lobe. Rarely jaundice. Severe pain in the region of the stomach. Marked tension and resistance of the upper portions of the abdomen. Great sensitiveness to pressure. The general condition in mild infection is but little altered, in severe infection markedly changed. (Cholelithiasis acutissima event with cholangitis.) Peritonitis circumscripta (pericholecystitis). Elevation of temperature may be present or absent. Liver is only enlarged in the event of a coexisting cholangitis. Usually no passage of a stone. When the cholecystitis terminates with the passage of a stone there is produced an acute obstruction of the common duct.

(c) *Diagnosis.*—The diagnosis is easy. It may be confounded with appendicitis, particularly if the vermiform appendix is turned upward and lies in the neighborhood of the liver. The diagnosis must establish that the tumor felt is one of the gallbladder, and that through its form, mobility, tension, etc.

(d) *Treatment.*—The best treatment is operative. By the administration of drugs, chiefly purgative and particularly salines, the inflammation may be allayed, but the stone remains as a constant menace. In cholecystitis, cystostomy, the establishment of a fistula is the proper procedure. (Normal-verfahren.)

III.

(a) *Variety of Disease.*—Stones in a gallbladder which has already been the seat of an inflammatory process. Cysticus at present patulous. Adhesions exist between the gallbladder and intestines and mesentery.

(b) *Symptoms.*—Objective symptoms almost entirely absent. No jaundice. No passage of stones, and no enlargement of the liver. At times violent colics brought about by strangulation of the cysticus after an overdistention of the gallbladder. There may be frequent vomiting and intense pressure pain. In the intervals there may be complete rest with an entire absence of all symptoms—a latent state.

(c) *Diagnosis.*—In the interval palpation is negative; there may be slight pain on pressure in the gallbladder region. During the attack a tumor of the gallbladder will only be demonstrable if the walls of the bladder are still sufficiently elastic to be capable of distention by the exudate.

(d) *Treatment.*—Operation is imperatively demanded in these frequently recurring and painful cases. The best procedure is cystectomy combined, if possible, with drainage of the hepatic duct. The Carlsbad cure in these cases has but a fleeting effect.

IV.

(a) *Variety of Disease.*—Acute cholecystitis in a previously atrophied bladder, having frequently been the seat of inflammation; this variety belongs to the chronic recurrent form of cholecystitis. Cysticus obliterated or obstructed by stones. Numerous enveloping (?) adhesions. Exudate small, and may range from mucus to purulent. Fistula between the gallbladder and intestines.

(b) *Symptoms.*—A tumor of the gallbladder is not palpable, because the bladder lies high and under the border of the liver. Severe pains, often in the stomach, and not unlike those found in acute cholecystitis in a relatively healthy gallbladder. There is a frequent change in the appearance of the symptoms. Jaundice is very rare, and if it exists, a stone is traveling from the cysticus into the common duct.

(c) *Diagnosis.*—The diagnosis is difficult because of the negative palpation. A most careful study of the anamnesis is the very best aid to a diagnosis. In cases of severe general infection, purulent cholecystitis without demonstrable tumor and no very pronounced colics, has been confounded with typhoid and malarial fever and sepsis.

(d) *Treatment.*—The best is operation—ectomy—as the Carlsbad cure is pretty generally ineffective. The best time is during the interval between attacks. (Schlauchverfahren sind möglichst einzuschränken.)

V.

(a) *Variety of Disease.*—An empty gallbladder which has previously been the seat of inflammation and when adhesions exist between the gallbladder and intestines.

(b) *Symptoms.*—Occasional cramps. Sometimes violent colics. There may be vomiting, which may be severe, and pressure pain. Frequent change of posture; rising from a recumbent posture will produce pain. Generally in the interval between the acute attacks there is a complete latent state.

(c) *Diagnosis*.—Palpation is generally negative. There may be slight pain in the region of the gallbladder. The patient, however, throughout suffers very much. The adhesions may lead to stenosis of the pylorus, ileus, or a constant feeling of pressure about the stomach.

(d) *Treatment*.—When suffering persists, or frequently recurs, operation is imperatively demanded. The best procedure is ectomy, and if peripyloritis coexist a gastroenterostomy. Pyloroplasty is said not to be so certain in its effects, but I have seen some admirable results after it.

VI.

(a) *Variety of Disease*.—Hydrops of the gallbladder. Cystic duct obstructed by stones, or entirely obliterated. The fluid in the bladder is clear, and if infected, as I believe it always is, the type is mild. The walls are exceedingly thin.

(b) *Symptoms*.—Symptoms may be absent, excepting that the patient's attention is drawn to the anomalous condition of a tumor existing in the abdomen. There may be frequent cramps, stomachache. No passage of gallstones, no icterus, no enlargement of the liver. At times there may be present Riedel's flap—i. e., the tongue-like projection of the liver. It is doubtful if the contents are ever sterile, although the infection is generally of a mild type. This may, however, and at times does develop into a graver form, i. e., the more severe type of infection.

(c) *Diagnosis*.—The diagnosis is easy; one must only guard against the possibility of confounding this condition with a floating kidney. If not bound down by adhesions the tumor is readily movable, particularly laterally, and may be pressed into the abdominal depth, but immediately assumes its former position. There is little sensitiveness to pressure. Hydrops in a shrunken gallbladder does not produce a palpable tumor, and in consequence, as in acute cholecystitis in a previously atrophied bladder which has been the seat of frequent inflammations, the diagnosis is difficult.

(d) *Treatment*.—The treatment is operative—a cystostomy with cysticectomy, and best of all, a cystectomy.

VII.

(a) *Variety of Disease*.—Empyema of the gallbladder; pus in the gallbladder; a stone in the cystic duct; adhesions. The disease is either (1) a transition of an acute serous cholecystitis or (2) it immediately appears as an acute empyema.

(b) *Symptoms*.—At the onset we find a tumor of the gallbladder or a prominent Riedel's lobe; rarely jaundice; severe pain in the region of the stomach; marked tension and resistance in the upper portions of the abdomen; great sensitiveness to pressure; the patient's general condition markedly changed; elevation of temperature; at times chills. Liver is enlarged in the event of a coexisting cholangitis. Later in the disease, fever may be absent and the condition then closely simulates hydrops. The tumor is, however, usually smaller than in hydrops. There is no passage of a stone. The pain is restricted more particularly to the region of the gallbladder and the epigastrium and does not radiate toward the back, breast, and pelvis in nearly the same degree as in the other affections.

(c) *Diagnosis*.—Exploratory puncture is absolutely indicated. The diagnosis is similar to that of hydrops plus the virulent infection. With the participation of the peritoneum the symptoms of an infective peritonitis will preponderate. Should the gallbladder perforate we will have all the symptoms of a perforative peritonitis. At the beginning the tumor of the empyematosus gallbladder is exquisitely painful; later on, however, these pains may subside, or indeed, quite disappear. Beside the empyema of the gallbladder we may find encapsulated areas of pus in the abdominal cavity.

(d) *Treatment*.—The treatment is similar to that employed for hydrops of the bladder.

VIII.

(a) *Variety of Disease*.—Carcinoma of the gallbladder in conjunction with gallstones.

(b) *Symptoms*.—At the onset of the disease we only have digestive disturbances and no jaundice. With the invasion of the disease into the choledochus and the glands of the portal plexus we have the appearance of jaundice and ascites. The tumor is remarkably hard and uneven. Later on cachexia.

(c) *Diagnosis*.—The diagnosis in the early stages of the disease is very difficult and can usually not be established before the advent of the jaundice. Pain is absent or insignificant. With the involvement of the portal glands and the appearance of ascites the diagnosis becomes easy. A cancerous gallbladder containing stones frequently becomes the seat of an acute inflammation—empyema.

(d) *Treatment*.—In the early stages only is success to be hoped for. Then cholecystectomy with resection of the liver should be practised. With a superimposed empyema cystostomy will give amelioration.

IX.

(a) *Variety of Disease*.—Acute obstruction of the common duct by a stone.

(b) *Symptoms*.—Colic, nausea, vomiting, fever, chills, marked jaundice. Disappearance of the acute symptoms when the stone passes into the duodenum or is returned to the cystic duct. In the first of these instances the stone will generally be

passed in the feces, though often not until weeks afterward, and indeed sometimes not at all.

(c) *Diagnosis*.—The diagnosis is easy, and is the typical classic gallstone colic. The pains radiate toward the back and breast, while in cases of stones in the gallbladder, cholecystitis, the pain is more particularly confined to the gallbladder and stomach.

(d) *Treatment*.—The treatment is medical. Absolute rest; hypodermic injections of morphia, 0.2 gram to 0.3 gram (½ to ½ grain). Hot applications to the region of the gallbladder and stomach and salines. Operation is rarely necessary. If so, drainage of the hepatic duct after removal of the stone from the common duct.

X.

(a) *Variety of Disease*.—Chronic occlusion of the common duct by a stone. The stone is imbedded in the supraduodenal portion of the duct.

(b) *Symptoms*.—Moderate amount of jaundice, or there may be none, or it may be intermittent. Feces at times brown, then again clay or putty-colored. Often intermittent fever. There is generally some pain, but there may be an entire absence. The patient finally develops a cachexia. There is a hemorrhagic diathesis.

(c) *Diagnosis*.—The gallbladder generally cannot be palpated. The liver is more or less enlarged. Pain upon pressure is generally more toward the middle line. The spleen is often enlarged.

(d) *Treatment*.—Choledochotomy, cholecystectomy, and drainage of the hepatic duct.

XI.

(a) *Variety of Disease*.—Chronic occlusion of the common duct by a stone. The stone lodged in the papilla of the duodenum.

(b) *Symptoms*.—The symptoms are analogous to those when a stone is imbedded in the supraduodenal portion of the duct, with this exception, the jaundice is usually intense and changes very rarely.

(c) *Diagnosis*.—The diagnosis is also similar to that when a stone lies higher up in the duct. The gallbladder is small and atrophied when preexisting inflammation in it prevents its dilation. Otherwise we may find a tumor of the bladder.

(d) *Treatment*.—If after a reasonable time, say three months, the stone shall have become dislodged by the aid of medical means an operation becomes imperative—choledochoduodenostomy interna; probably to cholecystectomy and hepatic drainage.

XII.

(a) *Variety of Disease*.—Chronic occlusion of the common duct, by tumor or hypertrophy of the pancreas, tumor of the duodenum, or obliteration or stenosis of the common duct.

(b) *Symptoms*.—Deep jaundice, never variable, but becoming progressively more intense. Bowels always ashy gray or putty-colored. Generally an absence of fever. Pain insignificant or absent. If present rather an ache and very rarely like a colic.

(c) *Diagnosis*.—The gallbladder is generally large. The spleen is normal. The liver is enlarged. Pain upon pressure is absent or insignificant.

(d) *Treatment*.—The treatment at first, of course, must be expectant. If the obstruction is due to an interstitial pancreatitis a fistulous communication between the gallbladder and stomach offers the most brilliant results. This will probably also be true of a stenosis of the duct. Tumors of the duodenum promise less glowing results and are fraught with greater danger of a subsequent cholangitis.

A persistent latent stage is of course the best cure.

Two methods of procedure: (1) To produce stage of quiescence and latency, and (2) operation.

No solvent is known, and no remedy which will drive stones from the bladder.

An enormous number of patients who lose their pains in Carlsbad I believe would do the same in Philadelphia or elsewhere if the same attention was given to cure.

It is unquestionable that by faithful use of hot laxative springs the circulation in the liver, portal system in general, and the entire abdomen is improved. Particularly is this true when those who have been leading luxurious and sedentary or indolent lives can be made to indulge in reasonable exercise. In Carlsbad it is carried to the point of absolute fatigue. It stands to reason that, in consequence of this, catarrhal conditions of the stomach and intestines, inflammatory processes which extend from the duodenum to the common duct and from thence to the bladder should be promptly relieved. Riedel states that 95% of all gallstone diseases pass into a latent state. The other 5% are those that concern the surgeon—those cases in which life is made miserable by constant pains,

or when one is almost incapacitated by frequently recurring attacks of colic, or those cases that present conditions the existence of which are a menace to life. Operation in cholelithiasis must not be looked upon as the ultimum refugium. Neither must it be supposed that so soon as a case of gallstone disease has been diagnosed the patient should be operated upon.

About the number of cases Kehr returned without operating, a word as to mortality after operation.

In a recent communication which Professor Kehr sent me he gives me his statistics of 535 operations which were not complicated by diffuse suppurative cholangitis, sepsis, diffuse purulent peritonitis or cancer and in which it was not necessary to perform simultaneous operations on either the stomach, intestine, pancreas, liver, or kidney. His results were:

535 uncomplicated gallstone operations, with 19 deaths.....	3.5%
Divided as follows:	
237 conservative operations (cystostomies, cystotomies), with 5 deaths.....	2.1%
161 cystectomies, with 5 deaths.....	3.1%
137 choledochotomies and hepatic drainage, with 9 deaths.....	6.5%
535	3.5%

To these can be added:

114 complicated, with simultaneous operation on stomach, liver, intestines, pancreas, kidneys, etc., with 24 deaths.....	21%
71 cases of inoperable carcinoma of gallbladder of common duct and of liver, diffuse purulent cholangitis, and diffuse purulent peritonitis, with 69 deaths.....	97%

A grand total of

720 cases, with 112 deaths.....	15.5%
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A physician can claim to have become a good diagnostician when he has learned to differentiate between hydrops and empyema of the gallbladder and an acute seropurulent cholecystitis and when he can determine whether a chain of symptoms is dependent upon obstruction produced by a stone, or is due to pressure from a tumor. This should be acquired by every practitioner.

THE MEDICOLEGAL ASPECTS OF AUTOABORTION.¹

BY

CHARLES GREENE CUMSTON, M.D.,

of Boston, Mass.

Tardieu defines criminal abortion as: "The premature expulsion, violently produced, of the product of conception, independently of all circumstances regarding its age, viability, and regular formation." In order to produce abortion, women less frequently resort, at the present time, to the various so-called abortive pills and mixtures. They have recourse to a much surer method, which consists in acting directly upon the ovum, either by tearing the membranes with a more or less pointed instrument or detaching them by an injection of some liquid forced into the uterine cavity. Now it may happen that a woman who desires to bring about an abortion does not seek aid from anybody else, and performs it herself; and that this is not unusual nor of modern date is evident if one will read Dr. Hugh L. Hodge's lecture on criminal abortion, published in Philadelphia in 1854.

Generally speaking, in these criminal cases, there are several individuals accused, namely, the woman who aborts and the accomplices in the abortion. In the present paper, however, autoabortion will be alone considered, and although hardly mentioned in the classic textbooks on medical jurisprudence, it is, nevertheless, certain that this type of criminal abortion is far more frequent than is generally supposed. Can a woman commit autoabortion by acting directly on the ovum? This is the question that is to be solved, and it is quite worth while to study it carefully, because criminal abortion is justly punished with great severity by the law. It is consequently not at all surprising that the lawyer

for the defense, in the interest of his client or clients, puts the above question to the medical witness, and if the latter admits the fact on principle, it is readily seen that he at once gives the defense a very powerful weapon and renders the prosecution very much more difficult.

In the first place, is it an easy matter for an instrument to penetrate the cervix without the use of a speculum? Vibert is of the opinion that the operation presents a certain number of difficulties; he tried it on 12 cadavers, using 1 hand, and failed each time, but he was always successful when both hands were used. He points out that the cervix recedes from the instrument, but that if it should be introduced, it will slip out with ease while the injection is being given, if it is not held in place with great care. This same authority was ordered to examine 3 women who said an abortion had been performed on them by another, who also admitted her crime, and he had the maneuver repeated in his presence. He was able to ascertain that the abortionist simply made a vaginal injection, and for this reason he concluded that the abortion in each case had been produced by other causes.

Now if individuals who are competent have such difficulty in introducing the canula of an irrigator within the cervical canal, it would naturally seem that these difficulties would be much greater for a woman desirous of performing an autoabortion. But from what I can gather, it would seem that women of the United States, at least, resort more frequently to the use of some rigid instrument, like a knitting-needle, a catheter, or a penholder, and less frequently employ the injection method. Personal knowledge of numerous cases met chiefly in consultation practice have led me to believe that autoabortion is being done among a large number of women both in the cities and country, a large percentage of these being married. In order that a woman may perform the operation successfully upon herself, certain conditions must be present, and it is necessary to demonstrate whether all these conditions are required to perform autoabortion, or if, on the contrary, the operation can be accomplished by nearly every woman.

From what I have been able to ascertain, it would appear that most women introduce the instrument within the uterus while in a crouching position and I am aware of only a few instances in which they succeeded when in the recumbent attitude. Without wishing to anticipate what is to follow, it may be said that no matter what position the uterus may have, the autoabortion will succeed in a large majority of cases.

It is difficult to say what may be called the normal position of the uterus and the opinions of the highest authorities on anatomy vary greatly, being almost in diametric opposition with one another. It is, however, quite logical to assume that the position of normal uteri varies from one subject to another. In several cases of autoabortion the uterus was found in a position intermediary to anteversion and retroversion, while in others it was in anteversion. In one case, the woman admitted that she first attempted autoabortion but being unsuccessful she resorted to an abortionist. But in this particular case a number of adhesions were found which immobilized the cervix against the rectum, making the cervical orifice difficult of access.

In other instances of autoabortion, the uterus was found retroverted and under these circumstances, when the retroversion is slight, this condition will greatly facilitate the entrance of the instrument into the cervix because the external os being directly in the axis of the vagina meets, so to speak, the instrument as it enters the vagina. Theoretically, a marked retroversion should create an obstacle to the instrument not easily overcome, because when the cervix is situated behind the symphysis and directed upward, the fingers introduced within the vagina come directly upon the posterior aspect of the uterus in Douglas' pouch, thus rendering the external os extremely difficult to reach. In order to

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get to it, the finger must be pushed perpendicularly behind the symphysis. In such cases of exaggerated retroversion, it is common to find the uterus bound down posteriorly by more or less dense adhesions which keep the uterus immobilized in this position, but nevertheless, it is more than likely that after several attempts a woman with a uterus in this position might be able to insert the instrument within the cervical canal.

To sum up, it may be said that the position of the uterus plays only a secondary part in the problem, but it cannot be denied that its position is not indifferent as to the ease and success of the operation. When the organ is markedly deviated and especially when it is bound down by adhesions in an abnormal position, autoabortion may become extremely difficult to accomplish, to such a point that it may be questioned whether in reality a woman could successfully carry out the operation with these anatomic difficulties present. This is certainly a delicate medicolegal point, the cognizance of which may be of great importance to the medical expert for either the prosecution or the defense. Uterine displacements are only important from the direction and position in which they place the cervix.

Admitting that a woman has a very movable uterus, easy to replace, it is necessary for the accomplishment of her crime that she can insert the instrument within the cervical canal when the distance or the condition of the cervix permits of it. The physiologic distance measured from the external os to the vulva varies from between 6 cm. to 8 cm. There are very short vaginas, measuring only about 5 cm., and there also large ones whose depth may attain 8 cm. or 10 cm., but it may be said that in a normal condition, a distance of more than 9 cm. is extremely rare. The average length may be placed at from 6 cm. to 8 cm.

Usually, a woman can easily reach her cervix, especially so when in the crouching position, because the uterus is pushed downward toward the vulva from 1 cm. to 1.5 cm. on account of the intraabdominal pressure, in which case the finger of the woman can easily reach it and place it in the proper position for the introduction of the instrument. In pregnancy the increase in size and the change of shape of the uterus must evidently influence its position. If one takes into consideration the classic descriptions given, it will be found that the fundus uteri projects slightly upward during the first 2 months of gestation. It remains in the pelvic excavation and undergoes a slight descent, which, according to some authorities is due to the increase in its size and weight, as well as to the pressure of the intestines which is brought to bear on the fundus. Other authorities uphold that such changes are far from constant and that one should take into consideration individual differences, which explains why in a large number of women the fundus uteri appears above the upper border of the symphysis during the first few weeks of gestation. The cervix does not undergo any descent or deviation and the organ does not point into the concavity of the sacrum. Charpentier has observed a number of cases in which the fundus uteri extended above the symphysis during the first 3 weeks of gestation and he has also found an exaggerated anteversion in primiparas which was sufficient to produce functional disturbances of the bladder from pressure.

Many authorities, especially the Germans, are far from admitting that retroversion with a descent of the uterus occurs during the first months of pregnancy. Schultze says that after the eighth week the enlarged corpus uteri may be felt in the anterior fornix, and personally, I have found this true in a certain number of cases. Necropsies performed on subjects dying during the first few months of gestation, in which the position of the uterus has been noted, are rare. One is recorded by His of a woman of 25, who hanged herself in the third month of her pregnancy. The uterus was anteverted and flexed. In another case, published by Braune,

the subject was a young female 8 weeks pregnant. The uterus was in retroversion, the fundus lying against the rectum, and presented a slight retroflexion. In this case the tissues were perfectly normal, and it is difficult to say why retroflexion and version had occurred.

In most cases, adhesions usually maintain the pregnant uterus in retroversion, but the normal position of the pregnant organ during the first 3 months is, as can be seen, very variable, according to the authorities.

Now it is during the first 3 months of pregnancy that abortions are usually undertaken. After the fourth month the uterus, having become too large to remain in the true pelvis, extends upward, drawing the cervix along with it, which causes the latter to become more distant from the vulva. The examining finger sometimes reaches it with difficulty, even when the perineum is depressed, and at this distance it would seem impossible that a woman operating on herself could reach the cervix. This is so, generally speaking, but in some cases the criminal may accomplish her end, and it is then that the talent of the expert must be called into play in order correctly to appreciate the conditions presented in the given case.

Regarding the condition of the cervix, we must consider both its external and internal os. The external os may be more or less hidden by the anterior lip, which may be found intact or lacerated, gaping or retracted, all of which points should be studied in detail. In 2 cases of autoabortion I have found a marked projection of the anterior lip, which proves that this is no obstacle to the accomplishment of the crime. If the cervix is intact without any old or recent laceration, it will dilate with ease, but if it is lacerated, 2 conditions must be considered. There is either gaping, which results from an ectropion of the entire mucous membrane, or on the other hand, there may be an atresia. In the first case, the result of an attempt to introduce an instrument is always successful, but in the second, it is doubtful whether the woman could accomplish her object. The difficulty would depend on the degree of atresia.

Beside the gaping produced by old cicatrices, this condition may also be found physiologically, and during the first few weeks of pregnancy it is not at all a difficult matter to introduce the tip of the exploring finger within the cervix. The conclusion that can be drawn is that during gestation, the condition of the cervix would facilitate the entrance of an instrument within the uterine cavity, and consequently render autoabortion an easy matter in most cases.

We will now suppose that the woman has been able to insert the instrument within the external os; it then remains for her to push it through the internal os. In accomplishing this 2 difficulties may present themselves, namely, a flexion of the corpus on the cervix, and, secondly, an abnormal decrease in its caliber. Flexion of the corpus on the cervix is almost always present in newly born females, but disappears as they grow; it is, however, met as a pathologic condition. When present, a slight bend of the canal at the internal os will exist, and this condition may prevent the instrument from continuing onward and puncturing the membranes. When badly directed, and if the instrument is a rigid one, it may enter the wall of the uterus instead of its cavity, and it is not at all improbable that certain accidents of this kind met in practice are due to this anatomic condition.

A flexion of the uterus may even present difficulties for a professional abortionist, and if lesions or traces of violence are discovered at the internal os it would be quite premature to conclude from these signs that another person had operated, should the pretext be given that a woman who had attempted autoabortion had failed on account of pain produced when pressure with the instrument was brought to bear upon the internal os.

The same considerations are applicable when the

internal os is abnormally narrow. Generally, however, its caliber is quite sufficient to allow a fairly good-sized catheter to pass through. It is quite true that it is inextensible and that its direction is contrary to that given to the instrument along the vaginal axis, but it should not be forgotten that the uterus being oftentimes movable, the woman can replace it with ease and retain it in a convenient position while inserting the instrument. In this position both the external and internal os will be found in the same line in the axis of the uterus, or nearly so, and consequently all that is required is that the instrument should be pushed directly onward in order that it may enter the uterine cavity. Auto-abortion will be as easily accomplished under these conditions as if performed by another person, on the condition that the uterus is freely movable. If the organ is held in a marked anteversion or retroversion by adhesions which cannot be stretched, the operation may be accomplished by a professional abortionist, but cannot be done by a woman herself.

Beside those difficulties of a purely material nature, which are few in number, there is another order, purely subjective in character, which would seem to have a great value. I refer to the mistake of situation of the instrument which certain women make, believing that they have the instrument within the uterus, when in reality they are only holding it against the external aspect of the cervix. They do not differentiate between the sensation produced by the instrument within the uterus and that caused when it presses on the outside of the organ. When, during an examination of the genital organs, a uterine sound is passed, the patient immediately notes a certain painful sensation, far different from that produced by the application of an instrument on the external aspect of the cervix. The instance mentioned by Vibert of the 3 women who admitted erroneously that they had been the victims of an abortion produced by an intrauterine injection, which in reality had been only an ordinary vaginal irrigation, is a startling proof. These women had certainly never distinguished between the sensations produced in the vagina and cervix from the one caused by the penetration of an instrument within the uterine cavity. The latter is never forgotten when once it has been felt, and in every instance in which a woman has not distinctly felt a pricking sensation in the lower abdomen when puncture has been resorted to, or the sensation of a hot fluid extending upward within the body when an intrauterine injection has been employed, the greatest reserve should be maintained by the expert, and if possible the experimental proof should be resorted to. When an injection is used for the purpose of bringing on an abortion, women when performing the operation upon themselves usually employ one of the hard rubber ends which go with any fountain syringe, and when once the tip is inserted beyond the internal os all that is necessary is that she should hold the tube in place and allow the liquid to enter the uterine cavity.

From a study of a number of cases in which the women admitted having performed an auto-abortion, many of them being married in easy circumstances, and others belonging to the more ignorant class, it would seem to me that a woman need not be very familiar with the anatomy of her genital organs in order to accomplish quite easily the induction of a miscarriage. When a woman wants to rid herself of a fetus, it makes very little difference what social condition she may occupy, because in all ranks of life the woman will have the same criminal design, and when she is not fully aware how to proceed in the act, some friend, usually of the female sex, will be found who can give a detailed account of the *modus operandi*. To quote cases would be useless, but I can affirm that I know professionally a number of married women who perform auto-abortion once a year at least, and in 1 or 2 instances they resort to the operation several times in the course of 12 months.

From what I have said, I think it can safely be admitted that it is often possible for a woman to introduce a foreign body through the cervical canal into the uterine cavity, and the logical consequence is that she is able to perform an auto-abortion. For this reason I can not agree with some of the statements made in our best and most modern textbooks on legal medicine, a few quotations from which I will make. In Witthaus and Becker's *Manual of Jurisprudence*, Vol. ii, 1894, Cameron says: "Women often attempt to pass such instruments into the uterus themselves, and occasionally they succeed, but are very apt to injure themselves seriously." This is also the opinion of Herold, who makes a similar statement in his *Manual of Legal Medicine*, published in 1898. In the fourth edition of Wharton and Stillé's *Medical Jurisprudence*, it is stated that: "In some instances the woman seeks to rid herself of her burden . . . by the introduction of instruments into the womb. These attempts are often unsuccessful when made by the female herself, and even an ignorant accomplice." I am perfectly willing to grant that women do injure themselves by attempting auto-abortion, and I know of several instances in which it has been attempted and had to be given up on account of the impossibility of introducing the instrument within the cervical canal, but in each case the medical witness must make a special study, because certain details will often be of greater use to him than the knowledge obtained from the textbooks which indicate only the means by which the crime is accomplished.

When a case of auto-abortion has been alleged, the medical expert in his examination need pay very little attention as to the distance existing between the cervix and vulva, and although displacements of the uterus have their importance, they can be of no absolute indication one way or another. Perhaps the most important condition is that of the presence of adhesions, because when they are present, binding the uterus either anteriorly or posteriorly, it is probable that the woman could not introduce an instrument within the external os. Old, thick, and fibrous adhesions act like ligaments and solidly retain the uterus in its abnormal position, and when this abnormal position is well marked, the expert will probably not be wrong in affirming that a second person has been required to accomplish the abortion.

Atresia of the cervix, when it exists, should be taken into account, but its value against the possibility of auto-abortion, is only a relative one.

It is also of importance to ascertain the intellectual condition of the accused, because it is probable that an intelligent woman will take in the situation better and be able to accomplish her end with more address than a woman endowed with less brains, although there must be many exceptions to this rule. Besides, an intelligent woman will be more daring and will be less liable to tell her secret than will the unintelligent one. In all questions of criminal abortion, the smallest details will be useful, and it is often by little facts that the discovery of the truth is attained; and in conclusion, I would once more repeat, that in the question of auto-abortion I cannot subscribe to the opinion usually advanced in the wellknown works on medical jurisprudence. Without taking into consideration the arguments that the defense might be able to extract from what has been said, I simply am desirous of throwing light on the question which, up to the present time, has been badly studied. The medical expert should always have present in his mind that his first duty is to discover by all the means possible the proofs or evidence of some description of an accomplice; but he should also bear in mind that in the case of a criminal abortion an accomplice is not always necessary, and that often a woman of only moderate intelligence and ability will attempt to rid herself of a pregnancy when the latter is injurious either to her interests or to her reputation.

POSTOPERATIVE INTESTINAL OBSTRUCTION.*

BY

A. M. POND, M.D.,
of Webster City, Ia.

Almost the first question that arises after the first 24 hours following an abdominal section is, Has the patient passed gas or evacuated the bowels? If answered in the affirmative the surgeon at once assumes that all is well, and a favorable prognosis is given.

There are few distressing complications that perplex the surgeon more than postoperative intestinal obstruction; few conditions require the intelligent conception of the cause producing the same and call for the deliberate and well-directed action to relieve.

This condition occurs as a complication in about 5% of all abdominal operations, and is of sufficient frequency to demand our earnest study into the cause producing this grave state, as well as our increased efforts to prevent or successfully relieve.

Intestinal obstruction following operation, quite naturally divides itself into the following classification, as to cause:

1. Impairment of physiologic function. Under this head might be mentioned (a) impaction, due as a rule to improper preparation; (b) paresis, or disturbance of motor nerves due to prolonged manipulation and exposure to reduced bodily temperature; (c) lowered resistance following hemorrhage; (d) atony superinduced by alcoholism, diabetes, tuberculosis, Bright's disease or any constitutional condition that tends to lower the general vitality.

2. Pathologic processes such as (a) inflammatory impairment of function; (b) destruction of parietal peritoneum as in breaking down adhesions; (c) intoxication by pus, as in general septic peritonitis; (d) thrombosis of mesenteric veins, following contusion.

3. Mechanical obstruction due to (a) adhesions to stumps that are improperly covered; (b) velamentous or adventitious bands arising from the parietal peritoneum following a general septic peritonitis; (c) omental rents or tears; (d) accidents to the sutured wall; (e) presence of gauze sponges, instruments, or other foreign materials accidentally introduced during operation and overlooked before closing.

In presenting this important subject then, for consideration, it will be my pleasure to follow closely the form as outlined in the classification given, and in taking up the forms arising as due to impairment of physiologic function, the first to be considered is (a) impaction, and as stated, this as a rule is due to improper preparation. Cases of such severe gravity as to demand immediate operative interference will not permit of the thorough preparation that a case of deliberate and well-planned operation would receive; however, we can take some steps toward the accomplishment of bowel evacuation, even in the most grave conditions. A few years ago Dr. Henry T. Byford, of Chicago, gave expression to a routine plan that will especially apply to this class of cases; it consists in the administration of 3.8 cc. to 7.5 cc. (1 dr. or 2 dr.) of the aromatic fluid extract of cascara sagrada before anesthesia, or immediately following a return to consciousness; this does not act as a cathartic, but as a general intestinal tonic and stimulant, and in the vast majority of cases is most gratifying in its action. When there is not an attempt made to secure a bowel movement until after operation, the shock, together with a lessened activity of the intestinal wall following anesthesia, oftentimes makes this exceedingly difficult to accomplish, and not infrequently obstruction will occur; at times the impaction can be distinctly felt as a tumor, if the abdominal walls are not too thick. All of the symptoms of mechanical obstruction may be present, namely, vomiting, distention, anxious

facial expression, pulse and temperature slightly elevated, and the condition may occasion serious concern.

The temptation is great just at this time to be too energetic in attempts to secure bowel activity by the administration of cathartics; a much wiser plan to pursue is, in the absence of grave conditions, to wait, so long as the discomfort of distention is not distressing or the vomiting annoying, and this usually becomes less, and subsides with the recovery from shock. General tonics and stimulants will also tend to cut this period short by increasing the general resistance. Strychnia, 2 mg. ($\frac{1}{80}$ gr.), may be administered with or without brandy, as indicated. Obstruction due to impaction occurs from 2 general sources, first, in those who were habitually constipated and in whom the intestinal tone was much below normal before operation, thus, in consequence of the shock, what tone they did possess is considerably lessened; and, second, in those cases in which there has been a previous septic peritonitis of a more or less local character, and there is a subsequent stenosis from some encroaching adventitious bands, the fecal current comes down to the stenosis and occasions obstruction. It is well to remember that obstructions due to impaction occur only in the large intestine, and when not due to any lessened lumen of the canal, can as a rule be located where the fecal current is apt to be retarded, as in the sigmoid flexure or other flexures at or near the cecum.

In considering (b) paresis in this connection, I shall deal only with the local disturbance of the motor nerves, such as is occasioned by excessive manipulation or exposure to reduced bodily temperature, since it is only this form of paresis that follows operative procedure. It is a wellknown physiologic fact that the fecal current is dependent wholly upon the vermicular action of the bowel, if, then, for any reason this contraction is impaired or destroyed by reason of disturbance in circulation or motor nerves, the current stops at the exact point of the disturbance. Von Wahl¹ first called attention to this apparent paradox, that in intestinal obstruction when the tympany is most marked, the coil in which the obstruction exists is the most tympanitic, for it is this very coil which, through the disturbance of its motor nerve supply, is first distended by gas from fermentation of its contents by reason of stagnation. As a rule this condition occurs in the large intestine, but may be present in the small bowel when disturbances are sufficient to interfere with either its circulatory or nerve supply; fortunately this complication is largely preventable by using gauze pads wrung out of a hot (110°) decinormal salt solution in handling the intestines, and when compelled to eviscerate, carefully enveloping the protruding coils within towels wrung out of the same solution; the artificial heat, together with the stimulation of the chlorin of the sodium chlorid, has a tendency to maintain the normal conditions of the circulation upon which the tone of the motor nerves wholly depends. The cardinal symptoms of paresis are tympany and distention, with enormous accumulations of gas. In many instances the high enema of decinormal solution will readily relieve the distress when in the large bowel. Dr. Howard A. Kelly, of Baltimore, suggests the use of the cautery point heated to a dull red and passed over the surface of the abdomen, just singeing the tops of the short hairs, but not coming in contact with the skin.² I have used this in cases of my own with marked benefit. Dr. Clement Cleaveland, of New York, advises the use of oxygen gas.³ A high rectal tube is passed well into the bowel and connected with the tube of the water bottle accompanying the cylinder of gas, and then the oxygen is liberated very slowly until the patient complains of discomfort, when it is cut off and the connection with the water bottle severed, but the rectal tube remains. He reports several cases in which prompt evacuations occurred, and I have used it with gratifying results.

* Read at the Semicentennial Meeting of the Dubuque Medical Society, June 18, 1903.

The obstruction due to (c) lowered resistance is so closely allied to the foregoing form in its pathology that I will not weary you by a repetition, further than to state that while the former is apt to be a local disturbance of function, lowered resistance is usually due to hemorrhage, and in consequence the condition may be general—the nerve stimulus is present, but the responsive ability of the muscle is lessened. There is a lack of tonicity and an inability to pass the contents of the bowel, whether gas or feces. Like the foregoing condition, it can in a great measure be prevented by carefully conducting the operative procedure, securing all bleeding points at once upon discovery, and being sure that no oozing exists before closing the abdomen. In the event that hemorrhage sufficient to produce the impaired state occurs in spite of all precaution, much of the tonicity can be restored by filling the abdomen with hot solution of adrenalin chlorid in a decinormal salt solution in the proportion of 1–1,000, or 1 minim of the solution of adrenalin chlorid to each 2 ounces of decinormal salt solution. This increases the intestinal blood-pressure very markedly and stimulates peristalsis.

(d) Atony of the intestine due to some predisposing cause is the most obstinate form of obstruction arising under the head of impairment of physiologic functions. These cases usually occur following operations on persons who have indulged moderately in the use of alcohol, or who are suffering from some wasting process, such as tuberculosis, diabetes, or Bright's disease. Everything may go on favorably for the first 24 or 36 hours after operation, bowels and kidneys move thoroughly and well, and suddenly, without warning, the intestines relax and cannot be stimulated to action. The following case occurring in my practice is typical:

The patient, F. D. C., aged 41, is a stock-buyer and auctioneer. Family history is negative. He had typhoid fever 20 years ago, and gives a history of drinking on an average 1 pint of whisky daily for 12 years; frequent intoxication by periods. He was taken with abdominal pain August 8, 1901. In the early morning of August 10, 1901, I saw him with the attending physician, Dr. C. I. Eberle, of Webster City, Ia. Examination demonstrated a marked tumor in the right iliac fossa, tender on pressure; temperature 98.6°, pulse 80. A diagnosis of appendicitis was made. Immediate operation was denied. His condition grew rapidly worse, until at 5 p.m. pulse was 120, temperature 102.6°.

Operation.—A very large appendix, $3\frac{1}{2}$ inches long and $\frac{1}{2}$ inch in diameter, appearing not unlike a Frankfurt sausage, was seen. The mesoappendix was much thickened and hypertrophied. A hard mass observed in the caput coli proved to be a large quadrilateral gallstone with facets on 2 sides. The appendix was removed, the caput coli incised, and then sutured after removal of the gallstone. Subsequent history was uneventful for about 36 hours; bowels moved freely August 11; pulse and temperature were normal. About noon on August 12 the patient complained of discomfort, and was found to be slightly tympanitic. A high rectal enema was ordered, which up to 4 p.m. had no effect. Gastric lavage gave temporary comfort. An enema of magnesium sulfate 15 gm. ($\frac{1}{2}$ oz.), turpentine 30 cc. (1 oz.), glycerin 30 cc. (1 oz.), in a pint of warm water, was ordered through a high rectal tube, with no result. At 9 p.m. tympany increasing. Calomel $\frac{1}{2}$ gr. doses, followed by magnesium sulfate $\frac{1}{2}$ oz. in hot water, was ordered with still no result. Tympany was intense, pulse rapidly increasing, temperature 101.6°. Wound was examined and found clean; 2 stitches were cut; there was no fluid. The patient died at 12.10 a.m., August 13, 1901. Autopsy revealed enormously distended coils of intestine, ruptured diaphragm, and a small amount of dark blood behind the liver in the lesser peritoneal cavity. This man unquestionably died of tympany, due to atony of the entire gastrointestinal tract.

(a) The impairment of intestinal action due to pathologic process is most commonly met in the acute inflammatory involvement of the different coats of the intestine and it varies in intensity according to the degree of inflammatory involvement. If the mucosa alone is impaired the condition as a rule subsides in from 24 to 36 hours without intervention, relying wholly on rest. As the process extends it involves the muscularis tunica and prevents peristalsis. The wave of action will reach the impaired section with usual energy but the circulatory disturbance of the muscular fiber has impaired its tonicity and it fails to respond to the nerve

impulse and beyond the point of inflammation, all action is suspended. When the process involves all the tunics, the condition is relatively exaggerated. This condition does not often occur primarily, but is dependent upon acute inflammatory disturbance in its immediate vicinity, and with which it has intimate relationship as in acute inflammations of the appendix; the caput coli is often involved. Especially if the offending member be reflected behind the cecum, should the inflamed appendix be deflected to the left, it will be found adherent to the neighboring coils, jejunum or ileum and the tunics of that intestine will suffer secondary involvement. The same conditions are to be noted in acute inflammatory disturbances of the ovaries, gallbladder, mesentery, in fact any of the abdominal contents. After the removal of the provoking cause, the intestine suffers from traumatism to a greater or less degree and the condition of secondary hyperemia may not rapidly subside. The symptoms will be vomiting, distention, increased temperature and pulse-rate accompanied by tenesmus if in the large intestine, and by nausea and vomiting if in the small intestine. It is obvious that all cathartics must be withheld, an impaired intestine must have rest. If tenesmus is present it is safe to assume the location is in the large bowel and the use of oxygen gas will relieve to a great extent the circulatory stasis, and peristalsis will be rapidly established. If the trouble is in the small intestine it is best to withhold all food and drink by mouth, even water unless it can be taken without nausea, and to feed per rectum predigested food. If food is given by the mouth it cannot get beyond the inflamed portion of the bowel and will only ferment and cause distress or else be rejected. If the food given by the rectum should cause any disturbance it can at least be removed without disturbance.

(b) The destruction of the visceral peritoneum is incident to conditions in which adhesions are present, in freeing them the investing membrane is sacrificed. When this occurs the traumatism is pronounced, the circulation is greatly impaired, hyperemia and edema occur and the peristaltic wave cannot pass the injured point. The mucosa is also greatly swollen, lessening the lumen of the canal. If the destruction of the visceral membrane cannot be repaired by sutures it is best to rest the injured organ in order that fresh adhesions may form and the circulation be reestablished. So long as the patient shows no serious symptoms other than obstruction, the impaired bowel demands rest. The tympany and distention can often be controlled by gastric lavage and this may be used as frequently as demanded for the patient's comfort. I feel sure that I lost the patient in the following case by the injudicious use of a cathartic.

V. B., a male, aged 13, was taken sick with acute colic August 3, 1902. I saw the patient in consultation August 6. The temperature was 102°, pulse 130. Abdomen was rigid, and there was acute pain in the right iliac fossa. There had been no bowel movement since August 3. There was vomiting and tympanites. A diagnosis was made of acute suppurative appendicitis.

Operation was performed at 5 p.m., August 6. The appendix was found much enlarged, turned backward, and adherent to the cecum. The cecum was adherent to the parietal peritoneum, and in order to deliver the appendix was broken down under the guidance of the eye. The cecum was greatly swollen, and the adhesions fixing the appendix to the cecum were severed, leaving a triangular space $1\frac{1}{2}$ inches wide at the base and 2 inches long, denuded of parietal peritoneum. After removal of a suppurating appendix an attempt was made to bring the edges of the investing membrane together, but without success, due to the great size of the cecum and the inability of the membrane to hold suture. The denuded cecum was wrapped in a gauze pad wrung out of a hot sterile salt solution, and the abdomen was filled with a quantity of the solution at a temperature of 108°. This floated the intestines in place, and the omentum was drawn down under them as much as possible. The wound was closed, and patient put to bed with the feet elevated from 12 inches to 18 inches. Immediately after consciousness was restored, a tablet of calomel .013 gm. ($\frac{1}{4}$ gr.) was ordered every 30 minutes, until the bowels moved freely. Evacuation occurred about 3 a.m., August 7. Up to this time

the pulse was good, and there was no nausea. At 9 a.m., the temperature was 99.2°, pulse 86. At 7 p.m., the temperature was 98.6°, pulse 84. There was no bowel movement. On the morning of August 8, the temperature was 98.6°, pulse 84; no bowel movement. Calomel .013 gm. ($\frac{1}{4}$ gr.) was ordered every 30 minutes for 5 doses, to be followed in 4 hours by a high rectal enema. At 9 p.m., the temperature was 100.2°, pulse 110; no bowel movement. The patient complained of tympany; there was no vomiting. I ordered an enema of glycerin 30 cc. (1 oz.), turpentine 30 cc. (1 oz.), asafetida 30 gm. (1 oz.), and water 1 pint. On the morning of August 9, the temperature was 102.1°, pulse 120. No bowel movement; tympany sufficient to embarrass respiration. The cauterization was tried over the abdomen without success. Oxygen per rectum had no effect. At 1 p.m., the temperature was 102.2°, pulse 125. Cold applications were applied to the abdomen. At 3 p.m., 2 stitches were cut and a quantity of bloody serum escaped. At 9 p.m., vomiting was almost constant; the vomitus was of a green and yellow color. Temperature was 102.6°, pulse 130. Patient died at 3 a.m., August 10.

This unfortunate case taught me much, but the complete subsidence of abnormal pulse and temperature for 48 hours after operation convinces me that the intestinal obstruction was due to the impaired cecum, and that death was due to indigenous peritonitis as described by Flexner.⁴

(c) Obstruction of the bowel due to the intoxication of septic material, is the form met in cases of diffuse septic peritonitis, and results from the absorption of the toxins, ptomaines, and albumoses incident to the suppurative process. The visceral and parietal peritoneum are invested with a thin layer of fibrinous deposit. This most distressing and nearly always fatal complication must be treated largely by prophylaxis. This is best accomplished by the improved operative technic, which leaves no dead spaces, checks all hemorrhage, and protects the peritoneal cavity from contamination by liberal packing of gauze, before evacuating an abscess or breaking down adhesions, and which rigidly enforces all aseptic and antiseptic requirements. Flint⁵ mentions the depurative action of the liver in peritonitis, and, no doubt, thorough purgation would eliminate the elements of infection, but these very elements have caused an intoxication of the nerve supply of the intestine to the extent that purgation is rarely accomplished, and when successful is more often the result of a high enema containing magnesium sulfate and turpentine with other combinations than it is through the administration of evacuants by the mouth.

(d) Thrombosed mesenteric veins or shrinking of the mesentery following acute inflammation. This condition was first described by Virchow under the name of "peritonitis chronica mesenterialis." This occurs either as an extension of the inflammatory process or as a direct result of trauma. In either case the pathology is the same, increased circulation of the part, congestion, stasis, formation of pus and consequent gangrene of intestine. Riedel⁶ has reported 8 cases with complete pathologic findings. The extension of inflammation occurs at the site of the intestinal disturbance and is quite common at or near the cecum subsequent to acute appendicitis, but may occur in the mesentery of the small intestine at or near the sigmoid. The same condition may follow a trauma of the mesentery incident to operative procedure.

Obstruction due to mechanical agents may follow operation and differ materially in symptoms from cases due to impaired physiologic function or to pathologic processes. As a rule the pulse-rate is lowered instead of elevated, the peristaltic wave can often be seen through the abdominal walls in thin patients, vomiting occurs earlier, and is at first the stomach contents; this is followed by a yellowish brown material and then by a dark brown, not unlike the vomitus of septic peritonitis.

In fact we only find this characteristic vomitus in these two conditions, the point of difference and frequently the only distinguishing feature between them being in the pulse-rate and temperature. In septic peritonitis the pulse-rate is very rapid and increases until no arterial

impulse is perceptible and a "flowing pulse" is noted. The temperature is usually very high. In mechanical obstruction the temperature may be slightly elevated, but seldom reaches a point above 100°; the pulse-rate is diminished, ranging from 50 to 70 per minute.

(a) Adhesions to the intestines from incompletely covered stumps are frequent causes of postoperative obstruction. They may occur from 2 weeks to as many months or more after operation. It is surprising what a serious obstruction may occur from an apparently insignificant adhesion. The following case is illustrative:

Mrs. A. M., aged 29, gives a history of a miscarriage in September, 1899, which was followed by a feeling of tenderness in the left side. On December 9, she had a chill followed by rising temperature; there was no abdominal tenderness. On December 20, temperature was 102.6°, pulse 124, abdomen was tender and enlarged in the left lower quadrant; vaginal examination revealed a mass in the left fossa.

Operation.—December 21. Left pyosalpinx was found and the left ovary removed. The tube stump was tied to the broad ligament and sutured with continuous sutures from the left ligament to the cornu. The history was uneventful until the twenty-second day after operation; the patient was sitting up in bed when she complained of an acute colicky pain in the lower abdomen. Vomiting occurred, the temperature was 100°, pulse 62. An enema was ordered and quite a copious movement followed. It might be pertinent to state in this connection that this is often deceiving from the fact that the opinion will be that obstruction does not exist or the bowel could not move. The bowels do not evacuate their contents only from the adhesion down and if this should be in the small intestine it is likely to be misleading, however a little time will clear up the situation. Vomiting increased and the ejecta became very dark; the peristaltic wave was plainly perceptible. Diagnosis was made of mechanical obstruction above the cecal valve. A second operation was performed; the ileum on its free border was found adherent to the left cornu of the uterus, causing an acute angle obliterating the canal. This slight adhesion was sufficient to obstruct completely the fecal current. The adhesion was divided and the stump covered by a narrow fold of the reflected peritoneum. Recovery was uneventful.

(b) Velamentous bands may proceed from parietal peritonitis or some of its reflections and hold captive a loop of intestine. These bands are particularly prone to form after a general septic intraabdominal condition and are caused by the thin viscid coating of fibrinous exudate, which so commonly invests the intestine during an extensive suppurative process. This fibrinous exudate becomes intimately related to some adjacent tissue and receives a circulatory supply, which causes it to become an organized tissue, gradually becoming firmer and firmer, until the lumen of the bowel is obliterated and the intestine held fast. The following case illustrates the typical form:

Mrs. D. Y., November 24, 1901, was taken with an acute intestinal pain, vomiting, and slow pulse. No diagnosis was obtainable. The patient vomited at intervals all night, vomitus being dark brown, almost black. She had a slow pulse; temperature was 99.6°; there was slight tympany. The absence of an increased temperature and pulse and the character of the vomitus led to a diagnosis of mechanical obstruction of the small intestine. Operation was suggested, but opposed. Several other physicians followed, but no benefit was obtained. Atropin had been tried by one of these in .032 gm. ($\frac{1}{4}$ gr.) doses. December 13, or 18 days after the obstruction occurred, I was asked to operate. During this time no gas or feces had passed and the patient had vomited feculent material.

Operation.—December 14. The intestines were full of gas and considerable difficulty was encountered in keeping them in the cavity after an incision was made just below the transverse colon. On the right side the imprisoned intestine was found held by a velamentous band of fibrous origin attached to the parietal peritoneum. This was severed and the bowel liberated. At first it was thought that a stricture was formed and resection was considered, but by careful manipulation gas was forced through, and therefore the abdomen was filled with hot saline solution and closed. Recovery was uneventful. It might be of interest to note that in March, 1900, about 20 months previous to this operation, I operated on this same woman for ruptured ovarian abscess and evacuated an enormous quantity of pus from the abdominal cavity. The intestines were covered with thin fibrous exudate and a large amount of flocculent material was removed. Another point of interest in this case is the length of time that elapsed from the time of obstruction to operation.

(c) Incarceration of loops of intestine in omental rents or tears usually gives rise to symptoms shortly after

operation. Many causes are assigned for the occurrence of this condition, the chief of which is probably the Trendelenburg position. This gravitates the intestine and omentum into the upper abdominal cavity. To avoid these complications it is best to restore the patient to the horizontal position before suturing, and to fill the abdomen with hot sterile saline solution, which tends to float the intestines into their normal relations; and lastly, to cover the bowels with the omentum as completely as possible, and if rents or tears are discovered, to suture them carefully with fine catgut before closing the wound. Obviously the treatment is reopening the abdomen and freeing the loop of intestine. Too much emphasis cannot be put upon the early release of the bowel; gangrene of the intestine has been reported after 26 hours. If the symptoms of obstruction immediately after operation are present, it is much easier to reopen the wound and seek the cause than to combat graver complications occasioned by delay through hoping that release will occur unaided. This hope is unfounded. These cases confront the surgeon with 2 propositions: (1) The gravity of secondary operation is not to be depreciated; (2) if left alone death will invariably result. Hence, the plain duty is to offer the patient the only chance for life, as delay will result disastrously.

(a) Fortunately, accidents occurring to the sutured wall after closure are comparatively rare. The following case is, however, of interest:

Mrs. M. D. A., aged 41, was operated upon April 12, 1900, for left cystic ovary. It was a simple case with no adhesions. The ovary was delivered through a small incision, and removed with the corresponding tube; the broad ligament was sutured with continuous sutures; there was no pedicle. Peritoneum was closed with a running suture of catgut, continued through the muscular layer, and the skin was secured by a subcutaneous catgut suture. Considerable vomiting followed the anesthesia. Cascara was given at once after consciousness was restored. Vomiting continued through the night; there was no indication of bowel movement. Another .60 cc. (2 oz.) of cascara was administered. At 11 a.m., April 13, she was still vomiting a yellowish-green material. I ordered calomel, 6 mg. ($\frac{1}{10}$ gr.), every 30 minutes. At 2 p.m. a dark brown fluid was vomited; there was abdominal distress but no bowel movement. Pulse was 60, temperature 99°. I suspected obstruction of the small intestine, but could not account for its occurrence so soon after operation. The patient complained of the abdominal binder being tight, and it was therefore loosened. After removal of the dressing it was found that the wound had parted throughout its entire extent, and numerous coils of the intestine lay spread out over the surface of the abdomen. They were lustreless and congested. I sent for sterile gauze pads, needle and needleholder, and silkwormgut. The protruding coils of intestine were immediately enveloped in towels wrung out of hot saline solution. On account of the distressing nausea and vomiting, it was deemed unwise to anesthetize again, so without anesthesia the intestines were replaced, a through-and-through silkwormgut applied, and a high enema ordered.

A free evacuation rewarded the procedure, and recovery was uneventful.

From the foregoing it will be seen that the treatment of postoperative obstruction depends very largely upon its cause. In cases due to impairment of physiologic function, stimulation of peristalsis should be the object aimed at, and it will probably respond to any medication that will secure such stimulation. An enema, medicated or plain, is by far the simplest treatment and the easiest of administration. If it does not prove effectual, the application of the cautery over the abdomen should be tried. The use of cathartics is very questionable, since the nerves which stimulate peristalsis are already impaired and will not readily respond, and when they do, it is at the expense of more energy. The condition becomes more grave, and increased medication is required to secure each succeeding evacuation. Rest does much in this condition, and if the patient is doing well with the exception of bowel movements, it is not wise to be too energetic in attempts to secure evacuation.

In cases due to pathologic processes, cathartics are positively counterindicated. The treatment should consist in

lessening the peristalsis and securing rest. Batsch⁷ reports 3 cases in which the patients were treated by atropin given hypodermically in $\frac{1}{12}$ gr. doses, without toxic results, 2 patients recovered, 1 patient was operated upon, and the trouble was found to be due to mechanical obstruction. Luttgen⁸ reports 4 cases, with 3 recoveries and 1 death. Marcirnoueski⁹ reports 2 cases with recovery. Atropin owes its application here to 2 therapeutic properties: 1. Its sedative action in all spasmodic conditions in which it stands second only to opium and possesses the superior advantage of not being constipating. 2. Its action on the circulation, dilating the bloodvessels and relieving stasis and congestion.

The use of oxygen is especially valuable in this class of obstruction, since it lessens the formation of ptomaines and albumoses by supplying the congested blood-current with its vitalizing element, the same as it would receive from the inspired air through the pulmonary circulation. And is it not possible for the blood in this location to give off its carbon dioxide in exchange for oxygen supplied as suggested, much the same as it does in circulation through the lungs?

If this be true, it certainly is better prepared to participate in the work of repair demanded in the injured intestinal wall. In mechanical obstruction there is just one rational mode of treatment—to release the intestine—and this can only be accomplished by operation, and the earlier it is undertaken, the more favorable prognosis can be given.

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SOME FEATURES OF THE EPILEPTIC ATTACK.¹

BY

B. ONUF (ONUFROWICZ), M.D.,

of Sonyea, N. Y.

Pathologist to the Craig Colony for Epileptics; Formerly Neurologist to St. Catherine's Hospital, and Consulting Neurologist to the Jewish Dispensary, Brooklyn.

One who is not in frequent touch with epileptics is very apt to get an erroneous, or I might say, diagrammatic conception of this syndrome. This has especial reference to the epileptic seizure. Many textbooks speak of the so-called typical epileptic attacks, and the young practitioner makes desperate efforts to get hold of such for his instruction, but to his great regret he cannot find them. Féré has justly pointed out that there are almost as many forms of attacks as there are epileptics. Even in the same individual great variations between the different attacks are found.

From a medical point of view, it would appear very important to find characteristics that stamp an attack as epileptic and to secure in general definite points typical of epilepsy. However, here again we are baffled; there is not a single symptom that is characteristic of epilepsy and it is only by familiarizing ourselves with the great variety of forms in which the disease can show itself, and by constantly comparing them with the picture and course of other diseases, that we can arrive at a correct diagnosis.

A very important point is personal observation of the epileptic attacks. The value of such observations is proportionate to the experience and knowledge of the observer since an inexperienced observer may remain in doubt, or come to the wrong conclusion, even if he sees

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the seizure. Therefore, familiarity with the various forms in which the epileptic attack may manifest itself is of extreme importance.

With such a number of epileptics as are found at the Craig colony, which at present amounts to over 800, the opportunities for seeing epileptic attacks are unusually favorable, and the writer has made use of these opportunities to study such attacks and make careful notes of them.

I shall now discuss the points that this study brought out, viz.: 1. The initial cry. 2. The condition of the pupils. 3. The manner, grouping, and distribution of the spasms. 4. The state of consciousness. 5. The condition of the tendon-reflexes.

1. *The Initial Cry.*—That erroneous conceptions are prevalent regarding the nature of the initial cry in epileptic seizures, I had recently an opportunity to observe. A physician making a visit at the colony was anxious to see some attacks. About 5 steps from him a patient uttered the epileptic cry, which was followed by a very grave convulsion. I called the doctor's attention to it. He mentioned later with regret that the seizure had lacked one classic feature, *i. e.*, the cry. In accordance with what he had been taught, he had expected a shrill, loud cry, and, therefore, did not recognize the real cry, which was a low, protracted, tremulous groan. This groan-like feature of the cry is indeed very frequent. In constant association with epileptics, the ear becomes so trained to it that the ominous character of the groaning is immediately recognized.

It is now generally accepted that the cry is not one of surprise or fear, but a purely spasmodic phenomenon, due to the spasm of the respiratory muscles driving the air through the spasmodically contracted glottis. The bleating-like tremor of the cry is explained by the assumption that the initial spasm is not purely tonic, but slightly clonic, *i. e.*, with slight rhythmic relaxations of the spasm.

2. *The Pupils.*—It has long been taught that dilation and immobility of the pupils constitute a constant symptom of the epileptic seizure, and this sign has been pointed out as one by which the epileptic seizure can be distinguished from the hysterolepileptic, in which the pupil was said to be normal, both in size and in reaction. Recent observers have shown, however, that this distinction does not hold true, inasmuch as immobility of the pupil has been observed in seizures which were undoubtedly hysterolepileptic.

Moreover, it is certain that in the epileptic attack the pupil is not invariably dilated and not always immobile. I have seen at least 2 cases in which it was not dilated in the convulsive stage. In one of these the attack was very severe and the pupils were examined toward the beginning of the clonic stage. They were contracted rather than dilated. In the other case the attacks were mild and of short duration, but followed each other in rapid succession. In this case the pupils behaved quite varyingly. In some attacks they were moderately dilated and would react. In others the caliber of the pupils changed several times during the attack, reacting at one time, not at another.

On the whole, the degree of dilation of the pupils gives a measure of the severity of the attack, but to this there are exceptions, as above noted.

The condition of the pupils at the beginning of the attack and again in the postconvulsive, *i. e.*, stertorous stage, is not, as a rule, mentioned in the textbooks. However, some authors have called attention to it.

In one case, a nurse was instructed by me to watch the pupil carefully at the beginning of the seizure and he reported that, just as the attack began, the pupils became extremely small, then all at once they jumped, as he said, becoming very wide. This extreme contraction of the pupil directly at the beginning of the attack was observed also by Siemens and Féré. It is, however, frequently missed.

At the beginning of the stertorous stage, immediately after cessation of the convulsions, the pupils may again be found contracted, as I had occasion to observe in a number of cases, but the contraction is not so marked.

3. *The Character, Distribution, and Grouping of the Convulsions.*—In discussing the convulsions of the grand mal attack, I shall begin with literally quoting a description of an attack as given by a wellknown author, Dr. Charles L. Dana: "The attacks," he says, "begin in half the cases with a peculiar sensation called aura. Often also a loud cry is uttered and the patient falls unconscious to the ground. The face is pale, the eyes are open and turned up and to one side, and the whole body is in a state of rigidity or tonic spasm. The arms are slightly thrown out from the trunk, the forearms are flexed, the fingers clinched or flexed in other ways, and the legs and feet extended. This tonic stage lasts for 15 to 20 seconds. The face becomes congested and livid from compression of the veins of the neck and stoppage of respiration. Gradually jerky movements of the face and limbs begin and the stage of clonic spasm sets in. The trunk and limbs are now alternately flexed and extended with violent shock-like convulsions. The facial and eye muscles twitch, the saliva collects in the mouth, and as the tongue is often bitten, it becomes stained with blood. The movements are sometimes so violent that the patient is thrown about the bed or floor, and occasionally a limb is dislocated, usually the shoulder."

This description is fairly typical of what we are usually taught of the course of an attack of grand mal, and was therefore selected for discussion. Let us single out some features:

In the first place, the eyes are described as open and turned up and to one side and the head as thrown back and turned to one side. This is indeed frequently the case, and we might add that the eyes are, as a rule, turned to the same side as the head. However, it is important to note that both may change in position during the attack. In the beginning of the tonic stage, the head particularly may be found drawn to one side, while toward the end or in the clonic stage, it may be turned to the opposite side. Furthermore, I have seen quite as many cases in which the head was turned forward, as when it was turned backward or to one side. The eyes need not be turned upward or to one side, but may be found staring forward in a fixed manner giving a very peculiar impression by their complete immobility.

As to the attitude of the limbs, it is seen to vary considerably in different cases. The upper extremities are indeed more frequently flexed than extended at the elbows and wrists, but there are cases in which, especially in the beginning of the tonic stage, either one or both of these joints are extended.

For the lower extremities I found extension of the legs and feet to be by no means the rule, a semiflexed position of thighs and legs being frequently met with.

Another feature worthy of mention is the asymmetry of attitude seen in the majority of cases, *i. e.*, the upper extremity of one side assumes a different attitude from that of the other side and the lower extremity of one side likewise differs in attitude from that of its fellow, so that all sorts of attitudes may be observed.

Moreover, the attitude changes considerably during the attack, particularly during the tonic stage so that the patient passes through all kinds of contortions.

The above mentioned asymmetry of spasm is frequently seen also in the face, although the contractions of the facial muscles may be entirely symmetric.

The hemiplegic cases which so far I have had occasion to observe in epileptic attacks, did not offer any distinct difference in character of the attack from the idiopathic cases. I mean there is nothing in the character of the grouping or distribution that would stamp these cases as organic. There was no preponderance of the convulsions of one side over the other or of one part over the other.

However, I wish to reserve judgment in this regard until I have seen a larger number of cases.

I shall not discuss here cases of partial or Jacksonian epilepsy. These of course conform to other rules.

In many patients the spasms of the various attacks follow the same course or at least begin in the same manner. This is evident by those cases in which the same locality is injured in every attack.

4. *The Condition of Consciousness.*—The determination of the state of consciousness during the epileptic attack is often extremely difficult. When consciousness is preserved to a certain extent, we have 2 means of verifying its presence, *i. e.*, (1) by finding evidences of mental activity during the attack; (2) by evidence of recollection, *i. e.*, by receiving from the patient at a later period, a personal description (of course, not one from hearsay) of events that occur during the attack.

If both of these evidences are absent, we conclude that the patient was unconscious. Frequently we are content with the absence of recollection alone to form this conclusion. However, we must not forget that during the state of muscular contraction of the tonic and clonic stages the patient may be unable to perform any voluntary muscular movements, and, therefore, be unable to give any evidence of mental activity, even if such were present.

On the other hand, we know that many kinds of mental activity are entirely or almost entirely forgotten. I remind you of the dreams of which we frequently have only a hazy recollection, or no recollection at all, except of the fact that the dream occurred. But we need not go so far when we know that epileptics perform complicated acts of which they have no conscious recollection and may never give proof of having any recollection whatever. Therefore, the case is possible in which a patient during an epileptic convulsion might be conscious without being able to give any evidence later of his consciousness during the attack.

I mention these facts in order to call attention to the perplexities by which we are assailed in this regard, and to show how important it is to get *more accurate* evidence of the state of consciousness found at the time of the attack than is implied in such vague statements as "a complete loss of consciousness," or "partial loss of consciousness," "coma," etc., so frequently made.

The manner of obtaining evidence bearing on the existence of some degree of mental activity during the attack is to apply tests of different kinds. For instance, irritation of the skin should be tried and its effects noted. Thus, pricking with a pin, touching with a piece of absorbent cotton, approaching a burning match and watching how the patient reacts toward such stimuli may be tried. Then the special senses should be tested by making different noises, approaching objects toward the eyes, etc., and noting how the patient behaves toward them. For instance, if tickling or stroking the sole produces only a flexion of the toes, dorsal flexion of the foot and some contraction of the thigh muscles, this is an elementary and cutaneous reflex. If the patient withdraws the foot altogether, this shows, at least, a higher type of reflex. If he rubs with his hand the place which was pricked, this shows a slightly higher activity of the central nervous system, and if he turns around and brings his foot in a position where it cannot be well reached, this is evidence of a still more complicated function which must in part, at least, be cerebral.

To illustrate what I have said, I shall subjoin a description of a case as seen in the stertorous stage of an attack. The patient is found lying on his back on the floor, about 15 minutes after cessation of the convulsive stage. His right arm is moderately abducted, the elbow is flexed at a right angle, the wrist nearly so, the fingers semiextended. The left arm is less abducted, the left elbow more flexed (about 60°). The left hand lies across the lower end of thorax, above the epigastrium.

Thighs and knees slightly flexed, and feet in moderate equinus position. Eyes half closed, face has a mask-like expression. All limbs show considerable rigidity, as also jaw and head.

Knee-jerks both decidedly exaggerated; ankle-clonus on both sides, exhaustive at first, but after repeated tests, typical. Pupils react to light, also consensually. Yellowish foam at mouth, respiration deep, although changing in depth as also somewhat in rhythm (19 per minute).

Patient does not brush away flies which assail him, but reacts to painful stimuli, as pricking with pins, if such are repeated in frequent succession, also closes lids when such are lightly touched with absorbent cotton. Closes eyes if such are approached rapidly by examiner's fingers. Also shows conjunctival reflex present, and if the conjunctiva is repeatedly touched, shows signs of increasing consciousness, in as much as the defensive movements become more marked and more varied; but when left alone, he soon relapses again into a condition in which he is entirely unresponsive to the noises made by other patients around him, such as loud voices, rattling, polishing of the floor, etc.

Such a description has more clinical and decidedly more medicolegal value than simply calling the stertorous stage a coma or semicoma, and it is here presented as a plea for more accurate and objective descriptions of the state of consciousness in the different stages of the epileptic seizure.

5. *The Tendon-Reflexes.*—The study of the tendon-reflexes in the epileptic attack has not received very much attention, and the statements found regarding it are rather contradictory.

In the convulsive stage, if the rigidity of the muscles allows a test at all, Oppenheim found the knee-jerks absent. Sternberg saw cases in which they were normal or even exaggerated, and Oppenheim quotes Beevor as finding them more frequently exaggerated than diminished in incomplete or abortive attacks. In my experience they were more frequently exaggerated than diminished, and in 1 or 2 cases there was typical ankle-clonus. In other cases there was an exhaustive ankle-clonus. One case in which the attacks occurred every few minutes, was very instructive. During the attacks the knee-jerks were exaggerated, in the intervals they were normal. In 1 test the tapping of the patellar tendon was repeated several times, until an attack occurred. It was then noted that the knee-jerks all at once became very lively, and at the same moment a new attack set in. I wish to add that the exaggeration of the tendon reflexes found by me was not seen in organic cases only, but in cases unattended by a primary organic brain lesion.

In the postconvulsive stage Church and Peterson, Dana and Binswanger found the knee-jerks diminished or absent. According to Binswanger the knee-jerks give a measure of the severity of the attack, being frequently lost for many hours after a grave seizure. Whether this is really the case, I have not had sufficient experience to state, but wish to record the fact that I found them more frequently increased than diminished, and sometimes attended by spurious or typical ankle-clonus. Hirt also states that exaggeration of the knee-jerks in the postconvulsive stage is quite common.

Typhoid Increasing in Montreal.—Information from Montreal, under date of January 12, says: A hundred or more cases of typhoid fever have developed during the last 3 days. The parish priests of the affected towns are kept busy going from house to house anointing the sick. Warnings have been given from all pulpits and parishioners are urged to boil all drinking water and to take other precautions against the disease. The anxiety of the health officers is increased by the discovery of several cases of smallpox. The present water supply of the municipalities may be shut off and their pipes connected with the Montreal reservoir. It is believed that the present epidemic will finally result in a total abandonment of the St. Lawrence river as a domestic water supply.

SOME REFLEX NEUROSES OF DENTAL ORIGIN.

BY

WILLIAM J. LEDERER, D.D.S.,

of New York City.

Instructor in Oral Surgery at the New York School of Clinical Medicine; former Demonstrator at the New York College of Dentistry.

Reflex neuroses, what a lot of untold suffering this term covers, what a multitude of sins are hidden under this mantle! What does it imply? A nervous disturbance by a cause, other than local. No territory of the human anatomy is more frequently involved than that supplied by the trigeminus; for the fifth is not only the largest of the cranial nerves, it being the sensory nerve of the head and face, and conveying the special sensations of taste, but it is also the nutrient nerve of the teeth and the motor nerve of the muscles of mastication. It gives off the ophthalmic, superior and inferior maxillary divisions, and these subdivide again, and give off branches supplying the eyes, ears, nose, forehead, and scalp, the upper and lower lips, gums, tongue, and teeth. A few ramifications of the maxillary branches arborize again with the ophthalmic division and also with the facial and hypoglossal nerves. The whole is a most wonderful mechanism, constructed most intricately, and a disturbance, no matter how slight, anywhere along its course, may involve any part, or the whole area supplied by its branches.

Dr. F. Savary Pearce, of Philadelphia, in an article on *tic douloureux*, says:

It is stated that the teeth and oral cavity bear to *tic douloureux* the same important relation that the exciting cause does to any general or local affection. There are cases, of course, in which the teeth are not the cause, and there is no etiologic factor resident in the mouth to account for this serious and painful neuralgic affection. But in 50% of the cases of *tic douloureux* there is a very close connection between it and abnormal conditions, such as overcrowding, or more often of pathologic processes, such as pyorrhea and infected pulps.

Dental conditions, such as are liable to act as causative factors of neuralgia, are numerous; they may be classified as:

1. Conditions in which the dental organs causing the malady, indicate a pathologic or abnormal condition, as: Acute or chronic pulpitis; chronic pericementitis (dental periostitis); exposed dentine; caries; abnormal position of teeth (overcrowding); foreign bodies in the pulp cavity; pyorrhea alveolaris (Riggs' disease); foreign bodies in the gums or alveoli; injuries produced by extraction; atrophy of the gums.

2. Those conditions, in which the dental organs causing the malady, do not indicate a pathologic condition, as: Exostosis; impacted teeth; pulp stones.

3. Then we have "neuralgia of the edentulous."

At the first glance it would seem, that a patient suffering from any of the first-named conditions, would apply directly for dental treatment and find ready relief. This is not always the case, as there may be neuralgia of dental origin, without odontalgia and the patient applies for help to his physician. The doctor not having had any dental training does not readily diagnose the dental cause and the patient will not find permanent relief till he finds a physician who has had dental training, or one, who will refer the case to the dental specialist.

The second class of cases sometimes is difficult to recognize and a definite statement can only be made by differential diagnosis, and reflex neuroses caused by these (second-named) conditions will sometimes prove puzzling to even the joint efforts of the physician and dentist.

"Neuralgia of the edentulous" is a condition met in people who have lost their teeth and is probably due to injury of the nerve filament. Gross mentions it in his "System of Surgery," and states, that it is mostly found in old people and is more common in the superior than in the inferior maxillary bone. He ascribes it to com-

pression of minute nerves, distributed through the wasted alveolar process, dependent upon encroachment of osseous matter upon the walls of the canals in which these nerves are enclosed, thus interfering with the transmission of the nervous current. The treatment consists in the removal of the affected part of the alveolar process with sharp-edged bone forceps.

Just as the causes of dental reflex neuroses vary, so unlike are the resulting affections of dental irritation. These can be divided into:¹

1. Conditions producing disturbances of the peripheral organs, namely: (a) The eyes, (b) the ears, (c) those producing muscular disturbances, (d) those producing visceral disturbances, (e) those bringing about trophic and vasomotor changes.

2. Conditions producing disturbances of certain nerves and nerve centers, namely: (a) Facial and other neuralgias, (b) those producing pareses and paralyses, (c) those producing tetanus.

3. Conditions affecting the cerebral centers, namely: (a) Headache, (b) hysteria, (c) epilepsy, (d) chorea, (e) insanity.

In this article I shall quote a number of cases illustrating the first class of conditions, that is, disturbances of peripheral organs. A number of these were recorded by Dr. Brubaker in his treatise on this subject, some I collected from literature on these affections and some occurred in my own experience.

I. OCULAR DISTURBANCES.

Hutchinson in the Ophthalmic Hospital Reports says:

Whether as ophthalmic surgeons we may incline to admit or deny the connection between dental irritation and amaurosis, we must certainly grant that very curious facts are extant and quite sufficient to make the removal of all possible sources of annoyances to the fifth nerve a precaution, well worth adoption. At any rate I can speak from my own experience most strongly as to the advantage often obtained from attention to these parts.

In many cases of so-called strumous ophthalmia in young children, in which small ulcers on the surface of the cornea or near the edge are attended by intolerance of light, lacrimation and pain, the use of the gum lancet at once relieves the more urgent symptoms. In the case of adults it is surely the duty of our profession to take every opportunity of spreading information as to the possible ill consequences of retaining stumps in the jaws.

Looking at the matter from a wide field of view and remembering the frequent production of cancer of the tongue, cheek, and gums by broken teeth, and how decayed stumps often become the cause of neuralgia of the most obstinate character, we shall become yet more deeply impressed with the importance of the recommendation. In many instances in which the fifth nerve is rendered irritable by a carious stump, the patient is not aware that the stump is the seat of pain. Of this a good example came under my notice a few months ago.

Neuralgia of the eyeball cured by tooth extraction. Mrs. H., aged 28, a woman somewhat enfeebled by nursing, came to me from Moorsfield, stating she could not use her left eye. She had suffered pain for one month in the forehead. The pain was severe, but not constant, and neuralgic in character. The eye was watery and irritable, intolerant to light and she could only read large capital letters. On account of the intolerance of light, I could not test her vision. I concluded to examine her mouth, so as to be able to preclude any irritation of the fifth nerve and found a carious molar, which I had extracted, although she did not complain of toothache. With the removal of the tooth the pain in the eye vanished.

Fruehauff² reports the following case:

A young lady had partially lost her vision in the left eye. She came to him for dental treatment and he had occasion to extract 8 roots for her. After these were removed her eyesight was restored, showing the trouble was due to irritation of the trigeminus.

Dr. Edward T. Ely³ reports the following case:

Paresis of orbicularis palpebrarum; irregular spasms of ciliary muscle; monocular diplopia. The patient, a male of 26, complained that vision of the right eye had suddenly become blurred and that he saw double with that eye. There was no pain or redness. Pupil was small and movable and fundus normal. He has paresis of right orbicularis. Lids cannot be closed completely and the eye is watery. V = $\frac{2}{20}$ and with $\times \frac{3}{8}$ c. 180 = $\frac{2}{20}$. A careful examination of the teeth showed nothing abnormal. The patient was ordered to take some mercury and potassium iodid, which he did for some time without benefit. One night he was seized with severe pain in one of his upper

molar teeth. The next day the tooth was extracted, and an abscess which had formed about its roots was evacuated. The paresis of the orbicularis muscle immediately disappeared, and V became $\frac{2}{3}$ without glass. There was no doubt as to the astigmatism in this case, as vision was subjected to the most careful tests.

H. M. Gill, M.D., reports a case of Garretson's:

Amaurosis caused by overcrowded teeth in a boy of 11, whose sight was perfect, till one morning he found he could not see. He was brought to Charing Cross. On examination it was found that his arch was in a crowded, corroded condition, and 2 permanent and 4 temporary teeth were extracted. As soon as the teeth were removed, he could distinguish light from darkness. After 11 days he was discharged cured.

Clarence A. Vesey, in his work on "Diseases of the Eye," says:

Reflex amblyopia is occasionally met; the most frequent cause probably being irritation of the fifth nerve by some defect of a tooth. The condition disappears with the removal of the cause.

II. AURAL DISTURBANCES.

Loder⁴ reports the following case:

A child had suffered for some time with earache. The cause was not apparent until the mouth was examined. A fragment of enamel was discovered, which had been left behind from one of the deciduous teeth. This was wedged in the gum alongside of a newly erupted molar. The membrana tympani was decidedly inflamed. The removal of the fragment cured the neuralgia and the membrana tympani returned to its natural appearance.

Sexton,⁵ in 1,500 recorded cases of aural disease, found that a third owed their origin or continuance to diseased teeth.

Abbott,⁶ at a meeting of the New York Odontological Society, related the following case:

A lady had been under the treatment of an excellent aurist for inflammation and pain in the ear, but without being benefited. At the same time she was suffering from pain in a right lower molar, which had been filled some 15 months before. I found the pulp dying, and opened the pulp chamber. At the moment it was perforated, the pain in her ear, which was at that time quite severe, left her, and in a few days the ear was perfectly well. It has given her no trouble since.

Dr. Roosa⁷ relates the following interesting case:

Patient, aged 40, had deafness, tinnitus, and itching in the left ear for 2 years, and had had neuralgia of the jaw, face, shoulder and arm of the left side for some time; dizziness and nausea for some time; had had considerable neuralgia before and is subject to headaches. Hearing distance of the right ear $\frac{1}{2}$, left ear $\frac{1}{4}$; tuning fork heard on vertex, but in left ear. Bone conduction better than on aerial on each side. Patient has a hard swelling high upon the gums above the last molar tooth of left side. She had an ulcerated tooth there with similar swelling, requiring lancing further forward. Present swelling increasing in size, but not tender. Right membrana tympani opaque, fair light spot, fair position. Left membrana tympani fair light spot, fair position. The diagnosis here, is neuralgia and trophic changes in tympanum from irritation of the fifth nerve.

III. MUSCULAR DISTURBANCES.

Spasms of the facial muscles are due to irritation of the facial nerve, and may be clonic and tonic in character. They are, as a rule, confined to one side of the face, but may be bilateral. The irritation causing them may be central, but the anatomic relationship between the trigeminus and portio dura, shows that facial spasms can be brought about by dental irritation.

Dr. C. N. Pierce⁸ reported the following case:

A child of 14 was suddenly seized with marked contractions of the superficial muscles of the right side of the face, giving it a peculiar distorted appearance. Although the contraction was continuous, there was from time to time the twitching of individual muscles. No apparent cause being present for the trouble, the mouth was carefully examined. It was found that the inferior second molar of the right side had not erupted, owing to an indurated condition of the gum covering it. After liberation of the crown by excising the indurated tissue, the muscular spasms soon subsided and entirely disappeared.

Trismus, or the tonic contraction of the masseter muscle is caused by irritation of the motor root of the trigeminus. The irritation mostly arises from the irregular eruption of the wisdom teeth. The affection is

mostly tonic in character, though the clonic form has been observed. I had occasion to see a number of these cases in dispensary practice, and relief was always obtained after the extraction of the erupting teeth.

Torticollis or wry-neck may also be the result of dental irritation, as the following report of Dr. Hancock⁹ illustrates:

A young woman was brought to me at the Charing Cross Hospital with wry-neck, the head being drawn nearly to the right shoulder, accompanied by considerable pain. She had suffered in this way for about 6 months, and had been treated by blisters to the spine, leeches, various liniments, and internally with quinin, calomel, iron, valerian, etc., but without benefit. She was otherwise in good health and I concluded the mischief depended upon some local cause. An examination of the spine showed that there was no lesion in that situation, but upon looking into the mouth a stump and a partially decayed tooth were seen in the lower jaw on the left side. When I decided to have these extracted, she assured me that they caused her no inconvenience. Nevertheless she was induced to have the operation performed, and she got well in a few days.

IV. VISCERAL DISTURBANCES.

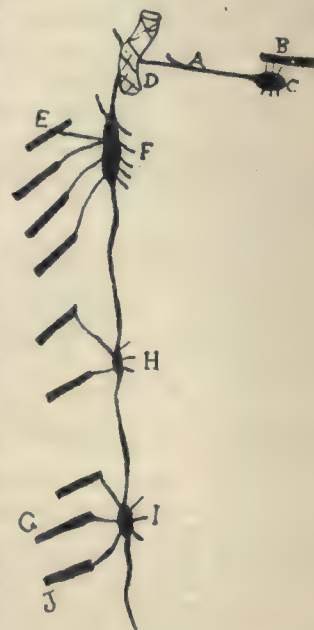
To attribute visceral disturbances to dental irritation may seem a little far fetched, but if one considers the anatomic relation of the trigeminus and the sympathetic nervous system, the possibility of such reflex action will become apparent. The accompanying diagram illustrates the relation of the superior maxillary division of the fifth nerve and the sympathetic cervical ganglions.

The intimate relation¹⁰ which the trigeminus bears with the points of origin of the sixth, seventh, eighth, ninth, tenth, eleventh, and twelfth cranial nerves in the floor of the fourth ventricle possibly explain some of the phenomena which are considered as reflex in character and whose starting seems to depend upon some irritation of the fifth nerve by means of various branches. "The trigeminus communicates with the facial nerve through the various sympathetic ganglions, and the facial nerve gives branches to the auditory and glossopharyngeal nerves, and through its auricular branch communicates with the pneumogastric nerve. The pneumogastric supplies the pharynx, esophagus, stomach, alimentary canal, the larynx, trachea, heart, and bloodvessels, and is intimately connected with the digestive, respiratory, and circulatory apparatus.

Thus we have a reflex arc extending from the oral cavity into the pelvis, and it becomes plausible that a peripheral irritation, as a defective tooth, can produce a distal response, as uterine contractions. The systemic derangements of infants during the teething period are too well known to go into detail, but they furnish an excellent example of reflex conditions due to dental irritation.

Dr. G. V. Black,¹¹ of Chicago, reports a case of gastric neuralgia due to dental irritation:

A physician once brought a patient with persistent neuralgia of the stomach to consult me. Inquiry developed the fact that in the beginning of the trouble there had been much pain



A, vidian nerve; B, superior maxillary nerve; C, sphenopalatine ganglion; D, carotid plexus; E, first cervical nerve; F, upper cervical ganglion; G, eighth cervical nerve; H, middle cervical ganglion; I, lower cervical ganglion; J, first thoracic nerve. (Diagram from Eckley after Testut.)

about the jaws and the ear of the left side. The patient was nearly 70 years old, and many teeth were missing. Pain was often very severe shortly after eating, and things hot or cold could not be taken without increasing pain. A patient exploration finally disclosed a large absorption of the root of a lower third molar near the gingival line that extended into the pulp chamber. This was found while carefully exploring the attachments of the periodontal membrane to the neck of the tooth. Removal of the tooth relieved the neuralgia.

Dr. Pointes¹² records the following case:

A patient, after an attack of toothache, suddenly lost his voice. The aphonia was followed by anorexia, cough, wasting, and feverishness, which led to the belief that he was suffering from laryngeal tuberculosis. But the lungs were sound and there was no tenderness over the larynx. There was slight inflammation of the pharynx; all the molars in the left under jaw were decayed and the gums and periosteum around them swelled. The teeth were removed, the gums cauterized and gargles employed. On the day the teeth were extracted the suffocative spasms which had troubled the patient abated, and on the following days the other symptoms quickly disappeared.

Cardiac palpitation due to dental irritation.—Remak¹³ relates a case of cardiac neurosis as a result of an erupting wisdom tooth:

The patient, a young woman of 21, complained of cardiac palpitation, preceded by pain in the molar region. The symptoms became aggravated, mental distress, a feeling of suffocation, and finally trismus developed. The trismus was reduced by means of the galvanic current, the tooth extracted, and shortly after the cardiac symptoms disappeared.

Dr. Hullihan¹⁴ reports a case of vicarious menstruation due to dental irritation.

V. TROPHONEUROSES.

Trophoneuroses are divided into diseases of peripheral, spinal, or cerebral origin, according as the peripheral nerves, the spinal cord, or the brain are the seat of the lesion.

After traumatic lesions of the peripheral nerves circumscribed cutaneous red patches are often observed on the extremities resembling chilblains, sometimes associated with pseudophlegmonous swelling of the subcutaneous cellular tissue. (Hamilton.) Transitory and recurring patches of erythema, which, no doubt, are of nervous origin, have been observed on the forehead and the root of the nose in connection with trigeminal neuralgia, and occasionally on the hand in brachial neuralgia.

Trophic Disorders of the Hair.—Ross, in his "Diseases of the Nervous System," says: "The hair frequently suffers from nutritive disorders, subsequent to lesions of the nervous system. Such disorders often occur after experimental injuries of nerve trunks in animals. After section of the infraorbital nerve in rabbits the long hair of the beard falls out, while chemic irritation of the sciatic nerve in the same animal is followed by ascending neuritis, and myelitis is frequently associated with loss of the hair on the posterior part of the body." (Eulenberg.)

The hair over the region of distribution of a nerve affected with neuralgia has sometimes been observed to become hypertrophic and even increased in number, but as a rule the effect of neuralgia on the hair is to make it brittle and cause it to fall out in considerable quantities.

Localized greyness of the hair often assumes an intermittent character, increasing during, and for some time after, an acute attack of pain, while a partial or total restoration of color takes place in the interval between the paroxysms. (Anstie.)

Milian,¹⁵ at a seance of the Société Française de Dermatologie et de Syphiligraphie, reported a case of alopecia areata:

A man aged 35, who had suffered much from carious teeth, of which he had a great number, presented a patch of alopecia areata in the mustache over the right upper lateral incisor. This tooth after a severe neuralgia of both jaws had remained very sensitive, and the patches of alopecia had developed over it, and at the same time vesicles identical in appearance with those of herpes had appeared on the corresponding part of the gum.

The hairs about the border of the patch were easily extracted and presented the usual appearances observed in this disease. The skin was thinned and presented a marked anesthesia. There were no other patches of alopecia. The patient was directed to have the mouth cleansed and the teeth looked after by a dentist, and was given quinin internally in moderate doses. Shortly after the jaws had been put in good condition, the sensitive incisor having been extracted, the alopecia ceased to extend. Later the neuralgia ceased, the sensibility of the skin returned, and at the end of 4 months the plaque was completely covered with hair.¹⁶

Garavaza¹⁷ reports 4 cases, in which appeared a bald spot at a point corresponding to the position of a carious tooth. The alopecia had been preceded by severe neuralgic pain in the face; but after extraction of the tooth, the alopecia entirely subsided, and after a short while the bald spot became covered with a healthy growth of hair.¹⁸

In my own practice I saw a case of herpes of the gum and face, with a condition of periostitis, affecting several teeth of the right lower jaw. The condition was caused by an erupting wisdom tooth, and after it was entirely through, the cutaneous affection and periostitis quickly disappeared.

Hilton, in his lectures on "Rest and Pain," mentions a number of cases of "furred tongue on one side," associated with carious teeth, which condition quickly disappeared as soon as the teeth were extracted.

Trophoneuroses of the Salivary Glands.—Secretory disturbances of the salivary glands may occur in connection with lesions of the peripheral fibers of the trigeminal or the facial nerve or the cervical sympathetic. In trigeminal neuralgia an increased secretion of saliva is not infrequently due to reflex irritation conveyed through the lingual nerve of the fifth as the afferent, and the chordæ tympani as the efferent channel. Stimulation of the glossopharyngeal is even more effectual in increasing the flow of saliva than of the lingual nerve.

This also accounts for the increased salivation so frequently met in patients who have excessive deposits of salivary calculus; the gums through mechanical irritation (by the calculus) and vasomotor changes become hypertrophied and hyperemic.

In presenting these few cases I trust I will not create the impression that it is my belief that "all the ills that human flesh is heir to" can be traced to dental irritation, or can be treated as such. I simply wish to point out the important relation of the dental organs by way of the trigeminal to other parts, that irritation of the dental branches may exist without odontalgia, and that the result of the irritation may be reflected distally, and therefore the importance of a careful oral examination of patients suffering from neuroses whose etiology is doubtful.

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Modest Needs of the Chicago University.—The New York Sun says: If President Harper's plans for the development of the University of Chicago are to be realized, new gifts amounting to nearly \$20,000,000 must come to the University. President Harper outlines his plans in his decennial report. A list of the gifts needed follows: New endowment to make up the present deficit in current expenses, \$6,000,000; for new buildings, \$3,200,000; for the erection and equipment of 5 hospitals, \$5,000,000; for Rush Medical College, \$1,350,000; endowment of scholarships, professorships, etc., \$4,000,000. Total, \$19,550,000.

INTRAUTERINE FLUSHING AND DRAINAGE FOR INFECTION: THE PASSING OF THE CURET AND DOUCHE.*

BY

HORACE G. WETHERILL, M.D.,

of Denver, Colo.

Professor of Gynecology, Denver and Gross College of Medicine; Surgeon in Charge, Denver Woman's Hospital, etc.

With the noteworthy, and perhaps the single exception of the gonococcus infection, which may be engrafted upon the healthy and unbroken mucous membrane, infectious diseases of the female genital and pelvic organs are to all intents and purposes nothing more nor less than wound infections. They are of the same origin, and their course and consequences are similar to like pathologic processes elsewhere in the body, and they are subject to the same laws for prevention and treatment. The anatomic structures, the secretions, and the relations of parts peculiar to this region do, however, exercise an influence over the growth and development of these infections, and to some degree they determine the direction and severity of the malady and its complications or sequels. This is exemplified by the wellknown bactericidal power of the vaginal secretion on the one hand, and the peculiarly favorable conditions for the extension of established infections through the lymphatics, veins, or peritoneum on the other. However, these local peculiarities play no important part in the modification of the rules for prevention or treatment, as the knowledge of the resisting power on the part of the vaginal secretion is no justification for lax methods in one's technic, nor does the particular anatomic arrangement justify or make necessary radical differences in treatment from that indicated in like infections in other parts of the body.

The broad general principles for the prevention and treatment of wound infections are well worked out and established, so far as is possible with our present knowledge of the sciences of bacteriology and surgery, and may be briefly summed up as follows: Prevention depends upon the *practical* sterility of the field and environment about the wound and of all things that come in contact with it—that is, hands, instruments, sponges sutures, dressings, etc. Treatment is directed (1) toward the localization of the infection through evacuation of pent-up secretions, and the relief of tension, and consequent diffusion from absorption, which implies physiologic rest and drainage; (2) toward the elimination of toxins and poisons already absorbed; and (3) toward the support of the patient in her battle with the disease.

In regard to prevention, the qualifying word "practical" is used advisedly, as it is well known that actual sterility is impossible of attainment for the skin of the surgeon and patient, though it is for the instruments and dressings, but it is also well known that from a practical standpoint the skin may be made so clean that infections do not occur, either through the attenuation of the virus, or its dilution to a point where it may be taken care of by the tissues, some of which have great power in this regard, particularly the peritoneum. In this connection, permit me to say that our former faith in certain poisonous chemic antiseptics is waning, and there is a growing disposition to depend more and more upon mechanical means (soap and hot water and a good brush vigorously used) and less upon the delusive dip of the half-washed hands into the 1-1,000 solution of mercuric chlorid, the inefficiency of which is proved for this purpose as well as for the vaginal irrigations hereafter to be referred to.

Applied to infections of the female genitals, the general surgical principles here referred to, simplify and facilitate the prevention and treatment of such con-

ditions and yield far better results than the routine treatment with the curet and mercuric chlorid douche, so long in vogue and still so tenaciously adhered to by many practitioners.

In maintaining that the curet and mercuric chlorid douche should not be used in *acute* infections of the female genital organs, I take the ground that they are unnecessary and universally injurious. That patients suffering from such conditions have been cured and have recovered in the hands of many of us, must in the light of the facts now before us, lead to the conclusion that they have recovered in spite of the treatment rather than because of it.

Please bear in mind that I am speaking of acute infections. Nothing in this paper is intended to apply to chronic endometritis, the result of old infection; nor to those cases of sapremia, after delivery at term, or of abortion, in which the symptoms are clearly due to the retention of putrid products of conception, which must and should be instantly removed, with the dull curet, if necessary. The differentiation of these conditions must be made and in almost every instance can be made by making a very careful study of the history and symptoms of the case, but if there be a doubt after a digital examination has told all that is to be known in regard to the condition of the inside of the uterus, and there be the least evidence of acute infection or of diffusion of the disease beyond that organ, the curet and douche should be discarded instantly, as they can serve no good purpose, there being no foreign body to be removed. Furthermore, they do great harm through the distribution of the infective process and dissemination by breaking down the natural barriers and promoting the extension of the disease.

Please allow me to quote some eminent authorities in regard to this question, for while there is a very general agreement in regard to it among the leading gynecologists and obstetricians of this country, there is still a vast deal of uncertainty in the minds of many others which should be cleared away at once in the interest of our patients, as well as of modern medical science.

First, as to the primary sterility of the vagina and the effect of the antiseptic douche upon infective bacteria when once introduced. Williams¹ says in his excellent new book upon obstetrics:

As a result, therefore, of the work of Krönig and Menge and myself, it has been fairly satisfactorily demonstrated that under normal conditions pyogenic cocci are never present in the vagina of pregnant women, and that therefore there is no possibility of autoinfection as far as these organisms are concerned, and whenever they are demonstrated in the uterine secretion of puerperal women, they should be regarded as affording conclusive evidence of external infection.

An interesting fact in connection with the question of autoinfection is, that those who believe most firmly in its possibility, and who are in the habit of employing prophylactic vaginal douches for the destruction of the organisms in the vagina, have thus far been able to present far less favorable statistics than their opponents. Thus, Ahlfeld finds that 38% of his patients have a rise of temperature during the puerperium, even after the use of the prophylactic douche. Again, Kaltenbach, while chief of the Lying-in Clinic at Halle, always resorted to its routine employment, but the statistics show a very material improvement since his successor, Fehling, discontinued the practice. Furthermore, the results of Leopold and Mermann, who do not use the douche at all, show a constant improvement corresponding with the increasing precision with which objective asepsis is carried out.

S. Mark,² in an excellent paper on the "Bacteriology of the Puerperal Uterus," etc., says:

It has been proved beyond the shadow of a doubt that neither *Staphylococcus albus* and *Staphylococcus aureus*, nor *Streptococcus pyogenes*, nor *B. coli communis* are to be found in the healthy vaginal secretion of the pregnant woman.

Regarding the curet and antiseptic douche in puerperal infection, Williams³ says:

Curetage as a routine measure in all cases of puerperal endometritis is by no means to be recommended, for the reason that in the most severe cases there is usually absolutely nothing in the uterine cavity which can be removed, and its employ-

* Read at the meeting of the Colorado State Medical Society October 8, 1903.

ment can only do harm by breaking down the leukocytic wall, which serves to prevent the invasion of the deeper layers of the uterus by the offending bacteria. On the other hand, when the uterus contains more debris, its removal is more readily effected by means of the finger than by the curet.

The routine use of mercuric chlorid or carbolic intrauterine douches in the treatment of these cases is counterindicated on several grounds. In the cases due to virulent streptococci a histologic examination shows that the organisms have penetrated deep down into the tissues by the time the initial chill and rise of temperature occur. Under these circumstances the employment of an antiseptic douche is not rational, inasmuch as the germicidal fluid cannot possibly penetrate the uterine wall sufficiently deep to reach the bacteria, which are giving rise to the symptoms, and upon which the further spread of the disease is dependent.

Moreover, it has been shown experimentally by Bumm that mercuric chlorid injections penetrate the tissues only to a very slight extent. He took the liver of an animal dead of anthrax, and after soaking it for 30 minutes in a 1-1,000 mercuric chlorid solution, placed it upon a freezing microtome, and cut thick sections from it. After cutting off about .1 mm., he inoculated the next section into another animal which succumbed to anthrax, thus showing that the germicidal action of mercuric chlorid had been exerted only upon the surface. If this be the case in the laboratory after the tissues have been immersed in the antiseptic solution, what effect can we expect upon organisms embedded in the muscular wall of the uterus from the transitory application to the surface of a few liters of a weak mercuric chlorid solution? Bumm likewise showed that the streptococci made their way through the uterus with great rapidity, traveling 2 cm. or more in the space of 6 hours. What has been said concerning mercuric chlorid applies equally well to the other disinfectants.

On the other hand, their employment in cases of putrid endometritis is even less rational. In the vast majority of such cases, simply cleaning out the uterus with the finger or curet, followed by a douche of sterile salt solution will lead to a rapid fall of temperature and the amelioration of untoward symptoms. The object of giving a douche is simply to wash away the debris which has been left behind by the finger, and for this purpose, sterile water or salt solution is far better than any antiseptic solution.

In addition to these somewhat theoretic objections, there is a very practical one: That the employment of antiseptics may do an immense amount of harm. Not a few cases of sudden collapse following the use of carbolic acid douches are on record, while, in some instances, intrauterine injections of mercuric chlorid have been proved to have been the direct cause of death.

H. J. Boldt, in a paper on "The Surgical Treatment of Puerperal Infection," says:

The indiscriminate cureting which, unfortunately, is still being done to a large extent in puerperal women who happen to have an elevation of temperature, or who may perhaps have a slight chill, cannot be too severely condemned. I have seen a number of deaths which, in my opinion, were indirectly due to that procedure. Another, although a minor intervention compared to curetage, resorted to much oftener than necessary, is repeated intrauterine irrigation. The chills which the patients often have after such intervention, may usually be ascribed to it.

At the last meeting of the American Gynecological Society, a paper by Dr. H. N. Vineberg⁵ was read, in which he said:

Curetage is indicated when there are evidences of placental residue in the uterus, independent of the variety of bacteria that might be found in the uterine cavity. In those rare cases in which adherent and sloughing placental tissue can not be removed either with the sharp curet or fingers, hysterectomy is indicated, providing the patient is not already moribund.

This statement was almost unanimously taken exception to by those who participated in the discussion, some of the opinions given being as follow:

Dr. William R. Pryor: Relative to the use of the curet in a case of local infection, to inflict trauma over the whole inside of the uterus with this instrument, usually means the dissemination of the infection, and he believes it is bad practice.

He condemns hysterectomy unqualifiedly in patients suffering from septicemia, saying that nothing can be gained by the removal of the uterus.

Dr. J. Whitridge Williams: If a woman has streptococcal infection, the curet is harmful, and he believes the bad results of many practitioners are due altogether to the practice of cureting in such cases. Whenever he sees a woman with streptococcus infection, he does not think of using the curet, but simply gives her a single douche of sterile salt solution, and leaves her alone. On the other hand, if he finds the uterus contains necrotic

material, particularly if the infection is due to putrefactive organisms, he cleans out the uterus with his finger. Even then he does not curet.

Dr. Edward P. Davis: He repeated the dictum of Leopold, that the surgical treatment of puerperal sepsis at present should be conducted on the one principle of the evacuation of pus or the drainage of abscess, and that hysterectomy is only indicated in those cases in which the adherent placenta can be removed by no other method.

Dr. Malcolm McLean: Curetage has become a uniform method of treatment in the hands of the average obstetrician, and even the sharp curet is used in many cases, the consequence being that the mortality has been increased enormously in septic cases. Emptying the uterus is an absolute necessity, especially when there is evidence of putrid absorption, attended with chill and high temperature. The endometrium should be left alone as much as possible. The intrauterine irrigation tube has its place in washing out the detritus, but he questions the propriety or safety of repeating these washings frequently. He recommends the use of iodine water for douching.

Dr. Henry D. Fry: If the streptococci infect the musculature of the uterus, one cannot possibly reach the infection with the curet, but in the majority of cases of streptococcus infection the area is localized. It is not general. Nature attempts to protect the patient by throwing out a protective zone of inflammatory tissue, in which there are a number of leukocytes and the streptococci are kept out. If the curet is used, this protective zone is broken down, so that the streptococci are enabled to gain entrance to the system and cause a general systemic infection. In cases of criminal abortion, he has repeatedly seen patients with septic conditions doing fairly well, yet after the use of the curet some of the patients died in the course of a few days.

Dr. Seth C. Gordon: Every time an abrasion is made in the uterus with the curet or knife, in the vagina or anywhere else, unless the operator goes straight to the point of infection, he opens up a new avenue of infection. He thinks the use of the curet ought to be largely out of date.

In his new book, just from the press, "The Practice of Obstetrics," Dr. J. Clifton Edgar says:

The endometrium should never be cureted in streptococcal infection; in the first place 80% of these patients recover spontaneously from the formation of a protective layer of leukocytes in the decidua lining of the uterus. The germs leave the uterus in connection with the necrosis and expulsion of the decidua; the use of the curet is therefore distinctly meddling. It breaks down the defensive wall and allows the streptococci to penetrate into the uterus and gain the peritoneum; this being the method by which curetage may set up peritonitis.

That the use of the curet is irrational in these acute infections, which are mostly of the streptococcus, staphylococcus, or colon bacillus varieties, is bound to be conceded if we agree that there is very often no putrid foreign body to be removed from the uterine cavity and that even if there were, it would be unwise to break down the natural barriers to the extension of the infective process with the curet, when the indications of the case can be better met by other means.

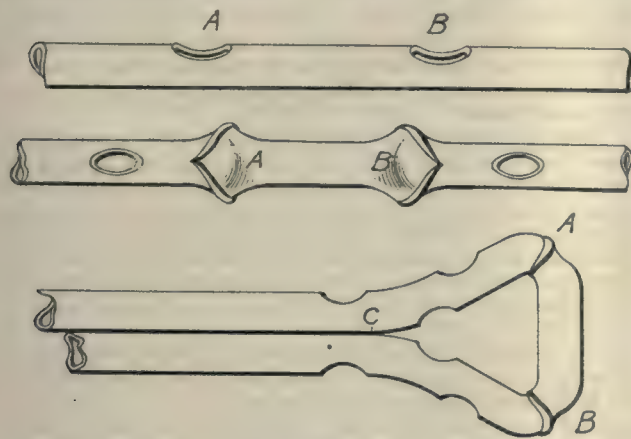
The intrauterine and vaginal douche of mercuric chlorid is also now generally believed to be without other good effect than the mechanical one of washing away the accumulated discharges, a function which is better met by the douche of plain water or of salt solution. On the other hand, it has been definitely shown that the douche of mercuric chlorid solution as a preventive measure and as well as a therapeutic one, is a potent factor for harm in that it reduces the natural resistance of the vaginal secretion to infection, washes away the natural lubricant of the genital canal, thus predisposing the obstetric patient to lacerations that might not otherwise occur, and further complicates the case with the danger of mercurial poisoning. In addition to all of this, the disturbance of the parts incident to the giving of an intrauterine douche for an infection almost always results in the diffusion of the disease as is evidenced by a material rise of temperature afterward.

The conclusion seems to be forced upon us that in the presence of an acute infection of the genital tract of women, incident to either labor at term or to abortion (complete or incomplete) the indications are to remove putrescible material, when present, with as little disturbance of the tissues as may be possible; to provide perfect drainage and a means for maintaining it without

disturbing the patient or the parts involved, to secure absolute rest, promote elimination and sustain the general strength of the patient and fortify her in her battle with the disease in all possible ways.

Briefly stated, the indications are to treat infection of the female genital organs just as the modern, up-to-date surgeon should treat like infections elsewhere in the body, the cardinal principles being absolute rest and quiet of both the patient and the part involved, drainage and evacuation of septic foci, soothing and cleansing applications to the parts, promotion of elimination and support of the patient.

Conceding then that the uterine curet and antiseptic douche are at last to be set aside by the rational scientific practitioner of our profession, what have we offered to take their place, for in my judgment the passing of these vicious devices for the treatment of genital sepsis depends upon the substitution of some other plan of treatment which appeals to us as being practicable, and can be shown to produce superior results. The curet and douche habit is so entrenched in our minds and so much a part of our routine practice that it will not be abandoned upon the simple *ipse dixit* of a few bacteriologic, gynecologic and obstetric experts who have demonstrated to their own satisfaction that it is dangerous and should be stopped, because forsooth they give us nothing to take



THE TUBE.

1. Cut two holes in a long piece of drainage tubing as indicated at A and B. 2. Draw one end of the tube through A and out at B, thus inverting that portion of the tube between the holes as seen in 2. 3. Bend the legs of the tube down so that the holes A and B will be left open for drainage. If bent in one direction they are open, if in the other closed. Tack with a blind stitch at C.

its place, and the practitioner of this day is nothing if not aggressive, active, and too often meddlesome through his desire to be up and doing. So it is of vital importance to direct his energy along safe therapeutic ways in order to keep him out of the old rut.

The plan I propose for the treatment of these infections meets all the requirements stated and conforms to these general surgical principles accepted everywhere as being the best for such infections in other parts of the body; furthermore, it has been tried sufficiently and in the hands of enough men of skill and ability to have established for itself a record of good results unattainable by any other plan.

The plan I propose and use comprehends the removal of putrescible debris from the uterus by the finger and blunt placenta forceps, followed, if necessary, by flushing with salt solution, potassium permanganate solution or diluted alcohol, all nontoxic and used only for their mechanical effect in washing out loose fragments; then my double drainage tube is gently inserted to the uterine fundus and flushed with salt solution or diluted alcohol to assure its freedom from obstruction by clots or debris, the vagina is lightly packed with iodoform gauze, and the patient is returned to her bed if she has been removed, for no anesthetic is given and the manipulation is so gently

done that none is needed. The tubes are then flushed every 2 to 4 hours with alcohol of a strength varying from 25% to 95%, according to the severity of the symptoms and the degree of smarting it produces at the vaginal outlet. This is a modification of the alcohol method of Carossa, but in my judgment and experience a very important and valuable change has been made in leaving all packing out of the uterine cavity and in the use of double tubes for flushing and drainage without disturbing the patient from her position in the bed.

Socalled drainage with gauze is no drainage at all in the proper acceptance of the term and though it does carry off a limited amount of thin fluid or blood serum it acts as a perfect dam for pus and the broken down particles resulting from suppuration and sloughing while the flushing tube to which I refer carries them off at frequent intervals and keeps the cavity free from that distention and pressure that is so great a factor in promoting absorption. The moment the tension is relieved from an abscess cavity the septic absorption is apt to be arrested and the fever subsides and the same principle obtains in this very case, for how often do we find a tight internal os damming back an ounce or more of filthy, foul-smelling debris.

Furthermore, the diluted alcohol used for flushing the tubes meets other indispensable indications in the treatment of such patients, for beside the mechanic effect of removing debris, it has the virtue of a chemic action in arresting putrefaction and bacterial growth, the same as when the tissue is placed in a bottle containing the alcohol, the uterus in this instance being the bottle in which the alcohol is so frequently poured. It is nontoxic and its supporting and stimulating effect through being taken up by the absorbents is no insignificant factor.

Best of all, however, is the fact that it can be employed by every capable practitioner everywhere and that its use involves no surgical operation, no anesthetic, no frequent and painful handling of the patient; and that it will yield results heretofore unattainable by any other method.

In a paper read before the El Paso County Medical Society last February and published in the *American Journal of Obstetrics*, Vol. xlvii, No. 5, 1903, the details of my method are given with some reference to results and a typical temperature chart, it having for a basis the Carosso alcohol irrigations but with the vital difference that the tubes are used double and without the gauze packing, which are details I find absolutely necessary for the attainment of the best results.

At the Woman's Hospital in Denver the method is the routine treatment for all intrauterine infections after abortion, complete or incomplete, or labor at term, and there we get not a few of both of these varieties from the outside in various stages of progress and so long as there is no great diffusion of the disease beyond the genital organs themselves and no metastatic septic foci in the lungs or elsewhere, the patients are found to make rapid and complete recoveries and even in some instances when the disease had been broadly disseminated and septic pneumonia established the recovery was complete and satisfactory though somewhat tedious.

I have been so impressed with the great dangers of the prevailing practice in the treatment of acute genital infections with the indiscriminate application of the curet and mercuric chlorid douche, with the utter inadequacy of other wellknown measures and our helplessness in the face of one of the most common and dreadful diseases known to us, and last of all, with the safety, simplicity, and security of the method here advocated, that a vigorous presentation of the subject has seemed to me fully warranted and justified.

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- 4 American Journal of Obstetrics, September, 1903, page 296.
- 5 American Gynecology, page 550.

SPECIAL ARTICLES

THE RELATIONSHIP EXISTING BETWEEN THE OPHTHALMOLOGIST, OTOLOGIST, AND THE GENERAL HOSPITAL.¹

BY

FRANK ALLPORT, M.D.,
of Chicago.

Clinical Professor of Ophthalmology and Otology, Northwestern University Medical School, etc.

The great majority of ophthalmologists and otologists are compelled to do most of their operative, and especially their *private* operative work, in a general hospital. They are, therefore, brought into almost daily contact with the problem as to how the general hospital can be best adapted for their peculiar needs, and it is with the purpose of relating some personal experiences in general hospital work, and with the hope of eliciting some useful and pregnant discussion, both special and general, upon this interesting and important subject, that this article is written. There are in this country a few private or semiprivate hospitals for the care of paying patients suffering from eye or ear diseases; such as Knapp's in New York, or Holmes' in Cincinnati, where the surroundings are such as to place this class of patients under almost ideal conditions for the attainment of the best possible results. There are also public infirmaries, such as the Illinois Eye and Ear Infirmary, or the Massachusetts Eye and Ear Infirmary, etc., for the treatment and care of charity patients, where little is left to be desired for the performance of the most scientific work. But the unfortunate rich man who is compelled to submit to a cataract or mastoid operation, must, as a rule, either be operated on at his own home or in a general hospital, neither of which is adapted for obtaining the best results. This is lamentable, not only for the man of means, who is willing and able to pay for the best of everything, but also for the surgeon who is, of course, especially anxious for good results with patients of this class, as his living depends upon them, and the outcome is most important in the establishment of a reputation for faithfulness and skill. It thus transpires that the man who pays nothing, is often treated in a special hospital, built, equipped and managed for the care of eye and ear patients, with the best operating-rooms, best instruments and devices, best regulation of illumination, best nurses, isolation wards, etc., while the man who pays, must, perhaps, take his chances in a general hospital, improperly regulated as to light, with no isolation ward, no proper equipments nor instruments, no properly trained internes nor nurses, comparatively little indeed to protect him from infection and other misfortunes, and in short, but little that an honest surgeon can honestly recommend and with much that he must wish to conceal and condemn. I well remember two patients upon whom I operated for cataract in one day. The operations were both perfectly smooth and uneventful, and the patients were given adjoining beds in the women's surgical ward of a general hospital. Upon the third day the bandages were removed and the eyes presented an ideal appearance. The eyes were carefully washed, some atropin instilled, and the bandages reapplied. Within 36 hours the bandages were removed and a virulent streptococcus infection was in active operation. Both eyes were rapidly lost from purulent panophthalmitis, and removed. I must have infected these eyes at the first dressing, but how? My hands were thoroughly scrubbed and disinfected before the dressings were made and between dressing the two patients. I shall always feel that the infection proceeded from the dressing tray or its contents, and as the ward nurse was handling all kinds of surgical cases, and the tray and its contents were left exposed to the more or less germ-laden atmosphere of a general surgical ward dressing-room, and were more or less handled by various nurses, internes, attendants, etc., such a conclusion seems not only possible, but highly probable. An ophthalmologic colleague in the same hospital, at about the same time, suffered similar results in 2 private patients in private rooms, and the 4 cases made us feel

exceedingly uncomfortable for a long time, owing to various menacing threats of malpractice proceedings, which happily after a time subsided. The incident, however, was not without its lesson, for with these unhappy cases as a text upon which to base a sermon, my colleague and I have reorganized the eye and ear service of this hospital, so that at the present time it is, while very far from being perfect, in very fair running condition, and we at least feel a measurable sense of security that our patients will not be subjected to the frightful results just enumerated, than which nothing could be much worse.

Perhaps one of the most important moves toward the establishment of a satisfactory eye and ear service in a general hospital is the appointment of a special nurse, whom we will call the ophthalmic nurse, for without this essential element in such a service, I believe that progress is almost impossible. By an ophthalmic nurse I mean one whose character and training will make plastic material, from which may be molded an assistant of earnestness, good judgment, and delicacy of touch, for without these characteristics no nurse can be of much service to the ophthalmic surgeon. She should, therefore, be carefully selected from the other nurses, and her term of service in the eye and ear department should not be less than 3 months, and more, if possible. If there is sufficient eye and ear work in the hospital to warrant it, she should devote her entire time to the service, but if not, she should belong primarily to this service, and secondarily, she may do other hospital work of an absolutely clean character, that will not interfere with her regular ophthalmic service. If there is sufficient material, 2 or more nurses might be detailed to work in this manner in the eye and ear department, but as the number of such patients in a general hospital will rarely exceed 20, 1 nurse will probably be sufficient.

It should be the duty of this nurse to perform personally all the nursing necessary in the eye and ear department. Of course, such services as the administrations of drugs, baths, sweats, collecting of specimens for urinalysis, etc., should be performed by the ward nurses, but the ophthalmic nurse or interne should be held responsible for them, and see that such orders are faithfully carried out. The ophthalmic nurse should not personally attend infectious cases, for obvious reasons; such patients may be cared for by the ward nurses, or by especially detailed nurses, to whom careful instructions should be given, but the ophthalmic nurse should be responsible for the faithful discharge of their duties, and she should consequently supervise the work. The ophthalmic nurse should always be on hand to make the rounds with the attending ophthalmic surgeon and the interne surgeon, and should carry with her a tray, upon which should be placed everything that will be necessary in the daily dressing of the patients. She should not have to run here and there to get this bandage and that solution, but should remember that time is valuable, and that everything must be close at hand. She should be able to vouch for the cleanliness, sterility, and freshness of everything upon her tray, and should give this matter her personal and earnest attention, remembering that while in general surgery a little suppuration in a wound need not necessarily prove disastrous, in ophthalmic surgery, particularly in cataracts and iridectomies, we must secure *perfect* healing, and the slightest infection will almost certainly ruin everything. She should learn the knack of putting solutions and ointments in the eye, or irrigating the eye, or cleansing an eye without injuring it, and of properly adjusting a bandage. She should understand how to use hot and cold applications, how to syringe and irrigate an ear, how to dry an ear, the use of the head mirror and the aural speculum. She should learn these and many other things too numerous to mention and so trifling as to appear insignificant, and yet of great importance if our patients are to acquire the best results. All these things the attending surgeon must take pains to teach the ophthalmic nurse from day to day as the rounds are made, remembering that while it may be a hardship to go over this ground 3 or 4 times a year as each nurse comes on, it is yet much easier than to have no ophthalmic nurse at all, and to endeavor hopelessly to impart fragments of information, that will be soon forgotten, to all the nurses in the hospital as he meets them from time to time in the different wards. In the intervals between the visits of the attending

¹ Read by title at the Memphis meeting of the Mississippi Valley Medical Association, 1903.

surgeon, the ophthalmic nurse should faithfully follow out his orders, such as putting medicines in the eye, changing bandages, cleansing eyes, etc., and should inspire the attending surgeon with a sense of confidence and repose that her duties are well and faithfully performed. The ophthalmic nurse should always be present with the surgeon when he performs operations, not, perhaps, as the chief nurse of the operating-room (whose duties are never supposed to be usurped), but as her chief assistant. In this manner she becomes familiar with operative work and interested in the cases, and will be almost certain to perform better work in the subsequent care of the patient than could otherwise be the case.

A week or 10 days before the retiring ophthalmic nurse goes off duty, the new ophthalmic nurse should be assigned to the department, to make the rounds with both the attending surgeon and the retiring ophthalmic nurse, for by so doing she becomes familiar with the work, and the establishment of new relations is accomplished with the least friction to all parties concerned. One great advantage in the teaching of ophthalmic nurses in this way is the education of women in this line of work, so that after graduating, surgeons can secure their services in private cases, in which patients prefer to remain in their own residences during their term of illness, a fact which I am sure will be greatly appreciated by those who, from time to time, have been compelled to employ nurses to care for ophthalmic cases, who were totally unacquainted with the requirements for this character of work.

It is almost unnecessary to say that one or two of the house internes should be assigned to duty in the eye and ear department, and that he or they should represent the attending surgeon in the hospital during the latter's absence, and should be held primarily responsible for the work of the department.

In most general hospitals the eye and ear department plays but an inconspicuous part, and, therefore, does not present many claims for financial and other considerations upon the part of the management. A few cases a year do not appear to the mind of the ordinary trustee or superintendent a valid argument for the expenditure of much money for instruments and appliances. Unless endowed, a hospital must run upon business principles, and must show at least some funds upon the right side of the ledger; therefore, the tendency is, and should be, to appoint men on the staff who are not only men of standing and ability, but also men who can appreciably increase the hospital income. Therefore, if eye and ear surgeons desire good services, with financial assistance and other considerations extended to them from the management, they should on their part establish their claims to such favors by organizing and maintaining a live department. This can be accomplished in several ways. First of all, I would emphasize the importance of the concentration of work in one hospital. I regard connections with various hospitals as extremely unwise, both from the standpoint of the surgeon and the hospital, as, if connected with various institutions the surgeon consumes much time in going from one to the other, and he is continually working in a variety of elements, none of which can be of the most desirable character. The eye and ear surgeon, even though in full practice, will hardly have a very large number of private hospital cases on hand at any one time; he can then best subserve his own ends by concentrating at least the very great majority of his cases in one hospital, to which he can devote his time and attention, and where he can erect a service that will be a credit and satisfaction to himself, and an encouragement to the institution. It certainly needs no argument to insure conviction that a surgeon can work best and to the highest benefit of his patients in an atmosphere where internes, nurses, attendants, etc., are familiar with his every want, and where he is surrounded by those instruments and appliances that make work easy, and where experience has shown that after-care and treatment will be followed out according to his desires.

Every effort should be made to secure as colleagues in the eye and ear department men not only of high professional and personal character, but also men who are broad-minded and congenial to work with, and who will earnestly labor for the upbuilding and success of the department, and who can keep enough patients in the hospital materially to aid toward the

end in view. It is an extremely poor plan as vacancies occur, to pursue the narrow-minded policy of placing men upon the staff who are harmless and negative, and who are not strong enough professionally presumably to injure the prospects of the older incumbents. The best possible material should be secured, as everything that enhances the importance of the department benefits every one connected with it. Two or 3 or 4 men of ability, rectitude, and energy working together as a unit, conferring together frequently as to ways and means, and considerate as to each other's feelings, can build up an eye and ear department in *any* hospital that will be a credit to themselves and an object lesson to many. But few men in this specialty can command enough private hospital cases to make of this department a real power, while 2 or 3 or 4 surgeons, largely concentrating their work in one institution, can show a record at the end of the year that will place them in a position to acquire anything in the way of instruments and privileges that it is within the power of the trustees and superintendent to bestow.

The upbuilding of an operative clinic upon definite days and hours I regard as one of the surest methods of welding together an eye and ear department, and making it a credit and power to all parties concerned. By this I do not mean a one man clinic but rather a department clinic, at which all the eye and ear men in the hospital are expected to participate. But few eye and ear surgeons can command enough operative material to interest regularly a class once a week for 2, 3 or 4 hours, and anything less is not sufficient; while 2, 3 or 4 surgeons can usually, between them, produce sufficient material to make a fine clinic, run with the regularity of clockwork. A day and an hour should be selected that will be reasonably convenient for all, and this time should be retained year after year with the possible exception of cessation during the summer months. After a time the clinic will become known and recognized by profession and laity, and will be a source of pleasure to the surgeons, and profit to the students and visiting physicians. At this clinic all the attending staff should participate as they have material and frequently all will operate in a single afternoon, and in this very feature resides one of the most delightful elements of the plan—the intimate mingling together in an operative clinic once a week, of colleagues of similar tastes and desires, the intermingling of ideas and opinions, and the useful observation of each other's work and method. I, myself, am a participant in a plan of this nature and I can truthfully say that it is to me the brightest spot in my professional life. The number of clinical days in the week may be increased from 1 to 2 or 3 or more days in the week, provided sufficient material is presented, but it is better to have one sure and full day than several uncertain days, with a paucity of operations. Let the profession and students realize that upon a certain day and hour at a certain hospital they may depend upon seeing plenty of good operative work, and the success of the clinic is assured. I believe it to be an excellent plan to encourage the nose and throat men on the staff to participate in these clinics as the branches are closely allied, and this added element will materially aid in all of the desired results.

Another feature tending toward the upbuilding of an eye and ear department in a general hospital, is the opening and encouraging of a good live dispensary. This will sensibly aid in supplying material for the operative clinic. I do not, however, wish to be understood as advocating the surrender of operative material from the dispensary oculist and aurist to a member of the hospital staff for use in the clinic. On the contrary I would open the clinic to the dispensary men on equal terms, and urge them to operate and lecture whenever they can furnish suitable material either from the dispensary or elsewhere. I would likewise extend to them the full privileges of the hospital and would urge the dispensary staff to organize, and to have regular meetings, and that the president of the dispensary staff be invited always to attend and participate in the meetings of the hospital medical board, in order that the two bodies may come closer together, and better understand each other's aims and necessities. By treating the dispensary staff in this manner and letting it realize that it is a part of the general institution, and that every one is interested in its existence and success, the highest interests of all will be

best subserved. Finally, I believe that the success of an eye and ear department can be materially assisted by inviting men to take part in the operative clinics, who have no official connection with the hospital. If for instance, a colleague in or near your city has performed conspicuously good work along the line of cataracts, lid surgery, mastoid work, etc., invite him once or twice a year to the clinic to demonstrate his methods to your class, and acknowledge the excellence of his work, in a manner that will show you to be broad minded and generous and above petty and ignoble jealousies. This act frequently repeated will not only add material, variety and interest to the clinic, but will go a long way toward creating in your city a fraternal and kindly sentiment that will be reciprocal in its nature, and add much toward the better understanding of rival colleagues and the establishment of professional relationships which will be most delightful in their character.

Much remains to be said upon this interesting and important subject, but enough has been mentioned to indicate a general policy which, if carried out, will, I believe, produce good and satisfactory results. The plan is not an ideal and optimistic dream, for in St. Luke's Hospital, where I do most of my operating, it has been carried out in detail to the great delight of my colleagues, Dr. Casey Wood and Dr. Thomas Woodruff, with whom I have worked for some years with ever-increasing gratification and respect, and to myself. Great results may be obtained if earnestness and unity of action be observed, and from a small beginning in a general hospital, with patients scattered in every ward, an eye and ear department may grow until a portion of a building or a separate pavilion may be dedicated to its use, where work of the best and highest character will be performed by a large staff of energetic and congenial workers.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

January 23, 1904. [Vol. XLII, No. 4.]

1. The Doctor in Politics. CHARLES A. L. REED.
2. A Contribution to the Study of Visual Disturbances in Brain Injury. WILLIAM E. GAMBLE.
3. A Case of Perforating Wound of Both Cerebral Hemispheres. W. S. LINDSAY.
4. A Clinical Study of Epilepsy. J. G. BILLER.
5. Relationship of Epilepsy to Chronic Gastrointestinal Disease. G. W. MCCASKEY.
6. Echinococcus Cyst of the Liver, with Report of a Case with Operation and Recovery. BAYARD HOLMES.
7. The Prophylaxis of Plague. J. J. KINYOUN. (Concluded.)
8. The History and Etiology of "Migraine." GEORGE M. GOULD. (Concluded.)
9. Lipoma Arborescens Tuberculosis of the Knee-joint. CHARLES G. LEVISON.

2.—See *American Medicine*, Vol. V, No. 20, p. 778.

3.—See *American Medicine*, Vol. V, No. 22, p. 862.

4.—See *American Medicine*, Vol. V, No. 20, p. 778.

5.—See *American Medicine*, Vol. V, No. 22, p. 862.

6.—**Echinococcus Cyst of the Liver.**—B. Holmes describes the life history and geographic distribution of the parasite, and the clinical history of the host, and gives an extended report of a case in a young girl who had been erroneously treated for tuberculous hip-joint disease, and on whom an exploratory laparotomy was done for a tumor of the liver with enormous enlargement of that organ. After evacuation of 2 cysts, there was rapid convalescence from the operation, and complete return to perfect health. America cannot hope to remain free from the echinococcus for long. All association with dogs, especially imported dogs, is attended with danger; their presence about truck farms and gardens, grocery stores, and kitchens is dangerous and filthy. Medical treatment is useless, as are also tapping and washing out of the cyst. The only surgical treatment is laparotomy, the opening and evacuation of the cyst, and probably tamponade and drainage. [H.M.]

7.—See *American Medicine*, Vol. V, No. 22, p. 859.

8.—**History and Etiology of Migraine.**—G. M. Gould criticises this meaningless name for a symptom-complex of infinite variability whose etiology and pathology, according to current literature, are unknown, and for which no treatment has availed. He traces the disease through medieval and

ancient literature and believes its relief to have been the motive in prehistoric trephining. He discusses the various classifications, the prodromal symptoms, the typical attack, and the special ocular symptoms preceding and accompanying the head pains and nervous and digestive symptoms, and refers to the article of G. Martin which will one day be recognized as epoch making, Martin having from his own experience discovered the relationship of sickheadache to astigmatism and then verified the observation on 352 reported cases, low astigmatisms being the rule in these. The apparent relation of migraine to the sexual organs is explicable by the increase in eye work and in eyestrain at the critical sexual periods, and women have been more subject to it than men because they have done more near work with the eyes. The writer points out the significant relation between gastric symptoms, literary work, and the invariable outdoor or hydrotherapeutic treatment. The close connection between migraine and excess of uric acid suggests that the latter is dependent on eyestrain also. The pareses, paralyses, anesthetics, and psychic disorders described as characteristic of migraine have often been noted by the author in his private practice as resulting from ocular defects. Migraine in its typical and atypical forms is almost always but one of the manifestations and results of eyestrain and may be cured by lenses correcting the astigmatism on which the disease depends. [H.M.]

9.—**Lipoma Arborescens Tuberculosis.**—C. G. Levison reports a case in which the extensive involvement required exposure of the whole knee-joint in order to complete removal of the growth. Operation was followed by a most satisfactory result, a flexible joint which could be used without support. He describes the macroscopic and microscopic appearances of the villi. No tubercle bacilli were found, possibly on account of the specimen having been kept in formalin several months prior to examination. [H.M.]

Boston Medical and Surgical Journal.

January 21, 1904. [Vol. CL, No. 3.]

1. Clinical Lecture on Epithelioma at Massachusetts General Hospital. J. COLLINS WARREN.
2. The Prevailing Conception of Degeneracy and Degenerate, with a Plea for Introducing the Supplementary Terms Deviation and Deviate. G. L. WALTON.
3. Cancer of the Rectum: Combined Abdominal and Perineal Operation. CHARLES A. POWERS.

2.—**Degeneracy and Deviation.**—G. L. Walton objects to the term degeneracy on account of its association with profligacy, perversion, crime, epilepsy, insanity, and idiocy. The term "superior degenerate" has caused confusion even among special students. Degeneracy has come to include every form of variation from the average normal, from flecks on the iris and astigmatism, to insanity. Have we not drifted into recording facts in such a way as to have an opinion? If so, is it not reasonable, unless we are dealing with undoubted degeneracy, to record deviations as deviations? The stigmas do not necessarily indicate deterioration. The downward is not the only direction, as the word degeneracy would imply, in which deviation may be found. [H.M.]

3.—**Combined Abdominal and Perineal Operation for Rectal Cancer.**—C. A. Powers reports that a woman of 45 had suffered from the symptoms of rectal cancer for 6 months. Examination showed the cancerous growth and the invaded gut movable. The patient being thin and small, though of good strength, a combined abdominal and perineal operation was decided upon. The operation described by Mayo,¹ and attributed by him to Gaudier, of Lille, was performed. Powers describes the operation in detail. The patient was under chloroform anesthesia for 3½ hours, and suffered no profound shock. The anus and 11½ inches of the lower bowel were resected, together with the glands and gland-bearing tissue surrounding the rectum in the pelvis. An artificial anus was established in the left inguinal region at the same operation. The patient made a good recovery, and 6 months after the operation was doing ordinary domestic service. Microscopic examination showed the removed tumor to be adenocarcinoma. [A.B.C.]

¹ Journal of the American Medical Association, April 25, 1903.

Medical Record.

January 23, 1904. [Vol. 65, No. 4.]

1. On Cytodiagnosis in Nervous Diseases. CHARLES L. DANA and F. W. HASTINGS.
2. Lymphocytosis of the Cerebrospinal Fluid. JOSEPH FRAENKEL.
3. Thorium: A Radioactive Substance with Therapeutic Possibilities. SAMUEL G. TRACY.
4. A New and Simple Phototherapeutic Lamp. HENRY G. PIFFARD.
5. Early Operations in Abdominal Troubles. EDMUND M. POND.
6. Two Cases of Abdominal Traumatism. A. B. ATHERTON.
7. Common Duct Stone without Characteristic Symptoms. GEORGE EMERSON BREWER.

1.—Cytodiagnosis in Nervous Diseases and the Technic of Cell Diagnosis.—C. L. Dana and F. W. Hastings contribute a somewhat technical article on this subject. The cerebrospinal fluid is obtained by lumbar puncture, after the method of Quincke. The fluid thus obtained is studied and conclusions arrived at. They assert that cytodiagnosis of the cerebrospinal fluid seems likely occasionally to be of great help in diagnosing the doubtful cases of paresis and of tabes, in the early stage. It will be of help in determining whether the person has had syphilis, and whether certain symptoms indicating the invasion of the central nervous system by this infection are correct. In spinal syphilis, as shown in cases of syphilitic meningomyelitis, or Erb's spinal paralysis, there is an increase in the cell count, and if trauma can be excluded, the presence of specific infection may be inferred. This method should be of help in determining the activity of the process. If there is any actual inflammatory change going on, it will be shown by the presence of the polynuclear leukocytes, while in the ordinary conditions of specific infection, only mononuclears are present, with a proportion of polynuclears of not over 5%. It must be remembered that there are some cases in which, although paresis or tabes is present, there are no cells found, at least, on the first examination. Widal asserts that if 2 or 3 examinations are made, the lymphocytosis will always be discovered. Hastings describes in detail the method of doing lumbar puncture and securing the fluid. [A.B.C.]

2.—Lymphocytosis of the Cerebrospinal Fluid.—J. Fraenkel reports 33 cases of successful puncture for cerebrospinal fluid. In 7 cases of tabes of long duration a more or less marked increase of lymphocytes was found. In 4 cases of general paresis, leukocytosis was marked, as it was also in 6 out of 7 cases of multiple sclerosis. In these last no polynuclear cells were seen. Two out of 3 cases of syphilitic disease of the central nervous system and one of syphilitic brain tumor showed marked leukocytosis. In all the other cases, paralysis agitans, brain tumor, hysteria, poliomyelitis, discharge of cerebrospinal fluid from the nose, aural vertigo with peripheral facial palsy, and hereditary syphilis without nervous symptoms, the fluid was free from corpuscular elements. The tapping was done under ethyl chlorid with the patient bent forward. The most suitable space is between the third and fourth lumbar vertebrae near the middle line. Occasionally one has to wait 30 seconds to a minute until the fluid appears. [H.M.]

3.—Thorium as a Radioactive Substance.—Samuel G. Tracy states that this metal was first discovered in 1828 by Berzelius, but until recent years its scarcity has prevented its use. Its present greatest use is for the production of incandescence in the Welsbach mantle. That it is radioactive can be proved by many experiments. He has proved this by placing metal substance such as a key on a sensitive plate in a dark room and exposing this to the action of the metal for a varying number of hours, depending upon various conditions explained, a thoriograph can thus be made. Recently scientists have proved that the emanations from this element are antiseptic and antifermentative. It has been shown that grape juice when exposed to radioactive matter will not ferment, likewise oils of juniper, origanum, etc. These oils ferment and decompose in a few days if left to light, but after treatment with thorium, even in the presence of light, they were preserved for several weeks. Lately it has been suggested to treat tuberculosis by means of inhalations of thorium, based upon its antiseptic and antifermentative action. [A.B.C.]

5.—Early Operation in Abdominal Trouble.—Edmund M. Pond's article advocates early operation in abdominal troubles, and in this article he discusses the question largely as it pertains to general practitioners. He holds that the general

practitioner is often at fault in his failure to make an early diagnosis, or at least to recognize serious trouble, and therefore he fails to call in a consulting surgeon. In the article he relates a number of instances in which disaster resulted from this very failure. If the surgeon is called too late and gives the patient the last desperate chance by operation he is often blamed for the result, whereas the real fault lies in his not being called sufficiently early. [A.B.C.]

6.—Two Cases of Abdominal Traumatism.—A. B. Atherton reports that a farmer of 48, in endeavoring to discharge an old musket, rested the butt end of the gun against his abdomen on the right side, and it was discharged with a violent recoil. The writer was called, and after having the patient taken a distance of 10 miles to a hospital, he was operated upon and a laceration of the intestine with extensive extravasation into the abdominal cavity found; the rent was closed, thorough irrigation of the abdominal cavity accomplished, and though a fecal fistula persisted for many weeks, the patient finally made a complete recovery. The other patient was a man of 45, who had received a 22-caliber bullet wound in the loin between the ninth and tenth ribs. Within the first 12 hours the patient vomited much blood, the abdomen was opened, and the bullet was found to have traversed the stomach and lodged in the omentum. It was found entangled in the omentum, removed, and the patient made an uneventful recovery. [A.B.C.]

New York Medical Journal.

January 16, 1904. [Vol. LXXIX, No. 3.]

1. Psychic Healing, or, Properly Speaking, the Treatment of Disease or Supposed Disease by Mental Influence. EDWARD WALLACE LEE.
2. The Relation of Early Diagnosis and Treatment to the Prevention of Tuberculosis. F. M. POTTENGER.
3. A Simple and Inexpensive Apparatus for Lifting and Moving Helpless Patients. FREDERICK H. SAWERS.
4. Concerning the Accuracy of Percentage Modification of Milk for Infants. DAVID L. EDSALL and CHARLES A. FIFE.
5. Some Investigations of a Bacterial Treatment of Tuberculosis. STEPHEN J. MAHER. (Continued.)

2.—Prevention of Tuberculosis.—F. M. Pottenger calls attention to the great importance of early diagnosis in the prevention and treatment of tuberculosis. It is not necessary to wait until bacilli appear in the sputum. A skilful physician should be able to detect the disease from the clinical history and the findings of a physical examination. If these are insufficient, the tuberculin test can be used with confidence and safety. The reason that early diagnosis is so important in relation to the prevention of the disease changes completely as it advances. At first it is a pure tuberculosis, later mixed infection makes the picture more complex and the prognosis more grave. Sanatorium care affords the best conditions for a cure. Latest statistics show that over 30% of all cases thus treated are permanently cured. [C.A.O.]

3.—Apparatus for Moving Patients.—A simple and inexpensive apparatus for lifting and moving helpless patients has been devised by F. H. Sawers. He attached a 6-foot track to the ceiling and used an 8-wheel carrier, such as is used for overhead carrying track systems; a tackle and wood frame, as a spreader, fixing the center bolt with 2 nuts; a canvas seat with opening, and straps of stout webbing. When the canvas has been adjusted, the patient may be lifted easily, turned on the swivel and moved on the track away from the bed. The apparatus was constructed for a patient suffering from a cerebral hemorrhage with complete bilateral paralysis. His weight was 206 pounds. Cuts illustrative accompany the article. [C.A.O.]

4.—Modification of Milk.—D. L. Edsall and C. A. Fife have undertaken a series of chemic examinations of milk mixtures, with the purpose of learning whether there are any important errors in the percentage method of feeding, as it is usually carried out; and if errors exist, to determine their sources and, if possible, the manner in which they may be corrected. In carrying out this purpose they analyzed 88 different milk mixtures. The chief source of error is the variation in the composition of different milks and creams; particularly in the fat content of the creams. Another error is undoubtedly found in the person who does the measuring and mixing. The general conclusions are: 1. Milk modifications, under the best

of conditions, will often vary 0.2%, occasionally 0.3% from the prescribed formulas, with modifications of medium strength. With low modifications, the error will be correspondingly less; and with high modifications, correspondingly somewhat greater. 2. Home modifications are, within the limits just mentioned, trustworthy, if they are made by a clear-headed and careful person, from milks and creams of a chemic composition that is known to be reliable. 3. If the composition of the milks and creams used is not known, or if one cannot be sure that the modifier is careful and clear-headed, home modifications are likely to vary greatly from the formulas prescribed. 4. Laboratory modifications appear to be satisfactorily accurate; and unless the milks and creams, as well as the person doing the modifying at home, can be fully trusted, laboratory modifications, when available, are much more reliable than home modifications. [C.A.O.]

Medical News.

January 23, 1904. [Vol. 84, No. 4.]

1. Interscapulothoracic Amputation for Sarcoma. CHARLES A. POWERS.
2. Prevention of the Spread of Ringworm. F. H. BEADLES.
3. Cryoscopy of Urine: The Method of Claude and Balthazard. F. BURTHE.
4. The Pathology and Treatment of Osteoarthritis. EDWARD M. MERRINS.
5. Bovine Tuberculosis. J. W. KIME.
6. Neurasthenia. JOSEPH N. STUDY.

1.—Interscapulothoracic Amputation for Sarcoma.—C. A. Powers reports the case. A man of 56 fell and fractured the upper part of the left humerus, and was properly treated. Three months later he noticed a small lump at about the seat of fracture, anteriorly, and 2 months later it appeared to be increasing in size. A small bit of the growth was removed and examined microscopically. The tissue was found to be sarcomatous, and amputation at the shoulder-joint was advised. This the patient refused. The tumor continued to grow in size, but the patient would not consent to operation until 9 months after its first appearance. Intrascapulothoracic amputation was done, the cords of the brachial plexus being cocaineized before they were divided. The patient recovered satisfactorily from the operation. A footnote states that the patient died 6 months after operation from metastatic sarcoma of the hip. Powers believes that in some instances a hitherto unrecognized sarcoma of the bone may lead to fracture, and the latter be later blamed for the occurrence of the malignant disease, but he is convinced that in this case the fracture preceded, and in all probability contributed to the occurrence of the sarcoma. [A.B.C.]

2.—Preventing the Spread of Ringworm.—F. H. Beadles points out some of the mediums of transmission for *Microsporon audouini* and *Trichophyton*, the large and small spore fungi which cause ringworm. Among these are mentioned the cat, dog, bird, horse, cow, mouse, sheep, and others. He holds that these domestic animals are more frequently responsible for transmission than is generally supposed. The barber shop is another frequent disseminator of this disease, not by the razor, but by the barber's hands, towels or lathering brush. In public schools the disease is often conveyed readily from one child to another, and the writer holds that it has long been urgent that medical inspectors be appointed for public schools to see that this and other diseases are properly recognized and attended to. [A.B.C.]

4.—Pathology and Treatment of Osteoarthritis.—Edward M. Merrins refers to the numerous varieties of this disease which have been pointed out by certain investigators, but practically they are all confined under 2 heads. 1. Rheumatoid arthritis, which is regarded as a constitutional disease usually of toxic origin. It begins with involvement of the synovial membrane, later involving all the arthritic tissues in an atrophic process. The joint becomes constricted, deformed, limited in movement, and sometimes ankylosed; muscular wasting and shortening may occur. 2. Osteoarthritic affections. These may be polyarticular, and the brunt of the disease falls upon the cartilages and articular ends of bones. In bone the synovial membranes, as in rheumatoid arthritis, the changes induced are destructive and hypertrophic, the cartilages be-

come fibrillated and eroded and hypertrophied at the margins being heaped up in irregular nodules. Later these nodules may undergo calcification or ossification. The forms of this disease are Heberden's nodes, spondylitis deformans, and malum coxae senilis. These and kindred lesions are all considered in detail. In the treatment, drugs are of small value; regulated diet and hygiene, together with massage and superheated air, appear to give the best results in arresting the process. [A.B.C.]

5.—Bovine Tuberculosis.—J. W. Kime believes the milk of tuberculous cows as dangerous as the sputum of a tuberculous patient and that cases derived directly from the cow are more rapidly fatal than those from human infection. In half of his own cases there has been no family history of tuberculosis or no close contact with the disease and fully as many cases have come from the country as the city. It is estimated there are at least 2,500,000 tuberculous cows in the country. Milk from such is unfit for use whether the udder is diseased or not, and is especially dangerous to children. All dairy cows should be tested annually, notwithstanding the bitter opposition of dairymen. The unfortunate utterances of Koch have materially lengthened the time necessary to stamp out the disease in our dairy herds. [H.M.]

6.—Neurasthenia.—J. N. Study acknowledges that this condition is rapidly growing, modern civilization being responsible. Americans lead all nationalities. The lack of moral training in childhood and heredity plays an important part. Improper suggestion by designing advertisers or ignorant people prepares in some cases for the final breakdown. Well-marked cases seldom appear before manhood or womanhood, increasing up to 40 and 50. The symptoms are legion and may mask grave mental affections. The treatment should be both moral and medicinal. Most of these patients regain their physical and mental status to a greater or less extent, though large numbers become chronic invalids, and some cross the border line of insanity. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Pseudoappendicitis and Membranous Enterocolitis.—It has often been a matter of conjecture whether or not there exists a relationship between appendicitis and enterocolitis. Potain and Bottentnit deny any connection between the two affections and in a statistic of 460 cases of membranous enterocolitis the latter authority only found one in which appendicitis occurred as a complication. Out of 53 cases of enterocolitis Dieulafoy was unable to discover any symptoms pointing to a diseased condition of the appendix, while on the other hand Robin admits a common origin of both maladies, considering them as an ultimate result of certain types of dyspepsia. In children, Hutinel has often seen an appendicitis enter upon the scene during the progress of an enterocolitis, while Vorbe has collected 32 instances in which the former affection resulted from a membranous enterocolitis. Lyon also upholds the *liaison* between the two processes and of 5 cases of appendicitis he records 2 in which the patient previously suffered from a membranous colitis. The diagnosis must frequently be a very delicate affair, either because the attack of pseudoappendicitis appears in the midst of otherwise perfect health, or on the other hand, when it arises during the course of an apyretic chronic enterocolitis. The early symptoms very closely simulate a true appendicitis and consist of vomiting, tympanism and elevation of the temperature reaching as high as 39° or 40° C., while added to these we have a small and frequent pulse and a pinched facies. To add to the confusion, the greatest point of tenderness will be found in the region of the cecum and very naturally the diagnosis of appendicular inflammation is made. Such cases have been and are needlessly operated on, much to

the chagrin of the surgeon, who finds a normal appendix but a considerable thickening of the cecum and ascending colon. These cases, if watched, will soon show the presence of numerous membranes, of a mucous nature, in the stools. De Langenhagen is of the opinion that true appendicitis is most infrequently met with in membranous colitis, but what is of ordinary occurrence are attacks of pseudoappendicitis, which are nothing more or less than pain localized in the ileocecal region due to an enterocolitis. These attacks of pain so frequent in membranous colitis have a maximum point of intensity and often acute exacerbations, in a given portion of the large intestine, such as the sigmoid flexure, at the middle of or at the flexures of the transverse colon, or at the cecum. In the latter case the clinical picture will be much like that of appendicitis, so much so, that only an exploratory incision will reveal the true condition of affairs. The all-important question, therefore, is to differentiate between the two conditions and thus avoid an error in diagnosis. It is pathologically possible for the appendix to become involved in a membranous colitis, but under these circumstances a differential diagnosis may be made by detecting the presence of greatest pain of the 2 flexures of the transverse colon, these points being quite as tender to pressure as the region of the appendix. Beside, pain may be elicited over the entire course of the large intestine. These attacks of pain are more frequent in children than in adults, for young subjects show a greater reaction and in them alarming symptoms occur, such as fever, vomiting and pain predominating in the cecal region, so that nothing is lacking for a diagnosis of appendicitis. But in enterocolitis the pain is never distinctly localized to the right iliac fossa. And lastly, one should never neglect rectal examination which, as is well known, is one of the greatest aids in diagnosing appendicitis.

REVIEW OF LITERATURE

Glycolysis in Its Relation to Diabetes Mellitus.—R. Lépine¹ gives a critical review of the subject of glycolysis. The fault in diabetes mellitus probably lies in the first act of the glycolytic process. This act is not a simple oxidation, but involves the action of a special oxidizing ferment. Among the intermediary products of glycolysis are oxalic acid, lactic acid, and alcohol. The author has devised a method of measuring the glycolytic power of the organism, based on the fact that the blood will continue to live for some time after being withdrawn from the vessels. His method includes defibrination of the blood, and subsequent measurement of its glycolytic power. The latter is diminished in asphyxia, cerebral disturbances, and disease or destruction of the pancreas. It is augmented in states of mild increase in the alkalinity of the blood, in excitation of the pancreas, and ligation of the duct of Wirsung. The theory of diabetes, recently propounded by Cohnheim and affirmed by the author, maintains that the pancreas, especially the islands of Langerhans, produce an internal secretion which is not directly glycolytic but becomes so when acting in conjunction with a ferment produced in muscle. [B.K.]

Are Koplik's Spots Reliable Early Symptoms of Measles?—Aronheim² found Koplik's spots in only 7 out of 150 cases of measles examined. [E.L.]

Pathology of Acute Poliomyelitis.—P. A. Preobrazhensky³ infers from literature and from his own researches that (1) acute poliomyelitis can result from lesions of the lateral anterior artery as well as from lesions of the sulcocommissural arteries; (2) acute myelitis and poliomyelitis may be identical processes, depending on the accidental localization in this or that arterial district; (3) the same infection may produce interstitial as well as parenchymatous changes of varying intensity, hence a classification of myelitis according to anatomic lesions is unreliable; (4) the question as to the existence of acute parenchymatous myelitis must remain an open one, because we

cannot distinguish closely between acute degeneration of the nerve elements and their acute inflammation; (5) in human rabies there are no specific changes of the nervous system which would permit a postmortem diagnosis. [L.J.]

The Hemostatic Effect of Gelatin.—Leopold Moll⁴ showed experimentally that when gelatin was applied locally to a bleeding surface, or subcutaneously (intravenously) during existing hemorrhage, or on the day before an expected hemorrhage, that the fibrinogen was increased, and agglutination of the blood-corpuscles occurred. He found a constant parallelism between the number of leukocytes and the amount of fibrinogen. [J.H.W.R.]

Laryngeal Crepitation as a Sign of Pulmonary Tuberculosis.—Remouchamps⁵ describes a sign which he terms "laryngeal crepitation," and claims it to be present in all cases of pulmonary tuberculosis, frequently before any other signs or symptoms can be elicited. The physician faces the patient, who is directed to open his mouth slightly. The physician places his right hand on the patient's left shoulder, and his left thumb on the patient's chin; then approaches his left ear toward the mouth of the subject. A fine crepitation may be heard, which is simply an augmentation of the sounds produced in the tuberculous lesions. It is heard during inspiration and expiration, more pronounced in the latter. Sounds may be heard in other affections of the lungs, but they have not the fine crepitan character of the ones described. [B.K.]

Pyocetanin in Noma.—There are in Russian literature 2 reports of noma cured by blue pyocetanin. D. T. Achwlediani⁶ reports his second case (the third in literature). A child of 3½ years was attacked by noma. The ulcer started at the right nostril and destroyed the soft nasal parts, spreading to the angle of the mouth. Pyocetanin was ordered in a 1% solution, to be frequently applied on compresses. Prompt improvement followed, the very next day showing a cessation of further spreading of the ulcer. In 4 days the ulcers were clean and healthy, and in 2 weeks the child was cured. [L.J.]

Widal Reaction in Catarrhal Jaundice.—F. Köhler⁴ has noted a positive Widal reaction in cases of catarrhal jaundice, especially when due to a colon infection. The groups of diseases which may give a Widal reaction are typhoid fever, liver diseases, in which bile enters the blood; colon infections, and certain pneumococcus and meningococcus diseases. The Widal reaction seems to have lost considerable of its value, when all the recent investigations are grouped together. [E.L.]

The Diaphragmatic Phenomenon of Litten.—S. Pugliesi⁵ calls attention to its constancy in health. It is the passage of a linear shadow over the thoracic wall, which may be modified in disease as far as being almost absent; in hemiplegia on one side, in pulmonary or hepatic disease accordingly. A differential diagnosis is made between a subphrenic tumor and a pleuritis. The sign, he thinks, were better called the "pneumophrenic phenomenon of Litten." [T.H.E.]

Paroxysmal Tachycardia.—Under the term "Herzjagen," A. Hoffman⁶ has described a form of paroxysmal tachycardia, marked by extreme rapidity of the heart's action, preceded and followed by irregularity. The same author now reports further observations made on 6 additional cases. No organic disease could be demonstrated in any case. The apparent causes seemed to be bodily exertion in 3 cases, psychic emotions in two, and alcohol with tobacco in one. The attacks begin and end suddenly, the heart's action being regular during them. In 1 case a Röntgen ray examination showed the excursion of the ventricle to be very much reduced, owing to incomplete diastole. On auscultation no abnormality was noted, with the exception of embryocardia. The blood-pressure was practically the same during and between the attacks. Polyuria, without albumin or sugar, was a frequent accompaniment of the attacks. There was very little general disturbance after the attacks. The frequency of the pulse was almost exactly twice as much during the attacks as immediately after

¹ Wiener klinische Wochenschrift, No. 44, 1903.

² Semaine Médicale, December 2, 1903.

³ Medizinske Obzorenje, ix, No. 17.

⁴ Münchener medizinische Wochenschrift, No. 32, 1903.

⁵ Rivista Critica di Clinica Medica, No. 18, 1903.

⁶ Deut. Archiv f. klin. Med., Bd. lxxviii, p. 39.

¹ Semaine Médicale, December 2, 1903.

² Münchener medizinische Wochenschrift, No. 28, 1903.

³ Journal Korsakowa, 1903, No. 8.

them. The tachycardia is ascribed by the author to an alteration in the excitability of the heart muscle, the contractility and conductivity both being increased. The impulses to contraction probably arise from the roots of the great veins, and travel toward the heart. Normally, every second impulse finds the heart muscle in a refractory state; but in this condition the contractility is increased, and each impulse becomes a contraction. [B.K.]

The Nature and Treatment of Delirium Tremens.—J. F. Kelly¹ gives the results of observations upon the alcohol habitues, who during the past 5 years have been admitted and readmitted to the State Hospital at Cleveland. He particularly emphasizes the significance of the so-called prodromes or first stage of the condition marked by pallor, anorexia, tremor, and muscular weakness, general hyperexcitability, restlessness, fear, sleeplessness, and usually albuminuria. The second stage, heralded by the advent of hallucinations and illusions, is only a culmination, often needless, of the first. While alcoholic habituation is the basic factor in the etiology of delirium tremens, and while there is nearly always a history of unusually heavy dissipation just before an attack, Kelly believes that a more immediate and determining factor, always constant and of great importance, is the sudden withdrawal of alcohol, either wholly or in large part. This, if true, accounts for the numerous cases of delirium tremens following accidents to persons during a debauch, part of the treatment usually being the sudden entire withdrawal of alcohol. Kelly's assertion, that delirium tremens is an alcohol abstinence psychosis is based on the results of 2 plans of treatment—sudden and gradual withdrawal of alcohol. In his experience the symptoms characterizing the first stage, particularly tremor, fear, and loss of appetite, have invariably disappeared when alcoholic stimulants were given in sufficient quantities. Doses sufficient to control the symptoms should be given and entire withdrawal can usually be attained within a week. Nux vomica, capsicum, and the bromids are indicated at times, but no good results have been secured from the use of chloral or morphin. [A.G.E.]

Lime Dust Inhalation and Pulmonary Tuberculosis.—P. Reckzeh² reviews the literature and gives his views on this subject. It has been observed that laborers suffering from pulmonary tuberculosis whose expectoration showed the presence of tubercle bacilli, were cured of all symptoms after working several months in quicklime dust. In order to determine whether lime was of value in the treatment of tuberculosis, he subjected 8 patients who had tuberculous lung trouble to inhalations of lime dust. He gives in full the histories and symptoms of these patients. The inhalations were carried out as follows: Linen bags containing freshly burnt lime dust were suspended in the patient's rooms and beaten at frequent intervals. The dust set free in the air was inhaled by the patients for 15 minutes daily. The ears and eyes of the patients were protected in order to prevent irritation. From his investigations, Reckzeh concluded that inhalations of lime dust had no marked influence upon the temperature and body-weight. The physical signs remained unaltered, but the cough and the amount of sputum were lessened. The number of bacilli in the sputum varied, sometimes increasing and at other times decreasing. Some untoward effects occurred, such as headache, loss of appetite, and nausea. The author believes that lime dust is of little or no value in the treatment of pulmonary tuberculosis. [W.E.R.]

Significance of Infection, Heredity, and Disposition in the Etiology of Tuberculosis.—E. Schwarzkoff³ found that 61.25% of his cases of tuberculosis had a clear history of exposure to infection by association with careless tuberculous patients; while only 24.22% of nontuberculous patients showed such a history. This shows that infection plays an important part in the development of tuberculosis. Almost every one is exposed at some time to infection with the tubercle bacillus, but a repeated exposure seems to be required for infection to occur. The danger of a tuberculous subject for those associated with him may be entirely overcome by the necessary precautions in coughing and expectorating. Mere hereditary tendency has not

the slightest influence on the development of pulmonary tuberculosis; it is rather the simultaneous exposure to infection which is of importance. A series of harmful influences, such as child-birth and sedentary occupations in women and certain industries in men, is able not only to aggravate an already existing tuberculosis, but also to serve as a predisposing factor in its development. [B.K.]

Splenic Anemia with Transition into Lymphatic Leukemia.—S. M. Zypkin¹ reports such a case in a woman of 39 in whom a first examination of the blood showed the presence of 2,700,000 erythrocytes, 8,800 leukocytes, and 35% hemoglobin. The examination further showed 64.5% polynuclear; 22.4% large lymphocytes; 5.4% small lymphocytes; 6.4% mononuclear leukocytes with ungranulated protoplasm; and 1.3% of eosinophilic nuclear leukocytes. About 2 weeks later it was as follows: Erythrocytes, 1,550,000; leukocytes, 106,400; hemoglobin, 24%. The differential count was as follows: Polynuclear neutrophils, 11.9%; large lymphocytes, 64.7%; small lymphocytes, 6.3%; mononuclear neutrophils, 2.4%; mononuclear leukocytes with ungranulated protoplasm, 14.4%; eosinophiles, 0.3%. There was marked poikilocytosis in the erythrocytes, and a large number of normoblasts as well as megaloblasts. The nuclei were divided in the mononuclear leukocytes with ungranulated protoplasm. At the onset the case presented the symptoms of splenic anemia. It was differentiated from pernicious anemia by the presence of an enlarged spleen, which extended 4 fingers' breadth below the border of the ribs. The postmortem findings failed to show the characteristic appearance of pernicious anemia. A pseudoleukemia could be excluded, as the relative lymphocytosis in the preleukemic stage was not marked. He quotes Litten's case of pernicious anemia which became a case of leukemia, a second similar case reported by Waldstein, a third case of Gottlieb's, a fourth of Immermann, a fifth described by Körmöczy, and a sixth case of Gerhardt. Zypkin was only able to find 1 case in literature similar to his own—namely, that of Frizzoni. [J.H.W.B.]

Protective Effect of Antityphoid Inoculation.—A. E. Wright² publishes 2 tables, one compiled from the British army in India, and the other from that in South Africa. Both tables show that antityphoid inoculation has produced a reduction of 50% in the incidence rate of typhoid fever. The first table shows a reduction of five-sixths in the deathrate. [B.K.]

Morbus Kahler.—Bonardi³ gives the case of a woman of 28, which had its onset in an intermittent quotidian fever, initiating by chills, and giving way to profuse sweating. The liver and spleen were observed to increase in size by the second day. After this there was malaise accompanied by fugacious pains, often osteoscopic; then albuminuria developed. Tuberculosis, syphilis, and malaria were thought of. The writer observed tumefactions over certain bones, notably the frontal, sternal, costal, and clavicular, and an aggravation of the preceding symptoms. Albuminuria became albumosuria, with a proportionate ratio to the height of fever. The patient turned to excessive use of morphin. Another case, a man of 59, is given. He died after an afebrile period during which the quantity of albumose diminished in the urine. There is a differentiation required between Kahler's disease and osteomalacia. Necropsies in these cases not obtained. [T.H.E.]

Potential Sugar in the Blood.—If normal blood be maintained outside the body for half an hour at a temperature of 58° C. a certain amount of sugar is produced, for which the glycogen cannot be held responsible. This sugar comes from one or several carbohydrate molecules contained in the proteids. Lépine and Boulud⁴ give to it the name "potential sugar." They find that the blood in the left heart has more sugar, but less potential sugar, than that in the right heart; hence, some potential sugar must be liberated from the proteid molecule in the passage of the blood through the lungs. The same differences are observed between blood in the large arteries and that in the large veins. Hence, it is evident that one of the pathogenic elements of diabetes may be the instability of the proteid molecule. [B.K.]

¹ Cleveland Medical Journal, November, 1903.

² Berliner klinische Wochenschrift, November 9, 1903.

³ Deut. Archiv f. Klin. Med., Bd. lxxviii, p. 73.

¹ Wien. klin. Woch., No. 39, 1903.

² Lancet, October 10, 1903.

³ Il Policlinico, Rome, November 21, 1903.

⁴ Lyon Médical, November 22, 1903.

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

Local Anesthesia for Major and Minor Operations.—We are under the impression that local anesthesia is not as generally used as its superior safety over general anesthesia entitles it to be, especially for major operations. Matas' statement of the case, made some time ago, still holds, "An unfounded and scarcely justifiable scepticism still prevails among many excellent, skilled and otherwise progressive surgeons, who, having neither the inclination nor the patience needed to acquire the most advanced and effective methods of local and regional anesthesia, or who, still confusing the imperfect and dangerous methods of the past with the safe and efficient methods of the present, still doubt and cling to general narcosis as the only means of abolishing pain in their operations." Others who use cocain in minor operations are incredulous about its use in major surgery. If space permitted we could readily refer to papers by representative surgeons of this country and Europe, some of them reporting hundreds of major surgical operations, including operations on the appendix, gallbladder, and stomach. Individual surgeons in this country have not been behind the representative surgeons of Europe in introducing local anesthesia into major operations. This is not strange when we remember that the first clinical demonstrations of the value of cocain by the subcutaneous infiltration method were made by American investigators. Halsted, as early as 1884, introduced this method, and the papers of Corning in 1885, 1888, and 1894 antedated the work of all the early European investigators. The greatest advances of recent years have been in the injection of nerve trunks for regional anesthesia in the area supplied by those nerves, as used by Crile; the use of very dilute solutions, thus obviating the dangers of poisoning, the result of Schleich's efforts; the massive infiltration method of Matas; and possibly to this should be added the introduction of less poisonous drugs. Matas¹ gives practically everything of historic importance, and with regard to technic, up to the date of his publication, and very little has been added since that date. A valuable suggestion, which we believe has not been generally adopted, is that of Elsberg,² who first suggested, so far as we know, the addition of adrenalin to solutions to prolong their effects and to prevent hemorrhage during the operation under local anesthesia. It has long been known that if a part could be rendered bloodless by the use of a tourniquet that anesthesia could be considerably prolonged, but we are not aware Elsberg's suggestion has come into very general use. Barker³ has apparently hit upon this method independently, and he reports 30 major operations, including several radical cures of hernia, by this method. Elsberg recommended a strength of 1 part adrenalin to 20,000, but Barker finds it satisfactory in a strength of 1 to 100,000, using eucain instead of cocain. Already over a third the operations in Mikulicz's clinic are done under local anesthesia, and, because of its greater safety; the freedom from the discomforts which follow general anesthesia; and the dread of losing consciousness; we are confident that sooner or later, probably in the hands of the rising generation of surgeons, local anesthesia will largely supplant general anesthesia. Anything which can be done to hasten that day will be of almost as great advantage to the operating surgeon as to the patient who has to undergo operation.

REVIEW OF LITERATURE

Arterial-venous Traumatic Aneurysms.—E. von Bergmann⁴ says the most weighty hypothesis concerning their

formation is, a small opening at the point of ingress and egress, a long bullet path which strikes the artery obliquely, and a rapid healing of the wound. He believes the opening in the artery and vein of the case he reports was only 1 mm. or 2 mm. in diameter. In v. Bergmann's opinion the primary and the secondary hemorrhages indicate that the injury to both vessels was simultaneous. The secondary hemorrhage ceased when the patient straightened his leg which either kinked or stretched the bullet path. V. Bergmann ligated the artery and the vein above and below and resected the aneurysmal sac. [J.F.]

The Limit of Safety in Multiple Operations.—A. Vander Veer¹ discusses this question at some length, referring particularly to cases that present multiple surgical symptoms instead of accident cases. A general principle to be remembered is that the nearer the heart and brain are approached, the more serious the cases are likely to be. Among the conditions requiring careful consideration are those where cancer of the breast and rapidly growing cystic fibroid goiter are combined, or where there are multiple fibroids of the uterus causing pressure symptoms, associated with signs of unilateral pyelitis and a cystic tumor of the breast. A personal case similar to the latter ended in recovery of the patient after the abdominal tumor and the breast and lymphatic glands had been removed at the same time, but the impression gained was that the favorable result was due only to the fact that the patient was an exceptionally sanguine and rebounding subject for convalescence. Vander Veer speaks of the astonishing list of operations sometimes done upon the female genitalia, consisting of dilation, curetment, repair of bilateral laceration of cervix, cystocele, rectocele, and lacerated perineum, and then followed by opening the abdomen, removal of an ovary, the appendix, if diseased, and finally, fixation of the uterus. It would be of great importance to the profession to be informed of the real mortality brought about by so extensive and continuous operations. In conclusion, Vander Veer states his belief that extreme multiple operations, deliberately planned, should not be encouraged. [A.G.E.]

True Cysts of the Long Bones.—Carl Beck² reports a case in which the diagnosis was made by the röntgen rays. Operation proved the correctness of this view. He states that these cysts are closely related to rachitis. He looks upon them as a product of inflammatory atrophy. [A.B.C.]

General Anesthesia by Ethyl Chlorid.—M. Herrero y Zavala³ considers it effective, giving tests on animals and a case in point as confirmatory. Its use at present is limited to operations of brevity in more or less superficial regions. But reports from Europe tend to prove its advantages. Half a minute after inhaling its fumes, diluted with water and given on a compress and diffused with a proportion of air, the patient, a boy of 20, developed enough analgesia to allow the operation, one on account of trauma of the lumbar muscles. Immediately after which the patient was able to walk and gave an interesting account of his feelings. Sensibility is lost before consciousness. Repeated inhalations are needed to obscure the latter, but the former persists throughout. A meal was enjoyed one hour following the operation. [T.H.E.]

Acute Primary Typhlitis.—Jordan,⁴ after reviewing the literature and the opinions of the most distinguished men on the subject, says evidence of the occurrence of acute simple typhlitis has not yet been produced. In a case he found the anterior wall of the cecum .5 cm. thick; the mucous membrane presented several polypoid excrescences, but microscopically there were no evidences of tubercles. The mucosa and submucosa were abundantly, the muscularis and the serosa less abundantly infiltrated with lymphoid cells, among which he found staphylococci. Jordan concludes that the inflammation began in the mucous membrane as a result of pressure or irritation of stagnating fecal masses or other foreign bodies, the effects of which allowed the ingress of bacteria. [J.F.]

Postoperative Benign Icterus.—R. de Bovis⁵ reports 2 cases. One in a man of 20, following an easy operation for

¹ Philadelphia Medical Journal, 1900, Vol. vi, p. 820.

² American Medicine, 1902, Vol. iii, p. 355.

³ Lancet, 1903, Vol. ii, p. 203.

⁴ Arch. f. klin. Chir., 1903, Bd. lxxix, Heft 2.

¹ Albany Medical Annals, December, 1903.

² Arch. für klin. Chir., 1903, Bd. lxx, Heft 4.

³ Crónica Médica Mexicana, November 1, 1903.

⁴ Arch. f. klin. Chir., 1903, Bd. lxxix, Heft 2.

⁵ La Semaine Médicale, September 9, 1903.

inguinal hernia; the other following instrumental delivery of a dead fetus in a multipara. In both cases the icterus was of few days' duration and constitutional symptoms were slight or entirely absent. De Bovis concludes, that in addition to surgical icterus due to pyemia, contusion or wound of the liver, diathesis, or intoxication by chloroform, in all of which prognosis is usually grave, there may be a fleeting icterus that is entirely benign. The cause of this last variety is simple biliary retention, of which the principal factor is doubtless a reflex originating in the abdominal region. A certain degree of hepatic predisposition or of intoxication favors its appearance. [A.G.E.]

Anastomosis of the Vas Deferens with Resection of the Epididymis.—Bogoljuboff¹ did 20 operations on 10 animals. His operations consisted of 2 types; in one he performed a total resection of the epididymis and implanted the vas deferens into the testicle in the region of the rete testis; the other consisted of resection of the lower half of the epididymis and implantation of the vas deferens into the substance of the upper half of the epididymis. At intervals varying from 31 days to 105 days after operation, he castrated the animals and injected colored gelatin through the vas deferens into the testicles, which he examined microscopically. In two of the first type and four of the second type the vas anastomosed with a patulous canal. In four the canals were only slightly patulous. He believes his results would have been more satisfactory had so many not suppurred. [A.B.C.]

Surgical Interference for Pyloric Stenosis.—Giuseppe Avanzino² reports 2 such operations. In 1 case, resulting from ingestion of nitric acid, a pyloroplasty did not result effectively, and the patient, a boy of 18, died after 8 days. The operation was not done until 6 weeks after the fatal attempt. The second case, one of gastroenterostomy, proved successful. The patient, a mechanic of 27, following a family tendency, attempted suicide with sulfuric acid. At first given medical aid, with the onset of pyloric stenosis, improvement disappeared and weight was lost rapidly. The operation after 3 months performed by Nassi has resulted in cure. [T.H.E.]

Perforation of the Intestine in Typhoid Fever of Children.—C. A. Elsberg³ states, that according to Keen's paper published in 1900, that 159 cases of perforation in typhoid fever had been operated upon, showed 23% recoveries. The writer in March, 1903, found 131 additional cases, making 289 in all, which showed 26% recoveries. Twenty-five of these patients were under 15 years of age. The 25 children operated upon showed a mortality of only 36%, while 264 adults operated upon showed a mortality of 77%. The chances, therefore, among children is more than 2 to 1 in their favor. He prefers chloroform to ether in local anesthesia. The author states it may be many years before there is much improvement in the surgical technic in treating these cases, but early recognition and improved diagnosis ought to reduce the mortality materially. His conclusions are that perforation of the intestines in the course of typhoid fever is very nearly as frequent in children between the ages of 6 and 15 years as in adults; that the symptoms do not differ essentially from those of adults; that, however, recovery may in exceptional cases take place without operation, the treatment should be surgical, and as soon as the diagnosis has been made, and that prognosis after operation is more than twice as good in children as in adults. A very early operative interference offers the best chances of recovery. A table of 25 cases of laparotomies in children for this affection is appended. [A.B.C.]

Total Extirpation of the Hypertrophied Prostate.—O. Zuckerkandl⁴ did perineal prostatectomy on 8 patients, ranging from 62 to 74 years of age. Chronic urine intoxication, hemorrhage from the prostate, narrowing of the urethra, and in 3 cases, stone in the bladder, were the aggravating symptoms. In all the cases there was an infection of the bladder. Cystitis and pyelitis were not looked upon as contraindications—in fact, in 1 case a pyelonephritis was helped. The wound heals in about 4 weeks, although in exceptional cases this is extended to 7 or 8 weeks. In 2 cases a fistula persisted. Epididymitis followed during the course of healing in 3 cases. The result of

operation in all cases was favorable, and spontaneous urination persisted afterward. The stream was strong, and of good character, and in all cases there was an absence of residual urine. The innervation of the sphincters and detrusors returned to the normal. In 1 case there was some transient incontinence which was relieved by faradism, and in another case there was an occasional loss of a drop of urine. The results of the retention of urine disappeared with the restoration of normal micturition. The operation is contraindicated in cases of chronic complete retention which becomes complete on account of local symptoms, or when the catheter is only passed with great difficulty, and finally, when the condition is complicated by the presence of a stone. The histories of the cases are given in detail. He also reports 2 cases of suprapubic prostatectomy, both of which were fatal. [J.H.W.R.]

Inflammation of Meckel's Diverticulum with Obstruction of the Intestinal Lumen.—Rebentisch¹ states that 11 such cases have been reported in literature. Denecke collected nine; Zimmerman reported one. Three of the eleven were identified at autopsy; eight were operated upon. In 1 case only could an artificial anus be made; another came to operation only after the formation of an abscess in the abdominal wall, and a fistula had occurred. Of the remaining 6 cases at least three were cured, and possibly a fourth. In Rebentisch's case there was empyema of the diverticulum and obstruction of the intestinal lumen, necessitating the removal of 28 cm. of the ileum. He believes the condition is analogous to appendicitis and calls it "diverticulitis." [A.B.C.]

Treatment of Congenital Phimosis.—W. M. Rojansky² makes a plea against the indiscriminate employment of the knife in this condition. Circumcision, excision, incision, are all in use, while the same results can be obtained by bloodless treatment. His own method is outlined as follows: The mother is instructed to irrigate the preputial sac with a weak antiseptic, preferably a 2% solution of boric acid. In the presence of congestion or irritation, lead-water may be substituted for the above. These injections are given 2 to 3 times daily by means of an ordinary rubber ball-syringe holding a half ounce of fluid. The tip is inserted into the sac and the contents slowly forced out, distending the prepuce. After 2 to 3 weeks of such treatment the prepuce can be retracted almost behind the glans. At this stage a dull probe is introduced between glans and prepuce, and the remaining adhesions are gently loosened. The cure is now complete, and may be made permanent by continuing the irrigations for some time longer, in order to prevent the formation of fresh adhesions. [L.J.]

Hyperalgesic Zones in Bullet Wounds of the Head.—Wilms³ reports 4 cases of bullet wounds of the head, in all of which a zone of hyperalgesia occurred on the neck and back of the head. There was no disturbance of sensibility in the affected region. There was no doubt that the hyperalgesia was of central origin. The pains were symmetric on both sides of the body, and of equal intensity. The upper limits of the hyperalgesic zone corresponded with the boundary of the sensory zone of the trigeminus nerve. The extent of the zone did not correspond with the distribution of any peripheral nerve. One patient died, and 3 recovered, the pains disappearing in 8 to 10 days. The form of the hyperalgesic zone pointed to a lesion of a spinal cord segment. The symptom is explained as follows: The bullet produced a lesion of the sympathetic in the neighborhood of the cavernous sinus. The irritation was conveyed along the sympathetic to the communicating segment of the cervical spinal cord. There the irritation affected the centers of sensory nerves, the pain being referred to the zone of skin corresponding to the affected segment of the cord. [B.K.]

The Influence of the Vitality of the Tissue in Local Anesthesia.—H. Braun⁴ says there can be no doubt that the amount of blood in an area, or better the vigor of its metabolism and the vitality of its tissues, influences the intensity, the extent and the duration of the local anesthetic effects at that point. Each disturbance of resorption, each injury to metabolism is followed by an increased effect (local) of the substance

¹ Arch. f. klin. Chir., 1903, Bd. lxx, Heft 3.

² Il Policlinico, Rome, October 24, 1903.

³ Annals of Surgery, July, 1903.

⁴ Wiener klinische Wochenschrift, No. 44, 1903.

¹ Arch. für klin. Chir., 1903, Bd. lxx, Heft 4.

² Medizinske Obzornje, lix, No. 7.

³ Mitt. a. d. Grenzgeb. d. Med. und Chirurg., Bd. xl, Heft 5, p. 697.

⁴ Arch. f. klin. Chir., 1903, Bd. lxx, Heft 2.

used. Such changes are produced by checking the blood stream through mechanical means by the application of extreme cold and by the local use of adrenalin to the part. He has never seen any bad effects follow the use of a combined solution of cocain and adrenalin. If he intends to inject a 1% solution of cocain in small amounts he adds to this 3 drops of a 1-1,000 solution of adrenalin. On the other hand, if he intends to inject a .1% to .5% solution of cocain he adds 3 drops of the adrenalin solution to 5 cm. or 10 cm. instead of 1 cm. of the cocain solution. [J.F.]

Chronic Gonorrheal Prostatitis.—L. Waelsh¹ examined the secretion of the prostate in 200 cases of gonorrhea, and found it normal in 38 cases, or 19%; the secretion contained few or no leukocytes. In 28 of these 38 cases, the infection was limited to the anterior urethra; of the 172 cases of posterior urethritis, 162, or 94%, had prostatitis as a complication; only 11 of these cases presented prostaticorrhea as the leading symptom. The treatment is unsatisfactory; that giving most satisfaction being manual massage by way of the rectum, followed by instillations into the posterior urethra. Great care is necessary, however, to prevent bad results. He reports a case in which very grave neurasthenia and prostatitis followed the treatment, disabling the patient for months. [E.L.]

Inflammatory Strictures of the Large Intestines.—J. Koch² divides simple inflammatory stricture into those affecting all the strictures of the intestine except the mucosa, and those in which the mucosa plays the most important part. The first variety results from false diverticulums of the intestine; the second is rare. He quotes Sudsuki's 3 causative factors which he believes are connected: (1) Lessened resistance of the loose fibrous tissue; (2) presence of fat in the vessel bifurcations and pressure of fecal material and gas; (3) muscular action. The retention of fecal material in the diverticulums produces inflammatory conditions and abscesses; these result in an overproduction of fibrous tissue, cicatrices, and finally strictures are formed. He believes the strictures occur in the sigmoid more frequently, owing to the fecal accumulation at this point, especially where there is a tendency to obstipation. When the condition is of long standing, it may occasion morbid processes of neighboring organs; in his case there was a secondary cystitis. [A.B.C.]

Inflammation of an Intestinal Diverticulum.—E. Dineur³ reports a case of this character in a man of 57 who, after drinking 2 glasses of beer, was seized with colic. The abdomen became tympanitic, especially around the umbilicus. There was no tumor demonstrable. The lungs and heart were normal. Fecal vomiting began on the second day and continued till the last. On the third day of the disease he had a liquid movement from the bowels accompanied by gas, and died on the following day. The autopsy revealed the presence of a diverticulum 30 cm. (12 in.) from the ileocecal valve, measuring 9 cm. (3½ in.) in length and 5 cm. (2 in.) in diameter. It was cylindric and perpendicular to the intestinal canal; of the same structure as the intestine, and contained a brown fetid liquid which contained coli bacilli. The bacilli were very toxic to guineapigs. Dineur believes that the possibility of inflammation of an intestinal diverticulum should be thought of in all cases of gross clinical signs of acute intoxication resulting from appendicitis, intestinal occlusion, or strangulated hernia, and that an operation in these cases should not be deferred for a moment. [J.H.W.R.]

The Surgical Importance of the Elasticity of Muscles.—Tillmann⁴ says with normal bones and ligaments a disturbance in their equilibrium can occur only when the equilibrium security of the muscles is no longer normal. After overcoming the muscles, the ligaments must be damaged before the bones take part in the alterations. The elasticity is determinative in securing the muscle equilibrium. Security of the joints is dependent upon the weight. Changes in these factors produce pathologic alterations in the equilibrium relations. The elasticity alone makes it possible to keep the muscles constantly stretched so that no time is lost in contraction. It prevents

tearing in sudden contractions. From Blix's experiments he concludes that overtaxing stretched muscles produces alterations in the length of the muscle for some time. The permanent lengthening is greater in frequent taxing than in the taxing where the same amount of force is exerted but at greater intervals. Tillmann traces many deformities to the overtaxing of the muscle elasticity. It is seen in scoliosis or in alterations in the curvature of the spine, due to incorrect position, as in school children. In bending over their desks the musculature of the back is kept upon the stretch for hours at a time, with a resulting degeneration of these muscles. On the other hand, the muscles of the concave portion of the arch become relaxed and shortened, so that there results a disturbance in the muscle equilibrium and antagonism of the musculature in question, with an alteration in the spinal column. Upon the same principles, he attributes the occurrence of genu valgum and deformities of the feet. [J.F.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

The Plastic Closing of Vesicovaginal Fistulas by Means of the Cervix Uteri.—Küstner has shown that by the plastic use of the supravaginal portion to close a vesicovaginal fistula certain results can be secured. This principle has been previously employed by Wolkowitsch, but was simplified and brought into more general use by Küstner. H. Thomson¹ reports 3 cases in which he used this procedure with satisfactory results, and was impressed with its mechanical power. There remains no doubt that through the use of the collum uteri for the closing of a vesicovaginal fistula, an extensive surface and firm support are furnished, and the chance of a permanent cure increased. Also, the conditions after the operation, are normal, and the possibility of cohabitation, pregnancy, and delivery preserved. The broad wound surface he sutures with deep silkwormgut sutures. Lastly, catgut sutures guarantee permanent cure and exclude later complications on the part of the bladder. After the operation the catheter is permitted to remain 8 days to 10 days, and the sutures removed at the end of 2 weeks. Small fistulas may be remedied with a simpler process, but for large fistulas the plastic use of the collum uteri is Thomson's choice. [W.K.]

The Kidney in Pregnancy.—R. W. Stewart² bases his study upon the examinations made of urine voided by 85 women at various periods of gestation. If a rule of treatment should be formulated from a study of these cases, it would be: Symptomatic procedures when albumin occurs without casts or other symptoms; accouchement force when casts, red cells and diminution in the quantity of urine accompany the albumin, unless these signs show marked improvement in 24 hours. He advises the termination of pregnancy if the albumin should continue to increase in quantity and the daily quantity of urine be at the same time greatly diminished, even if there are no casts or other signs of nephritis. [F.C.H.]

Contemporaneous Extrauterine and Intrauterine Pregnancy.—Ernst Meyer³ reports 2 cases of this kind, which show that clinical appearances in combined extrauterine and intrauterine gestation are very variable and the diagnosis difficult to determine. It will be easiest when the appearance of interrupted ectopic gestation is accompanied by the expulsion of the intrauterine fetus. At an earlier stage it may be difficult to distinguish between the decidually changed uterus of ectopic gestation and a pregnant uterus, and in many cases the true condition can be determined only by microscopic examination of the uterine contents. [W.K.]

Observations on Puerperal Septic Infection.—C. Jewett⁴ compares the number of puerperal deaths with the total deaths from all causes as shown by the records of the Brooklyn Health Department for the last 32 years. The table gives evidence of material reduction in the mortality during recent years.

¹ Prager medicinische Wochenschrift, 1903, xxviii, 168 and 187.

² Arch. f. klin. Chir., 1903, Bd. lxx, Heft 4.

³ Journal Medical de Bruxelles, November 6, 1903.

⁴ Arch. für klin. Chir., 1903, Bd. lxxix, Heft 2.

¹ Zentralblatt für Gynäkologie, December 12, 1903.

² The American Journal of Obstetrics, August, 1903.

³ Zentralblatt für Gynäkologie, November 14, 1903.

⁴ Brooklyn Medical Journal, January, 1904.

Though this is largely due to the diminished deathrate in hospitals, Jewett says that the showing of physicians in private practice is not so bad as is usually pictured. Results in general practice will improve when physicians look solely to their fingers and instruments as the carriers of infection. Needless internal manipulation during delivery is too common. A custom which may favor infection is the rigid maintenance of the recumbent posture after labor. In normal cases and many others the patient may be allowed to assume a sitting posture for bowel and bladder evacuations. The indiscriminate use of the curet is one of the most frequent causes of death in cases of postpartal infection. Fingers and uterine dressing forceps had better replace it. To some extent the same objections apply to the use of the douche. Generally it should be used but once and then as a part of the primary cleansing. [A.G.E.]

A Modified Method of Producing Female Sterility Employed on Account of Rare Diseases.—P. Rissmann¹ describes a method of sterilization used by him in the case of a woman afflicted with convulsions, either of epileptic or hysteric origin. He makes a posterior vaginal incision and the normal anteverted uterus with its posterior surface is drawn down into the vagina so that the fundus also lies near the vulva. The Douglas sac is opened with a low incision beginning at the portio. Through this, catgut sutures are introduced. Sutures are placed in the posterior uterine wall, and with bullet forceps the uterus is turned back so that the fundus and both tubes are perceptible. Then the uterine portion of both tubes was excised. After exact suturing of the wound, the uterus was replaced and the incision in the vaginal vault closed. The patient whose case is reported left the hospital 18 days after the operation. He believes that sterilization was indicated from the great frequency and violence of the convulsions and the general condition of the patient. [W.K.]

Objections to the Vaginal Route in the Treatment of Ectopic Gestation.—J. W. Boyée² gives the following reasons for preferring the abdominal route to the vaginal in every case of operation for tubal pregnancy. The field of hemorrhage can be more quickly reached by this route, taking into consideration the relative amount of time consumed in cleansing the 2 routes under anesthesia; the condition can be more readily treated, and the ligation of bloodvessels more readily and certainly performed; the danger from secondary hemorrhage in ectopic pregnancy is markedly less when ligation is practised than when removal of blood clots alone is done; any other important pathologic lesion requiring attention in suitable cases may be treated at the same sitting; the shock as a rule will be less than if the vaginal and abdominal incision are both made; the tube can be more readily removed than by the vaginal route; the abdominal route is applicable to all stages of the pregnancy, while the vaginal cannot be employed for the later stages; the vaginal incision has no place in the treatment of unruptured tubal pregnancy, while the abdominal incision is the route *par excellence*. [F.C.H.]

The Artificial Turning of the Fetus in Cranial Presentation.—Gottschalk³ in cases of forehead presentation advocates the correction of the position by turning the fetus before delivery. To accomplish this he has used a combined procedure, the direct influence upon the occiput from within and rotation of the shoulders externally. But in the last 4 years he has sought to effect the whole procedure by using the hands externally, and with such good results that he recommends this method in his textbook. It is best performed as soon as possible after the rupture of the membranes and always in the interval of labor pains. [W.K.]

Ascending Renal Infection.—J. A. Sampson⁴ speaks of ascending renal infection with special reference to the reflux of urine from the bladder into the ureters as an etiologic factor in its causation and maintenance. This question was made prominent by the death of several patients, from ascending renal infection, subsequent to resection of the ureters in radical operations for cancer of the cervix. The anatomy and physiology

of the ureters and bladder and the etiologic factors in cystitis and ascending renal infection have been studied in man and in dogs by Sampson, and, in part, the following conclusions have been reached: Under normal conditions it is impossible for fluid to pass from the bladder into the ureters; organisms may be conveyed from the bladder to the kidney through the following channels: (1) The general circulation; (2) the vesico-uteroovarian anastomoses; (3) the bloodvessels of the ureter; (4) the lymphatics; (5) the lumen of the ureter. Several ways by which the latter process may be accomplished are given, one of them being reflux of urine. The most important point enunciated is that the reflux of urine from the bladder into the ureters may be considered an etiologic factor in the causation and maintenance of renal infection only when the intravesical portion of the ureter is diseased, thus impairing its function, or when some ureteral abnormality exists. Lowered local and general resistance must be considered. [A.G.E.]

Adjunct to Uterine Irrigation in Puerperal Fever.—D. Watson¹ thinks that uterine irrigation is most likely to be useful in the early stages of puerperal fever. To avoid the dangers which may arise from leaving the uterus wet, thus dissolving the toxins and promoting their absorption, or by assisting the growth of microorganisms, every trace of water should be removed from the uterus. In order to do this, Watson uses this method: After expressing as much of the douche solution as can be got rid of in this way, he injects into the cavity of the uterus 1 oz. of glycerin, containing 3% of formalin. This solution is quite innocuous and unirritating, and in addition to its powerful antiseptic action, it removes all water from the uterus and its use prevents any rise of temperature following the douche. To inject the glycerin, all that is required is a glass syringe of 1 oz. capacity, with a small piece of rubber tubing attached to its nozzle for connection with the catheter, which has meanwhile been left in the uterus. He cites 2 cases, showing the beneficial effects of this method. [W.K.]

Cesarean Section on Account of Eclampsia during Pregnancy.—H. Saft² reports the case of a woman who was brought to his clinic in convulsions; she had edema for a good part of her pregnancy and was blind for several days prior to the onset of convulsions. The urine contained a 3-moist layer of albumin. He performed a cesarean section through the vagina. The patient recovered after passing through some days of convulsions and maniacal attacks. The author lauds the ease of the operation, the rapidity with which the child can be removed, and the absence of operative danger to the mother in performing cesarean section through this route. [E.L.]

Hebotomy.—Gustav Arndt³ reports a case of hebotomy, stating that only 2 methods of procedure were in question, cesarean section, and splitting of the pelvic rim. Because of the high temperature, cesarean section was rejected and the extramedian section of the pelvis according to Gigli was performed, with the delivery of a living child and satisfactory recovery of the mother without fever. In this extramedian cutting through of the pelvis, there was no laceration of the vagina nor any injuries to bladder or urethra. The bleeding was moderate and readily controlled by tampons. Arndt believes that this method has decided advantages over symphysiotomy and will have a permanent place in obstetric surgery. [W.K.]

Accouchement Force.—R. L. Dickinson⁴ discusses manual dilation and bag dilation. He concludes as follows: For induction in the latter months, and for inertia during labor (where other causes are eliminated, such as exhaustion, overdistension, and malposition of passage or passenger), the bag comes first, then the hand, and the forceps finish their work for placenta prævia, the balloon for the narrow cervix that bleeds, when the head will not plug it, and for the bad cases version, since the thigh is the surest tampon; for brisk hemorrhage of detachment of a normally located placenta, the greatest speed, to wit, manual or metal dilation; for the rigid cervix of the early months, for the unyielding girdle of the elderly primipara, for the gristle like hardness of eclampsia, the powerful

¹ Zentralblatt für Gynäkologie Dec. 12, 1903.

² The American Journal of Obstetrics, July, 1903.

³ Zentralblatt für Gynäkologie, October 24, 1903.

⁴ Johns Hopkins Hospital Bulletin, December, 1903.

¹ Lancet, October 31, 1903.

² Deutsche medizinische Wochenschrift, No. 30, 1903.

³ Zentralblatt für Gynäkologie, December 5, 1903.

⁴ The American Journal of Obstetrics, July, 1903.

Bossi instrument is a great boon, and none of its imitators approaches it. [F.C.H.]

Rupture of Vagina and Muscular Pelvic Floor as Cause for Genital Prolapse.—Schalz¹ believes that the perineum is only of very secondary importance as a means of closing the pelvic cavity, that the real pelvic support is higher up, and while it remains intact, laceration of the perineum will not cause prolapse. Care of the perineum should not, therefore, divert the attention from more important points. Prolapse is, however, often due to rupture of the vagina caused by too early and too strong pressure during labor, especially the senseless pressure from the use of the bandage or girdle. This rupture of vagina may also be caused by the use of forceps, by the early extraction of the breech and even by pressure of feces. Therefore, we should always, when possible, protect a primipara from breech presentation by external version during pregnancy. [W.K.]

Bladder Changes Cystoscopically Evident in Uterine Carcinoma.—W. Hirt and R. Sticher² give in detail the result of careful cystoscopic examination of the bladder in patients suffering from uterine carcinoma. They found in the mucous membrane of the bladder, especially in the trigonum between the internal orifice of the urethra and of the ureters, peculiar accumulations of epithelial cells, some conical, some spheric, and others of irregular forms. These masses of cells varied according to the condition of the carcinomatous growth; and the writers are of the opinion that the character of these changes in the bladder as shown by the cystoscope may determine whether the cancer is operable or inoperable. Several cases are cited to sustain this theory. [W.K.]

Cervical Incisions in Labor.—R. W. Holmes³ discusses the anatomic considerations, indications, contraindications, dangers, the operation and technic of cervical incisions in labor. He concludes as follows: Effacement of the cervix is an indispensable prerequisite to the use of incisions, for this reason incisions are especially applicable to primiparas, and often are contraindicated in multiparas; manual dilation preliminary to incisions does not secure the best cervical condition for incisions; incisions are always potentially dangerous, particularly to infection, hemorrhage and extensive lacerations beyond the vaginal vault; the use of incisions demand an obstetric armamentarium, assistants, and a definite experience in obstetric procedures; the details of the technic may be modified to suit the taste of the operator; the minimum number of incisions to meet the exigencies of the case should be made; oblique incisions may prove to be more advantageous as regards the after effects than the usual quadrant cuts; in the absence of hemorrhage or accessory lacerations it is a mooted question whether the incisions should be sutured or not. Immediate delivery should follow the incisions. [F.C.H.]

Eclampsia and Morphin.—W. Boxer Mayne⁴ reports 2 cases of eclampsia successfully treated with morphin. A woman, aged 22 in the fifth month of pregnancy was suddenly seized with an eclamptic fit. When he reached her she had emerged from the subsequent comatose condition, and was vomiting freely, but unable to recognize any one about her. He gave a hypodermic injection of $\frac{1}{4}$ gr. of morphin, and 2 m. of croton oil, and had her wrapped in blankets. There was no recurrence of the convulsions; she miscarried during the night, and recovery was uneventful. In the second case the convulsion developed suddenly after delivery; morphin was given with $\frac{1}{16}$ gr. of strychnin, and then the patient was wrapped in hot blankets. Recovery was uneventful. [W.K.]

Six Cases of Cesarean Section, with Favorable Results.—A. v. Valenta⁵ reports 6 cases of cesarean section for contracted pelvis and osteomalacia with the delivery of living children and the recovery of the patients. The results in the 4 cases of osteomalacia were considered very good, since the women, who could not move about for weeks before the operation, could walk without pain when they left the hospital. [W.K.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

The Treatment of Pulmonary Tuberculosis Outside of Sanatoriums.—While the benefit of properly conducted sanatoriums cannot be denied, there are often cases in which for monetary and other reasons this method of treatment is inapplicable. Minor¹ points out that it is a great mistake to suppose that the hygienic treatment of the tuberculous cannot be carried out except in special institutions. The treatment under these circumstances necessitates not only the most watchful care of the physician, but insistence on absolute obedience to orders. It is necessary in order to get good results that the patient should live in a house with sunny exposure, and as far as possible from congested centers. An absolutely necessary adjunct is a wide veranda or yard well protected from the winds, and if possible, with a southern exposure. The utmost attention must be paid to the diet, to see that the food is of sufficient variety, as well as prepared so that it will be easily digested and tempt, so far as possible, the appetite. Beside 3 meals a day, Minor gives on waking, at 11 and at 4 o'clock and at bed-time, a luncheon, consisting of milk, crackers with a raw egg, or some similar easily-digested food. In order to get certain adherence to directions, the physician must study his patient's character, be absolutely frank concerning his condition, and explain reasons for the various orders. The orders should be written and cover every detail of the day's life; to insure these orders being carried out, the patient should keep a record book, not only of his temperature and pulse and general feeling, but the exact amount of time spent out of doors, the amount and nature of his exercises, the condition of his digestion, etc. Minor does not believe as some, that the study of his case by the patient has a harmful and depressing effect, but thinks that it is necessary in order that the patient shall help so far as possible in his treatment. He begins treatment with a week or two of absolute rest, preferably in a reclining chair out of doors, with frequent observations of the temperature. After this period, if the temperature has not exceeded 99.5°, the patient is allowed to begin moderate exercise. The exercise begins with a walk on the level of from 2 to 5 minutes, which is increased 1 to 5 minutes daily if there is no sense of fatigue or rise of temperature. In order to prevent the effect of ennui, the physician should see that his patient has such amusements as are permissible, according to the severity of his case. The day's routine Minor uses is as follows: An hour before rising a servant closes the window, and if the weather is cold, heats the room to 55° to 65°. The patient takes a glass of warm milk before rising, and then a cool salt bath, lasting but a few seconds, followed by a brisk rub. After breakfast he spends the morning in a reclining chair, excepting the time devoted to exercise. Nourishment is taken at 11 o'clock. In the afternoon the routine is the same, with the exception that in the earliest stages of the treatment there is no exercise. If there is artificial light the evening may be spent on the veranda; if there is not, it is better spent in the patient's bed-room rather than in a sitting-room, because the ventilation can be more easily controlled. [H.C.W.]

Melancholia.—Dercum says of thyroid extract in the treatment of cases of melancholia of prolonged course, that in a number of instances it appears to act as a cerebral stimulant. However, its action is inconstant, and if given in decided doses, it will add to the nervousness from which the patient is already suffering. With agitated patients it should not be used at all. The author uses it only occasionally in very prolonged cases and for brief periods, during waves of increased depression. On the whole, its action is disappointing.—[*"System Physiologic Therapeutics,"* Vol. viii.]

Petroleum Poisoning.—Aronheim² describes a case of poisoning in a 2½ year old boy, poisoned by drinking 120 gm., or about 4 ounces of petroleum. The symptoms were uncon-

¹ Münchener medizinische Wochenschrift, November 3, 1903.

² Deutsche medizinische Wochenschrift, Nos. 44 and 45.

³ The American Journal of Obstetrics, July, 1903.

⁴ Lancet, November 7, 1903.

⁵ Zentralblatt für Gynäkologie, October 10, 1903.

¹ Journal of Tuberculosis, 1902, Vol. III, 510.

² Med. Woch., 1903, IV, 421.

acclousness, cyanosis, cold moist skin, pulse small and very rapid, pupils dilated, and some bubbling rales in the lower part of the lung. The treatment consisted in hypodermic use of camphorated oil, external heat, and a mixture containing sodium bicarbonate and methyl atropin bromid. Later the child vomited blood-stained material with a strong petroleum odor, and passed a large quantity of urine free from albumin and smelling strongly of petroleum. In 2 days the patient had completely recovered. [H.C.W.]

Toxialimentary Dyspnea in Tuberculous Patients.—H. Huchard¹ states that the presence of dyspnea in tuberculous patients does not prove that it is of pulmonary origin. It may be the result of insufficient elimination by the kidneys. He reports 2 cases: The first in a patient suffering from advanced tuberculosis with the usual symptoms of this disease with very marked dyspnea, which was not lessened by repose. The severity of this dyspnea was far in excess of that usually seen in these cases. It was diagnosed as belonging to the group of toxialimentary dyspnea of arteriosclerosis. The patient was ordered an exclusive milk diet for 4 days. To this was added 1.3 gm. (20 gr.) of theobromin. The result confirmed the diagnosis; the patient passed large quantities of urine; at the same time the oppression disappeared as by magic and the dyspnea markedly decreased. The second case was similar, excepting that the patient was not so far advanced in tuberculosis, but symptoms of arteriosclerosis were also present. A milk diet with theobromin produced the same good result. [L.F.A.]

The Cure of Angioma by Means of Electrolysis.—Arienzo² has had good results in the treatment of angioma by the use of currents of high frequency, and by using an especial electrode he has avoided the occurrence of hemorrhage, which has interfered with the use of electricity in these conditions. A small angioma was treated with only the spark of the current at high frequency and for not more than 2 or 3 minutes, on alternate days. In cases of very large growths, electrolysis by the bipolar method (the current from 20 ma. to 40 ma.) followed by the use of the spark, [was employed. It required several months for complete cure of the condition. He believes that the currents act by producing a coagulation of the blood in the neighboring capillaries leading to atrophy of the growth. [H.C.W.]

The Mode of Action of Ichthyol in Pulmonary Tuberculosis.—It is inconceivable, according to Burnett,³ that ichthyol may do good in pulmonary tuberculosis, either by an antiseptic action, effect upon nutrition, or by some local alternative effect. It is too feeble an antiseptic to render it at all probable that it does any good this way, and there seems to be no diminution in the number of tubercle bacilli under its influence. Although it seems to have a beneficial action as a conservator of proteids, its nutritive influence is not powerful enough to make it of benefit in this manner. Burnett believes that it acts by combating the inflammation in the lungs in the same way that it combats the inflammatory process when applied locally. [H.C.W.]

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 22, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	San Francisco.....Jan. 8-10.....	3	
District of Columbia:	Washington.....Jan. 9-16.....	1	
Georgia:	Darien.....Jan. 15.....	2	
Illinois:	Chicago.....Jan. 9-16.....	5	
	Danville.....Jan. 9-16.....	7	
	Freeport.....Jan. 9-16.....	1	
Indiana:	Evansville.....Jan. 9-16.....	4	
Massachusetts:	Lawrence.....Jan. 9-16.....	1	
Michigan:	Grand Rapids.....Jan. 9-16.....	1	
New Hampshire:	Nashua.....Jan. 9-16.....	1	
New Jersey:	Trenton.....Jan. 9-16.....	7	
		Imported.	

¹ Journal des Praticiens, Vol. xvii, No. 43, 1903, p. 681.

² Annali di Elettrocita medica e terapia fisica. Anno II, No. 10, p. 299.

³ Journal of Tuberculosis, 1903, Vol. 7, 349.

Ohio:	Cincinnati.....Jan. 8-15.....	8	
	Cleveland.....Jan. 8-15.....	1	
	Dayton.....Jan. 9-16.....	1	
Pennsylvania:	Johnstown.....Jan. 9-16.....	1	
	Philadelphia.....Jan. 9-16.....	58	24
	Pittsburg.....Jan. 9-16.....	8	3
	Reading.....Dec. 11-18.....	1	
	Williamsport.....Jan. 2-16.....	2	1
South Carolina:	Charleston.....Jan. 9-16.....	4	
Tennessee:	Memphis.....Jan. 9-16.....	19	
	Nashville.....Jan. 9-16.....	2	
Wisconsin:	Milwaukee.....Jan. 9-16.....	34	

SMALLPOX—FOREIGN.

Austria-Hungary:	Prague.....Dec. 26-Jan. 2.....	6	1
Brazil:	Pernambuco.....Nov. 15-30.....		33
	Rio de Janeiro.....Dec. 6-20.....	124	63
Canada:	New Brunswick,		
	McAdam.....Jan. 9.....	1	
Great Britain:	Birmingham.....Dec. 26-Jan. 2.....	1	
	Bradford.....Nov. 21-Dec. 5.....	1	
	Edinburgh.....Dec. 26-Jan. 2.....	3	
	Glasgow.....Dec. 27-Jan. 8.....	92	9
	London.....Dec. 26-Jan. 2.....	4	
	Manchester.....Dec. 26-Jan. 2.....	3	
	Newcastle-on-Tyne.....Dec. 26-Jan. 2.....	1	
Netherlands:	Amsterdam.....Jan. 2-9.....	4	
Russia:	Moscow.....Dec. 5-12.....		1
	St. Petersburg.....Dec. 12-26.....	58	1

YELLOW FEVER.

Brazil:	Rio de Janeiro.....Dec. 6-20.....	1	1
Jamaica:	Kingston.....Dec. 26-Jan. 2.....	1	1
Panama:	Panama.....Jan. 2-10.....	1	1

PLAGUE—FOREIGN.

Brazil:	Rio de Janeiro.....Dec. 6-20.....	38	28
India:	Calcutta.....Dec. 12-19.....		15

CHOLERA.

India:	Calcutta.....Dec. 12-19.....		28
Turkey in Asia:	Kerbela.....Dec. 12.....		50 daily.

Changes in the Medical Corps of the U. S. Army for the week ended January 23, 1904:

WHITE, J. SAMUEL, contract surgeon, is relieved from duty at Fort Yellowstone and will take station at Fort Snelling, Minn.

The following named officers will report to Major William H. Arthur, surgeon, president of the examining board at the Army Medical Museum Building, D. C., on March 14, for examination for promotion: Captains Champe C. McCulloch, Jr., Frederick P. Reynolds, Robert S. Woodson, Harry M. Hallock, George J. Newgarden, Paul F. Straub, Alexander N. Stark, Charles Lynch, John S. Kulp, assistant surgeons.

STEWART, LYELL R., sergeant first class, now at the Army General Hospital, Presidio, will proceed to Fort Duchesne for duty.

HAUGHEY, PATRICK, sergeant first class, depot of recruits and casuals, Fort McDowell, will report to the commanding officer, who will send him to Manila, P. I., on the government transport sailing from San Francisco, February 1.

KNAPP, GUSTAV, sergeant first class, now on temporary duty at Ord Barracks, Monterey, Cal., will proceed to Fort McDowell.

GREGORY, VERDO B., contract surgeon, now at Janesville, Wis., will proceed to San Francisco, Cal., for transportation to the Philippine Islands.

MILLS, FREDERICK H., contract surgeon, now at South Dayton, N. Y., will proceed to San Francisco, Cal., for transportation to the Philippine Islands.

MACY, FRED S., contract surgeon, now on leave at Somerville, Mass., is relieved from further duty in the Philippine Division, and upon the expiration of said leave will proceed to Allegheny Arsenal, Pittsburg, Pa., for duty.

WOODSON, Captain ROBERT S., assistant surgeon, is granted leave for two months, from about February 1.

BAIRD, WM. T., contract surgeon, is granted leave for two months, from about February 1.

Changes in the Medical Corps of the U. S. Navy for the week ended January 23, 1904:

MOORE, A. M., surgeon, retired, detached from the Naval Recruiting Station, Chicago, and ordered home—January 16.

WILSON, G. B., surgeon, detached from the Wabash and ordered to the Naval Torpedo Station, Newport, and to additional duty in attendance upon naval and marine officers—January 16.

GARDNER, J. E., surgeon, ordered to the Wabash—January 16.

LUMSDEN, G. P., surgeon, detached from the Naval Torpedo Station and ordered to the Naval Recruiting and Marine Recruiting Stations, Chicago, Ill.—January 16.

WENTWORTH, A. R., surgeon, detached from the Albany and ordered to the Solace—January 20.

CRANDALL, R. P., surgeon, detached from the Wisconsin and ordered to the Oregon—January 20.

GUEST, M. S., passed assistant surgeon, detached from the Oregon and ordered to the Albany—January 20.

WEBB, U. R., assistant surgeon, detached from the Annapolis and ordered to the Naval Station, Cavite, P. I.—January 20.

BISHOP, L. W., assistant surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered to the Annapolis—January 20.

McCLANAHAN, R. K., assistant surgeon, ordered to the Asiatic Station via steamer sailing from San Francisco, February 1—January 20.

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Venereal Disease and Military Life.—There has been a vast deal written in England during the last months concerning physical deterioration, army reform, etc., much of it too academic or theoretic in character. But there is one aspect of the problem which has not been brought out with sufficient clearness. The lay journals naturally shrink from the discussion, and with the medical journals it is an old and somewhat tiresome matter. Mr. A. C. Proffert has issued an illuminative monograph upon it which should command the serious attention not only of Englishmen, but in view of our own statistics and experience in this country, of the American people. Mr. Proffert says venereal diseases are the greatest of all causes of army inefficiency. In the English service the suspension of the contagious diseases act, and in our country the abolition of the canteen, have resulted in an enormous increase of venereal diseases, and both are the work of the same motives and agencies. These diseases in the English service at once increased by 50%, and they now account for about one-third of all the admissions to hospital. Of the whole army, they constituted in 1898, 46,761 and in the British troops in India, out of a total strength of 65,397 men, the "admissions for venereal" amounted to 24,286. These amazing figures do not tell the complete story, for there are hundreds of men annually admitted to military hospitals, suffering from such complaints as joint-affections, inflammation of various glands, various forms of rheumatism, diseases of the nervous system, etc., which, not being returned under the heading of venereal disease, are not included in the figures, but which nevertheless are the direct sequels of venereal disease. Again, it is well known that men whose constitutions have been weakened by venereal disease are specially liable to become attacked by those diseases which are endemic in tropical climates.

The Cost of Army Venereal Disease to the British Taxpayer.—Thus in the year 1898 there was in the British army a loss of 1,738,688 days' service. Six battalions were thus locked up in hospital every day of the year, and on the average almost half of the sickness in the Indian army was due to this preventable cause. At an average of five shillings a head per day the cost of these patients amounted to \$6,150 a day, or to \$2,244,750 per annum, or to the enormous sum of

\$6,734,250 for the three years. The cost of a private soldier of the infantry is \$262.56 a year; consequently, the sum annually expended on these preventable diseases would maintain about 8,500 healthy and efficient soldiers for one year. The cost in men is thus epitomized by Mr. Proffert:

On an average, 450 men are annually discharged from the army as being medically unfit for service owing to venereal disease. Thus a whole battalion of soldiers disappears every two years. If we take into account the number annually discharged as being medically unfit from the sequels of venereal disease, this number would probably be doubled, if not trebled. But this great waste of men and money is by no means all the price the country has to pay on account of the terrible state of affairs existing in the army. Since the introduction of the short service system thousands of young men annually return to civil life, many of them tainted with the poison of syphilis. It is conceivable that many of these, on settling down in civil life, will marry, the consequence of their marriage being that they infect innocent women with a loathsome and terrible disease, and bring children into the world so diseased that they will never be able to take their place in the battle of life. This aspect of the question, seriously affecting as it must do the classes of population from which our soldiers are drawn, becomes of national interest, and demands urgent consideration from all those who regard the health of the people as a matter of surpassing importance.*

Division of fees is a theme, as the musicians say, with almost an infinite number of variations. The noteworthy aspects of unblushing innocence and of publicity show that the profession is becoming divided on the question. If many physicians were not frankly accepting the bribes the advertisers would not send out circulars and letters plainly offering them. The only cure for the disease seems to be for those who will not accept, to place the ban of their disapproval upon the institutions or individuals who parade their degradation. We recently alluded to the offer of nurses to physicians of a percentage of the returns for recommending them to patients. There lie before us two letters, one from a young physician to a more famous one offering to pay a reasonable sum for being placed in charge of a patient to travel at home or abroad. Another letter from the proprietor of a sanitarium offers physicians the division of the spoils in the following terms:

We recognize the fact that physicians cannot place patients with us without sacrificing time, and incurring more or less

*The title of Mr. Proffert's pamphlet is "Army Inefficiency: Its Greatest Cause." It is published by Churchill, F. Blackiston's Son & Co. are the American selling agents.

expense or loss. This seems to me to very clearly entitle them to a liberal fee from us, which we cheerfully remit.

Drunkenness as a Cause of Crime.—In an English court, recently, of 47 cases, 39 were due to drink. Thus, 85% of the crime in that district was due to this cause. The justice, in commenting on this condition, said:

I have lately been brought face to face for weeks with the conduct of publicans in the carrying on of their business, which has resulted in the most heartbreaking crimes that it is possible to imagine. Husbands murdering their wives, wives their husbands, fathers their sons, friends their own best friends—all through the maddening influence of excessive drinking. Twelve murders, 18 attempts at murder, and woundings without number that were just as likely to have ended in murder so far as the conduct of the criminal was concerned, have been mine and my brother judges' daily fare for the last four weeks on one circuit, and in almost every case, as appeared in evidence, drink was the cause.

In view of such facts it seems the duty of physicians, both in private practice and in their public testimony as witnesses and experts, to set their faces resolutely against the all too prevalent tendency to view alcoholism solely as a disease. That intoxication is no excuse for crime has been the almost universal testimony of the Bench, but one of the greatest obstacles to making this view the unexceptional legal rule, comes from those so-called scientists who advocate the morbid doctrine that alcoholism is a disease, is insanity, etc. The only exception is in the case of murder, when it is possible to prove absence of "malice aforethought" by showing that the criminal was intoxicated. Even that excuse should be done away with because all an intending malefactor would have to do to be freed from the most heinous crime would be to get drunk before killing his victim.

Uncinariasis in Porto Rico.—Work on the subject of uncinariasis is taking on a very active color in Porto Rico. Despite some slight opposition on the part of some country doctors, the profession there seems to be greatly interested. The governor has called upon the Legislature for an appropriation of \$5,000 to "study and commence a campaign against the disease." The bill will probably pass, judging from the very general interest aroused in a disease that is consuming one-third at least of the inhabitants here. The Superior Board of Health is very active in forwarding these plans, and on the occasion of the second annual meeting of the Porto Rican Medical Association, Dr. Bailey K. Ashford was asked to deliver in Spanish a thesis on uncinariasis treating completely all sides of the question. The address was well received, and this body voted a commission to study the subject, and set the first Sunday in April as a day for an extraordinary meeting of all physicians on the island to compare their results. It is evident that there is a commendable spirit of progress among the profession of Porto Rico.

The Misfortune of a Colleague.—Every city practitioner should pay a visit once a year to some of his remote country brethren, whose practice is very different from his own. We may read of the experiences of the doctor in old times and under hard conditions, but

those practising today in poor and thinly settled communities can rival those of early days in heroism carried on for a life in the face of untoward circumstances. A subscriber sends us a letter, given in another column, which appeals to our sympathies. Concerning Dr. Remick, he says:

I hope some substantial aid can be obtained at once to help Dr. Remick. I know him personally, and have taken some of his long drives over the mountains in the summer with him. He has told me that in the winter he has often been two weeks without going to bed, sleeping in his sleigh while his wife or sister would drive. The fees he gets—fifty cents and seventy-five cents—are collected with difficulty, as the farmers handle little money. If it were not for the summer people, he could not live.

We have had the pleasure of sending a box containing about 50 good medical books to Dr. Remick's address. Dr. J. P. Torrey, of Andover, Mass., will answer the inquiries of correspondents concerning Dr. Remick.

Confirmations of Mendel's Law.—Biologic periodicals are likely to contain articles with regard to Mendel's law. Our readers will remember that over a year ago we called attention to this wonderful law founded on observation, not theory, in heredity, which had been discovered by an Austrian monk as the result of investigations conducted on the pea plants of his monastery garden. His work was utterly neglected for 35 years by all the biologists of the world, and finally rediscovered about four years ago almost simultaneously by some of the best biologic investigators in four different countries. At the present moment very few biologists are without interest in Mendel's law, and most of the zoologic laboratories and botanic gardens are conducting experiments in order to demonstrate its truth. Not long ago Professor Thomas Hunt Morgan, of Bryn Mawr, announced that recent observations seem to demonstrate the mathematic truth of Mendel's law, and he added, give the final *coup de grace* to the theory of natural selection. Within the last year Professor Wilson, the director of the zoologic laboratory of Columbia University, said that studies in cytology absolutely confirm this truth of Mendel's principles. Professor Castle, of Harvard, said that Mendel's law of heredity is doubtless one of the greatest discoveries in the study of biology and in the study of heredity, perhaps the greatest that was ever made. It is evident, then, that physicians, interested almost more than any other scientific observers in questions of heredity, must become familiar with Mendel's law and with the principles on which it is founded.

In *Science* for January 22, 1904, there is a short article on certain peculiar anomalies in animals and their explanation according to Mendel's law. For instance, the long-haired horses, the so-called Oregon Wonder Horses, that have been on exhibition in many of the museums of the country, would seem to be a distinct example of certain Mendelian principles, causing a characteristic to assert itself in succeeding generations after it has once become established. Linus II, a magnificent example of the long-haired horse, had a double mane which trailed on the ground on either side for a distance

of two feet. His sire, Linus I, had a mane that was single, but at 14 years old was 18 feet long, while his tail was 21 feet long. The dam also had a remarkable growth of hair. The paternal grandmother was known as "The Oregon Beauty," and was noted for the mass and length of her hair. If, however, as has been claimed, the race of long-haired horses is dying out, then this quality in the race was to use Mendelian terms recessive, rather than dominant, as Professor Castle, of Harvard, suggested in a previous number of *Science*.

According to Mendel's law, when plants or animals are bred with regard to a single characteristic, then 25% of the descendants not only present this characteristic, but transmit it unchanged to their descendants. Another 25% have not the quality present, yet it appears in a definite proportion of their progeny. The remaining 50%, though apparently presenting the dominant quality, are a mixed race with qualities from both parents, some recessives and some dominants, but once more in definite proportion. As has been well said, the application of these principles promises to be of as much service to science as the law of multiple proportion in chemistry, which it recalls in many ways.

Mr. C. B. Davenport, of the Hull Zoologic Laboratory of the University of Chicago, who writes with regard to these long-haired horses in the number of *Science* just mentioned, has also collected observations with regard to polydactylism in cats. In these cases the Mendelian principles of dominance and recessivity of qualities holds during four generations carefully observed. Mr. Davenport also quotes from Struthers a case of polydactylism in man, in which the resulting offspring during successive generations can be best explained on the Mendelian hypothesis. In this case he suggests that if we calculate the proportion of abnormal individuals in accordance with Galton's law, we should get only 33% instead of the actual 50% that were noted, and Mendel's law accords better with the facts than that of Galton. He quotes some cases of such anomalies in which apparently neither Mendel's nor Galton's law of inheritance will apply. So far, however, such exceptions have, as a rule, proved rather to be due to a lack of knowledge of all the conditions necessary in order to understand the problem of inheritance presented in the special case rather than to any actual exception to the law.

In a word, we are in the presence very probably of a complete revolution of our knowledge with regard to heredity for, as Professor Bailey, of Cornell University, said at the beginning of last year, the teaching of Mendel strikes at the root of two or three difficult and vital problems. It presents a new conception of the proximate mechanism of heredity. The hypothesis of heredity that it suggested will focus our attention along new lines, and will, we believe, arouse as much discussion as Weissmann's hypothesis, and it is probable that it will have a wider influence. Physicians may well, by careful observations in the scope of their work, bring about a further confirmation and application of these principles.

Football in 1903.—Although the physical injuries and deaths due to football are by no means the worst of its evils, they are sufficiently considerable to cool the

ardor of all but the advertising colleges and their professional "educators." The *Journal of the American Medical Association* has again done an excellent service in collecting the "accidents" in 1903. There occurred 35 deaths and over 500 severe accidents to players. Beside these 35 deaths, there were 11 cases of spinal injuries, followed by paralysis, which in most cases seem to have been permanent, and, consequently, worse than death. Sprains, contusions, and scalp wounds have not been included in the list, although reports show that many of these injuries that were at first considered trivial finally resulted seriously. There were 343 fractures, most of them of the bones of the leg and forearm. There were 91 cases of fracture of the clavicle, 19 fractures of the femur, and 4 of the skull. The *Journal* adds: "It is, of course, impossible to estimate accurately the number of permanent injuries received in these accidents, but when we consider that many of the fractures were compound, and 19 of them of the femur, we must believe that in this class alone the percentage of permanent injuries could not be very low. We can, without exaggeration, say that at least 50 deaths or permanent total disabilities resulted from the football games of 1903."

Feeble-minded Women.—In one State, Indiana, there were last year 404 feeble-minded women in the asylums for the poor; 170 of these were between 16 and 45 years of age. One of these women had borne 12, another 11, another 8 children. Five had had 19 children, and of these 19 the histories of 15 had been looked up. These 15 had been maintained at public expense a total of over 104 years. Assuming that it had cost as little as \$100 a year, they have cost the State already over \$10,000, and 10 of them are still on public support, which last year cost \$1,163.10. This is one small item in one State. What would the figures be for all the States? Everywhere these women are freely allowed to propagate their kind unchecked by law or the simplest dictates of prudence. What folly it is to keep these diseased and useless wrecks at public expense and allow them to multiply their numbers, which must also be supported by the taxpayers. The stock farm carried on after that plan would soon end. In Indiana the disgraceful condition has aroused such a reaction that provision for the care of feeble-minded women has been made, and 90 women who are unable to control themselves are at least prevented from bearing children afflicted in the same way. The women are largely self-supporting. Every State should have similar institutions.

High taxes for the billboard nuisances are proposed by Governor Murphy, of New Jersey. He has caused an enumeration to be made, and finds that no less than 1,600 signboards of all kinds, "disfigured by all sorts of effigies of impossible men and women . . ." and advertising "remedies for all the ills that human flesh is heir to, as well as all sorts of foods and drinks," greet the passengers on the railway trains as they pass through different sections of New Jersey. The scores of thousands of men and women who live in the New Jersey towns and cities near New York are compelled,

whenever they come to or go from the city, to pass a long procession of monstrosities as advertising signs. Many of these hideous advertisements are of nostrums, advocating self-treatment of diseases of which the patient knows nothing, by drugs of which he knows less. They are, or should be made, criminal offenses, but in the present condition of the public mind they may not be legally proved such, and the commendable plan of Governor Murphy should be seconded by the railway companies, by Legislatures, and the public. The nuisance may in this way be abated, at least to some extent, and a railway journey not be made a source of disgust to all rightminded people.

EDITORIAL ECHOES

"How Dissensions Grow."—His location chosen, say in a community where there are two physicians already, the young doctor is fortunate if he is not met at the threshold, the most sensitive and impressionable period of his life, with ill-concealed sneers, or complete ostracism by those already established in practice, which will grow if he succeeds, or rapidly disappear if he proves a failure. With time, and an arm's length acquaintance which can not be avoided entirely, he will probably learn that one or both of his professional neighbors practically dropped their studies at graduation; that they receive little or no new literature, except the free copy advertising journals; that they have no proper equipment for the emergency surgery they must do, or pretend to do, while time was habitually given over to petty professional bickerings and contentions sufficient to have made both of them scholars of no mean attainments in medicine, as well as in general knowledge, had it been utilized in single, or better still, in joint study. Although they constantly need each other's advice and help as no other men ever can do, he is likely to find that this spirit of envy and jealousy, pitched on a plane low almost beyond conception, not only deprives them of these, but so divides them and impresses the community as to greatly lessen the respect and confidence due both of these otherwise worthy men, as well as the great profession which they alone represent in that community. He will find that they often quarrel about diagnoses in which both were wrong; about patients who would not pay either of them, or about violations of the code which neither of them have read; that each is afraid to collect his hard-earned fees for fear the other will inherit some of his offended patrons; that ambition for excellence in surgery or other special work is dwarfed by the fact that one will send for consultation, or send his surgery, to a distant town or city rather than ask the assistance of his neighbor, and that even their families are so estranged as to be deprived of social relations and pleasures, of which both are most deserving. In a word, our graduate is likely to find that this canker of envy and jealousy which clings to our otherwise noble profession with such tenacity, and blights and curses, and curses and blights, all to which it clings, not only bars or makes all advancement difficult, but so interferes with all the social and other interests and purposes of the profession as to destroy his ideals of life.—[J. N. McCormack, *Journal American Medical Association*.]

Would Limit Sale of Cocain in New York City.—A movement has been inaugurated to prohibit the sale of cocaine by local druggists without a doctor's prescription. It has a tremendous sale in that city, and the "cocain habit" is increasing at an alarming rate. Persons have little trouble getting the drug at drug stores. Some say that it is a good remedy for toothache and other minor pains, and this explanation seems to be sufficient for certain druggists.

AMERICAN NEWS AND NOTES.

GENERAL.

Panama's Sanitary Inquiry.—A Southern Senator has introduced a resolution in Congress authorizing the Committee on Health and Quarantine to investigate health conditions on the Isthmus of Panama, and directing the committee to make a report concerning the effect of gambling and other vices within the canal zone.

Miscellaneous.—ILLUSTRATED REVIEW OF PHYSIOLOGIC THERAPEUTICS offers the sum of \$1,500 in cash prizes for the best essays on röntgen rays in medicine and surgery, the first prize being \$1,000. Surgeons, physicians, and hospitals, interested in any branch of röntgen ray work may write to the above journal at 19 East Sixteenth street, New York City, for particulars.

Would Settle the Race Question.—According to newspaper accounts an Indianapolis physician is treating an infant negro by exposure to red light in the hope of preventing the deposition of the natural pigment in the skin and thereby the indelible mark of Cain. A notice from the far West states that a similar attempt is being made for like purpose with radium. This experiment has previously been tried with röntgen rays without success. When one reads of the number of different experiments—so-called—which have been and are being performed with the röntgen rays and radium, many of which must inevitably fail, he is struck with the idea that these poor hobbies are being ridden hard unto death.

EASTERN STATES.

Sufficient Reason.—The Harvard Medical School experts who are going to the Philippines to study smallpox germs have a method in their apparent mania. They will carry on their operations in some of the distant islands of the archipelago, not because smallpox prevails there, but because monkeys are many and antivivisectionists few.—[*Boston Transcript*.]

NEW YORK.

Overcrowded Condition of Hospitals.—Great complaint occurs in newspapers from the authorities in charge of various hospitals in New York City that these institutions are very much overcrowded at the present time. Attention is called to the fact that if any serious catastrophe should occur, such as the recent theater fire in Chicago, there would be practically no hospital in which the afflicted could be placed.

"Medical Library and Historical Journal."—The announcement for 1904 of this journal has appeared, containing a partial list of the contributors. The initial number appeared in January, 1903. It now starts on its second year, its purpose being to present in an attractive literary form the important historical events, discoveries, and individual efforts having a distinct bearing upon the profession of medicine.

Guarding the Public Health.—The New York State Medical Society recently adopted a resolution advocating the passage of a bill which will give the State Commissioner of Agriculture the power to prosecute persons who counterfeit "certified milk labels," which are given by Boards of Health to milk dealers whose stables come up to a prescribed sanitary test. The movement is in the interest of sanitary milk supplies for cities.

Pneumonia in New York.—The New York Times of January 25, commenting upon the prevalence of pneumonia in that city, states that the outlook is gratifying for the entire city. The deaths from pneumonia the week previous were 329, as against 363 for the week ended January 16, and 364 for the week ended January 9. It holds the hopeful view that the prevalent epidemic of pneumonia has reached its height, and is now on the decline. Similar conditions prevailed in 1900; both influenza and measles then assumed the epidemic form, and the deaths from pneumonia reached from 250 to 400 per week through the months of January, February, and March.

"Albany Medical Annals."—The twenty-fifth or jubilee number of this journal appeared in January. It comprises a volume of more than 200 pages, and is altogether a commendable result from the labors of both the contributors and publishers. The important articles appearing in this number are: Four Cases of Gangrene, by Albert VanderVeer and Edgar A. VanderVeer; Medical Annals—Autobiographical, by Frederic C. Curtis and Willis G. Tucker; Lipoma of the Intestine, by Samuel D. Ward; Myasthenia Gravis, by Henry Hun; Acute Ascending Paralysis of the Type of Landry, by H. C. Gordinier; A Consideration of the Efficacy of Antitoxin in the Treatment of Diphtheria, by Joseph D. Craig; Nervous Dyspepsia, by Andrew MacFarlane; The Islands of Langerhans in Congenital Syphilitic Pancreatitis, by Richard Mills Pearce; A Study of the Changes Occurring in the Endometrium During the Menstrual Cycle, by H. Judson Lipes; Pathology and Treatment of Tetanus, with a Report of 3 Cases, by Arthur W. Elting; Plea for the Rational Administration of Chloroform as

a Routine Measure in Labor, by Spencer L. Dawes; Etiology and Diagnosis of Ozena and its Relation to Pulmonary Tuberculosis, by Clement F. Theisen; Starch Digestion in Infancy, by Henry Larned Keith Shaw; Etiology of Summer Diarrheas of Children, and of Dysentery of Bacterial Origin, by Herbert D. Pease and Henry L. R. Shaw; Cysts of the Mesentery by Alvah H. Traver.

PHILADELPHIA, PENNSYLVANIA, ETC.

Bequests to Charity.—Newark, N. J. By the will of Joseph Nichols, who died some 20 years ago, \$11,000 was left to the City Hospital Fund. This sum and the accruing interest, which have lately been turned over to the Mayor of the city for that purpose, amounted to \$24,000.

The Medicolegal Society of Philadelphia held its annual meeting on Tuesday, January 26. The following officers were elected for the ensuing year: President, Dr. J. C. Cooper; Vice-Presidents, Drs. John R. Umstead and Justus Sinexson; Secretary, Dr. W. T. Hamilton; Treasurer, Dr. G. M. D. Peltz; Censors, J. H. Wolfe, Drs. William Ruoff and E. W. Tulley.

New Hospital for Epileptics.—News from Scranton, under date of January 27, says: "Surveys have been completed on the Moosic Highlands at Fairview, between Carbondale and Honesdale, of land designed as a fit location for the proposed State Hospital for the cure of epileptics and for which the last Legislature made provision. It is 2,200 feet above tide."

Mortality in Philadelphia.—For the week ended January 30 the total deaths were 560 from all causes, 180 or over 30%, were caused by diseases of the throat and lungs, while but 47, or a little more than 8%, were due to the 4 contagious diseases, typhoid fever, smallpox, scarlet fever, and diphtheria. Deaths from diseases of the throat and lungs occurred as follows: Pneumonia, 66; bronchial pneumonia, 31; bronchitis, 16; congestion of the lungs, 11; and tuberculosis, 56.

New Pavilions for Tuberculous Patients.—At the Philadelphia Hospital the new glass pavilions for the housing and treatment of tuberculous patients have been completed. There are 6 of the pavilions at the hospital, each made to accommodate 18 patients. Each is a building in itself, with glass roofs and glass walls, and no more metal about it than is needed for the framework. The floor is of cement, so that all the surfaces are as smooth and as nonabsorbent as possible. Each pavilion is 27 feet wide and 36 feet long, surrounded on all sides by a 6-foot porch, so that the total area is 39 feet by 70 feet. The porches are also enclosed with glass. The inside glass is ribbed sufficiently to make it opaque. The glass of the porches is clear and transparent. All of the glass is arranged in frames reaching from the floor to 10 feet above it, and these frames, in both walls and porches, open like doors. The opening is effected by an automatic device, and any one side or all four sides at once may be opened if desired. Above the opening doors, which form the lower part of the walls of the pavilion, are other glass frames, which also open, so that the whole may be turned into an open shed with a glass roof.

SOUTHERN STATES.

Tuberculosis Exposition at Baltimore.—This exposition, which was recently held, is reported by those in attendance to have been essentially successful in its undertaking. It was educative not only in the medical sense but in the popular sense. Those having it in charge are commended by the numerous friends and visitors for the efficient, capable and instructive manner in which the exhibit was displayed. Rules for the care of personal health were hung in a conspicuous place and attracted much attention. They were: "Live in fresh air constantly; do not be afraid of cold or damp weather. Be outside all the sunny hours of the day. Avoid overheated and ill-ventilated rooms and keep the windows of your bedroom open all night. If you avoid a draught of air you need not fear a cold. Do not overclothe yourself; wear woolen garments next the skin, but do not wear more clothes than healthy people wear. A cold sponge bath every morning will make you less liable to take cold. Drink much milk and eat as much as possible, even if you do not care to." Announcement has been made that the Canadian government will probably hold an exposition of similar character next year. There were many Canadian visitors at the exposition.

WESTERN STATES.

Typhoid in Columbus, Ohio.—News under date of January 28, says: Since January 1, 560 cases of typhoid fever have been reported in Columbus, and there have been 19 deaths from the disease. The largest number reported for a single day was 48. The health authorities claim that the prevalence of the disease is due to contamination of the water in the Scioto River.

Missouri Valley Medical Society will hold its next meeting at Lincoln, Neb., March 24 and 25, 1904. Those desiring to present papers should send their titles to the secretary, Dr. Chas. Wood Fassett, St. Joseph, Mo., not later than February 20. Papers will appear upon the program in the order in which they are received. A symposium on pneumonia, followed by personal experiences, will be a feature of the program.

Embargo on Hospitals.—It appears that a conflict has arisen in Chicago between the Board of Health on the one hand and the superintendents of hospitals on the other. A city ordinance has been passed which requires that each hospital ward shall contain so many cubic feet per patient. Hospital superintendents claim that the amount of space to each individual is excessive, unnecessary, and seriously limits the hospitals in the number of patients which they can receive. The Board of Health, on the other hand, is seeking to enforce the law. It appears that litigation will be resorted to for settlement of the controversy.

Method of Compiling Vital Statistics.—The Bulletin of the Chicago Health Department, for the week ended January 9, says: At the close of the census year 1900 the department, after study of the conditions and correspondence with vital statisticians elsewhere, decided to adopt an increase of 3.5% annually as the basis of the estimated mid-year population of the city. This is 1.9% less than the rate authorized by the United States Census Office, which has accepted the English Registrar-General's method, to wit, that the same rate of increase will hold good as in the previous intercensal period, that is, that the population increases in geometric progression, or as by compound interest. As the rate of increase was 5.4% per annum during the intercensal period of 1890-1900, the mid-year population of 1904 would, if computed on this basis, be 2,096,300, instead of 1,950,000, as conservatively estimated by the department on the basis of a 3.5% annual increase.

FOREIGN NEWS AND NOTES

GENERAL.

Would Vaccinate Calves.—An exchange says: Every calf in Germany will be vaccinated with specially prepared human tuberculous bacilli upon the attainment of its third month, if the proposals of Professor Behring, the great bacteriologist and opponent of Professor Koch's tuberculosis theories, are adopted by the Reichstag. Professor Behring earnestly pleaded the adoption of an imperial law to this end, in conference with the Ministry of Agriculture. The professor also proposes to add 1 gm. of formalin to every 10-quart can of milk. He maintains that fresh milk contains elements fatal to disease bacteria, but that it quickly loses them. Formalin, he adds, would conserve these elements indefinitely. Professor Behring has interested Berlin's milkmen in his plans.

Probably another Idle Dream.—News from St. Petersburg, under date of January 27, says: "Professor Prince Tarkhanov, a well-known scientist, lecturing recently before the Military Association, made some interesting statements in regard to the possibilities of radium. He presented to his audience 2 cancer patients who had been cured of malignant growths on the face by the use of radium, and expressed the opinion that the problem of determining the sex of children, which Professor Schenck had failed to solve, will soon be settled by the aid of radium. The Prince added that he had prevented the development of hydrophobia in dogs inoculated with the virus of rabies, by using radium. When large quantities of radium were available, the Prince contended, the whole system of modern warfare would be revolutionized, as powder magazines, whether in forts or in the holds of vessels, would be at the mercy of radium rays, which could explode them at long distances."

Microbes in Libraries.—The Berlin municipal authorities have decided to make an attempt to exterminate the microbes in the public libraries, Professor Koch having called attention to the danger of spreading infectious diseases through books loaned indiscriminately. A few American librarians have expressed their views on this subject which seem at variance, theoretically at least, with our ideas of the danger of contagion from this source. They point out what they conclude is proof of the position which they assume—namely, that there is little or no danger of contracting contagious diseases from the use of free library books. This proof is that few, if any, instances can be pointed out where persons employed in large libraries have contracted disease from the handling of books. This is not altogether conclusive; since children, the class of population which is most susceptible to infectious diseases, are not, as a rule, employed in handling books in libraries. Usually such persons employed are those who have had the ordinary contagious and infectious diseases of childhood, or at least have been exposed many times to them.

OBITUARIES.

Edmund Andrews, a widely known physician in Chicago, at the Mercy Hospital in that city, January 23, following an attack of heart disease, aged 79. He was a graduate of both the academic and medical departments in the University of Michigan, the former in 1849 and the latter three years later. Dr. Andrews was one of the founders of the Chicago Academy of Sciences and an organizer of the Medical School of the Northwestern University and a pioneer surgeon in the city, having retired two years ago. In 1857 he occupied a profes-

sorship in Rush Medical College, in which institution he taught for three years. Advocating a longer course than the two years required for graduation at that time, he, with five other physicians, established Lind University, which, it is asserted, was the first institution to require a four years' course. Lind University was absorbed by the Northwestern University in 1860. In the latter institution Dr. Andrews was appointed professor of surgery. He was a prominent surgeon in the Federal army during the Civil war. Among his inventions the best known are his braces for the correction of spinal curvature, endoscope, and a device for trephining.

Phoebe Jane Babcock Watt, one of the pioneer women in the medical profession, at her home in New York City, January 30; she was graduated from the Alfred University, and later from the New York Medical College and Hospital for Women. In 1880 she was elected professor of obstetrics in the New York Medical College and Hospital for Women, which chair she held for 12 years.

Joseph Varnum Mott, at his home in Boston, January 30, aged 53; a graduate of the College of Physicians and Surgeons of Columbia University; one time surgeon to the Metropolitan Throat Hospital, and director of the Harlem Dispensary in New York. He retired from practice 10 years ago and is noted for his charity and his gratuitous services to the poor.

George H. R. Bennett, at his home in Brooklyn, from apoplexy, January 26, aged 67; a graduate of the Medical School in the New York University in 1860; a member of various medical societies, the Brooklyn Medical Club and one time surgeon of the Twenty-third regiment.

Henry Plummer, at his home in Harrodsburg, Ky., January 20, from heart disease; a graduate of the Medical College of Ohio, Cincinnati, in 1861; one time president of the Central Kentucky Medical Society and Mercer County Medical Society.

Nels N. Glim, at his home in Ashland, Wis., January 15, from general peritonitis, following an operation; a graduate of Hamline University, Minneapolis, in 1898, and a member of the American Medical Association.

Brainerd Leaman, at his home in Leaman Place, Pa., January 28, aged 62. He was a surgeon in the Federal Army during the Civil war, having graduated from Jefferson Medical College, Philadelphia, in 1864.

Francis Rudderow, was found dead in his home in Philadelphia, January 22, aged 42; he was a sufferer from Bright's disease; a graduate of the University of Pennsylvania in 1887.

John W. Harriman, at his home in Iowa City, January 25, from appendicitis; a graduate of the University of Iowa in 1891. He was professor of anatomy in his alma mater.

E. R. Manning, at his home in Stamford, Tex., January 14; a graduate of the Missouri Medical College, St. Louis, in 1897; a local surgeon of the Texas Central Railway.

Alexander Douglas Bryden, at Carbondale, Pa., January 13, from nephritis, aged 35. He was assistant army surgeon in the Spanish-American war.

Francis Woodley Harrell, at his home in New York City, January 19, from pneumonia, aged 44; a graduate of the University of Maryland in 1870.

John H. Scally, at his home in Towson, Md., after a lingering illness, aged 33; a graduate of the College of Physicians and Surgeons of Baltimore.

Rachael A. Dickey, at her home in New London, Md., January 3, aged 79; a graduate of the Woman's Medical College, of Philadelphia, in 1867.

Robert M. Weed, at his home in Mt. Vernon, N. Y., January 26, aged 50; a graduate of the New York Homeopathic College in 1880.

Frederick Fallett Comstock, at his home in Ilon, N. Y., January 12, aged 54; a graduate of Bellevue Medical College, in 1873.

Jefferson Williamson, at his home in Ottumwa, Ia., January 16, aged 76; a graduate of Cleveland Medical College, in 1852.

Moses W. Merryman, at Atlantic City, January 24. The remains were buried in Baltimore.

George Clinton Hale, at his home in Catskill, N. Y., January 30, aged 72.

SOCIETY REPORTS

THE TUBERCULOSIS EXPOSITION.

Held at Baltimore, Md., January 25-30, and February 1, 1904.

[Specially reported for *American Medicine*.]

The Tuberculosis Exposition last week was in several respects remarkable and in one respect unique. For 12 hours daily on 5 successive days throngs of people passed through the corridors of McCoy Hall manifesting intense interest in the great object lesson prepared by the tuberculosis commission. All sorts and conditions of men came and went, and the message of the Exposition was definitely impressed on every

mind. A corps of guides conducted visitors through the various departments, telling to willing hearers the story of chart, diagram, map, picture, model, and specimen.

That students of tuberculosis were attracted from all parts of the country is not surprising, for the Exposition was worth the visit, but the sustained and increasing interest of the people was most surprising, and in this respect the success of the Maryland Tuberculosis Commission was unique. Their show was a sort of continuous performance, beginning at 10 each morning and continuing until 11 o'clock each night.

The formal program began on Monday night, when the Exposition was opened by the Governor of Maryland, Mr. Warfield, who expressed his interest in the subject and his approval of the commission's method of presenting it. Honorable Robert McLane, Mayor of Baltimore, made an earnest address, dwelling particularly upon the necessity of popularizing all such movements. Dr. William Osler spoke briefly and forcibly of the apathy of great cities in general upon sanitary subjects, and particularly with respect to familiar plagues such as tuberculosis. The address of the evening was given by Mr. Frederick Hoffman, of Newark, N. J., who spoke on the **Statistical Laws of Tuberculosis**. This address was heard by a large and attentive audience, and, moreover, it was understood. Mr Hoffman's paper dealt with the experience of the Prudential Life Insurance Company with tuberculosis among the industrial classes, and emphasized the need of health laws governing shops, factories, and tenements. Any attempt to deal successfully with the problem of tuberculosis prevention must needs proceed along lines of a comprehensive statistical investigation, for the laws and tendencies of this disease are most intelligently expressed by statistical averages reduced to a uniform basis readily susceptible of critical analysis. The mortality from tuberculosis has progressively declined in American cities for more than half a century. The tendency toward a progressive decrease in the mortality from this disease from decade to decade during the past 40 to 60 years has been practically the same in all of the principal American cities. In other words, the observed decrease in the mortality from tuberculosis antedates by many years the great discovery of Professor Koch and the relatively recent view that the disease is of a highly infectious character, and is transmitted from man to man. This decrease in the mortality from tuberculosis in past years, or let us say, previous to 1890, must be ascribed primarily to a profound change for the better in the mode of life of the masses. There is great need of a broad basis of sound knowledge for any far-reaching sanitary or other measures which may be adopted for the purpose of diminishing by associated effort the largely preventable amount of disease and mortality from tuberculosis. The facts would seem to warrant the view that it is possible to so localize the mortality from tuberculosis that an energetic campaign against tuberculosis will be certain to produce far-reaching results. If we determine upon a campaign against tuberculosis as we find it to occur among persons in certain recognized unhealthy employments, or living in certain recognized unhealthy localities, or under certain illhealth-producing conditions, there is no doubt in my mind but that within a few years a marked diminution in the deathrate will result from such well-directed and intelligent efforts. By preventing the disease in the first place it will not be found necessary to erect immense and costly institutions for the cure of the disease. Hoffman is certain, from a careful study of the facts in the case, that such efforts should be primarily directed against unsanitary workshops, illhealth-producing occupations, and the employment of physically unfit types of persons in industries in which the deathrate from tuberculosis is extremely high. By adopting intelligent measures in clear recognition of the laws which determine a high or low mortality from this disease a large portion of the present mortality from this disease will be done away with.

On Tuesday afternoon at 5, Dr. Lawrence Flick, of Philadelphia, gave a popular lecture on **House infection**. Dr. Flick's paper set forth his wellknown views, drawing the clear distinction which separated the tuberculous from other communicable diseases. He laid particular stress upon the need of prolonged exposure or of heavy infection or of subjective predisposition as prerequisite to effective implantation of tuberculosis, and showed that inclosed areas, as the home, offer the most favorable conditions for spreading tuberculosis.

On Wednesday night, Dr. Mazyek P. Ravenel, of Philadelphia, and Dr. D. E. Salmon, of Washington, gave papers on the tuberculosis of animals. Their lectures were announced as of interest only to physicians and medical students. McCoy Hall was nevertheless filled to overflowing. Dr. Ravenel considered **Bovine tuberculosis as a factor in the causation of human tuberculosis**, reviewing the entire literature, and marshaling the facts in support of the theory. He holds that the greater virulence of the bovine bacillus holds good for man. In concluding, he called attention to 1 point, which by itself alone proves that bovine tuberculosis is a factor in the spread of the disease in the human race—namely, the finding of the bovine tubercle bacillus in the intestinal tract of children. On this ground alone we may rest the case, even if there were not so much corroborative evidence. The proportion of cases in which this finding has been made is large, though exact figures are not at hand. The German Commission found the bovine bacillus in 4 out of 16 cases examined; deSchweinitz has found

it twice in 4 cases, and at the laboratory of the State Live Stock Sanitary Board Ravenel has found it in 2 out of 5 cases examined. We are then justified in saying that bovine tuberculosis is transmitted to the human race, chiefly to infants, in a certain proportion of instances, and is, therefore, a menace to human health. Our present knowledge does not enable us to define exactly the extent of the danger, but that it exists cannot be denied. It is, therefore, the duty of physicians and officers of health to take every precaution against the infection of man by tuberculous cattle and their products.

Dr. Salmon's paper gave a scientific evidence of the unity of tuberculosis throughout the animal kingdom. He showed that all the morphologic characteristics, which have been regarded as differentiating the various stocks of tuberculosis, could be reproduced in any stock by culture in a suitable environment, and suggested that the virulence of human tuberculosis may be constantly renewed by implantations upon the human organism of the bacillus of other mammalia. The important problems in the great subject of tuberculosis are not so simple that they can be solved by an experimenter who ignores the work of others and starts out with a few cultures of bacilli and a few experimental animals to settle the whole question by himself and on his own lines, as some enthusiastic gentlemen have discovered during the last few years. All lines of experimentation must be considered, and where there is an apparent lack of harmony the reason for it must be discovered before dogmatic conclusions are promulgated. Above all, we should endeavor to discriminate between positive and negative results, and not make the mistake of ignoring or suppressing the experiments which demonstrate something, in order that we may accept the, perhaps, more numerous ones which have not succeeded and which are absolutely barren as a source of information. The field of comparative medicine is a broad one, and it is the part of wisdom for those engaged in human medicine to look to it for the solution of those difficult problems which have so long eluded their grasp. There has been almost to the present moment just as strong a prejudice against the theory of infection from animal sources as there was formerly against the theory of infection from human sources. Clinical evidence indicating infection from animals has been ignored, explained away, or summarily rejected, just as similar evidence as to infection from man to man was disposed of before the discovery of the tubercle bacillus. And as the evidence of infection from animals multiplied and could be no longer entirely ignored the attempt was made to neutralize it or hold it in check by the erection of scientific barriers. The frequent infection of the human subject with animal tuberculosis appears to be established by scientific investigations. It is noteworthy that most of the cases having bacilli of the bovine type have occurred in children. Each of these cases forms a new center of tuberculosis infection. And it is to be remarked that these bacilli of the bovine type are pathologically very active; they are more virulent for most animals and probably more virulent for man than are the bacilli of the human type. Therefore, it appears that these new centers of tuberculosis may be the means of keeping up the activity and virulence of the disease in man. It is a striking fact that human bacilli are generally much more saprophytic in their characters and far less virulent than those of most other mammalian sources, and it seems that the human organism has the power of attenuating these bacilli and gradually making them less and less harmful. But this influence for good must be continually counteracted by the infusion of extremely pathogenic germs from animal sources.

On Thursday evening, Dr. S. A. Knopf, of New York, gave one of his very characteristic addresses, before an enthusiastic crowd, speaking on **Pulmonary Tuberculosis and the Possibility of Its Eradication Through the Combined Efforts of a Wise Government, Well-trained Physicians and an Intelligent People.** He reviewed the history of the disease, its symptomatology and the means of transmission, reviewing the latest approved methods of prevention. He gave very careful instruction with regard to children of school age, the use of alcohol, the liability to infection of those enfeebled by disease, the necessity for ample feeding, fresh air, proper clothing, etc. He considers the sanatorium most efficient in combating the disease. Much interest was aroused by the portion of his address in which he paid his respects to so-called "tuberculosis cures," exposing some of the most widely known. The best weapon to combat these and the faith healers was by education by the press, by clergymen, by teachers. Every city should have an efficient health department, tenement house commission, street cleaning department, and a board of education, all of them combining to render the city as sanitary as possible, and thus combating centers of contagion of tuberculosis and other diseases, keeping the streets as free from dust, filth and smoke as possible, preventing the construction of unsanitary, unsafe dwellings, and the overcrowding in homes, sweatshops and factories, and making of the public schools, where our children dwell so many hours, models of perfect ventilation and places for true intellectual and physical development, thus furthering the physical and moral welfare of the entire community. Our State legislators should do their utmost to enact such laws as will secure always proper ventilation and light in public and private buildings. State Boards of Health should receive ample appropriation to combat tuberculosis among men and animals, and be helpful in creating State sanatoriums and agricultural colonies for tuberculous adults and seaside sanatoriums for

scrofulous and tuberculous children; also special hospitals and tuberculosis dispensaries, and lastly, the United States government should, after the example of Great Britain, France and Germany, not only have a ministry of public health, but also a special commission, appointed by the President of the United States, composed of expert sanitarians, physicians and veterinarians, who should unite with the State and municipal sanitary authorities of the country in the combat of tuberculosis in all its forms among man and beast.

On Friday evening Dr. George J. Adami of Montreal, made an address on **Facts, Half Truths, and the Truths, with Special Reference to Tuberculosis**, and this address though intended for a scientific audience also filled McCoy Hall. He sketched the history of doubt concerning the nature of tuberculosis and showed the necessity for scientific deliberation and caution in the interpretation of facts.

On Saturday, afternoon Drs. William H. Welch and Charles H. Potter gave lectures on tuberculosis with lantern illustrations, and in the evening Dr. John B. Huber of New York, gave a similar, though more popular, illustrated lecture.

On Monday February 1, Dr. William Osler gave a lecture on **The History of Tuberculosis** using the remarkable collection of books collected by himself and Dr. Henry Barton Jacobs to illustrate the development of the subject from the earliest times. The beautiful exhibit was shown under glass, the books, beginning with a sixteenth century edition of Hippocrates, being opened so as to show the most striking passage on the subject. About a hundred linear feet of cases were required to hold these books.

A very complete pathologic exhibit was arranged in a room somewhat apart from the remainder of the Exposition and competent demonstrators were on duty all the time.

The popular features of the Exposition began with the display of charts and diagrams showing the prevalence of tuberculosis, its varieties, its relations to race, age, sex, habits, social and economic conditions. The charts on the economic relations of tuberculosis in Maryland were of particular interest, and quite novel. They were prepared by Dr. Marshall L. Price, the Medical Officer of the Tuberculosis Commission, and traced many tuberculous patients through their periods of partial disability and of total disability to death. Maximum and minimum charts were shown for the tuberculous wage earners of greatest and least earning power. There were also comparative charts showing the economic differences between the course of tuberculosis and other chronic diseases.

After the statistical department came the department of tenements, sweatshops and factories, very liberally illustrated.

Next came the department of State and municipal hygiene, and next the department of sanatoriums which included all the variations of the sanatorium idea with abundant details as to cost of construction, maintenance, and equipment, and statistics of results obtained here and abroad.

Next followed the department of Home Treatment and House Hygiene where one might learn the minutest details of safe management of the tuberculous patient in the home. This department included an exhibit of the work done by instructive visiting Nurses' Associations.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

REMARKS BEFORE THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

BY

A. JACOBI, M.D.,

Chairman of the Joint Committee on Conference, January 26, 1901.

The report of the chairman of your Committee of Five encloses the work of the Joint Committee of Ten. As its chairman, I rise to add a few remarks to the complete historic review you have listened to. I do so with the expression of the most intense gratification. For it has never been my lot to assist at the labors of any body of men more engrossed by their work than this committee laboring for the consolidation of the 2 large State bodies.

The report before you gives no idea of the time and efforts required by the task entrusted to this committee. At first it seemed we had plain sailing. Nothing appeared to be simpler than to consolidate 2 corporations eager to be consolidated. A large amount of detail work was expected, but the enthusiasm exhibited in the Association and in the special October meeting of the Medical Society promised an easy fulfilment of our com-

¹ Made after the reading by Dr. Henry Elsner, chairman of the Committee of Five of the Medical Society of the State of New York, of the proposed Agreement, Constitution and By-laws.

mon intentions and wishes. There was perfect harmony. There never was an allusion to past difficulties, controversies, or animosities; nor was during the many and protracted meetings a single minute disturbed by the rumors spread now and then of alleged attempts at thwarting the will of the profession as represented in the Joint Committee. Its two halves worked with equal zeal; naturally, the actual work could not be equally divided; without invidious discrimination, therefore, the chairman wishes to thank 2 members for the unusual amount of labor cheerfully undertaken and successfully carried out—namely, the chairman of your Committee of Five, Dr. Elsner, and the secretary of the Joint Committee, Dr. Wisner R. Townsend. Nor should I pass by the uninterrupted and unselfish aid unofficially given by our president, Dr. Algernon T. Bristol, and our legal counsel, Mr. Howard van Sinderen, without whose indefatigable cooperation and fertile resourcefulness we should have stranded many times. In connection with this statement, I wish it to be understood that whatever has been done by your committee, whatever has gone before the Legislature, or has been presented to you, has been scrutinized, suggested, criticised, or created by him.

The Legislature has not been slow in appreciating and rewarding the efforts of the medical profession in behalf of its unification. Those of us who lived in by-gone times and participated in the work of this society, are aware, that it took years of strenuous effort and persistent persuasion to convince legislators of the importance and general usefulness of State Boards of Examiners, of increased requirements for the matriculation in medical schools, etc. When at those different times we approached the Legislatures we were always confronted with the reproach that the medical profession was no unity, that what one wanted the other opposed, and with the fact that legislators declared themselves unable to decide a question in regard to which medical men were not of one mind. We were told many times, that if and when the medical profession came before the Legislature as a united body with demands, either in its own or the people's interest—both, as a rule, being identical—there would be no delay in complying with its wishes. That promise has been made good. Within a week the permissive bill asking for consolidation has been passed through the Senate, and the Assembly, and signed by the Governor. Our thanks are due to the kindly services of the Hon. Nathaniel Elsberg, and his and our friends in the Senate and Assembly, and the Governor, the Hon. B. B. Odell. Evidently there is no power in the land that would care to evade, or to disapprove, or claim a just ground to withstand the reasonable demands of the 11,000 physicians of the Empire State when united for a common purpose.

The Legislatures of the future will be glad to know that whenever a bill will arrive that is voiced by the united profession and deals with the sanitary, educational, and other vital interests of the people of the State, they are safe in passing it. The mature judgment of the profession has not easily been mistaken. Indeed, whatever progress has been made in the scientific and moral evolution of the medical profession has been accomplished by the combined efforts of its rank and file, without the cooperation, and frequently against the opposition, of some medical schools or of alleged and self-complacent leaders. That is as it should be in a profession which is imbued with the democratic principles of the Commonwealth, and with the consciousness of its predominant weight in the determination of the most vital interests of mankind.

From the report read, you learn that the consolidated medical profession will bear the time-honored name of the Medical Society of the State of New York, that its seal will be preserved, its continuance not interrupted, and the individual rights of members enhanced. There will be no privileged class of almost 500 permanent members, some of whom have even lost their membership in county societies, and no danger from a possible predominance of such an aristocratic class. The house of delegates will count at least 150 members, in place of the Nominating Committee of Nine. It cannot elect its own members into offices. It is controlled by the referendum, which means an appeal to the total membership of the society in any doubtful or contested case. It takes the place of Congress in our political commonwealth. To it are referred legislation and administration, and it is renewed by annual election

in the county societies according to the number of assembly districts, with this proviso—that every county society has at least one delegate. By being the legislative body, it leaves the meetings of the society free for its scientific work. The constitution and by-laws, formed under the eyes of legal authority, are safe from interference and are subject to changes by the majority vote of the medical society.

This is what is proposed for your adoption. Other points are referred to the future vote of the combined societies, so the question whether there shall be in the by-laws an ethical clause, whether the directory or journal or transactions shall be continued or not and the amount of dues. All this will be left for your 5,000 or 6,000 votes to decide.

You who met here as delegates or permanent members are in as momentous a position as any that the medical society was ever placed in during the century of its existence. Unification has been the demand of the vast majority of the profession of our State so long, that it has become practically unanimous. Not of the State alone, however. The profession of the United States is listening to your verdict of this morning. While it is our pride that this is so, and that on our resolution the fate of the country's profession may depend—to know that the eyes of our brethren all over this broad land are upon us this very moment, adds to our responsibility. Never was there during the life of this society a better opportunity for the display both of wisdom and of patience.

It is admitted on all sides that both patience and wisdom are demanded more on the part of the medical society than of that of the Association. The latter's organization is simpler, and being younger it is not beset with old, in part contradictory, often repealed, frequently only half-repealed laws extending over a hundred years. The autonomy of the county societies, which the Joint Committee has been anxious to preserve, unless wisely exercised creates a difficulty. As their ratification of the new constitution and by-laws is demanded as a matter of course, their common sense, patience, wisdom and patriotism are required to a high degree. They will consider that laws are not made for ever; laws are not the masters of men, but the expression of their will as modified by time, usages, and changed necessities. Even the sacred Constitution of the United States had to be modified by the modern requirements of the sons and grandsons of its makers. That is why it is recommended that if there be any points in the proposed constitution and by-laws displeasing one or the other, you are still safe in adopting them all. There are six thousand of us, and there will be more. Every year your constitution and by-laws may be altered if you deem proper. Your delegates will change, and your referendum is more powerful than any house of delegates. What we are after, is union. More than once a member of your Joint Committee got up to say: "We have been sent here to harmonize and to unify and to consolidate. We cannot return to our masters and tell them we have missed our opportunities to execute their will. I still hear the ring of enthusiastic applause when the unanimous vote calling for unity brought a tear to many an eye. And unity it shall be." I never heard the duties of sound citizenship expressed more emphatically.

After unification, we shall be satisfied that nothing will ever sever us again. For there will never again be a diversity of principles like 22 years ago. There will be a common faith, aim, and altar. We shall take, in the medical brotherhood, the place which belongs to us, and work for the ideals, scientific, moral and practical, such as no other profession can realize, together with our peers all over the union. We must or need split up into parties nevermore. To the undivided and indivisible body medical the American people will look for authoritative guidance in matters of sanitation, education and forensic legislation. What a Greek sage demanded should and may become true, viz., that the Commonwealth will be advised and ruled by the physician. It is in this spirit that I appeal to you not to miss this opportunity of initiating for our glorious profession an epoch of fraternity, vastly increased usefulness, and almost ideal possibility for benefiting ourselves, our brethren, and numerous millions. I appeal to you as one of your oldest members who has stood by you in prosperity and distress, in peace and in war; and long and lately as a friend of reconcilia-

tion and union of the 2 great medical bodies of the State. The confidence both of your own committee and that of the Association has permitted me to preside over their long and laborious deliberations. That is why I feel I have a right to represent in this solemn hour the whole profession of the State in its anxious longing for consolidation, not as an officer, or a delegate, but as a peer among peers. That is, Mr. President, why I have risen to move the adoption of the following resolution:

Resolved, That the report of the Joint Committee of Conference be accepted and that the proposed agreement for the consolidation of the Medical Society of the State of New York and the New York State Medical Association be and the same is hereby approved, and the president of the society is hereby authorized and directed to execute the same in the name and behalf of the society, and the secretary is hereby authorized and directed to affix the corporate seal thereunto; and be it further

Resolved, That the committee of the society heretofore appointed for the purpose of bringing about the consolidation, namely, Dr. Henry L. Elsner, Dr. A. Jacobl, Dr. A. VanderVeer, Dr. George R. Fowler and Dr. Frank Van Fleet, be and they are hereby continued as such committee, with full power and authority to do whatever may be necessary to carry the agreement into effect.

A CASE OF HYDROPHOBIA WITH AUTOPSY.*

BY

G. MORTON ILLMAN, M.D.,

of Philadelphia.

I think it prudent to report this case for discussion, because of the fact that proper precaution, protecting human life from one of the most distressingly fatal infections known to mankind, is overlooked, especially in the large communities of America. In some instances the very existence of the condition is questioned by a few members of the medical profession and by the laity.

The patient was a well-developed male, aged 37, and an electrician by occupation.

Family History.—His family history was negative, with the exception of the fact that his mother died of pulmonary tuberculosis.

Previous Medical History.—Investigation as to the previous medical history showed that the patient had been a comparatively healthy man with the exception of a slight persistent cough, with which he had suffered some years ago, but which had ceased after the patient discontinued the excessive use of tobacco.

Two years ago the patient met with a severe accident, necessitating the partial amputation of three fingers of the right hand. This accident was followed during the present year by a severe burn of the right arm and forearm. The patient was just recovering from the latter condition when, upon attempting to caress a strange dog, he was bitten in the palm of the left hand, in the web between the first two fingers.

The wound was thus inflicted August 23, 1903. It bled freely at the time and was cauterized one hour later with a solution of silver nitrate (of questionable strength), followed by pure carbolic acid, and an antiseptic dressing applied. The wound healed kindly without any decided complications.

Premortuary Stage.—In the evening of October 1, 1903, just 39 days after infliction of the wound, the patient's attention was attracted to his left hand by a tingling sensation in the tips of the fingers and in the cicatrix. His wife states that during the following two days he appeared greatly depressed, restless at night, had little or no appetite, and complained of a constantly increasing aching sensation in the left hand and arm.

Spasmodic Stage.—Upon arising from bed in the morning of October 4 the patient complained most decidedly of the left hand, arm, and shoulder, and of a pronounced feeling of debility. He went to breakfast, however, as usual, and while at the table asked for a glass of water, and upon attempting to swallow the liquid it was suddenly and involuntarily expelled from his mouth. He then went upstairs without assistance and lay upon a couch, complaining at the time of feeling extremely weak.

At 10 o'clock a.m. I was asked to attend the patient, and found him decidedly restless, and complaining, in addition to the aching arm and shoulder, of being very chilly. The skin was moist, the muscles relaxed, reflexes normal, and face flushed. Pressure along the nerve trunks and muscles of the left arm and shoulder was slightly painful, but did not seem to be productive of any local or general spasm. Attempts at prolonged conversation, however, seemed to cause, from time to time, a sudden involuntary laryngeal spasm, after which the patient would be unable to resume talking immediately because of a marked dyspnea thus produced. The temperature at this time was 101° F.; the pulse 102; and the respirations, when regular, were 24.

Upon receiving the history of the patient's inability to

swallow water while at breakfast, I decided to prescribe an antirheumatic in powder form to be taken with water during my absence, in order to avoid arousing the patient's suspicions regarding my belief in his ability to swallow liquids as usual.

At 3 o'clock in the afternoon I was informed that after a great effort he had swallowed one powder, but that a repetition had been absolutely impossible, and, furthermore, that he had refused all liquids and solids at lunch time. There was now a pain on the left side of the neck which seemed to be most marked along the posterior borders of the trapezius and sternomastoid muscles, radiating toward the occipital portion of the skull.

The patient complained of an almost constant smothering sensation in the larynx, and the slightest efforts to talk would now very readily provoke a laryngeal contraction, during which time the patient continually held his hand to his throat in an effort to relieve his dyspnea and was extremely restless. The temperature continued to be 101° F., the pulse was 98, and respirations 26.

Feeling that future treatment of the patient depended upon an absolute surety as to the diagnosis, I asked Dr. Samuel Wolfe to see the patient, and after a very careful examination and consideration of the definite history Dr. Wolfe came to the conclusion that the case was almost certainly one of true hydrophobia. The actual state of affairs was at once explained to the family, and thus all obstacles to future treatment eliminated.

At 6 o'clock the same evening (10 hours after the first appearance of active symptoms) it became necessary to resort to hypnotics to control the spasms, which were now becoming very much longer in duration and more decided in severity. Eight mg. ($\frac{1}{8}$ gr.) of morphin and .4 mg. ($\frac{1}{250}$ gr.) of atropin were accordingly given hypodermically with a very beneficial result, enabling the patient to obtain a much needed rest of 4 or 5 hours' duration.

It became necessary to repeat this injection 6 hours later, at which time there was a noticeable hyperesthesia of the left side, especially marked at the time of puncture with the hypodermic needle. The patient's general appearance was now that of a decidedly sick man and one whose suffering was anything but of an hysterical nature, his manifest desire to assist with his treatment and avoid worrying his family being most pronounced.

The second administration of morphin and atropin had only been beneficial so far as respiration was concerned, the injection being repeated at 5.30 a.m. (5½ hours after the second administration) with better results, especially upon the severity of the laryngeal spasms, but with no decided effect upon the frequency of recurrence.

All attempts to have the patient take food of any variety by the mouth failed, and nutrient enemata (of beef) were resorted to and retained, being given always after a hypodermic injection of the narcotic.

In the afternoon of the second day of the spasmodic stage, Drs. M. P. Ravenel and D. J. McCarthy were called in consultation and made a careful examination of the patient, especially as regarded the nervous symptoms, and stated that in their opinion the case was undoubtedly one of hydrophobia.

There seemed to be a slight tendency to increased salivation during the past 6 hours, and now, regardless of the atropin that had been given, there was a moderately abnormal flow of saliva, probably caused, to a certain extent, by the almost continual movement of the patient's jaws and tongue.

With the approach of evening the general condition became gradually worse, and at 8.30 p.m. a series of spasms developed, extending over a period of 30 minutes. During this series of paroxysms there was increased salivation, intense dyspnea, rolling of the eyes, continual change of position, marked eructations of gas, and the passage at this time of about 6 ounces of urine, making 10 ounces passed within 5 hours. Delirious symptoms now became noticeable, but occurred only at intervals of 2 to 3 hours, and were of very short duration.

During the course of the next 10 hours but 2 administrations of morphin were necessary, the patient resting fairly quietly until Tuesday morning (October 6, the third day of the spasmodic stage), at which time control of the patient became a difficult matter. The excitement became maniacal, and it was feared the patient would do himself personal injury, although his entire appearance was at times one of terrible fear, and he would hold his throat with both hands in a frantic effort to relieve his dyspnea. Attempted inhalations of chloroform at this and other times gave no relief, and only seemed to increase the suffering.

After some effort .6 mg. ($\frac{1}{100}$ gr.) of hyoscin hydrobromate was given hypodermically with a very gratifying effect. This dose of hyoscin was repeated 3 hours later, and was the last administration of a hypnotic of any kind that was necessary during the remaining course of the disease. The temperature was now 101.6° F., the pulse 124, and respirations 44.

Paralytic Stage.—A few hours later a gentleman who saw the patient pronounced the case one of hysteria of a remarkable type, and was so positive as to his diagnosis that it was decided to put the patient upon hysterical treatment. Accordingly, all medicinal administrations, rectal feedings, etc., were discontinued, and no one except the nurse or a substitute allowed in or near the room. Twenty minims of sterile water was given hypodermically every 2 or 3 hours, and the nurse informed me that there was absolutely no effect as to the frequency of the spasms, but there seemed to be a steady decrease in the severity

* Read before the Philadelphia County Medical Society, December 9, 1903.

regardless of the time at which the injections of water were given. In other words, it was very apparent that regardless of treatment the patient was slowly passing into the paralytic stage of hydrophobia.

The patient now began to perspire profusely, and vomited for the first time about 4 ounces of yellowish, frothy mucus. The profuse sweating continued, and a few hours later both pulse and respiration began to fail rapidly. It became very evident that a return to medicinal treatment was necessary, and 1 mg. ($\frac{1}{32}$ gr.) of digitalin and .4 mg. ($\frac{1}{15}$ gr.) of atropin were given hypodermically with much benefit.

The periods of delirium were now of frequent occurrence and of long duration. When rational the patient declared that the choking sensation had entirely gone from his throat, and that he was now smothering from oppression over the epigastrium, and during a spasmodic attack would put both hands to this region instead of to the larynx as formerly. It was, therefore, decided to endeavor once again to administer a liquid by way of the mouth. Two ounces of milk containing a fluidram of whisky was brought to the patient, and with a little assistance and encouragement the entire contents of the glass were swallowed without any great effort. On finding himself able to swallow liquids again the patient asked for a cup of coffee, of which he drank a few drams. About 30 minutes later both coffee and milk were vomited and all efforts to repeat the same were forcibly resisted.

In spite of stimulants the pulse and respiration failed steadily and the patient became permanently unconscious, at which time 20 m. of ether was given hypodermically and resulted in a sudden general clonic muscular spasm.

External heat had been constantly applied to the trunk and extremities, and digitalin and atropin given, either together or separately as occasion demanded, until the patient's death of respiratory failure at 7 a.m., October 7, 3 days (71 hours) after the onset of active symptoms, and nearly 6 days after the onset of prodromal symptoms.

The hyperesthesia was a prominent symptom throughout the course of the disease, and became gradually more pronounced until finally both before and after unconsciousness warm applications could only be placed to the extremities very gradually and retained in position with difficulty. Hyperesthesia, as a rule, was most marked on the left side. Very slight stimulations, such as the sudden entrance of light to the room, the running of water and the ringing of the doorbell, were many times provocative of a spasm. The reflexes were increased and the plantar reaction always downward. The pupils became dilated and nonreactive about 8 hours before death.

Delirium began to manifest itself about 36 hours after the onset of active symptoms, became more prominent during the administrations of hyoscin, but was still present during the period of 9 hours when the patient was receiving no medicinal treatment, and continued to the period of unconsciousness.

During the entire course of his illness there was never made in the presence of the patient any mention of or reference to dogs or hydrophobia, and he was made to believe, so far as possible, that he was suffering from rheumatism of the throat muscles. At no time during his illness did the patient simulate in any manner the actions of a dog or other lower animal, although he frequently referred to the dog-bite as being the cause of his present condition.

The temperature showed a gradual rise until the second day of the spasmodic stage when it reached 102° F.; after which it ranged between 101.8° F. and 100° F. The respirations, when at all regular, varied from 28 to 40, and simulated at times Cheyne-Stokes' respiration, especially after a series of laryngeal spasms. After unconsciousness, ether dropped on the larynx and upper portion of the chest brought about a prompt respiratory reaction.

I had an opportunity to make but one examination of the urine, the specimen being collected during the second 24 hours, after the onset of active symptoms. It was high-colored, decidedly acid, and showed a specific gravity of 1.040; there was no albumin nor sugar present. No microscopic examination was made.

Prophylaxis.—All linens, towels, etc., used around the patient, especially those contaminated with saliva or vomit, were at once thrown into scalding water and later boiled. After death, all needles, thermometers, spoons, etc., were either destroyed or sterilized, and the floors, bedding and furniture thoroughly wiped off with a strong solution of carbolic acid.

Autopsy.—The autopsy was made 10 hours after death by Drs. McCarthy and Ravenel, with the following results:

The lividity of the dorsal surface of the body was very marked, and rigor mortis of the upper and lower extremities very well developed.

The skull was thin. The brain and membranes were normal, both over the convexity and base.

The spinal cord and its membranes were of normal appearance, as were the pancreas, adrenal glands, and spleen.

The lungs showed some adhesions in the right pleural sac, a rather marked emphysema along the anterior border of the right lung, and an area of healed tuberculosis at the right apex.

The liver showed a slight passive congestion, otherwise normal.

The heart was normal with the exception of a patch of old pericarditis on the anterior surface.

The kidneys appeared to be normal. The inner surface of the larynx was covered with dirty mucus and there was considerable frothy mucus in the trachea.

Microscopic Examination.—The microscopic examination of the central nervous system shows typical tubercles of Babes in the medulla. The round-cell infiltration around the blood-vessels was very distinct.

Sections of the cerebral cortex and base of the brain show no evidence of inflammatory change.

Sections of the gasserian ganglion and also of the intervertebral ganglions show a round-cell infiltration in the stroma, a diffuse chromatolysis of the ganglion cells, and a vacuolization of some of these cells, with a proliferation of the capsular cells, in most areas of only moderate degree, but in some areas filling up the entire capsule.

The peripheral nerves and the anterior and posterior roots show no change after careful investigation.

Microscopic study gave perfectly normal appearances in all the viscera with the exception of the kidney. These sections show some congestive swelling of the glomeruli and a cloudy swelling going on to marked degeneration of the cells of the tubules.

In other words, pathologic lesions typical of hydrophobia were found in a case associated with parenchymatous nephritis. Neither the pericellular nor perinuclear round-cell accumulation of the central nervous system nor the lesions of the intervertebral ganglions are seen in cases of nephritis.

Inoculations.—Three rabbits were subsequently inoculated from the medulla of the patient, with the result that all 3 rabbits died after a period of 17 to 19 days, presenting typical symptoms of rabies, and subsequent sections made from the nervous systems of these rabbits showed pathologic changes typical of rabies and corresponding to those found in the nervous system of the patient.

The Dog.—The dog was of the small terrier type, showed no signs of rabies, and is said to have been playing with some children only a short time before biting the patient. The killing and cremation of the dog prevented a subsequent autopsy.

I close this report with the earnest plea that an effort will be made to have constituted or enforced the proper laws, compelling the muzzling and quarantining of dogs at all seasons of the year, that society may thus be protected from this fatal condition, and that, if possible, it be thus completely eliminated, as in many foreign countries, notably Australia.

THE MISFORTUNE OF A COLLEAGUE.

To the Editor of American Medicine:—An unusually trying calamity has befallen one of our brother physicians in the fire which destroyed the property of Dr. Edwin Remick, of Farnworth, N. H., on the night of January 21.

Doctor Remick is the only physician in his town, and covers a territory so large that he often drives 15 to 20 miles in seeing one or two patients. Such service involves constant exposure and heroism in the severe winters of the White Mountains, and is but poorly compensated, when looking at it from a financial standpoint.

Early Thursday morning the doctor's family awoke to find the house in flames; the doctor had come in late and was so overcome with sleep that he could scarcely be roused. The family barely escaped barefooted upon the snow and in less than an hour the house and barn were level with the ground. All the doctor's books, instruments, and medicines, which he has to supply, there being no drug store in the place, were lost. In fact, practically everything was burned, and the property was not covered by any insurance.

It has occurred to me that readers of *American Medicine* would be interested to help our brother in his trying loss. Complimentary copies from some of our medical authors would be very acceptable, in replacing the doctor's library for instance, and other ways of showing sympathy will doubtless suggest themselves.

A BROTHER PHYSICIAN.

ORIGINAL ARTICLES

PURINEMIA: A CLINICAL STUDY.¹

BY

REYNOLD WEBB WILCOX, M.D., LL.D.,

of New York City.

Professor of Medicine at the New York Post-Graduate Medical School and Hospital; Physician to St. Mark's Hospital.

When a matter for medical study and observation becomes one of popular interest and assertion, then many erroneous opinions must needs be prevalent. When, as is true in this instance, the origin, action, and excretion of a substance offers considerable difficulty to physicians in reconciling theory and fact, the assumed accuracy of the conclusions prevalent among the laity are indubitably open to rigid scrutiny. It is with this fact in evidence that this paper is presented. With difficulties which experts have not solved to the satisfaction of the profession, the people are still further from a just comprehension of the questions at issue.

When even a definition, which shall be entirely acceptable, is scarcely to be advanced, may we expect harmony from discussing the subject not yet thoroughly defined? We all know pretty thoroughly, and those of us who have experienced it absolutely, what gout—open, frank, and active gout—is, both as to its symptomatology and treatment. Yet we are not unanimous whether the sodium biurate which constitutes the tophus is the cause or the result of the pathologic process. When we go a step further and discuss symptoms and conditions more or less closely allied to gout, we find so much that we can set down as common to, and nearly as much that is discordant with it, that opinions vary within extremely wide limits. To term all sorts of conditions, presenting more or less resemblance to gout, as phases of gout, gives us a point of anchorage, but permits of deviation to every point of the compass. This fact undoubtedly explains the variability of opinions, a variability not alone geographic nor chronologic, but even variable as to the individual. If we go over the various statements made as to the disease, this is fairly representative: "In gout we have a disease which may give rise to almost any symptom or affect almost any organ or function." If we start with the patient the following has been presented: "The gouty individual is one whose general metabolism is instable, and this instability may be present in one or more of the great physiologic systems (digestive, circulatory, nervous, etc.)." If these statements represented the actual state of our knowledge, the reasoning hearer might readily assume that we had abandoned our anchorage and were idly drifting on the trackless seas of speculation. In a recent contribution to the literature of this "*Dominus morborum et morbus dominorum*," Woods-Hutchinson in a most philosophic essay based largely upon the findings of comparative anatomy, offers "a disturbance of health associated with the presence of excessive amounts of urates in the urine," as a solution of the difficulties which beset us. The merit of the definition lies in its presenting a material point from which we may start in our discussions. It fails to state what the *corpus delicti* is, although deductively it is not uric acid. It fails because it does not embrace within its limits those instances of undoubted goutiness in which "the presence of excessive amounts of urates in the urine" is inconstant, and it proves too much, as the metaphysicians say, because leukocythemia and the renal infarcts of the newly-born are included by the definition, but are admittedly not involved in the question so far as the symptomatology is concerned. However, as a starting point this statement is useful, and an effort will be made to find a working hypothesis upon which we may base

a plan for relief of symptoms and disabilities consequent upon disturbed metabolism.

From the time of Scheele's discovery of uric acid, 128 years ago, until the present, that substance has been at once the base and the capstone of all pathologic theory in regard to gout. At present we are in better position to reach a practical working basis for therapeutics. 1. We are reasonably certain that uric acid, as such, is not toxic. This fact demonstrated by Graucher, in 1884, is now almost universally conceded. 2. The presence of a uric acid sediment in the urine does not of necessity indicate a gouty tendency, for the power to hold uric acid in solution in the urine depends largely upon the amount of pigment and the percentage of salts contained in that excretion. 3. A nitrogen free diet does not cause an abolition of uric acid excretion. And finally, the excretion of uric and phosphoric acid goes on hand in hand—at least during attacks.

Let us examine these propositions *seriatim*. While uric acid *per se* is not toxic, it is quite possible that earlier and less oxidized bodies are probably so. Therefore the increased excretion of uric acid signifying the increased or complete oxidation of uric acid antecedents and their elimination as uric acid, should be accompanied by a relief of symptoms referable to the presence of these antecedent bodies in the organism. In practice this is found to be true.

Next, the observation of coincidence of marked symptoms and diminished uric acid excretion with periods of relief and increased uric acid excretion, point out that delayed or imperfect excretion of uric acid is concomitant with exaggerated pathologic conditions. Since, as has just been stated, uric acid is not itself toxic, its forbears must be responsible for the symptoms. Therefore, only the quantitative analysis, not microscopic or macroscopic appearance of the sediment, will determine its amount. The analysis must determine the facts as to the amount of uric acid present in the urine, and the physician bases his work upon that finding.

As a nitrogen free diet is not followed by an absence of uric acid from the urine, the formation of uric acid in the body from substances contained in it must be conceded. This uric acid is very properly termed endogenous uric acid and is independent of the character of the food ingested. It is the exogenous uric acid, the amount varying with the food and modified by various factors which act on digestion and absorption, when the patient is on ordinary diet that completes the other portion of the total uric acid excretion.

As uric acid and phosphoric acid excretion bear a fairly constant relation to each other, the clue is at once given as to the probable source of endogenous uric acid. This source is the cell nuclei, and the products of their destruction are both uric and phosphoric acid as they appear in the urine. Therefore the breaking up of these nuclei gives rise to the appearance of uric acid and the xanthin bases which, as a group, constituting the alloxur bodies are termed purins, because they all contain the radical C_5H_4 .

The method of cleavage may be stated as follows: The nucleins break up into albumin and nucleic acid, the latter into phosphoric acid and a parent substance, which in turn breaks up into alloxur or xanthin bases and uric acid. As the metamorphosis of nuclein to adenin to xanthin to hypoxanthin to uric acid is by simple steps of oxidation, their formulas differing only by a molecule of oxygen, uric acid should no longer be considered as a product of imperfect combustion of proteids into urea, but rather that it closely depends on the amount of nucleins, purins, and alloxur group in the blood. And this is confirmatory of the suggestion that the source may be the leukocytes, since in some cases, at least, a leukocytosis (polynuclear basophilic) may coincide with the uric acid excretion, especially during or just before a recrudescence of the symptoms. Since, as we have said before, the phosphoric goes hand in hand

¹ Read before the Harvard Medical Society, November 28, 1903.

with the uric acid excretion, it would be as logical to direct therapeutic attention to the former as to the latter. So far as the endogenous uric acid is concerned, and this is the kind at present under discussion, we may define gout as a toxemia of varying causation, accompanied by the formation of an excess of urates, this excess being due to the breaking down of the leukocytes and fixed cells in the attempt to neutralize the poison. This gives us a sound basis upon which we may base our therapeutic measures.

Now as to the exogenous uric acid; obviously this comes from without, and constitutes the source of the smaller moiety of the total output of uric acid. Indeed, the ingestion of food, either purin free or of small purin content, must be considered. The chief purin free foods are: Milk, eggs, butter, cheese, white bread, rice, sago, fruits. Those containing under .02% of purin nitrogen are beer, stout, onions, asparagus, brown bread. Under .03%, oatmeal, lentils, beans, peas. Under .05%, salmon, cod, pike, halibut, mutton, veal, pork, ham, turkey, chicken. Under .1%, liver, steak, soups. Under .4%, sweetbreads. Obviously, were the attempt made to regulate the diet according to the amount of purin nitrogen found in food, various articles of food would be permitted which experience has shown to be detrimental to the patient. And after all, the patient must not be disregarded, for the metabolic reactions of the gouty are indubitably abnormal. From this it must be clear that an attempt to regulate the output of exogenous uric acid by altering the intake of purin containing substances, must be futile when we consider that there are factors influencing metabolism in the gouty which are important. This offers the second point for therapeutic consideration.

Finally, the wellknown clinical observation that the appearance of an excess of uric acid and urates in the urine is generally coincident with the diminution or disappearance of the symptoms, leads to the conclusion that the elimination of bodies antecedent to uric acid by agents which increase the uric acid output as uric acid, is another important therapeutic measure, and this constitutes the third point to be considered.

In considering endogenous uric acid, unquestionably methods whereby the toxemia which results in nuclear destruction is obviated, should be considered. Further metabolism, in character at least, is profoundly altered by the ingestion of various substances which have not, up to this point, been given consideration. Lead is notorious in its influence; lime waters and those containing iron are well known to be harmful. But not alone direct poisons are potent, but indirect ones as well. The effect of alcohol on gouty subjects is not entirely the effect of alcohol *per se*, but is more probably due to some of the more readily fermentable carbohydrates, as the ethers, esters or acetone groups which are found in the sweeter or more fruity wines used by the rich, or accessory products found in the malted beverages drunk by persons of moderate means. This has been experimentally shown. The logical deduction should be that substances capable of producing intestinal putrefaction and consequent autointoxication, should be prohibited.

If, then, the endogenous uric acid is restrained as to its amount by methods which prevent unnecessary waste from autointoxication, the exogenous uric acid can be readily controlled. Evidently a prohibition of red meat, for instance, as has been the custom, should diminish the excretion of uric acid of the exogenous variety, but we are brought face to face with the fact that the ingestion of nitrogen is essential to the organism for its existence, and so far we cannot make use of that contained in the atmosphere. The distinction between animal and vegetable foods is more apparent than real, for the glutens (vegetable albumins) at least, are assimilated with more difficulty than animal albumins, and the excess of carbohydrates leads to intestinal fermentation and putrefaction. Clinically, the red meat prohibition has not

been a success, and modern researches now tell us why this is so. To make a positive statement, it can be safely said that animal food in moderation is advisable. Pickled, salted, and fried meats are tabooed. Fish is excellent, even lobster and oysters are permissible if in good condition. All vegetables and raw fruit if apart from meals are allowable. Tea, cocoa, and coffee in moderation are permitted. Alcohol in excess and inferior wines are harmful. Malt beverages should be supplanted by cider, the quantity not to exceed a pint each day. As has been pointed out, the quantity of food is to be limited rather than the variety. All rich, highly seasoned, greasy and twice-cooked foods, strong soups, cooked tomatoes, rhubarb, sweet cooked foods, are to be avoided. Large mixed meals of animal and farinaceous foods with fruit and wine, especially if the latter be sweet or fruity, provoke the disease. Plainly cooked animal food, preferably by roasting or grilling, and limited to the quantity necessary for nutrition, is eminently satisfactory. Two ounces of good whisky per day, well diluted, will satisfy those habituated to alcohol. Excess of water should be taken only apart from meals. Sedentary habits interfere with digestion and assimilation, and lead to the ingestion of more food than the muscles and liver can burn up. In fact, excessive quantity of food, improper forms and amounts of alcohol, lack of exercise are factors which lead to gout which is earned rather than inherited. The last therapeutic fact which calls for comment is the method by which an excess of uric acid, and especially its forbears, is removed from the tissues. The alkalies and salicylates are our chief reliance in that they not only make these products more soluble, but also because they favor their elimination. The prolonged use of the alkalies is obviously disadvantageous, so that we must place our chief reliance in the salicylates.

In practical work I have endeavored to carry out the principles which have been enumerated, both in respect to diet and physical measures, and further to make use of an agent which would (1) limit intestinal fermentation; (2) render uric acid and its forbears more soluble, and (3) facilitate their elimination. The method comprehends both the prevention of excessive purinemia, for endogenous uric acid must always appear in the urine, and the removal of the results of toxemia from the organism as well.

Method of quantitative analysis for uric acid (Hopkins' method):

Add to 100 cc. of urine, ammonium chlorid to saturation (about 35 gm.), let stand for 2 hours, stirring at intervals. Filter through filter paper, and wash 3 or 4 times with saturated aqueous solution of ammonium chlorid. Wash off the precipitate with hot water. Measure the result, and for each 15 cc. add to the final result 1 mg. (there need never be more than 20 cc. or 30 cc.). Add excess of hydrochloric acid and heat just to boiling point. Let stand for 2 hours and filter. Wash precipitate with cold water. Then wash the precipitate with hot water to which sodium carbonate has been added. Make the quantity up to 100 cc. with the soda solution. Add 20 cc. pure sulfuric acid and titrate, agitating all the time, with $\frac{1}{10}$ normal potassium permanganate solution until pink color appears which remains permanent for an appreciable interval. Multiply the number of cubic centimeters of permanganate solution used by .00375 adding to the result 1 mg. for each 15 cc. of filtrate, as mentioned, and the result is the number of grams of uric acid in 100 cc. urine. If the urine is alkaline, precipitate phosphates by boiling and filter off before beginning the process.

The $\frac{1}{10}$ normal solution of potassium permanganate is made as follows: Dissolve 1.577 gm. potassium permanganate in 900 cc. distilled water. Place a portion of this solution in a buret and titrate against a decinormal solution of oxalic acid as follows: Take 10 cc. of the decinormal oxalic acid solution in a beaker, add some diluted sulfuric acid, and heat to 60° C. To this hot solution add the permanganate solution until faint pink color appears permanently. Note the number of cubic centimeters of permanganate solution used, and then dilute the remainder so that 20 cc. will exactly correspond to 10 cc. of the decinormal oxalic acid solution. Each cubic centimeter of the $\frac{1}{10}$ normal permanganate solution corresponds to .00375 gm. of uric acid. The permanganate solution usually retains its strength for several weeks, but should always be restandardized with oxalic acid before it is used.

The substance employed in this study is obtained from several species of *Salix* and *Populus* (nat. ord. *Salicaceae*), and is a decomposition product of the glucosid salicin (recognized as such as early as 1838 by Piria), saligenin in chemic combination with castaneotannic acid. Saligenin tannate is, therefore, a definite chemic substance. Over salicylic acid it presents the advantage that while equally efficacious, it does not disorder the digestion nor present untoward symptoms. It is preferable to the salicylates in that it is antiseptic, while the salicylates are not, and more readily splits up. Over both it offers the advantage of larger dose and longer period of administration. The dose is 1 gm. (15 gr.), twice or 3 times daily, after meals; *i. e.*, 2 gm. to 3 gm. (30 gr. to 45 gr.) each day.

CASE I.—O. W., November 12, 1902. Civil engineer. For many years the patient suffered from intestinal fermentation, angiospastic hemicrania, excitability of temper, emaciation, and long periods of disability from so-called neurasthenia. Urinary examination showed specific gravity 1.011, excess of indican (indoxyl), calcium oxalate crystals. Urea, 2.07%, morning; .183%, night; uric acid, .005, morning; and .01, night. November 26: Specific gravity, 1.012; indican, diminished; urea, 1.04%; uric acid, .0783; complete relief of symptoms of migraine. December 31: No return of symptoms as regards nervous or digestive system.

CASE II.—C. G., October 3, 1903. Lady. The patient had muscular pains, palpitation, dead-finger symptoms, persistent headaches. The urine shows specific gravity, 1.005-1.007; increased indican; urea, 1.04%, morning; 1.03%, night; increased amount of phosphates; uric acid, .001%, morning; .001%, night. October 20: specific gravity, 1.017-1.018; urea, 1.35%, morning; 1.80% night; uric acid, .004%, morning; .0046%, night. Total clearing up of symptoms.

CASE III.—E. P., November 20, 1902. Merchant. History of persistent headache, palpitation, cough, pains in back, uneven temper, loss of flesh, devoid of ambition. Urine, specific gravity, 1.022-1.024; trace of albumin; markedly increased indican; urea, 2.78%, morning; 2.28%, night; uric acid, .0055%, morning; .0023%, night. Many calcium oxalate and uric acid crystals in sediment. January 4, 1903: Specific gravity, 1.010; urea, 0.69%; uric acid, .04%; indican, normal; no crystalline sediment. The report was during a period of excessive fatigue. May 23: Specific gravity, 1.022-1.026; urea, 2.3%, morning; 1.5%, night; uric acid, .073%, morning; .053%, night. No disability since last report.

CASE IV.—Retired, F. D., October 1, 1902. History of palpitation, flushing, headaches, joint pains, "dyspepsia." Urine, specific gravity, 1.010; indican increased; urea, 1.20%; uric acid, .031%. No crystalline sediment. October 15: Specific gravity, 1.012; urea, 1.87%; uric acid, .014%. June 16, 1903: Specific gravity, 1.017; urea, 1.87%; uric acid, .0422%. Complete relief of symptoms.

CASE V.—H. F., November 11, 1902. Lawyer. History of joint and muscular pains, insomnia, general nervousness, anal pruritus. Urine, specific gravity, 1.024-1.025; greatly increased indican; few hyaline casts; calcium oxalate crystals; urea, 2.1%, morning; 2.13% night; uric acid, .052%, morning; .047%, night. December 29: Specific gravity, 1.018-1.026; indican normal; no casts; urea, 2.5%, morning; 2.08%, night; uric acid, .06%, morning; .08% night. February 22, 1903: Specific gravity, 1.026-1.032; urea, 2.30%, morning; 2.08%, night; uric acid, .01%, morning; .019%, night; many calcium oxalate crystals. Has had no medicine since January. June 12: Specific gravity, 1.018-1.020; urea, 2.10%, morning; 2.22%, night; uric acid, .081%, morning; .096%, night. Is now perfectly well.

CASE VI.—L. P. Civil engineer. January 14, 1903. History of intercostal neuralgia, anal pruritus, severe frontal headaches, muscular pains. Urine, specific gravity, 1.021-1.022; indican increased. Urea, 2.6% morning; 1.87%, night; uric acid, .007%, morning; .0044%, night. January 30: Specific gravity, 1.017; urea, 1.87%, morning; 1.66%, night; uric acid, .0358%, morning; .0395%, night. February 18: Specific gravity, 1.026-1.028; urea, 1.9%, morning; 1.83%, night; uric acid, .0795%, morning; .042%, night. March 30: Specific gravity, 1.014-1.020; urea, 1.04%, morning; 1.25%, night; uric acid, .0254%, morning; .0141%, night. June 15: Specific gravity, 1.020-1.022; urea, 1.77%, morning; 1.7%, night; uric acid, .044%, morning; .04%, night. Total absence of symptoms. November 12: Specific gravity, 1.018-1.020; urea, 1.35%, morning; 1.93%, night; uric acid, .046%, morning; .057%, night. Has taken no medicine since last report, and has continued well.

CASE VII.—M. H., lady. February 14, 1903. For many years the patient was the subject of membranous enteritis, successive attacks of pleurisy, numbness of hands and feet, persistent headaches. Urine, specific gravity, 1.010-1.015, lime oxalate crystals; urea, .72%, morning; 1.354%, night; uric acid, .028%, morning; .039%, night. March 29: Specific gravity, 1.010-1.015; urea, 1.25%, morning; 1.90%, night; uric acid, .0048%, morning; .0104%, night. June 9: Specific gravity, 1.014-1.018; urea, 1.7%, morning; 1.87%, night; uric acid, .0085%,

morning; .018%, night. All symptoms but those referable to the enteritis have disappeared. June 30: Specific gravity, 1.014-1.022; urea, 1.46%, morning; 2.19%, night; uric acid, .0065%, morning; .0185%, night. Patient remains well.

CASE VIII.—M. N., lady. January 20, 1903. History of joint pains for several years, dry eczemas of legs, palpitation, excruciating headaches. Has tried various baths with indifferent success. Urine, specific gravity, 1.010; increased indican; marked trace of peptones; urea, 1.48%, morning; 0.627%, night; uric acid, .036%, morning; .0029%, night. February 25: Specific gravity, 1.020-1.022; urea, 1.66%, morning; 1.7%, night; uric acid, .035%, morning; .0534%, night; eczema improved. April 20: Specific gravity, 1.014-1.016; peptones still present; urea, 1.05%, morning; 1.59%, night; uric acid, .0425%, morning; .035%, night. May 20: Specific gravity, 1.018-1.023; urea, 2.4%, morning; 2.6%, night; uric acid, .0425%, morning; .0497%, night. No headaches since last report. June 12: Specific gravity, 1.016-1.022; no peptones; urea, 2.08%, morning; 1.8%, night; uric acid, .0441%, morning; .0365%, night. No joint pains or other symptoms.

CASE IX.—G. E., lawyer. January 20, 1903: The patient suffered from pains in back of neck, lack of ambition, tarsalgia, is emaciated, and has been treated for malaria for several years. Urine, specific gravity, 1.010-1.018; largely increased indican; urea, 1.04%, morning; 2.08%, night; uric acid, .011%, morning; .0115%, night. February 23: Specific gravity, 1.022; indican still increased; urea, 1.66%, morning; 1.27%, night; uric acid, .0385%, morning; .031%, night. April 19: Specific gravity, 1.023-1.025; urea, 2.08%, morning; 2.28%, night; uric acid, .0535%, morning; .061%, night. August 17: Specific gravity, 1.018-1.019; urea, 1.9%, morning; 1.3%, night; uric acid, .047%, morning; .046%, night. November 19: Specific gravity, 1.016-1.020; urea, 1.04%, morning; 1.25%, night; uric acid, .031%, morning; .0375%, night. Patient has been well, and has taken no medicine since last report.

CASE X.—G. Q., merchant, December 13, 1902. Patient was formerly diabetic, a periodic sufferer from psoriasis, headaches, palpitation, insomnia. Urine, specific gravity 1.023-1.028; indican in large amount, calcium oxalate in abundance. Urea, 2.15%, morning; 1.97%, night. Uric acid, .03%, morning; .041%, night. January 14, 1903: Specific gravity, 1.022-1.028; urea, 2.13%, morning; 2.35%, night. Uric acid, .046%, morning; .072%, night; indican normal. Psoriasis has cleared up; all symptoms much improved.

CASE XI.—S. J., merchant, December 29, 1902. History of pains in back and leg muscles, numbness of thighs, frontal headaches, vertigo, insomnia. Urine, specific gravity, 1.022; urea, 1.02%; uric acid, .06%; many lime oxalate crystals. May 13, 1903: Specific gravity, 1.022. Urea, 1.57%; uric acid, .0031%; no crystalline sediment. May 31: Specific gravity, 1.022; urea, 1.87%; uric acid, .009%; phosphates markedly increased. Symptoms entirely relieved.

CASE XII.—T. W., broker, April 7, 1903. Vertigo, insomnia, numb hands, tinnitus aurium, headaches. Urine, specific gravity, 1.010; urea, .92%; uric acid, .02%; phosphates diminished. June 10: Specific gravity, 1.018; urea, 1.87%; uric acid, .07%; phosphates increased. Symptoms entirely relieved.

CASE XIII.—A. T., broker, April 10, 1903. History of "dyspepsia," constipation, headaches, numb and cold fingers, insomnia. Urine, specific gravity, 1.018; urea, 1.62%; uric acid, .08%; few hyaline casts. June 26: Specific gravity, 1.017; urea, 1.51%; uric acid, .075%. No hyaline casts. Still constipated, otherwise well.

CASE XIV.—W. N., merchant, March 6, 1903. The patient suffered from swollen feet, vertigo, occipital headaches, palpitation, insomnia, painful tendo-achillis, tarsalgia. Urine, specific gravity, 1.020; traces of albumin; urea, 1.02%; uric acid, .001%; diminished phosphates. May 11: Specific gravity, 1.020; no albumin; urea, 1.09%; uric acid, .03%; phosphates increased; no edema pedum; tendo-achillis still painful. June 26: Specific gravity, 1.014; urea, .83%; uric acid, .025%; phosphates normal. Symptoms markedly improved. Patient complains only of occasional headaches.

In all the cases reported various methods for relief of symptoms had been previously adopted without appreciable success. Those cited were difficult ones in which to expect complete relief. In all these patients there have been no relapses, so far as can be learned from an investigation carried on during the present month. To summarize this somewhat lengthy presentation of the subject:

1. The endogenous uric acid is the one chiefly concerned in gout and purinemia.
2. The uric, as well as phosphoric acid excretion, is merely an index of the amount of retrograde metamorphosis of the body nucleins.
3. Since the endogenous uric acid is independent of the presence of animal food in the diet, the patients should be limited only in quantity in order to reduce the intake to the needs of the organism.
4. The role of the liver in gout is purely a negative one, *i. e.*, its inability to act as a poison filter.

5. The keynote to the treatment lies in (1) limiting all toxic influences and formation of toxins, particularly in the alimentary canal, in order to minimize the retrograde metamorphosis of the body nucleins; (2) preventing the absorption of all toxic material; or (3) promoting the elimination of the products of toxic agents.

THE LIFE-STUDY OF PATIENTS, OR THE BIOGRAPHIC AND MULTIPLE BIOGRAPHIC METHOD OF DISCOVERING MEDICAL TRUTH.

BY

GEORGE M. GOULD, M.D.,

of Philadelphia.

Most physicians busy themselves with the single illness of which the patient presenting himself complains, and medical practice consists almost always of such treatment of the temporary and single complaint. The repetition of the affection at a later time is treated in the same way. There may be some vague connection noted by the physician between the two or more illnesses, but, at least in cities, the rapid elimination of the old-fashioned family physician, who attended one patient and family for a lifetime, is fast making even that poor overlook impossible.

Concurrent affections, and those of organs treated by specialists, were, moreover, not noticed, and a dozen symptoms of minor diseases were not thought of, or were listed as discrete, and without causal or related nexuses. If any physician rose to a philosophic gathering of the facts of his individual patient's several illnesses, he hardly succeeded in looking over the entire life, and subjecting the symptoms and diseases of the whole personality to a rigorous analysis and coordination.

Lastly, none has ever thought of bringing a large number of clinical life-histories into comparison and producing a composite photograph of the complete pathologic findings. And just this method, one would think, would have been early seized upon as that certain to bring to view medical truths otherwise remaining hidden from the observer. The method as applied to 14 patients with one disease, has yielded unexpected discoveries and demonstrated a unity of cause and of diverse symptoms that was wholly unforeseen.

If one glances through the biographies of any 25 great literary workers he will find a strange and striking difference between the personal lives of perhaps half of the number and the others. Twelve or 15 will be found to be comparatively healthy, while the others are constantly afflicted with much suffering. In some cases their physical diseases will result in the profoundest tragedies. Thus Gladstone, Goethe, Taine, Kant, Mommsen, Gibbon, Zola, Verdi, Agassiz, Fiske, Longfellow, Lowell, Hawthorne, etc., leading sedentary and scholarly lives, possess good health, while we find that other men of the same callings and application to literature or science, endure lives of intense suffering. Of this class are George Eliot, Huxley, De Quincey, the Carlyles, Parkman, Browning, Wagner, Spencer, Whitier, Margaret Fuller, Lewes, Darwin, Nietzsche, etc. The attitude of the world, even of the medical profession, in the presence of disease has been one of fatalism. Indeed, the belief in fate, one may surmise, has been largely due to the strange and mysterious incidence of disease. Why one should be sick and another free from sickness has struck men's minds ever since the riddle of life worried the soul of the boil-pestered Job. So long as the physician was concerned with his patient's single and passing (or killing) ailment, he gained no large overlook to bring unity into the pathologic problem of a whole life, or of a number of lives. And viewing disease as an objective entity, studying it from the standpoint of morbidity, infectious or organic, does not yield the same results as

in viewing it from the aspect of the patient, the whole life of the patient, and the whole lives of many patients. Take the 14 mentioned: If one physician could have treated all of them during their entire lives he would undoubtedly have seen that there was some single underlying unity and cause for all their afflictions. But as the single complaint was treated at one time by one, or even several physicians, and as a hundred were consulted during their lives, all the cases remained discrete, mysterious, and utterly inexplicable. Moreover, looking into the minds of their physicians we find that not one had any conception whatever of the cause and nature of their patients' maladies, and not one agreed with the other as to treatment. A peculiarly instructive fact is also this: Many symptoms complained of by these patients were held by both patient and doctor to be merely accidental and concurrent, which were repeated in other cases, and which were, in fact, bound by a single cause into a strictly pathologic unity. By the method of focusing the clinical life and a number of clinical biographies into a composite whole, new truths at once break upon the observer which were necessarily hidden from the physician of the single day or year, of the single disease, of the single patient, and of the single life.

And the method is by no means of value only as to migraine or eyestrain; it will prove, I suspect, to have equally good results in other diseases. The study of clinical biographies will prove as illuminating in the etiology, cure, and prevention of many diseases, even in those in which we think all mysteries are explained by bacteriology, histology, or other objective methods. Just as the good physician treats his patient and not the disease, so general pathology needs to study the patient instead of, or at least in addition to, his disease. The sick man rather than the man's sickness, his life rather than his single illness, many lives instead of one—that is a method of eliciting medical truth which needs exploiting, and which will in the future bring unexpected light into our pathologic darkness.

In addition, I am sure that the results of eyestrain which I have discovered in clinical biographies are by no means all. In private practice I have gained glimpses too indefinite as yet to put on record, of further and possibly of as great influences of ocular malfunction in causing other morbid functions, or in influencing them. No truth is more certain in general biology than that long and oft-repeated function begets structure. Inevitably, therefore, functional morbidity must produce organic or structural morbidity. In illustration of that thesis lies much of the progress of future medicine. The study and systematization of long and repetitive malfunction can be made only by means of the method of biographic clinics. That study largely lies in the hands of the family physician, when he will rise to his opportunity.

Our first surprise in these 14 biographic studies is that there have been so many sufferers. Without any extended search, and merely incidentally, I have, in all, found nearly a score of literary, scientific, or musical geniuses who were hardly suspected of having been so grievously afflicted. In their biographies were also allusions to many of their friends or distant contemporaries patiently enduring the insults of the same disease. And when one looks into the history of the disease as chronicled in medical literature, it is plain that from the earliest barbarism to the latest civilization a large portion of humanity has had the same disease. In medical practice the physician finds all over the world the malady tremendously prevalent and rapidly growing more frequent, and more terrible in its life-wrecking consequences. One's amazement is beyond expression when, lastly, it is found that this disease of untold millions of the past and of others now living, is a confessed mystery to science. Its very name is an absurdity—the non-naming of a trivial symptom, generally not present, of a disease, the very organs affected being unknown, the symptoms indescribable, the cause unknown, the nature

unknown, and all treatment absolutely resultless. This bizarre condition of scientific impotence is rendered still more farcical by the fact that, except in one case, not a patient of the 14, nor a physician of their hundreds, recognized the disease before them. They were utterly mystified, and did not even call it by any name. Even Nietzsche argued with his physicians that his terrible disease was not one-sided or hemispheric.

The fact of the extreme diversity of the symptoms of the 14 patients, of itself prevented their physicians from recognizing the single cause to which they were due. The nearest they came to it was a half-glimpsed, vague, and passing adumbration of the truth. It was in part a sort of flattery of the patient, usually by himself originally, that begot the theory that brain working caused suffering. The hundreds of columns of twaddle about "brain-fag" in the London and American newspapers in October, November, and December, of 1903, show the existence of the same superstition. A thousand brain workers have "brain-fag," but another thousand do not. It is plain that the explanation is badly in need of explanation. Intellectual work does not produce disease or suffering any more than muscle work. Evolution has made no such stupid blundering as that.

But muscle work with organically diseased muscles or blood-making organs does produce trouble, and just so brain work with morbid nervous organs may, and must beget morbid results. The physicians of our 14 patients never once asked if any of the organs put to such frightful labor by the intellect were abnormal. The study of the biographic clinics of these patients at once shows that the greatest, most delicate, most complex, most intellectual sense organ is, in literary activity, put to the greatest labor. Physiology long since demonstrated that in a large number of these eyes, their anatomy is imperfect, their function pathogenetic. The old truth will never be sufficiently well learned that morbid physiology is the source of pathology, that malfunction precedes and begets organic disease. This is forgotten in the avid study of the end-products of disease, and of the disease itself instead of the diseased patient.

The great error that intellectual or literary work *per se* produced the diseases of our 14 patients resulted in the rule of life, learned from experience, or half-taught by the desperate physician, to get into the open air. Thus these patients found it wise to "take a trip to Switzerland," "to go to Italy," "to walk the moors," "to take a vacation," "to run down to the Riviera," "to climb mountains," "to go on a jaunt to the seashore," etc. Often the greater part of patients' lives was spent in this way. The success of this empiric therapeutics was undoubted, but only so long as the out-of-door life was continued. With the return to sedentary life the old troubles at once resumed their sway. We now know that eye work, not intellectual labor, was the cause of the disease. But a thousand articles and books on "migraine" written during 300 years, came only so near the truth as the suggestion that "migraine" affects chiefly the educated and intellectual classes. And even this statement is not true, because it affects all eye workers in equal degree, whether they are readers, thinkers, litterateurs, etc., or simply sewing women, typewriters, and handicraft laborers. The fact suggests that with the older physicians their well-to-do patients were their chief concern, and the poor were relatively ignored. But the poor have the aristocratic disease just as frequently—if they use their eyes within reading and writing distance as incessantly as the students. The presence of astigmatism has nothing to do with the social or intellectual status, although it had much to do with the physicians' reports of cases, etc. The walking cure, as it may be called, was learned by bitter experience and usually by the patient himself without the assenting advice of the puzzled doctor, who did not know what else to do.

Note, however, that in the thousand books and articles

on "migraine" the walking cure is not laid down as any part of the scientific treatment. The biographic clinic alone teaches that lesson.

The demand of the tormented system for walking and physical exercise is in astonishing evidence in the lives of nearly every one of the 14 patients studied. It undoubtedly dictated the *Beagle* and the *Rattlesnake* voyages of Darwin and Huxley, it drove Parkman to a fury of athleticism that was ruinous, and was the direct cause of the aphorism style of Nietzsche. In every one it took a peculiar coloring, but move they must or they would have gone mad, as Wagner said of himself.

The clearest medical advice to the migrainous "brain worker," the "brain-befagged," the "neurasthenic," etc., was that the stomach and digestion were at fault. Diet became the will-o'-the-wisp, which engendered a thousand cookery books, systems of diet, food rules, fads, institutions, cures, and crankeries, in reference to eating and drinking. All Europe seemed largely ordered by the needs of patients worshipping or bringing offerings of time, wealth, and lives themselves, to the altar of the great god Dyspepsia. All this was because in a certain, or uncertain, proportion of cases the digestion was less or more disordered by "migraine." No one has ever agreed with another as to what constitutes the symptoms of the disease migraine, but some migrainous sufferers have nausea and vomiting or other dyspeptic symptoms. That the superstition that these secondary gastric symptoms are primary and causative still rules the lay and professional mind, is demonstrated in every textbook and article written on the subject. The hundreds of brain-fagging, "brain-fag" correspondents of newspapers of the last few months show how living is the old idolatry.

"Migraine" and "brain-fag" are caused by astigmatism, but eyestrain causes many other morbid symptoms than those grouped under the nonsignifying and misleading terms. In no textbook on diseases of the stomach or of the digestive organs will one ever find a word as to eyestrain, and yet eyestrain possibly causes more of the diseases of digestion than all other causes combined. The study of the patients' single disease, or of the disease itself, would never have revealed this truth. Only the life-histories of the suffering patients make the fact apparent.

It is noteworthy how frequently proverbial and empiric wisdom forefelt the lessons here emphasized. One of Lincoln's maxims was, "Keep your digestion good; steer clear of the biliousness." Sir Benjamin Ward Richardson said that the would-be centenarian among other things should "work as little as possible by artificial light." Von Moltke, Sir James Sawyer, and many others, have advised strongly, regular out-of-door exercise. Dr. Diet, Dr. Quiet, and Dr. Merryman, are old and famous physicians. The existence of the large number of spas, health establishments and resorts, cures, hydropathic institutions, sanitariums, and the periodic migrations to Italy, Switzerland, and sunny climes where out-of-door life is encouraged, are all to some extent the products of eyestrain.

Most suggestive is the fact that these establishments, whether frivolous and fashionable, or scientific and curative, are based upon a regime which stops near use of the eyes. How fashion does this, need not be set forth. Take the best instance of the best class of these "waters" or "cures"—Carlsbad. In the first place the old superstition that there is anything mysteriously or miraculously therapeutic in the water itself is worthy of the days of opera bouffe, and it is far more wonderful that the humbuggery has been accepted by the world, lay and medical, so long. If one, any place in the world, will dissolve 15 grains of sodium bicarbonate and 25 grains of sodium sulfate in a pint of water, it would have all the therapeutic value of the Carlsbad spring. Add some citrate of lithia, and it would be far better than any spring water yet discovered. The cunning commer-

cialism that sells water, the commonest thing in the world, at the price of wine, will probably not be extinct for centuries to come. That is the sugar of milk placebo which fixes the attention, while several other really important things are demanded with military authority: 1. A diet which lessens the stored energy of the organism. 2. Baths and other measures which increase metabolism. 3. An amount of walking and exercise that increases the outgo of force in normal or physiologic methods.

But note the ignored and revelatory fact implied in all this: All three methods reduce the excess or overstock of fat and nervous energy which is the basis of "gout," etc., but while they do this they absolutely prevent near use of the eyes. The "walking cure," the rest-of-the-eyes cure, that every poor eyestrain and migrainous patient has found by bitter experience so necessary, is the *sine qua non* at Carlsbad. This is the way it is described by Henry Cunningham, C.B., in the *Nineteenth Century* for December:

So far as watering places are concerned, the only reason why they appear useful is that when a man goes there he is free from business, letters, etc.

The grounds belong to the town and are laid out in walks which extend over nearly 10 square miles of country. Along these walks in fair weather and in foul, in broiling sun or in drizzling rain, the wretched patient is compelled to toil. Up hill and down hill he must go, and the more up hill the better, until a pedometer in his pocket shows that he has walked 24,000 steps daily.

The diseases of eyestrain all show an excess of nervous energy, and all are dependent upon near use of the eyes. All are cured by draining off the excess of innervation through physiologic channels (walking, athletics, etc.), and stopping near use of the eyes. It is most suggestive and noteworthy that what cures "gout" cures the hundred sequels of eyestrain—and vice versa!

Eyestrain has a peculiar and powerful irritant action upon the nervous system. It begets a hundred differing results according to the nature, needs, and necessities of the individual, but all are summarized as an excess of innervation. Hence the demand of the organism for relief from the morbid stimulus, and for an outlet of the overflow by means of muscular action. Thousands of quotations could be adduced to show this. In addition to the two reasons given above, the eyes demand that (partial) rest only to be secured by the cessation of "near work," such as is gained in walking, etc.

All the treatises on migraine have failed to note this fact or its philosophy, and yet it is a symptom that is most characterizing and significant. It often governs the life, and makes or mars fortunes and dispositions. Upon it turns the whole success or failure of ambitions, and it surely colors and controls the quality of literary works as none other. This is at once manifest in the study of nearly all of our 14 patients, and daily stands plain in the confessions of patients in the physician's office. It engendered a state of excitement and tension in them which had an injurious effect on personal character, and on the matter, style, and judgment of their writings. This is painfully evident in most of the 14, but rises to positive morbidity in Carlyle, Wagner, and to ruinous extremes in Nietzsche.

It is impossible, says George Eliot, for strong, healthy people to understand the way in which malaise (her euphemism for sickheadache) and suffering eat at the roots of one's life. It is at first sight strange that eyestrain may produce in some patients sleepiness, dulness, etc.—pure inhibitory effects, while in others the nervous system may be driven to a fury of irritation. Thus in the cases of George Eliot, Whittier, and Darwin, there was the most painful lassitude and exhaustion, while in Carlyle, Wagner, Nietzsche, etc., there was a morbid hyperesthesia and activity. Often both conditions may alternate in one patient. Although George Eliot was usually dejected, depressed, and tired, she speaks of "the excitement of writing," and the mechanism is

seen in many sentences as, "My idle brain needs lashing." In Wagner, eye work usually produced feverish intensity and irritability, and yet he says, "Sometimes I stare at my paper for days together." But it is true, as he says, that exaltation was the rule and ordinary calm abnormal. Hundreds of poignant quotations would vividly demonstrate this. In the same way Carlyle had to work with his "nerves in a kind of blaze," "in a red hot element," "with his heart's blood in a state of fevered tension," "in a shivering precipitancy," etc., and yet sometimes it was inhibition instead of hyperesthesia, and he sat at his desk, stared at his paper, his imagination would not work, etc. Writing stirred Mrs. Carlyle's head to "promiscuousness," and always finally exhausted her. It "stirred up" Parkman's head, produced "a highly irritable organism," and he stopped to avoid greater troubles, as did also Spencer. But in Nietzsche it drove the sufferer to "a horrible earnestness," "a nervous excitability," "an unendurable *spannung*," "a subterranean fire," etc. To use his own words, "The vehemence of the interior vibrations was frightful." It drove Darwin to the sandwalk and De Quincey to opium. In almost all it produced melancholy, helplessness, and despair; made physicians think Parkman and Wagner and Nietzsche were insane, made several believe death was at hand, begot the resolve of suicide in Wagner, and directly caused the cerebral paralysis of Nietzsche. With the biographic overlook one realizes that this hyperexcitation and torment of the nervous system caused by eyestrain, demonstrates a causal unity of the whole consequences of athleticism, walking, dieting, touring, hydropathizing, irritability, diseased literature, melancholia, pessimism, and general morbidity.

Colds, influenzas, etc., are not alluded to in the treatises on migraine, and it is only by the study of the life-records of migrainous patients that the truth becomes manifest that inflammations of the mucous membrane of the upper respiratory organs are often caused by eyestrain. In the individual illness or even individual patient, the relation is overlooked. Like a dozen other diseases, the common cold or grip is looked upon as a stroke of fate, and to be accepted without curiosity as to cause. But even a crude science is finally driven to the supposition of a nondiscovered cause mysteriously at work. Whatever role the microorganism may play, the "soil" (as always) must be prepared. All rhinologists now admit that some mysterious cause is at work. One great physician writes of colds and influenzas that "they may be due to microorganisms, or local conditions in the air passages, but these maladies, as we now know, both depend to some extent on a special predisposition in the sufferer, having its root in the nervous system, and both leave their stamp on that system and gradually undermine it." And only biographic clinics show that eyestrain is one of these frequent "special predispositions of the nervous system." The seemingly illogic incidence of these inflammations of the mucosa in some patients, and the escape of others, is, at least in part, explained by the fact that when the ocular reflex expends itself continuously on one set of organs, especially those of the digestive system, other organs are freed from the attacks. Thus Carlyle, Huxley, Margaret Fuller, and Darwin have no colds, De Quincey but few, Whittier, Lewes, and Browning, more. Wagner saw some connection when he wrote, "my catarrh has developed so that I may hope it will rid me of my usual winter illness." Nietzsche was tormented with colds, hoarseness, etc., all his life, and Mrs. Carlyle and George Eliot seemed never to have been without influenza, grippe, sore throat, etc. In private practice the relation of influenza, colds, etc., to eyestrain, has often been noticed. Colds alternating with the other symptoms, freedom from the one set replacing suffering from the other, has been noticed. And colds, also, as a terminal affection, *i. e.*, upon the more permanent disappear-

ance of other symptoms, are especially noteworthy. George Eliot's only disease on the day of her death was supposed to be laryngeal sore throat. Lewes also died a day or two after taking cold."

After I had several times noticed the strange manifestation of peculiar and unaccountable eczemas, rashes, etc., as the terminal stages of ocular headaches and of sickheadaches, I found in the reports of some old physicians a clear statement that "herpetisms" were sometimes reported as the sequels of migraine. Modern authors treating of migraine know nothing about this. Wagner had repeated attacks of a "cutaneous malady," and "continuous attacks of erysipelas" which tormented him much of his life. I remember especially one patient who had most distressing attacks of "hives," and various other eruptions, pronounced by the best dermatologists atypical, and which were puzzling to them, and intractable. These attacks were sometimes called acute urticaria, psoriasis, generalized eczema, pityriasis rosacea, etc. In looking back over her life, this very intelligent patient now remembers that the eruptions were always connected with extreme use of the eyes, headache, and especially sickheadache. All of these symptoms in her case have since been repeatedly demonstrated to be due to eyestrain. They recur with leaving off the glasses, and are relieved at once by proper correction of the eye defect. Since the above was written, a most carefully observed and excellently reported case has been called to my attention. It was in the practice of Dr. Charles A. Oliver, and published in *The Philadelphia Medical Journal*. The repeated demonstrations that the urticaria was absolutely caused by eyestrain is most convincing. Observations would doubtless prove the sequel more frequent than is supposed.

Older authors writing of migraine also emphasize the fact that pareses, partial paralyses, anesthetics, disorders of sensation, etc., are frequently complained of by patients suffering from migraine. The most common of these symptoms appear to be paresis, numbness, and tingling (as of "pins and needles") of the hands and arms, extending to the neck and throat, with temporary loss of speech and confusion of ideas. Nietzsche, Wagner, Mrs. Carlyle and others, had similar symptoms, called "rheumatism" by biographers, patients, and physicians. One wonders how many such patients have suffered from such "rheumatisms." There is not a little mystery about the "gout" of Lewes and about Parkman's life-long articular trouble and lameness.

There is one important symptom of migraine that has almost universally been omitted by the writers of textbooks, but which is present in almost every case of the disease, and in all cases of severe eyestrain. This is insomnia. Every one of the 14 patients whose cases are reported in *Biographic Clinics* complained of it bitterly, and of most the inability to sleep was the chief of all complaints. In the case of the individual illness of a single patient the physician overlooks the symptom; in the life-histories it appears with pitiful reiteration.

There is one other symptom often alluded to by the patients of biographic clinics, which is frequently spoken of by patients in the oculist's office. Beside all those complaints that can be named or described, there is a nameless and indescribable suffering that often afflicts them as powerfully as the localizable and describable ones. They tell you they cannot tell how they suffer, nor where. It is "dreadful," "horrible," "inexpressible," etc., and it is real. That is all they can say.

According to the older conceptions, migraine was an absurd name of a trivial symptom, not generally present, of a disease beginning with the trephining savages of barbarism, widely prevalent in all human history, and vastly increased both in severity and numbers attacked by every advance in civilization. It is today wrecking millions of lives and ambitions, often making of them tragedies of needless suffering. The cause and nature of the disease is utterly unknown, and even its location, or

the organs in which it is seated, are also unknown. The very symptoms are indescribable, and reporters and writers differ greatly as to what they are. There is no treatment whatever that cures, none that even relieves. Thus the profession stands today impotent before its opprobrium, and despairing of resolving the mystery, has turned its back upon it, eager only to explain some organic or infectious disease that does not cause a hundredth of the suffering that is due to migraine.

And yet a glance at the actual and entire life of migrainous patients, and especially of several such lives, would at once have revealed the secret. Few cases, or perhaps no cases of the disease ever occurred except as a consequence of near use of astigmatic eyes, and every case is curable or at least preventable by proper spectacles.

It goes without saying that in the organism wrecked by a life of suffering, all reaction is killed; such cases, however rare, exist, and cure of them is impossible. But even in them some alleviation or change of symptoms is wrought by proper glasses. There is also, rarely, a habit of disease which is hard to break up, although in migraine it is usually to be construed as an unconscious confession of lack of skill in refraction. Migrainous diseases are especially easily controlled and are almost always extinguished even in the most severe and long-continued instances.

Moreover migraine is only one of the many results of eyestrain. The word should indeed be abolished, as it is utterly meaningless. Its two chief symptoms are headache and sickheadache, and these words should be used instead of migraine. When such symptoms are caused by evident organic, local, or systemic disease, there can be no mistake in the diagnosis. Yet even in such cases the pseudoeystrein symptoms, and also in the so-called "mimicries" of eyestrain, scientific spectacles will probably produce an alleviation or modification of the symptoms that is most noteworthy.¹

The continuance of all migrainous or eyestrain diseases indeed emphasizes the great need I have previously urged² of a systematic and periodic reexamination by scientific specialists, of the bodily organs and functions throughout life. Apart from the objective scientific value of such tests, they would often reveal, and thus prevent further ingravescence of pathologic conditions and trends, of profound value to individuals and families.

MORTON'S PAINFUL DISEASE OF THE TOES.³

BY

WALTER G. STERN, M.D.,

of Cleveland, O.

Orthopedic Surgeon to Mt. Sinai Hospital of Cleveland, O.

I have no accurate means of determining the relative frequency of Morton's painful disease of the toes. It is generally held to be a rather rare condition, denied by some writers, namely the French; but frequently described and insisted on by the Americans. The statements of the patients themselves have led me to suspect that there exist innumerable cases hidden away, only known to their fellows through the secret bond of their sufferings. One patient once said that if I would cure her sufferings without cutting, she could bring to my office 25 other "fellow shoe pullers," as she called them, of whom she had learned either from their voluntary

¹ But it must be remembered that the vast majority of so-called refractions is worthless. In Europe all refraction may be said to be unscientific, inaccurate, and without power to cure the symptoms and sequels of eyestrain. If attempted by objective methods alone, if done without a mydriatic in those under 50, if anisometropia is ignored, if the most absolute accuracy is not secured in estimating the least astigmatism, etc., the work is without therapeutic value. There are at least 68 reasons why glasses may prove incapable of curing the diseases caused by eyestrain.

² A System of Personal Biologic Examinations the Condition of Adequate Medical and Scientific Conduct of life.—*Jour. Amer. Med. Assoc.*, July 21, 1900.

³ Read before the Cleveland Academy of Medicine, April, 1903.

statements as to their sufferings or by seeing them pull off their shoes in her presence. The lack of information, which our profession in general holds about this most painful affliction, might tend to prove this particular trouble to be quite rare; yet few of my cases had been properly diagnosed by those who had been previously consulted. Shoe salesmen, by no means an unintelligent class of men, differ in their knowledge as to the existence or frequency of Morton's painful toe according to the locality of their business and the class of their trade. The shoedealers of the outskirts, the poorer communities, or the streets devoted to a cheaper class of trade, never hear of it. The sellers of the advertised

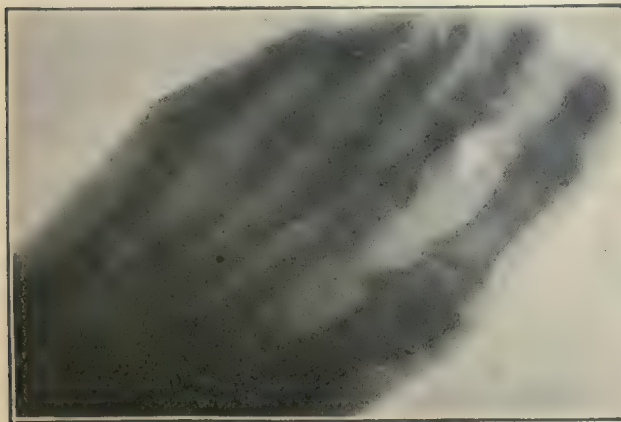


Fig. 1, Case I.—Exposure five seconds.

(\$3.50) brands and the large stores see it relatively infrequently. The salesmen in the exclusive and high-priced stores say it is quite a common condition in their patrons; while the custom shoemakers who make expensive shoes to order (at prices say from \$12.00 to \$30.00) tell me that next to corns, bunions and flat-foot, Morton's painful toe is the most common ailment calling for specially formed shoes. Together with the analysis of the literature on the subject, my own experience has led me to believe that this particular disease is the property and privilege of the comparatively well-to-do and is quite frequent among them; while the poor who comprise the bulk of our society, and who, by the way, do not usually indulge in narrow, thin-soled, uncomfortable shoes, are rarely afflicted.

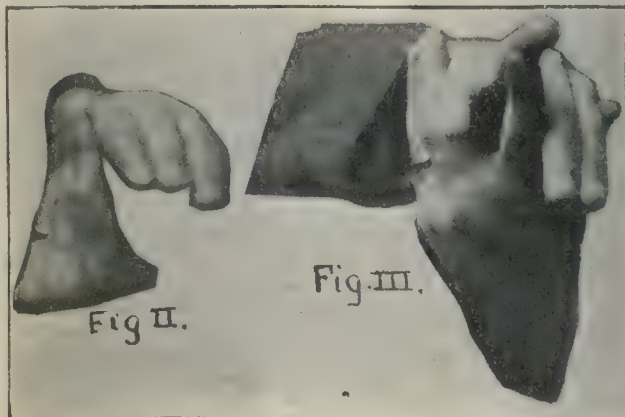
In 1876, Dr. T. G. Morton, of Philadelphia, first called attention to an affection of the feet accompanied by no evident external changes, but characterized by extraordinarily severe paroxysms of pain radiating upward upon the dorsum of the foot, the paroxysms usually originating in the fourth metatarsophalangeal articulation. The pain may, however, affect the other joints. Dr. Morton conceived the idea that the external plantar nerve sent branches which wound about the necks of the metatarsal bones, and that the head of the fifth metatarsal impinged upon the neck of the fourth, and the head of the fourth upon the neck of the third, and thus pinched the nerve branches and caused the frightful neuralgia. His argument was further substantiated by the peculiar conformation of the arches of the foot, which makes the fourth metatarsal bone the most movable of all the metatarsals, and thus a trauma or a tight shoe might, in a favorable subject, cause these pains. The only treatment possible founded upon such pathologic grounds was the resection or excision of the fourth metatarsal bone. This he did with successful result in 15 patients, 13 females and 2 males; "all of the patients were surrounded, not only by the comforts, but in most cases the luxuries of life." Since the publication of this article, numerous cases have been reported

and many able writers have vied with each other to give a simple and sufficient explanation of these cramp-like pains, radiating out from the metatarsal phalangeal joints. It is not the purport of this paper to enter into this very interesting discussion, yet I will not refrain from presenting the three most widely disseminated theories.

1. The modern French school absolutely denies the existence of Morton's disease as a pathologic entity, claiming that the pain is always due to fracture, periostitis, clavus, tuberculosis, trauma, syphilis, etc., of which diseases the paroxysms are, therefore, only a symptom. The evidence of the American and English orthopedic surgeons is, however, in preponderance, and in this particular case the French more than the Germans have either not read or have paid no attention to the writings of the American surgeons. The Röntgen ray photograph in Case I (Fig. 1), clearly shows that at least in this one case, the fearful suffering was not caused by any local disease in and about the head of the fourth metatarsal bone.

2. Morton's theory as to the pathology and active causes has already been mentioned, but his observations have not been confirmed by later observers. A. E. Halstead, after studying the feet of 20 cadavers, concluded that the heads of the fourth and fifth metatarsal bones do not occupy the position that Morton claims in respect to the other metatarsals; nor can their heads impinge upon the necks of their neighbors, nor, finally, does the external plantar nerve give off any large branches which wind about the head, or rather, neck of the bone; but rather such branches run beneath the bones lying just upon the dense plantar fascia.

3. The view which I believe is universally admitted today, takes the stand that Morton's disease is purely a static condition of the transverse arch of the foot, quite analogous to flat-foot. The metatarsal and phalangeal bones of the foot form a transverse arch with the convexity upward, and the third and fourth metatarsal bones are at the highest point of the arch. Normally, when we step on the ball of the foot, the arch tends to flatten out under the weight of the body; but the elas-



ticity of its ligamentous structures—the transverse ligament, the transversalis muscle, the tendons of the peroneus longus and tibialis posticus and the plantar fascia—prevents the heads of the metatarsals from sinking down far enough to press upon the ground. If, however, the foot be subjected to a severe trauma or a weakening from long illness, or becomes overburdened by rapid increase in body-weight, so that the ligaments cannot hold the anterior arch in its normal condition, but permit the heads of the bones to press against the sole, the anatomic foundation for this disease is laid. Quite analogous to flat-foot, which is a sinking of the longitudinal arch of the foot, combined with external rotation,

this condition need not always be painful. Dr. Royal Whitman contends that the pain may be caused solely, or in great measure, by a pinching of the sunken arch by ill-fitting shoes. Reasoning from the arch of the hand, he finds that when we arch our knuckles and then pinch the entire hand (Fig. 2), we elicit no pain; obliterate the arch by hyperextending the fingers, or if one finger be held further back than the others (Fig. 3), and then pinch the hand from side to side, one experiences a pain radiating outward from the third and fourth metacarpal bones quite similar to that which occurs in

Morton's disease. We also often find a subluxation of the metatarsal bones which can be reduced with a snap. The success of the treatment instituted by Whitman and



Fig. 4.

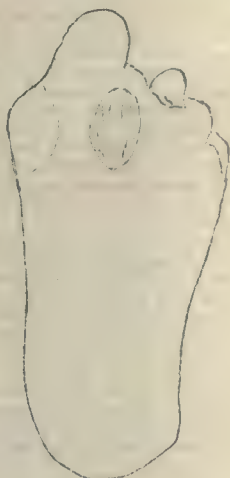


Fig. 5.

Fig. 4.—Plaster cast of foot showing anterior transverse arch and reentrant angle of Goldthwaite.

Fig. 5, Case X.—Imprint of sole showing obliteration of the reentrant angle of Goldthwaite, the head of the second metatarsal bone touches ground while the head of the first does not.

Goldthwaite, based on this pathology, is a strong argument of its probability. At any rate, Morton's painful toe is a painful static condition and deformity of the foot with a definite pathology, analogous to painful flat-foot and caused by the breaking up or flattening of the anterior transverse arch of the foot. It is in itself a clinical surgical entity, and whatever painful conditions may arise from other surgical or medical diseases of the feet, these latter are not to be confounded with Morton's disease.

Almost all patients suffering from this affliction will be found to belong to the better and wealthier classes. Very few have sedentary occupations, many have grown stout within a short recent period of time, while in almost all instances careful questioning will elicit the history of a severe trauma shortly before the pain first came on; runaway accidents, jumping into the saddle, football, mountain climbing, tennis, and the like, are repeatedly given as the causative agent of the trauma.

The symptoms are a sudden feeling of uncomfortableness in the ball of the foot often accompanied by a snapping in the afflicted toe; then an intense, agonizing, burning, unendurable pain radiating from the fourth metatarsal head (it may however be any other, but usually the fourth) through the thickness of the foot up upon the dorsum, followed often by faintness, cold sweats and a total incapacity for the time being of directing the mind to any other subject. The patient is usually seized with an insane desire to remove his shoes no matter where he may be; he seizes a stick, a cane, or umbrella and jabs at the offending member so that he may get

relief through the counterirritation; he grasps his toe and tries to pull it out of joint, pinches the ball of the foot as though to reform the arch or he may overflex (sometimes, however, overextend) the toes, and so with a snap or grinding sensation ends the terrible agony which has been fancifully described by the sufferers as "tooth-ache in the toe," "angina pectoris of the feet," "piercing by red hot iron," etc. At first the pain only comes on while the patient is wearing shoes, or is subjecting the foot to the various blows and shocks which invariably accompany locomotion, but after years the cramp may come on even at night or while the patient is walking about barefooted. The pain may last from 1 to 48 hours and vanish as suddenly as it began. Another pathognomonic feature of this disease is the insane desire to remove the shoe regardless of the surroundings whenever a paroxysm of pain comes on. This is often the way patients make the acquaintance of fellow sufferers.

Upon examination one rarely finds the patients showing any stigma of nervous degeneration, they are for the most part well-nourished people of a rather Spartan fortitude. The feet are generally large and especially broad across the ball of the toes; but rarely do they show signs of flat-foot. The fourth or afflicted metatarsophalangeal joint is painful to pressure, but never swollen or reddened; it is always freely movable and at times subluxated. The ball of the toes, that is, the transverse arch of the metatarsal heads and the underlying cushion of fat, is flatter on the ground than normal and the usual depression between the big and third toes, called by Goldthwaite the reentrant angle of the foot, (Fig. 4) is usually obliterated as can be demonstrated by a plaster impression or a foot-print with printers' ink (Fig. 5). Wellmarked evidences of wearing tight shoes are usually to be found and not infrequently a callus may be discovered beneath the heads of the third or fourth metatarsal bones where the sole receives the undue pressure from the sunken metatarsals. The affliction may also be an hereditary one; a pathologic explanation of this has never been made. Of all cases, 75% are among women usually of middle life, but some cases have occurred in childhood.

The treatment proposed by Morton was the excision of the afflicted joint, but the later authors seek to restore the foot to its normal condition, and, therefore, use mechanical aid to reform the flattened anterior arch much as we do to correct the arch of flat-foot. The

insole devised by Whitman is most useful. It is much like the ordinary steel support for flat-foot, only it extends out to the toes, and has a transversely raised arch just where the ball of the foot presses upon it, thus arching the foot upward while walking. (Fig. 2.) To find the proper amount of convexity and to hollow this arch out just to avoid the callus is often a matter of the greatest nicety. In milder cases an adhesive plaster bandage around the ball of the foot will restore the arch (Fig. 1). Japanese stockings, Spanish lasts with convex soles, or pads of soft rubber in the sole of the shoe suffice. I propose, in my future cases, to fasten pads of soft rubber to a flat German silver insole to give a much-needed elasticity not found in Whitman's plates. Intractable cases can often be relieved only by means of incision.



Fig. 6, Case X.

CASE I.—Mrs. K., aged 49.

Family History.—No nervous disease in family.

Personal History.—About 14 years ago, while riding in a carriage, she had a severe accident. She sustained numerous bruises to the body, one eye was almost knocked out, and both ankles were sprained. Twelve years ago she noticed slight pain in her feet, especially after purchasing a new pair of shoes, but this pain soon left her and for the next three years did not return. Nine years ago, after wearing an unusually tight and high-heeled shoe, she experienced a sudden severe pain in the fourth toe of each foot, which has steadily increased in severity and duration. The paroxysms now come on night and day; they are worse when she has her shoes on. Heat seems to make the attacks more severe. The pain is a frightful burning stab accompanied with an intense neuralgic radiation on the dorsum of the foot. She pulls off her shoes no matter where she is; when she goes to the theater she carries with her a large pair of knit slippers, and when she is down town shopping she always waits for the car or her carriage in a secluded spot. She digs at the toe with a cane or umbrella to relieve the intense sufferings.

Examination.—Patient is a large, well-nourished woman, without the slightest tendency toward nervousness. Examination is entirely negative, except for the feet, which are especially

not pull off her shoe, but thumps her feet with her crutches. The paroxysms of pain often occur at night. She claims that her mother has an occult influence over this pain, and can cause it by approaching to within 20 feet of her.

Examination.—She talks and acts like a typical hysteric old maid, and the attending neurologist assures me she is such. No examination was made of the nervous system. The foot is large, and shows marked signs of having been badly abused by tight and pointed shoes and high heels. No flat-foot. The third metatarsal head of either foot is very sensitive to pressure, no thickening, no inflamed joints. Pressure from side to side causes paroxysms of pain. A broad shoe with a Spanish sole, and built on orthopedic lines was ordered. Three months later she was almost free from pain, and could walk several miles. Her mother cannot influence (or as she says "hypnotize") the foot through her new shoes as she could through the old ones!

CASE III.—H. M., male, aged 20.

Family History.—Negative.

Personal History.—He had a peculiar, chubby foot ever since birth, for which he was treated in childhood. For the past 3 years there has been a hard spot in the sole of the foot, which causes him severe paroxysms of pain, and prevents him from walking much.

Physical examination was negative, except for the condition of the right foot, which presents a slight congenital pes cavus. The first 3 toes are overextended on account of the shortening of the extensor tendons. The instep is very high. The anterior arch is broken down and the second and third metatarsal bones are the lowest in the arch. Under the heads of the second and third metatarsal bones is a small painful callus, caused by the weight of the body being borne by these two bones instead of the metatarsal of the great toe. The third metatarsophalangeal joint can be subluxated and the pressure on the foot from side to side causes severe paroxysms of pain. I advised extensive operating to correct the deformity, etc., but treatment was refused.

Note.—I include this case as one of Morton's disease, because it is essentially a breaking down of the anterior transverse arch of the foot—from malformation instead of the usual trauma—and because such breaking down has set up peculiar radiating pains coming on in paroxysms.

CASE IV.—Mrs. S., aged 28.

Family History.—There are several cases of tuberculosis in the family.

Personal History.—She has always worn tight shoes and high heels. For some years past she has suffered severely from paroxysms of pain radiating out from the third and fourth metatarsal bones of the right foot. When these pains come on she has often to pull off her shoe and stamp her foot to relieve it. Ice-baths moderate the pain.

Examination negative, except that the feet show very marked signs of having been abused by tight shoes. The ball of the right foot is flatter and a little broader than the left. The third and fourth right metatarsophalangeal articulations are sensitive to pressure, but show no external signs of any traumatic or inflammatory changes.

A broad orthopedic shoe, with a Spanish last, was ordered, with the result that an improvement was noted.

CASE V.—S. G., male, aged 27, has been a druggist for the past 18 months.

Personal History.—Five years ago he noticed a pain in the right shin-bone when he walked a long distance. Soon the pain seemed to be in both ankles and feet; his walk changed to a shuffling gait and the insteps of his feet grew more and more painful. He began to work in his brother's drug store 18 months ago, necessitating standing on the feet 12 hours a day. He soon experienced excruciating pains in the fourth toe, quite unlike and independent of former pains. These pains are like dagger stabs. He does not remove his shoes.

Examination was negative, except for knock-knee and a gait typical of everted feet. There is marked flat-foot on both sides. Feet are broad and flattened. Astragalus head and navicular bone are prominent and painful. The ball of the foot is broad and flat. The fourth metatarsal head is exceedingly tender to pressure. There is subluxation in the joint. Pressure from side to side causes paroxysms of excruciating pain in the fourth toe. Beneath the fourth metatarsal head is a painful callus. Plaster impression shows the reentrant angle obliterated, and that the callus under the fourth toe is the lowest point of the foot. I ordered Whitman insoles with a depression in the anterior arch to avoid pressure upon callus. Result: Cured of all pains.

CASE VI.—Dr. M., aged 24.

Personal History.—The patient had a severe injury to the left foot 4 years ago, just before entering his medical college. At the end of the first year in college he was seized with severe burning, cramp-like pains which started in the third toe, and which would extend up along the dorsum of the left foot. He had to take off his shoe in the class-room, he would stamp on the toe with the heel of the right foot, or he would kneel down until the toes were overflexed and the pain would leave with a slight crackling sensation. The agony was so severe that he wanted to have the toe amputated. He finally resorted to broad, thick-soled shoes, made with a flat last (the opposite of the ordinary rocker-soled last) and the pain disappeared. Of late he has worn a pair of ordinary narrow shoes, and the pain has come back, but with diminished severity.



Fig. 7, Case X.—Showing subluxation of second and third toes. Lines retouched on negative.

large and broad. She wears a No. 8-D shoe. No flat-foot. The forward part of the foot, known as the ball, is very flat and spreading. Under each fourth metatarsal head is a painful spot, and the metatarsophalangeal joint is painful to pressure. This joint is not thickened or enlarged on either foot, but is loosely held by the ligaments, and can be partially subluxated, when pressure from side to side sets up the intense pain. röntgen ray examination (Fig. 1) shows absolutely no pathologic changes in the afflicted joints. A plaster cast when the patient is standing shows the sole of the foot to be slightly convex instead of concave, as in normal.

Whitman's plates gave relief, after considerable trouble was taken to get the anterior arch of the plate correct.

CASE II.—J. M., aged 36, is a saleswoman.

Family History.—Distinctly neurotic.

Personal History.—The patient has been "nervous" since childhood, does not remember a trauma to the feet. When 18 she experienced a severe pain in the feet so that she "had to sit on them hard" to stop them from aching. She suffered for 3 years, after which she was well for 7 years. Then she undertook to work in a book store, and walked 3 to 4 miles a day for her health. Three years ago she worked especially hard at her occupation during Christmas season, standing 14 hours a day. This brought on nerve exhaustion and an attack of hysteria. At the same time she complained of an intense burning pain boring right down through the root of the third toe. She does

Examination was negative, except for the condition of the feet. The feet, especially the left, are large, broad and flat. The metatarsal heads are held together very loosely in the anterior arch. The arch is quite lax, and sinks flat to the floor when he stands; in this position pressure from side to side brings back the typical pains. A plaster cast shows the reentrant angle obliterated. I ordered thick-soled orthopedic shoes, which cured all pain.

CASE VII.—Mrs. H. W., aged 34.

Personal History.—Six years ago the patient suddenly experienced terrible cramp-like pains in the fourth toe of the right foot. She was compelled to take off her shoes while walking, shopping, or riding when the pain seized her. She would seize the toe and endeavor to rub and pinch the pain away.

Examination was negative, except for the feet, which show marked signs of having been pinched by narrow shoes. The foot is large and broad; she wears 6-C or 5-E shoe. Careful examination and röntgen ray photograph show no trace of local disease about the fourth metatarsal phalangeal joint, which is, however, painful to pressure. The anterior arch of the foot and reentrant angle of Goldthwaite seem to be normal. The patient obtained in Philadelphia a pair of large, broad-toed shoes with Spanish last, which she wears with toed stockings, with the result that there has been a total absence of all pain.

CASE VIII.—F. B., male, aged 38; letter carrier.

Personal History.—The patient has suffered from rheumatism (?) of both feet at various times; however, he cannot give a coherent history of what could be judged to be real attacks of articular rheumatism. He has never had a severe trauma to the feet. He has been a letter carrier for the past 5 years. Since 3 years ago he has been subject to frequent and severe paroxysms of pain, starting in the ball of the foot, usually under the fourth toe, and shooting upward along the dorsum of the foot. He also experiences pain in the heel, which extends upward along the tendo-achillis to the calf of the leg. Frequently the pain is so severe that he grabs his feet and pulls off his shoes, but for the most part he can control himself. He rarely experiences more than a mild transient pain while walking, but after he sits down to rest he is sure to have one or more severe paroxysms. The pain usually ends with a snapping sensation in the fourth toe.

Examination was negative, except for a large clumsy foot with a slight amount of flat-foot. Anterior transverse arch is only slightly depressed. The fourth metatarsal phalangeal joint on either foot is very sensitive, not thickened or inflamed, but is slightly subluxated, and manipulation of the joint sets up characteristic paroxysms. Pinching the foot from side to side causes same pain.

Treatment was refused.

CASE IX.—Mrs. J. K., aged 40.

Family History.—Negative.

Personal History.—The patient has never had a severe illness nor trauma. She has had a painful fourth toe on the right foot as far back as she can remember. The pain is so intense that she pulls off her shoe no matter where she is, grabs her foot, and begins to rub it. Paroxysms only come on when she wears her shoes. The pain is of a burning stabbing nature.

Examination.—Patient is of a distinctly neurotic temperament, refuses to take off her shoes to let me examine her feet. Pinching the ball of the foot or pressure over the fourth toe of the right foot causes a characteristic paroxysm of pain.

Broad-toed shoes with a Spanish last were ordered, and a great improvement resulted.

CASE X.—Mrs. K., a nurse, aged 35.

Family History.—Negative.

Personal History.—The patient had a severe accident to the feet about 8 years ago. For the past 6 years she has suffered fearful pains, beginning at the sole and radiating upward upon the dorsum and to the ankles. When the paroxysms seize her, she stops, sits down on the floor, pulls off her shoes, and rubs her feet with a liniment, the chief ingredient of which is oil of mustard.

Examination.—She is a large plethoric woman. The feet show marked signs of having been abused by tight shoes. On the soles just under the head of the second metatarsal bone is a large painful callus (Fig. 6). There is slight flat-foot; the foot across the ball of the toes is cyanotic, perspiring, and is very broad, and flattened to a marked degree. The anterior transverse arch is so broken down that the heads of the second and third metatarsal bones are lower than the head of the great toe. When the patient stands, the head of the second metatarsal bone bears the weight of the body upon the floor (see foot-print, Fig. 5). A röntgen ray examination shows that the second and third toes are overextended and subluxated (Fig. 7). The examination was otherwise negative.

Treatment was refused.

CASE XI.—Mrs. R. J., aged 32.

Personal History.—Six years ago the patient was dragged by a runaway horse, her foot having caught in the stirrup. Since then she has been troubled with pain in the right foot, beginning in the fourth toe. The pain is a burning, stinging, boring sensation, which causes her to remove her shoes at times. She can ease the pain by over-extending the toes or by pinching the toe with a hard object.

Examination was negative, except for the feet. The right metatarsal arch is very loosely held together, but does not show

marked flattening. Reentrant angle is not obliterated. When the toe is extended, pressure across the ball of the toes causes intense pain—characteristic spasm. Pressure from below arching the ball of the foot upward feels grateful.

Shoes with Spanish last were ordered, and a great improvement resulted.

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ABSCESS OF THE LIVER, CAUSED BY DISTOMUM SINENSE OF THE INTRAHEPATIC BILE DUCTS.

BY

THOS. L. RHOADS, M.D.,

Medical Department, United States Army.

The patient, a sergeant of the Marine Corps, was operated upon at the Naval Hospital, Washington, D. C., in October, 1898; he recovered, was returned to duty, and remains well. The infrequency of the affection in this country makes it of sufficient interest to report the case, which is done by permission of the Surgeon-General of the Navy.

Sergeant G., aged 46, a native of Germany, has had 25 years' continuous service in the U. S. Navy. Was in excellent health until 8 years prior to operation.

The first discomfort which he experienced, and which was the forerunner of his more serious trouble, occurred while on duty on the Asiatic station in 1892. He had looseness of the bowels, and attacks of sharp pain in the epigastrium, of obscure origin, occurring at any and all hours of the day, and covering a period of several weeks. The pain did not incapacitate him for duty, however, and his name was not entered upon the sick report.

In July, 1896, while on duty at Marine Headquarters, Washington, D. C., he was suddenly taken ill with severe epigastric and hypochondriac pains, which lasted several hours. Repeated attacks at intervals of 3 or 4 days, and lasting several weeks, caused great prostration. He described these attacks of pain as though a heavy weight rested under the margin of the ribs on the right side and continued to grow larger. There was anorexia, but no nausea during the attacks. He was slightly jaundiced; his body was covered with a cold sweat, and he was very weak. Morphine was administered, which relieved, but did not control the attacks, and he was invalided in the Naval Hospital, Washington, D. C., for 6 days. Purgation relieved the pain, and at the end of a week he was discharged to duty and remained well for 2 years.

On May 17, 1898, while on picket duty on the blockading

squadron, on the U. S. S. Bancroft off the coast of Cuba, he became overheated in preparing the ship for action at midnight. Returning to his bunk an hour later, he awoke at 3 a. m. with sharp pain over the hepatic area, and a feeling of suffocation. Sinapisms relieved him, and he remained on duty, although he had intense pain every day. He also had a slight cough; bowels were regular. On the night of the twenty-seventh under the same circumstances while preparing the ship for action—all the lights being covered—he ran against a steam capstan, striking his right side over the hepatic region. He was placed on the sick list suffering with great pain, and a temperature of 102° F. He remained on the sick list until June 7, the pain continuing, and was then transferred to the hospital at Key West. Improvement followed under the influence of rest and the administration of salines, although the pain did not entirely leave him. He remained a bed patient until July 6, and was transferred on sick list successively to the U. S. S. Lancaster, U. S. S. Newport, Naval Hospital, Brooklyn, and finally to the Naval Hospital, Washington, D. C., for treatment, at which last station he was admitted on July 31, with a provisional diagnosis of cholelithiasis. His tongue was coated and bowels somewhat constipated, he had slight jaundice, and complained of dull pain in the right hypochondriac region, no tenderness being elicited by palpation over the region of the gallbladder. There were no signs of pleurisy. Calomel in divided doses relieved him greatly, and after keeping him

efforts were made at different depths and in different directions. His condition remained about the same for several weeks, never being quite free from pain, and his temperature ranged from normal to 1 degree and a fraction above, with moderately quickened pulse. He developed in addition evening sweats, without rigors. The line of liver dullness gradually extended upward to the right nipple, shading off to a lower level posteriorly. The lower thoracic measurement was increased 3 cm. on the right side.

Operation was decided upon, after consulting with Medical Director Bright, and was performed with the assistance of Surgeons Grunwell and Benton, United States Navy.

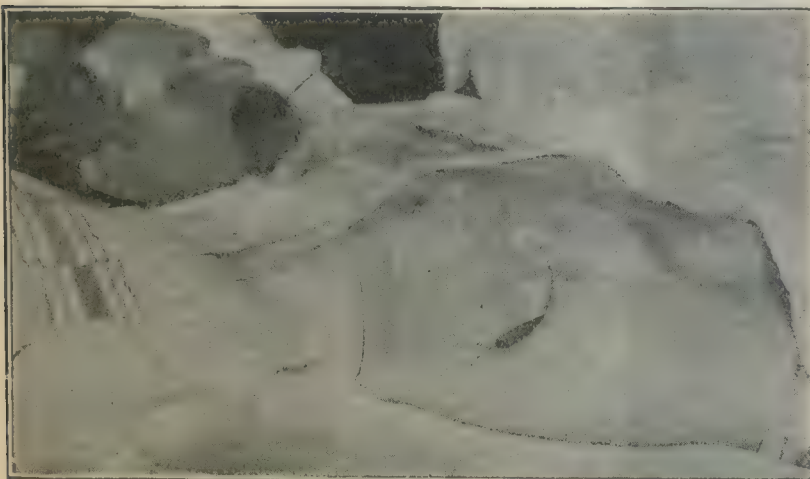
By a curved skin incision in the midaxillary line, a flap of soft structures was turned up, exposing the ninth rib, which was resected, a section 3 inches in length being removed. A semilunar flap of pleura and diaphragm was made, the opening walled off with gauze and a 4 cm. incision made directly into the liver substance. A closed clamp was plunged through this incision to a depth of 5 cm., opened and withdrawn and 120 cc. of thick yellow pus escaped.

On exploring the cavity with the finger, it was found to be divided into several smaller compartments by trabeculae, the cavity extending upward toward the diaphragm, and inward toward the median line posteriorly. These trabeculae were broken down with the finger. The wall of the cavity was slightly indurated, but did not have the solid consistence of fibrous tissue usually met in hepatic abscess. The cavity was irrigated with several liters of hot salt solution, and sponged dry with strips of gauze, care being taken not to disturb the adhesions which existed at points between the parietal and visceral reflection of peritoneum beneath the diaphragm. A large rubber tube was anchored in the posterior angle of the incision, alongside of which gauze strips were packed loosely into the cavity, and the incisions closed by layer sutures, save the opening for drainage.

There was some shock, but on the whole the patient reacted well from the operation. Free drainage necessitated frequent change of dressings for several days following the operation. The primary gauze strips were removed on the third day and the wound cavity irrigated with a sterile solution, considerable pus, shreds of necrosed tissue, and blood-clots being washed away. Tubular drainage was discontinued on the sixth day and gauze alone substituted. The skin sutures were removed at the same time, firm union having taken place. The cavity on ex-

amination at this time was found to have closed in to the size of a walnut, with smooth walls. Three concretions were felt in the cavity, and on being removed with forceps proved to be cholesterin and carbonate of lime calculi. Each was approximately the size of a hazel nut, with markedly eroded surfaces. Further digital and instrumental search revealed no additional concretions. On the following day—the seventh after operation—on irrigating the cavity, 3 parasites, brownish-white in color, 16 minims in length, oblong, somewhat flattened and somewhat pointed toward the anterior end—which was cup-shaped—were washed away in the discharge. On examination these parasites proved to be *distomum sinense*. On successive days ten more of these parasites were discharged, after which the wound healed without event, and the patient was discharged to duty.

The feature of the case is the cause of the hepatic suppuration. The various stages in the process leading up to the destruction of liver tissue undoubtedly found their beginning in a parasitic invasion in 1892—(anteceding the operation 6 years)—the time when the patient served with the Asiatic fleet, and where shore leave in Chinese and Japanese ports, the wellknown endemic areas of *distomum* disease, offered opportunities for the ingestion of unclean food and the indiscriminate use of nonsterile water. The ingestion of the cercariae and their development within the bile ducts, first found expression in pain in the epigastric and right hypochondriac regions, with looseness of the bowels several months after exposure, and similar attacks in succeeding years, aggravated in character, associated with biliary colic and



under observation 2 days, he was discharged to duty without pain or rise of temperature.

On August 25, while on duty at Marine Headquarters, Washington, D. C., he again suffered from pain in the epigastrium and hepatic region. This pain now became radiating and continued so until September 18, when it concentrated in one place above the rib margin, to the right of the median line. There was moderate fever, and neither pain nor temperature responded to coaltar products. September 19 he was readmitted to the Naval Hospital, Washington, D. C., with a diagnosis of hepatitis. He walked with a retarded gait, complained of loss of appetite, and had a slight cough but little expectoration. His tongue was coated, he suffered pain in the region of the liver on deep inspiration and on movement, and his temperature on several preceding days ranged from 99° F. to 101° F.

The liver dullness was increased 5 cm. upward, with friction sounds over the upper part of the hepatic area, the point of the greatest tenderness over this area being 10 cm. above the right costal border, in the anterior axillary line. The abdominal muscles were not rigid, and the liver margin could be readily palpated by the hand. Pressing in the abdominal wall at the margin of the ribs on the right side, and continuing this pressure upward on the under surface of the liver, great pain was elicited at the same point—10 cm. above the right costal border—that was demonstrated by percussion over the thoracic wall. On auscultation air could be heard entering the vesicles over the entire right chest. There had been no chills. He had lost weight during the several weeks prior to admission, and had been feeling badly during this time. He lay in bed with his right leg drawn up and his thigh flexed on the abdomen. His bowels were regular, light brown in color; no nausea or vomiting. Catharsis was secured by calomel and salines, and an effort made to relieve pain by sinapisms locally, without marked effect. Olive oil was administered daily during the following 2 weeks, and while his symptoms decreased in severity, he still complained of some pain with a moderate temperature—100° F.—at the end of this time.

On October 7, an aspirating needle of medium size was plunged into the liver substance at the point of greatest tenderness, between the seventh and eighth ribs, in the anterior axillary line. No pus was discovered, although a number of

jaundice, represent the activity of the mature trematode in the bile ducts in the liver, or its passage into the intestinal canal. Not being suspected, no search was made for the distomum or its ova in the stools.

The cercaria after its ingestion finds its habitat in the bile ducts, where it attains maturity, and the distomum becomes the causal factor of serious hepatic disease. The biliary canals, particularly the intrahepatic ducts, become dilated and thickened, expanding into cavities and diverticula at places, in which sacculated areas numbers of the parasites exist. When the distomas do not escape into the intestine, stenosis of the affected bile ducts takes place, accompanied by inflammatory action within the ducts—catarrhal at first, later suppurative—necrosis results, and the ulceration is followed by abscess, a purely pyogenic infection of the staphylococcus and streptococcus type. In conjunction with the pus formation, there is marked enlargement of the liver, due both to local inflammatory action and to interference with the portal circulation. This represents the pathologic history of the case cited.

The formation of calculi within the intrahepatic ducts was a secondary phenomenon. The distomas in the bile ducts caused a primary catarrhal inflammation and stenosis of these ducts with damming up of bile above the site of occlusion. The excessive secretion of mucus resulting from the inflammatory action decomposed the bile above the site of stenosis, particularly the salts of the biliary acids. To the nuclei were successively deposited the carbonate of lime and cholesterin, until the concretions attained the size found in the abscess cavity. This case, of such cause, is the only one I have met among 21 operations for liver abscess, but the condition is sufficiently important to bear in mind in dealing with hepatic suppuration.

SOME OBSERVATIONS ON THE OCCURRENCE OF NEPHRITIS IN INFANCY.*

BY

CHARLES C. BIEDERT, M.D.,

of Philadelphia.

Until within a comparatively recent period very few observations have been made upon the frequent occurrence of nephritis in infancy, and in this country we are largely indebted to Holt, Jacobi, and Morse, for what work has been done along this line.

Goulkewitch¹ has carefully examined the kidneys of 220 infants at autopsy, from 2 to 9 months of age, and has found evidences of nephritis in 23 cases. The primary disease in the 23 cases was pneumonia, 11; tuberculosis, 6; enteritis, 6.

Morse,² in a paper read before the Philadelphia Pediatric Society, March 11, 1902, has called attention to the subject, and has examined the urine systematically in every infant under his care within the last 2 years, with results that have convinced him that the examination of the urine in infancy should never be neglected; and should be done as a routine measure. He also reports a number of cases both occurring primarily and secondarily.

Jacobi³ says nephritis in the acute, subacute and chronic forms is a very frequent disease in infancy and childhood. There is an occasional hereditary tendency. Even in the newborn it is not infrequent; in these it is either *congestive* from feeble circulation, congenital heart disease, asphyxia, or exposure to low temperature, or it may be *obstructive*, from physiologic rapid decomposition of the blood in the newly born, the formation of hematin—bilirubin, from jaundice, from the production of methemoglobin, by excessive heat, or from the

presence of blood in the uriniferous tubules. It may also be *irritative*, due to uric acid infarctions, by the presence of purpuric, or other hemorrhages, or microbic.

Holt⁴ speaks of nephritis as being quite a frequent affection in infancy and childhood, and quite likely to be overlooked unless the urine is carefully examined with that point in view.

D. J. Milton Miller⁵ reports a case of acute hemorrhagic nephritis complicating influenza in an infant of 13 months, and gives an analysis of 40 cases of influenzal nephritis at all ages. The youngest of his patients was an infant of 5 months and the oldest a man of 65. More than half of the cases were in young adults and children.

Etiology.—It may occur as a primary or as a secondary affection. In this paper we are dealing more with the secondary variety. Jacobi states "that the diagnosis of nephritis should never be overlooked. Almost no diagnosis is complete without an examination of the urine. The examination for albumin should never be omitted in a doubtful case, or in any of the infectious diseases of childhood. The absence of dropsy or *œdema* proves nothing at all, particularly in the very young infant, in whom chronic nephritis without dropsy is a frequent occurrence after pleurisy, pneumonia, etc. Indeed, the most dangerous cases and complicated with uremia, are those in which no dropsical symptoms are apparent. Nephritis as a secondary affection is quite likely to be overlooked until it is too late. When the excessive frequency of this disease is recognized, fatal results will become less frequent and prevention will be appreciated at its full value." The enumeration of the causes of nephritis will always be incomplete, but the list of those conditions and diseases leading to it comprehends the principal ailments of infancy and childhood. First of all there are the acute infectious diseases—scarlatina, diphtheria, measles, rubella, varicella, vaccinia, even malaria, typhoid, cerebrospinal fevers, tonsillitis, parotitis, and pyemia. No bacilli are required to cause toxic nephritis; their toxins do as well. Stasis dependent upon pulmonary and cardiac diseases may act as a cause. In my experience whoopingcough and bronchopneumonia are quite potent causes. Probably all cases have an infectious origin.

The primary form of the disease is very rare in infants. Holt, in 1887, reported 5 cases, and collected 14 other cases from the literature apparently primary. He says: "These cases are not common, and the symptoms are so obscure that they are usually overlooked." And since that time and up to 1902 he had seen 5 additional cases. The cases were mostly of the exudative type.

The secondary form of the disease usually develops at the height of the febrile process, and its severity is generally proportionate to the intensity of the infection. The general symptoms of nephritis are often not marked and dropsy is rare, so that unless the urine is examined the condition is overlooked.⁶

The Urine in Infancy.—The specific gravity is low in infancy, 1,003 to 1,008 the first 4 or 5 days, and rarely above 1,010 the first 6 months, and from 1,006 to 1,012 up to the first 2 years. The reaction is usually faintly acid, the color light and frequently it is cloudy, due to the presence of epithelial cells. The amount of urea is proportionately large, as is also the amount of uric acid. This amount steadily decreases during infancy, but is large throughout childhood. During the first few days of life, albumin is of little significance, but after the first week its occurrence is usually of the same significance as in later life. The same applies to hyaline casts.

Goulkewitch, in his series of autopsies, found that nephritis was more common following pneumonia than in any other disease, and in this respect his observation coincides with my own, as all of my cases occurred following this disease, the pneumonia in 2 cases being a sequel of whoopingcough, and in one a sequel of influenza, in another of acute gastroenteritis. The following

*Read before the Northern Medical Association, Philadelphia, October 9, 1903.

cases are examples of this condition following whooping-cough.

CASE I.—F. H., aged 5 months, was first taken sick July 1, 1903. He had been bottle fed since birth, and had been taking a modified milk mixture of fat 2.5%, proteids 1%, sugar 5%. At this time his temperature was 103°, pulse 125. He had vomited once or twice after taking the bottle, but vomiting had not been excessive; bowels were quite loose—10 or 12 napkins were soiled daily. The excreta were green and foul smelling, and contained mucus. After 3 or 4 days' treatment he had recovered to a great degree. He had at this time a slight cough, but no signs in the chest, and we suspected that he was contracting whooping-cough, as he had been exposed to the contagion. This attack of enteritis was traced to milk infection from allowing the milk to remain on the front doorstep for 2 hours each morning before making the mixture, the weather being warm. On July 13 he was again taken with a high fever, 104°, cough, and diarrhea, and seemed quite ill. On the following day he had two slight convulsions, temperature was 104°, pulse very rapid, bowels loose and greenish. He coughed considerably, and his mother states that on one or two occasions he whooped, cough was spasmodic, and followed by vomiting (a sister has pertussis). He continued in much the same condition until July 20, when the temperature was 104°, pulse 140, respirations 80. Cough was hard with expiratory grunt, some retraction of ribs on breathing. The child seemed quite anemic, and seemed to have pain when he coughed, as he immediately cried after each effort; there was some impairment of resonance at the left apex and base posteriorly—no rales.

On July 22 temperature is 104.4°, respirations 80. He cries after each effort at coughing; physical signs of bronchopneumonia are present. There is noticed for the first time distinct swelling and puffiness of both feet. The anemia is very marked.

On July 23 swelling of the feet has extended to the legs; does not pit on pressure. Temperature 104°, cough hard and dry, scattered areas of bronchopneumonia over both lungs.

On July 24 a specimen of urine was obtained. Specific gravity 1.006, reaction was acid, color clear pale amber; there is a decided trace of albumin (heat and acid test), no sugar, hyaline and light granular casts quite numerous (eight or ten in each field), low power, urine diminished in quantity. His condition remained unchanged, and on July 27 temperature was 103°, pulse 160, respirations 60. Edema and pallor were still present, urine still showed many hyaline casts and numerous pus cells and bacteria; skin hot and dry, physical signs of pneumonia still present.

On July 28 temperature was 104°, pulse 160, respirations 68. He has been sweating slightly and urine still shows albumin, hyaline, and granular casts and pus cells. He passes very little urine, anemia increased, and the general condition steadily grew worse, until death occurred, July 31, after several very hard convulsions, which were probably uremic. No autopsy was allowed.

In the foregoing case, which was clearly one of pertussis complicated with bronchopneumonia and nephritis, I believe that the nephritis operated largely in the production of the fatal termination. Holt, in an analysis of 426 cases of bronchopneumonia, occurring in children below the age of 3, states that in only 3 of his cases was there nephritis, and in all of them it was of the acute exudative variety, but that in only 1 case was it severe enough to affect the prognosis.

CASE II.—James L., aged 4 months, was first seen January 19, 1903, in the second week of the convulsive stage of whooping-cough, with a temperature of 103.2°; pulse, 130; respirations, 50. He was sick for about 12 days, with constant crying and fretting, and hard spasmodic cough followed by vomiting. The lungs showed rales and suggestion of bronchial breathing posteriorly under the angle of the right scapula. He continued in this condition with symptoms of bronchopneumonia for 4 days with marked nervous symptoms, twitching of muscles, etc. Mother noted that he passed very little urine. Specimen examined at this time showed reaction acid; albumin, faint traces, full of amorphous urates, a few uric acid crystals, no casts.

He now apparently improved. Temperature became normal and subnormal for 10 or 12 days, when he took fresh cold and had a relapse. Temperature, 103.2°, and symptoms of bronchopneumonia returned. Examination of urine February 22, about 4 weeks after he was first taken sick, shows reaction acid; color, cloudy, pale amber; heavy white sediment, albumin present, marked trace, and numerous hyaline and granular casts, pus cells in abundance, and amorphous urates and uric acid. There is no edema of any part of the body, baby seems quite anemic, physical signs and general conditions are indicative of severe bronchopneumonia.

March 2, urine is cloudy amber, contains sediment of urates, hyaline and granular casts, uric acid, and numerous pus cells. He continued to grow worse. The pneumonic process spreading throughout both lungs, and he died March 12, after an illness extending over 53 days.

This case represents the protracted or persistent form of bronchopneumonia, and is quite common following pertussis; and quite frequently runs on with exacerbations, and remissions for 8 or 10 weeks. It usually terminates fatally. In this case there was at no time any edema, and the only symptoms which would lead to the diagnosis of nephritis as a complication was the diminished amount of urine and the pallor, and these 2 symptoms suggested the examination of the urine. In this case the nephritis was not severe enough to affect materially the prognosis. Death was evidently due to asthenia and toxemia due to the protracted bronchopneumonia. Two other older children in the family had whooping-cough at the same time.

Miller in an analysis of 40 cases of nephritis following influenza only found 1 case beside his own in infancy. He therefore, concluded that nephritis as a complication of influenza in infancy is very uncommon; this I believe to be due in part to the fact that the urine in infancy is frequently overlooked, and that if more attention was paid to the examination of the urine the condition would be very much more frequently found. The following case is an example of this.

CASE III.—Ruth D., aged 7 months, bottle fed (modified milk formula), was taken sick 2 or 3 days before I first saw her on February 10, 1903. Mother stated that several members of the family had had bad colds with sneezing and running of nose, and general catarrhal symptoms, and baby was first taken sick with the same general symptoms. When I first saw her, her temperature was 104°, pulse 150, and she had marked catarrhal symptoms indicative of influenza. Chest full of moist rales no consolidation was noted.

Four days later, February 14, temperature was 104°, pulse 150, respirations 55, chest full of sibilant rales; some bronchial breathing in areas, cough very troublesome.

She continued in pretty much the same condition until February 21, when it was first noted that baby was extremely pale, but there were no signs of edema. The secretion of urine was very little for a few days past, and mother noted that she did not wet more than 2 or 3 napkins in 24 hours, and this a very little at a time. I was unable to obtain a specimen of urine for examination. Cough is very troublesome and signs of bronchopneumonia still present. On February 24, she had 2 or 3 convulsions, the movements mainly involving the muscles of the face, very little movement of the arms and legs. On February 28, pallor was very marked, she passed very little urine and there was some slight swelling of the dorsum of the feet. A specimen of urine was obtained. It showed a marked trace of albumin, amorphous urates, and kidney epithelium. No distinct casts were found. She continued in this condition, one day slightly better and another worse, the edema of the feet gradually increasing in spite of treatment; the pallor was also very marked, and the amount of urine secreted very low. She died suddenly on March 4, after an illness lasting 25 days.

Autopsy showed extensive involvement of both lungs posteriorly. There were scattered areas of consolidation over both lungs, more marked on the right side, lung tissue was friable, and on section exuded pus and blood. The anterior portion of both lungs was free. There were also recent pleural adhesions on both sides which were broken up with some difficulty. Spleen was congested and soft, the liver was large and congested. Both kidneys were congested and red. Capsules stripped easily. The surface of the kidneys was covered with congested bloodvessels giving the kidneys a mottled appearance. On section they exuded considerable blood, and the cortex was narrowed and pyramids diminished in size.

More attention has been paid to the occurrence of nephritis following gastroenteric diseases than of any other. Morse,¹ in a series of 70 cases, found evidence of renal involvement in 15%.

Holt says acute degeneration of the kidney is found to some degree in every case which is severe enough to cause death, and in a few there is acute diffuse nephritis.

The following case began as an acute gastroenteric infection, and bronchopneumonia and nephritis developed as a secondary condition.

CASE IV.—Henry J., aged 4 months, was bottle fed for a month, then on condensed milk, and later on the modified milk formula. He was first taken sick August 22, 1902, with vomiting, purging and high fever, movements were watery, foul smelling and contained mucus. He vomited all food and grew extremely weak and emaciated. He had 10 or 12 movements daily. Under treatment bowels improved and the child grew better for a few days. On September 1, he was again taken with high fever and cough, although he had not been

well since his first attack of diarrhea. Temperature was now 103.2°. He coughed almost constantly and was very weak. He had the physical signs of bronchopneumonia, was very much emaciated, bowels loose (8 movements daily and containing slime). He is very stupid and drowsy; mother states that baby was swollen all over the body; he is very anemic. Examination of the urine showed a marked trace of albumin, it was full of pus cells and many granular casts. Urine diminished in quantity, child grew rapidly worse and died September 3, after having had 1 or 2 convulsions. No autopsy was allowed.

Cotton⁸ in discussing the symptomatology of summer diarrhea in children states that while the frequent occurrence of albuminuria in patients with summer diarrheas, has led observers to regard the condition as nephritis, he believes that functional cardiovascular conditions with the anemia rapidly induced by the colliquative discharges, to be a rational explanation for many of the cerebral phenomena, and the edema of dependent parts.

I do not believe the foregoing cases can be explained on these grounds, as all except perhaps Case II, had all of the classic symptoms of acute parenchymatous nephritis, namely, anemia, edema, marked nervous phenomena and convulsions, and the urine in all cases showed evidences of the desquamation of kidney substance; in all cases there were decided traces of albumin and many hyaline and granular casts. In some instances kidney cells were found upon microscopic examination. I was only fortunate enough to obtain an autopsy in 1 case, and in this the pathologic findings showed marked disease of the kidneys.

What the further history of these patients would have been in regard to the condition of the kidneys had they recovered I am not prepared to say, but I believe that owing to the wellknown recuperative powers of the tissues of children no permanent changes would have occurred; but I am firmly convinced that the kidney complication played an important part in the fatal issue of these cases.

In conclusion I wish to emphasize the following points:

1. The importance of examining the urine in all acute diseases of infancy, and especially in the bronchopneumonias.
2. The importance of marked anemia as the most pronounced symptom of kidney involvement.
3. Edema may or may not be present, but when it is present it constitutes a valuable sign, but there may be grave kidney involvement without edema.
4. There is almost always a diminished secretion of urine, the mother almost always noting that the baby wets fewer napkins.
5. There are almost always grave nervous phenomena and convulsions, which in some cases are probably uremic.

Though all of the cases reported had a fatal issue, still I have reported them with the view of calling attention to this complication, and, perhaps, stimulating further research along this line.

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To Combat the Sweatshop Evil.—The United Garment Workers, the Philadelphia Branch of the Consumers' League, and the Pennsylvania Association of Women Workers are preparing a circular which sets forth some of the evils of sweatshop and child labor in as simple and graphic terms as possible. This circular is to be first taken to the heads of the large department stores and manufacturers, and the names of those who are willing to allow their firm names to be used as carrying goods bearing the Union and Consumers' League labels are to be published in a few days.

MYXEDEMA COMPLICATED WITH DIABETES MELLITUS OCCURRING IN TWO CHILDREN. EFFECT OF THYROID EXTRACT UPON BOTH DISEASES. REMARKS ON THE PATHOGENESIS OF DIABETES.¹

BY

ALFRED GORDON, M.D.,
of Philadelphia.

Instructor in Nervous Diseases, Jefferson Medical College; Assistant Visiting Neurologist to Philadelphia Hospital; Neurologist to Douglas Memorial Hospital.

Diabetes mellitus in early childhood is, comparatively speaking, a rare condition. There are on record numerous cases attended with the excretion in the urine of minute amounts of sugar, but they differ clinically from the true diabetic types. They are designated as cases of simple glycosuria. The cardinal symptoms of diabetes mellitus—namely, excessive thirst and hunger, polyuria and considerable excretion of sugar, independently of a carbohydrate diet—present a distinct pathologic condition which is very unusual in early life. Romberg, according to Kleen, observed among 5,900 infant patients but a single case of diabetes.

Myxedema, on the contrary, is relatively of frequent occurrence in childhood; at least, the percentage of myxedematous children is much higher than that of myxedematous adults. Not infrequently myxedema is accompanied by a slight glycosuria. In the asylums I have often seen cases of cretinism complicated with a slight glycosuria or albuminuria, but I never had the opportunity to observe nor am I familiar with a case of myxedema complicated with a true diabetes. The relationship between myxedema and a faulty function of the thyroid gland is well known, but the role of the latter in the creation of the pathologic condition known as diabetes mellitus is comparatively unknown. In *Pfäuger's Archiv*, 1899, Vol. lxxvii, p. 104, we find that Blum observed glycosuria in a dog which he fed on thyroid for several days. Ewald, Strauss, and others also observed the same phenomenon. On the other hand, diabetes has been seen in diseases of the thyroid gland. A relationship between the thyroid function and diabetes therefore exists, and any new data concerning the elucidation of this subject are certainly very desirable, as the latter is far from being solved.

The cases I am about to report are in my opinion, of extreme interest. They will serve to connect the clinical facts and the experimental data of the subject. They corroborate what others have observed only on animals in the laboratories. To a certain extent they will contribute to a better and broader conception of the mysterious disease called diabetes. Finally, practical therapeutics may benefit from the results obtained from thyroid medication. The cases are as follow:

CASE I.—H. B., a male, aged 3, was first seen by me in January, 1903. His father, who was under my care for pronounced neurasthenic symptoms, often complained to me of his child being unwell for the past 6 months. In spite of the best possible care advised by the family physician, the child was gradually failing in health. Questioned closely, my patient gave me the most prominent symptoms observed in the child, namely, ravenous appetite and thirst, frequent and abundant micturition, gradually increasing mental dullness and apathy, extreme pallor of the skin. The child was brought to me for an opinion. At first glance, perhaps, nothing abnormal could be detected, except the waxy, yellowish skin of the face. A closer study elicited the following points, although they were not markedly developed: Puffiness of the eyelids; the skin of the face slightly edematous, but without pitting and extremely dry. The father of the child positively states that his face, lips, hands, feet, and abdominal walls are distinctly larger than they were 6 months ago, and that the whole body became puffy and was gradually getting larger. The most striking symptoms, however, pertained to the mental state of the patient. He could hardly answer and understand the questions asked of him; and when he would answer, he would do it in a slow and deliberate manner. His eyelids would droop often during the conversation, which evidently fatigued him considerably. The indiffer-

¹ Read before the Philadelphia County Medical Society, December 9, 1903.

ence of the child to his surroundings was distinctly noticeable, while he used to be playful and intelligent. A visceral examination showed slowness of respiration and of heart-beats. Pulse was 60. The teeth were apparently normal; the hair according to the father, suffered in its nutrition. The mucous membrane of the nose was very dry. During the half-hour the child spent with me, he drank 3 glasses of water and asked for more. A specimen of urine was taken on the spot and gave immediately the characteristic Fehling reaction for sugar. Before I saw the patient, his father's statement in regard to the excessive thirst and appetite made me think of infantile diabetes, and the mental symptoms related to me, were, in my mind, due to the same disease, as diabetes is known to produce nervous and mental derangements. However, when the patient appeared before me, and after a moment's observation, I could not hesitate to pronounce it a case of myxedema, although the symptoms, as I said before, were not pronounced.

Before treatment was instituted, I decided upon a more careful and repeated urinalysis. Specimens of urine taken morning and evening were examined chemically and microscopically, and the following was the result: The amount could not be determined, but from the parents I learned that the micturition was very frequent and abundant. Reaction, sharply acid; sp. g., 1.038.5; no albumin; but glucose present. Microscopically no abnormal elements could be found. The presence of sugar was tested repeatedly by Trommer's method, also by Fehling's and Pavy's solutions. The reaction was exceedingly prompt and the quantity was evidently large, although an exact quantitative analysis was not made. It may be of some interest to tell the result of the blood-examination before the treatment was instituted: Hemoglobin, 50%; erythrocytes, 2,750,000; leukocytes, 14,000; differential count shows a normal proportion of the various leukocytes, without eosinophiles.

So soon as the diagnosis of diabetes was established, I made 2 more inspections of the child, and was more and more convinced that it was a case of myxedema complicated with diabetes.

Before I relate the management of the case and the subsequent course of the 2 diseases, I shall give briefly the history of the second patient.

CASE II.—A. B., aged 4½ years, a brother of the first patient, presented the same symptoms, with this difference, however, that the physical symptoms as well as the mental and the quantity of sugar in the urine were still more pronounced. The myxedema was too evident to be overlooked. The mental symptoms consisted in extreme apathy with outbreaks of excitement. He also presented decayed teeth, very little hair, and brittle nails. His malady dated from the age of 2, so that the symptoms had had more time to develop. The diabetic symptoms were identical with those of his brother. Both patients presented an anomaly which I purposely did not mention before—namely, total absence of the thyroid gland; at least, no trace of the organ could be detected upon repeated examinations. Both patients also presented marked symptoms of anemia, but no symptoms pointing to an organic lesion of the nervous system; gait, station, reflexes, and sensations were found to be normal. The family history presents a few interesting points. The grandfather was committed several times for delirium tremens. Alcoholism and sexual excesses were noted in him even before he was married. One grandmother suffered for years from attacks of gout and migraine. The father of the children is a neuropathic individual, suffering from obsessions. The mother is obese and has been treated for diabetes.

The management of both cases presented, in my opinion, some difficulty at the beginning. Cases of myxedema with some glycosuria are not very rare occurrences, but the glycosuria in such cases is transitory in character, and at all events too insignificant to require special attention. Cases of myxedema complicated with a true diabetes mellitus is, indeed, an extremely exceptional affection, at least, to my knowledge, as in the literature of the last 4 years not a single case was reported.

As I have said before, it was somewhat perplexing for therapeutic purposes to determine how these 2 diseases influenced each other, or whether we had to deal with 2 individual affections independent of each other.

It is an established fact that myxedema is always associated with some defect in the function of the thyroid gland. Although this mysterious function is not entirely cleared up, yet it is well known to produce various pathologic conditions. This view is based on a supposed internal secretion of the gland. On the other hand, diabetes, at least a form of it, is also supposed to be the result of an internal secretion of the islands of Langer-

hans of the pancreas. The doctrine of the internal secretions of ductless glands or of glands with ducts is not only captivating, but it is sometimes unavoidable for diagnostic and therapeutic purposes; it simplifies considerably our conception of many morbid conditions. It is true, this mysterious function is not yet a demonstrated physiologic truth in all cases, but the few clinical and experimental data we are now in possession of in regard to some glands, as, for example, the thyroid gland or the suprarenal bodies, make us believe that there are more pathologic conditions dependent upon this curious function than we know.

Basing myself upon these few thoughts, and also upon the clinical observation that the slight glycosuria noticed in some cases of myxedema disappeared with the improvement of the disease itself, I asked myself if the same lack of thyroid internal secretion, which is probably the causative factor of the myxedema in our 2 patients, is at the same time the cause of the diabetes. The subsequent course of both maladies proved it to be highly probable. I administered thyroid extract in the following manner: .016 gm. (½ gr.) to the younger, and .032 gm. (1 gr.) to the older child, to be taken twice a day at the beginning. Hydrotherapy, in the form of spongings, followed by massage, outdoor life, and substantial food were, of course, not ignored. At the end of the first week a slight improvement was noticed. As there were no untoward symptoms from the thyroid extract, the doses were increased to 3 times a day. Both children continued to improve. During the third week thyroid was given 4 times a day. Every following week the remedy was increased in the manner mentioned. It is interesting to note that the improvement began first of all to show itself in the mental state of my little patients; the languor, apathy, and mental dulness gradually disappeared, and only then the general nutrition changed. The thickness, the pallor, and the puffiness of the integuments gradually but slowly improved; the skin and mucous membranes acquired a healthier color. As to the diabetic triad of symptoms, it is very interesting to know that by the end of the first week the extreme thirst and hunger diminished simultaneously with the improvement of the mental condition, and urinalysis showed marked diminution of the quantity of sugar, so far as we could judge from a gross examination. The improvement in this direction was still more marked at the end of the following week.

It is also important to note that the thyroid medication showed its beneficial influence upon the diabetes mellitus far more promptly than upon the myxedema. This latter observation led to the idea of the great relationship between thyroid internal secretion and the still unknown etiologic agent of diabetes. It was more conclusive, in my opinion, than a most carefully carried out experiment. At the end of 6 weeks, the thirst and hunger became normal, the polyuria disappeared, the specific gravity of the urine went down to 1.022, and the glycosuria was reduced to a minimum. The treatment which has been outlined was persevered in for 4 months, at the end of which time the traces of glucose had disappeared. The children became playful, lively, happy, and mentally normal. The myxedematous appearance changed entirely. At that period of treatment I reached a daily dose of .2 gm. (3 gr.) for the first and of .3 gm. (5 gr.) for the second child. The wellknown excitant effect of large doses of thyroid began to show itself at that time; the patients began to manifest a restlessness, partial insomnia, and irritability. The treatment was then discontinued, but hydrotherapy kept up.

After an interval of 3 weeks some symptoms began to return, namely, the mental hebetude and glycosuria. The treatment was resumed in gradually increasing doses, and was again attended by disappearance of the symptoms. This time, however, there was no indication to reach the maximum doses of the thyroid; .065

gm. (1 gr.) per day for one and .13 gm. (2 gr.) for the other child was sufficient to maintain the patients in good physiologic equilibrium. For 2 consecutive months the treatment was continued, with weekly urinalyses. The patients' conditions were as satisfactory as could be desired. A sojourn at the seashore without medication was advised and carried out. The treatment has not been resumed since then, and there has been no recurrence of either of the 2 diseases.

To sum up, we have here 2 cases of myxedema with genuine diabetes mellitus in brothers, who are the offspring of neuropathic parents with degenerative tendencies. Thyroid extract in both patients showed a very favorable influence upon both morbid conditions, and even earlier on the diabetes than on the myxedema.

The cases present several unusual features: (1) The coincidence of myxedema and a genuine diabetes mellitus (not a simple glycosuria); (2) the occurrence of diabetes in early childhood; (3) the occurrence of both diseases in 2 brothers, showing a degenerative hereditary tendency; the latter is corroborated by the interesting family history; (4) the remarkable effect of the thyroid extract upon the diabetes, explaining with a great degree of certainty the role of the thyroid gland in the as yet unknown pathologic metabolism, which is manifested in a group of symptoms called diabetes mellitus.

An analysis of all the facts concerning the origin of diabetes will show to an impartial observer that so far none of the theories advanced suffices to explain all the phenomena of the malady. We can only say that it seems to be highly probable that independently of the digestive function there is a special internal secretion of the pancreas which is at fault. On the other hand, how to explain the fact that diseases of other organs, including the central nervous system and the ductless glands, are sometimes accompanied by the symptom-group of diabetes. Herter, Richards, Blum, and Wakeman have shown the important relationship between glycosuria and the power of adrenalin, and particularly the effect of adrenalin upon the pancreas. In other words, the production of glycosuria consequent to the introduction into the system of adrenalin was due to a special effect of this substance upon the pancreas. The physiology of the ductless glands (thyroid, thymus, spleen, suprarenals, pituitary body, and others) is known to us only in part; much is to be studied yet. The doctrine of internal secretions of these glands, if correct, explains many physiologic phenomena heretofore obscure.

The fact that the pancreas, with its internal secretion, may be influenced by an internal secretion of the adrenals, militates in favor of the view that the pancreatic secretions may be influenced by secretions of other ductless glands. Pineles¹ and others called attention to the fact that changes which occur in one of the ductless glands may lead to alterations of other glands. Diabetes, for example, may appear in the course of Graves' disease or of acromegaly. Changes in the thyroid gland may alter the function of the pancreas, and *vice versa*.

At the last International Medical Congress, at Madrid, Lorand, of Carlsbad, showed that glycosuria and diabetes occur in acromegaly only when the function of the thyroid gland is exaggerated.

That diabetes has been seen in diseases of the thyroid gland is a well-established fact, and the 2 cases reported here serve to corroborate conclusively the fact that deficient function of the thyroid is capable of impairing the general nutrition of the organism by rendering it myxedematous, and at the same time interfere with the carbohydrate metabolism. Whether the thyroid disorder is the direct cause of the diabetes or acts indirectly through the pancreas similar to the effect of the adrenals, as mentioned above, it is difficult to say. The fact nevertheless remains that when the absent or

deficient thyroid was artificially supplied to the suffering organism, the diabetic symptoms disappeared *in toto*. It therefore establishes beyond doubt a certain if not an integral relationship, between the pathologic process known as diabetes and the function of the thyroid. From the practical standpoint this observation may be of great value, as it puts in our hands an excellent medication for an affection which we have the greatest difficulty in combating. There is another point to which I wish to call attention. Diabetes, especially in children, usually presents an unfavorable prognosis. Our cases, on the contrary, presented a very favorable course and were satisfactorily influenced by thyroid treatment.

Is not this circumstance an indication that a diabetes dependent upon a deficient thyroid function is a form far less grave than the form of the disease which is caused directly by destruction of or a pathologic condition of the islands of Langerhans?

SPECIAL ARTICLES

MEDICUS ET MEDICA.

BY

HELEN MACMURCHY, M.D.,
of Toronto, Canada.

The retirement of Mrs. Garrett-Anderson, M.D., from the office of Dean of the London School of Medicine for Women, which she has held during the last 20 years, will recall many memories to the minds of the men and women who were her comrades 20 years ago. Memories not only of 20 years ago, but of 40 years ago, for it was in 1860 that Mrs. Garrett-Anderson (then Miss Elizabeth Garrett) presented herself at Apothecaries' Hall. Well might the little band of survivors of these days of diplomacy and conflict say to us "*Quæque ipse vidi et quorum pars magus fui.*"

It is not to be forgotten that if women have learned this art of healing, men have taught it to them, in the first instance at least. Many medical men did this willingly and cheerfully, some did it *con amore*, with a generous enthusiasm. There are few men, after all, who would not agree with Mr. Grote in saying that whenever a woman has a real love for learning in her youth, and a genuine aspiration after an independent and self-maintaining position, she should at least have as fair a chance as a man of using her talents to the utmost, or who would not say with Mrs. J. S. Mill: "We deny the right of any portion of the species to decide for another portion, or any individual for another individual, what is, and what is not, the 'proper sphere.' The proper sphere for all human beings is the largest and highest to which they are able to attain. What this is cannot be ascertained without complete liberty of choice."

It was in 1844 that Miss Elizabeth Blackwell began her medical studies in the United States. Of English birth, she had lived in America since early youth, and having set her heart on being a doctor, had taught for some years and saved a sum of money for this purpose. She applied to 13 medical colleges for admission, and was refused at all but one—Geneva Medical College, New York State—in which the faculty left the matter to the decision of the students. The students decided that the lady should be admitted, and Dr. Blackwell graduated in 1849. She studied in St. Bartholomew's Hospital, London, returned to practise in New York in 1851, and in 1854, with her sister, Dr. Emily Blackwell, and her friend, Dr. Zakrewska, founded the New York Infirmary for Women and Children.

Dr. Blackwell was a pioneer of pioneers. She suffered much misunderstanding and passed through much obloquy, but she lived to practise the profession she loved for many years, in peace and honor, retiring only recently and returning to her native country.

The oldest woman's medical college in the world is in Philadelphia. Dr. Fussell, a Pennsylvania Quaker physician, seems to have been the first who thought of founding such a college, and there is in existence a private letter in which this idea is traced to the respect and affection he felt for his eldest

¹ Volkmann's Sammlung klin. Vorträge, No. 242.

sister, a woman of remarkable gifts. "Why," said Dr. Fussell, "should not women have the same opportunities in life as men?" Two other physicians among the founders of the college were Dr. Hiram Corson and Dr. Charles Thomas.

In 1850, the Female Medical College of Pennsylvania was incorporated by Act of Assembly, its name being changed in 1867 to the Woman's Medical College of Pennsylvania. In the first graduating class was the gentle and brave Dr. Ann Preston, who was afterward appointed professor of physiology and hygiene, and subsequently dean of the faculty (which positions were held by her until her death in 1872), and of whom it was said "The college was Ann Preston, Ann Preston was the college."

Dr. C. N. Peirce, one of the corporators, said at the college jubilee: "That frail and friendly form, that Quaker poet and prophet, with her quiet spirit, represented a force and influence worth a regiment of men." Seven other ladies graduated in Dr. Preston's class, and now the number of graduates of this college practising over the whole world is over 1,000. "The work of these 50 years has all been done in the modest Quaker way, with no parade, no advertisement, and no debts."

The first woman to go to a foreign land as a medical missionary was a graduate of this college—Dr. Clara Swain (class of 1869), the first hospital for women in Asia was the gift of the Nawab of Rampore, at the request of Dr. Swain, and the first Hindu woman to receive a medical degree was a graduate of this college, Dr. Anandibai Joshee, of Poona (class of 1886). Dr. Clara Marshall, a wellknown Philadelphia physician, is the present dean.

Closely connected with this college, is the Woman's Hospital of Philadelphia, founded in 1861 by Dr. Ann Preston, Dr. Emeline Cleveland, and their friends, in which advanced medical, surgical and obstetric work is done, as well as specialists' work. The patriotism and enterprise of this hospital are well illustrated by the fact that in 1898, Dr. Ella Everett, Chief Resident Physician, obtained the necessary change in the Hospital Charter to allow the admission of men as patients, and the hospital equipped and managed a special hospital train to bring sick soldiers from Camp Meade to Philadelphia, afterward caring for about 100 sick and wounded soldiers in the wards of the hospital. Two other hospitals closely connected with this College are the West Philadelphia Hospital for Women, and the Hospital and Dispensary of the Alumnae of the Woman's Medical College of Pennsylvania.

There were 6 women physicians in Philadelphia as early as 1852, and there are few cities where hospital facilities for women are so good, and where young women entering the profession can turn with as much confidence to older women of experience, skill and kindness, in their professional difficulties.

The New York Infirmary for Women and Children was founded in 1854 and in 1865 a Medical College for Women was opened in connection with it, which did good work until, in 1899, Cornell University opened its medical department in New York City and announced that women would be admitted to it. It was felt by the trustees and friends of the college that "the wider opportunities for medical education now open to women in this city render a separate medical school for women unnecessary," and the New York Medical College for Women was closed, so far as undergraduate work is concerned, but it still maintains its postgraduate course.

As Dr. Emily Blackwell said at the thirty-first (and last) annual commencement of the college "We have held open the door for women until broader gates have swung wide for their admission."

The Northwestern University Woman's Medical College, formerly the Chicago Woman's Medical College, was founded in 1870, chiefly by Dr. Byford and Dr. Mary H. Thompson. The present name of the college was assumed in 1891, when it was made a department of the Northwestern University. The excellent work of this school may be estimated by the fact that 340 of its graduates have filled or are now filling hospital positions. Dr. Marie J. Mergler, a gifted woman and a distinguished surgeon, whose recent death is so deeply regretted, was dean of this college.

Dr. Mary Thompson, who with the assistance of Dr. Byford and others, founded the College and the Chicago Hospital for

Women, had studied at the New England Female Medical College and at the New York Infirmary for Women and Children under Dr. Elizabeth Blackwell and Dr. Emily Blackwell. The hospital is now named in her memory, The Mary Thompson Hospital.

Dr. Byford was in a very special sense the founder of this college. The meeting at which the resolution to found the college was passed was held in his office. Overcoming great obstacles in early youth, he rose to be Professor of Obstetrics in Rush Medical College, Chicago, and President of the American Medical Association at the age of 40. He was one of the founders of the Chicago Medical College, an author of repute, and the President of the Woman's Medical College from 1870 till his death in 1890. "The world needs the woman doctor" this great physician used to say, and his only regret was that so good a cause should need a champion.

The Board of Regents of the Michigan University authorized classes for the medical education of women in 1870, and since that time about 400 women have graduated in medicine from this University. "The course of instruction for women is in all respects equal to that for men. Practical anatomy is pursued by the two sexes in separate rooms, but in the lectures, in the public clinics, in the several laboratories, and the various class exercises, it is found that both sexes may attend with propriety at the same time."

In 1898 the University received a legacy of \$140,000 from Dr. Elizabeth H. Bates, of Port Chester, N. Y. This bequest was made on account of the deep interest Dr. Bates took in the medical education of women, and as a recognition of the efforts of the University to give to her alumnae a medical course equal to that given to her alumni.

The Woman's Medical College of Baltimore was founded in 1882, and has already graduated about 80 students. These graduates have come from 19 States of the Union, and one each from Canada, Corea and Germany.

Early provision was made in Boston for the medical education of women. In 1859 Dr. Marie E. Zakrewska (whose remarkable career in Germany is well known) was appointed professor of obstetrics in the New England Female Medical College, and it was through her influence that the work of the New England Hospital for Women and Children began in 1862. The hospital was incorporated in 1863 with the object of assisting educated women in the study of medicine, and providing competent women physicians. The work of the hospital has greatly increased, and grants from the Legislature as well as private munificence have made it possible to erect the present beautiful hospital. The name of the street on which the hospital is built was changed from Codman avenue to Dimock street, in memory of Dr. Susan Dimock, who was appointed resident physician in charge of the hospital in 1872, at the early age of 25. In 1875 she sailed for Europe on leave of absence for study and recreation and she lost her life on the ill-fated steamer *Schiller*, which went down on the Scilly Rocks. She was deeply mourned by the medical profession and indeed by all the citizens of Boston, and her loss was greatly felt by the institution which she had so faithfully served.

The New England Hospital for Women and Children has been fortunate in its friends. The founder, Dr. Zakrewska, served the hospital for nearly 40 years. "In memory of her devotion to the hospital, and in recognition of her unparalleled services" the first building erected and owned by the corporation was named after her. Her portrait was also presented to the hospital by her pupils. Among other friends of the hospital should be mentioned Dr. Henry I. Bowditch, consulting physician since 1865, who was chiefly instrumental in inducing the Massachusetts Medical Society to admit women to fellowship; Mr. Conant, of Roxbury, who endowed the hospital with over \$50,000; and Colonel Albert A. Pope, who gave the new Pope Dispensary Building in memory of his twin sisters, Dr. Emily Pope and Dr. Augusta Pope (who were among the earliest and most devoted of the doctors of the hospital) and in grateful remembrance of the skilful and loving care of the other members of the hospital staff toward one of his sisters during a long and dangerous illness.

The present chief resident physician at the hospital is Dr. Stella M. Taylor, a graduate of the Woman's Medical College, Toronto, and of Trinity University.

It was the intention of Johns Hopkins, in founding a university and hospital at Baltimore, that a medical school, of which the hospital should be a part, should ultimately be established in connection with the University. The University was opened in 1876, and hospital in 1889, but for the medical school there was required an additional endowment of \$500,000. A gift of \$100,000 was presented to the Trustees in 1890 by a committee of women interested in obtaining medical education for women, and in 1892 Miss Mary E. Garrett presented over \$300,000, thus enabling the Trustees to make up, with other sums on hand, \$500,000, and open the medical school in 1893. The first of these liberal gifts was made upon a condition accepted by the following official document:

The President and Board of Trustees of Johns Hopkins University have received from Mrs. Nancy Morris Davis, chairman of one of the committees formed for the purpose of raising a fund to procure the most advanced medical education for women, the gratifying intelligence that \$100,000 has been raised for the use of their intended medical school, and is at their disposal if they will, by resolution, agree to the terms upon which the money was contributed by its donors.

These terms are that this Board, if it accepts the funds thus raised shall agree, by resolution, that when its medical school shall be opened, women whose training has been equivalent to the preliminary medical course prescribed for men, shall be admitted to such school upon the same terms as may be prescribed for men.

The offer to this University of this particular fund is the free voluntary act of women residing in this State and in other States, made without the suggestion or solicitation of this Board, and we accept it under and subject to the terms which are made part of the gift, with the understanding and declaration, however, that such preliminary training in all its parts shall be obtained in some other institution of learning devoted, in whole or in part, to the education of women, or by private tuition.

The fund so contributed shall be invested and known as "The Women's Medical School Fund," and that fund, and all interest to accrue thereon, and all additions made thereto for the same purpose, shall remain invested for the purpose of increase only until, with its aid as a foundation, a general fund has been accumulated amounting to not less than \$500,000, and sufficient for the establishment and maintenance of a medical school worthy of the reputation of this University, and fully sufficient as a means of complete medical instruction. Then, and not until then, will a medical school be opened by this University; and then, and not until then, will the gift now offered be used by this University; and then, and not until then, will the terms attached thereto be operative.

The utility of a training school for women nurses has been demonstrated by the experience and practice of the Johns Hopkins Hospital, and by the necessities of home life among our people.

This Board is satisfied that in hospital practice among women, in penal institutions in which women are prisoners, in charitable institutions in which women are cared for, and in private life, when women are to be attended, there is a need and a place for learned and capable women physicians; and that it is the business and duty of this Board, when it is supplied with the necessary means for opening its proposed medical school, to make provision for the training and full qualification of such women for the abundant work which awaits them in these wide fields of usefulness.

The Mary Elizabeth Garrett Fund was accepted by the Trustees upon similar terms, and it was also provided that not more than \$50,000 of the original endowment of \$500,000 be expended on a building or buildings; and that in memory of the contributions of the committees of the Women's Medical School Fund, this building, if there be but one, or the chief building, if there be more than one, should be known as the Women's Fund Memorial Building, and that there should be created a committee of six women to whom the women studying in the medical school might apply for advice concerning lodging and other practical matters, and that all questions concerning the personal character of women applying for admission to the school, and all nonacademic questions of discipline affecting the women studying in the medical school should be referred to this committee, and by them be in writing reported for action to the authorities of the University; that the members of this committee should be members for life; that the committee, when once formed, should be self-nominating, its nominations of new members to fill such vacancies as may occur being subject always to the approval of the Board of Trustees of the University.

The Women's Committee of the Medical School for 1902-1903 is: Miss Mary E. Garrett, Miss Mary M. Gwynn, Mrs.

William H. Howell, Mrs. Henry M. Hurd, Mrs. Howard A. Kelly, Miss M. Carey Thomas.

Since the graduation of the first class in the medical department of Johns Hopkins University, some 6 years ago, 5 women have been appointed as resident medical officers in the Johns Hopkins Hospital, and one woman, Dr. Elizabeth Hurdon, a Canadian, and a graduate of Trinity University, and the Woman's Medical College, Toronto, holds a place on the Johns Hopkins Medical Faculty as assistant in gynecology.

There were 3,000 women physicians in the United States in 1889; 4,555 in 1896, and now there are probably 6,000.

The last report of the Hon. W. T. Harris, Commissioner of Education in the United States, shows that there are now nearly 26,757 medical students being educated in 154 medical colleges. Of that number 1,219 are women; 68 of these medical colleges are attended by men only, 80 have both men and women students, and 6 are for women alone; 860 women students of medicine are receiving their education in the 80 colleges referred to above, and the remaining 359 attend as follows:

Woman's Medical College of Pennsylvania.....	175
Northwestern University Women's Medical School.....	72
Laura Memorial Woman's Medical College, Cincinnati.....	24
Woman's Medical College, Kansas City.....	23
Woman's Medical College of Baltimore.....	32
New York Medical College and Hospital for Women (Homeopathic).....	33
	359

During the Spanish-American war, Dr. Anita Newcomb McGee was in charge of the nurse corps of the United States Army, with the title of Acting Assistant Surgeon, and the rank and privileges of First Lieutenant of the United States Army. In accepting her resignation, Surgeon-General Sternberg expressed his high appreciation of her valuable services, and assured her that she had shown "excellent judgment and executive ability, and labored zealously both in the interests of the nurses and the government."

A large number of appointments in the United States is open to women, by State enactment, *e. g.*, State of Massachusetts, 1884 "From and after January 1, 1885, in each of the State lunatic hospitals, an educated female physician shall be appointed assistant physician." In the New York State code, there is a provision for the compulsory examination of the injured party in actions for personal injuries, etc., and a recent statute gives the right to the injured party, if a woman, to require that such examination be made by a woman physician.

As already mentioned, it was in 1860 that Miss Elizabeth Garrett (Mrs. Garrett-Anderson, M.D.) presented herself as a candidate before the authorities of Apothecaries' Hall, London, England. On consulting counsel, the authorities were advised that they had no power to refuse examination to any candidate who complied with their regulations. Miss Garrett, being excluded from their classes in some subjects, paid heavy fees to have these lectures delivered to her privately, passed through the 5 years of study successfully, was in 1865 registered as Licentiate of Apothecaries' Hall (L. S. A.), and so was the first woman to practise medicine in England, her name being placed on the British Medical Register. (Dr. Elizabeth Blackwell's name was also entered in the British Medical Register under Schedule A of the Medical Act of 1858, which provided for the recognition, under certain conditions, of doctors who held degrees from foreign and colonial universities prior to 1858.) Immediately afterward, however, the Board of Examiners issued a new regulation refusing recognition to certificates of lectures delivered privately, and this made it necessary for any other lady who might wish to follow the example of Mrs. Garrett-Anderson to find some other way.

The scene now shifts to Scotland. The University Court, the governing body of Edinburgh University, received in 1869 an application from 5 ladies: Miss Sophia Jex-Blake, Mrs. Thorne, Miss Edith Pechey, Miss Chaplin, Mrs. DeLacy Evans, to be allowed to study medicine, and regulations were passed permitting them to do so.

The Senatus Academicus, however, suddenly refused to arrange for the instruction of the ladies, asserting that the University Court had exceeded its legal power. A deadlock

ensued in 1871, and the five ladies had to bring an action before the Court of Session in order to be allowed to complete their university course. The case was tried in 1872 before Lord Ordinary Gifford, who decided as follows:

It is impossible to hold that ladies are students with no rights whatever, whereas males are students with legal and enforceable rights. To admit them as students and yet deny their right to be taught would be absurd. . . . And lastly, it follows that the pursuers are entitled equally as a matter of right to demand full and complete medical degrees. The right to demand graduation is the necessary consequence of the right to study at the university; ordinary medical degrees are not matters of favor or of arbitrary discretion; they are the infeasible right of the successful student.

The case was appealed to the Inner House, and in June, 1873, Lord Gifford's judgment was reversed by a majority of one. So the five ladies lost some time, labor, and money (the expenses of the suit amounted to £848), but they did not lose anything else.

When the decision was given against them, the little band of Edinburgh students went to London and appealed to public opinion and the justice of the nation. Nor did they appeal in vain. One of their chief helpers was Mrs. Garrett-Anderson. She was already well known in London society as a medical practitioner, her distinction and success in practice was a matter both of general and professional recognition and her aid was of great importance to the movement.

The cause found a champion in London. There was living then at Wimpole street, a rare and bright spirit who would have adorned any rank, profession or age—Dr. Anstie. He was distinguished alike in science and literature, and he possessed an influence remarkable for one so young. It was his delight to do justice; he had an enthusiastic love for the cause of the friendless and oppressed. In his house in Wimpole street was held on August 22, 1874, a private meeting at which the resolution that founded the London School of Medicine for Women was passed, and this meeting was attended by so many eminent persons that it was at once evident that the success of the movement was secured. Dr. Anstie was made dean, and with the aid of Dr. King Chambers and Mr. Norton of St. Mary's Hospital, the school was organized within a few weeks. But, alas; "the shadow that waits for men" waited for the new dean. This was the last act of his noble life. Before the school was opened in October he had vanished to that world where justice may be had without asking.

The second dean of the school was Mr. Norton. Dr. Anstie's friends had seen at once that their school would have to be recognized by the licensing bodies if they secured a staff mainly composed of lecturers and professors who were already on the staff of recognized schools. The wisdom of this policy is self-evident, and indeed it is stated by Mr. Robert Wilson that no other Metropolitan Medical School with the single exception of University College had then so distinguished a staff as the London School of Medicine for Women, a noble testimony to the personal influence of Dr. Anstie, and the esteem and affection in which he was held, as well as to the justice and generosity of the leaders of the medical profession in London.

The school was opened October 14, 1874, on £1,000, a remarkable instance of what can be done by personal interest and efficiency—money or no money. Twenty-three students were admitted, including the famous five ladies, one of whom, Miss Jex-Blake, "the Achilles of the movement" had courage enough for anything. She made, to the end attained, "the great contribution of a constant purpose and dominant will." Another, Mrs. Thorne, "the Ulysses of the movement," was *persona grata* to everybody, and a diplomat of no common order.

Before the 5 ladies finished their course, the two remaining mountains in their path were removed. In 1877 the energy and good management of Mr. Hopgood, of the Royal Free Hospital, and the Rt. Hon. James Stansfield, M.P., had secured to them hospital instruction in the Royal Free Hospital, and in the same year the Senate of the University of London, by a majority of 16 to 11, decided to admit women to its medical examinations and degrees.

In January, 1878, the Convocation of the University of London carried the New Charter, admitting women to all degrees

of the University, by a vote of 241 to 132, the percentage vote being as follows:

	For.	Against.
Graduates in science.....	89	11
Graduates in arts.....	80	20
Graduates in law.....	76	24
Graduates in medicine.....	21	79

This vote has been severely criticised, especially in regard to the fact that the graduates in medicine alone gave a majority against. But justice bids us remember how much nearer home the question came to medical graduates. It would make little difference personally to graduates in law, arts, and sciences; it might make a great difference to graduates in medicine. Justice bids us, too, to put ourselves in the place of those whom we criticise. Had men never been doctors, had medicine been for all these centuries the almost exclusive province of women, how should we receive the proposal to admit men for the first time to the profession? It is very possible that some of us would be leaders in a great crusade against such an innovation.

Meantime, legislation had been sought in the British House of Commons, and was promoted by Mr. Cowper Temple, Mr. Russell Gurney, Mr. Orr Ewing, and Dr. Cameron. Mr. Cowper Temple brought in his bill in 1874 "to remove doubts as to the powers of the universities of Scotland to admit women as students and to grant degrees to women." This bill was defeated in 1875 by a vote of 193 to 156. Mr. Cowper Temple, nothing daunted, introduced another bill, to permit the registration of women holding medical degrees from the universities of Paris, Berlin, Leipzig, Berne, and Zurich. In 1876 Mr. Russell Gurney, Recorder of the City of London, brought forward a bill, afterward known as the Recorder's Bill and also as the Enabling Act, empowering the British medical examining bodies to examine women. The government requested the opinion of the Medical Council upon this bill, and after debating the matter for three days, this opinion was given: "The Council is not prepared to say that women ought to be excluded from the profession." Mr. Cowper Temple's bill was now withdrawn in favor of the Recorder's bill, which became law. The first examining body to take advantage of it was the King's and Queen's College of Physicians, Dublin, and not long after the Royal University of Ireland followed. The Irish College of Surgeons took advantage of it in 1885, and the Conjoined Colleges of Physicians and Surgeons of Edinburgh and Glasgow in 1886.

But an application of three ladies in January, 1876, to be admitted to the examination for the license in midwifery of the College of Surgeons of England (a registrable license), and the advice of council thereupon that the College of Surgeons could not legally refuse to examine these three applicants, had the disastrous effect of causing the prompt resignation of the whole Board of Examiners in midwifery, so that for one and a half years there were no examiners and no examination. And to the present day, no woman has been admitted to examination by the Royal College of Surgeons of England or by the College of Physicians of London.

[To be concluded.]

Why Thinkers Live Long.—Thinkers as a rule live long; or, to put the proposition into more general terms, exercise of the mind tends to longevity. Herbert Spencer has died in his eighty-fourth year. Darwin reached his seventy-third, Sir George Stokes his eighty-fourth, Carlyle his eighty-sixth; Tyndall was accidentally poisoned at 73, but might have lived several years longer; Huxley was 70 when he died, Gladstone in his eighty-ninth year, Disraeli in his seventy-seventh. Newton lived to be 85, and Lord Kelvin is still vigorous in research in his eightieth. To a great extent the brain is the center and seat of life, what Sir William Gull called the central battery, and its stimulation undoubtedly strengthens the forces that make for vitality. Healthy exercise of either mind or body of course favors length of days, but the strivings of the thinker and writer are seldom quite of the healthy order. Darwin, Carlyle, and Spencer were victims of nearly lifelong dyspepsia, and yet exceeded three-score and ten. Pleasant exertion without pleasure; a priori, one would not expect the abstract thinker to live so happily as the man of experimental research, and experience seems to confirm the expectation. No one will question Sir James Paget's dictum that undue fatigue is a common cause of disease, but so also is indolence. What part of the human economy, mental or physical, is not made for activity?—*London Telegraph*.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

January 30, 1904. [Vol. XLII, No. 5.]

1. Peritoneal Saline Infusions in Abdominal Operations. A Combined Clinical and Laboratory Study of their Effects. JOHN G. CLARK and CHARLES C. NORRIS.
2. The Physiology of the Sympathetic in Relation to the Eye. G. E. DESCHWEINITZ.
3. Influence of Resection of the Cervical Sympathetic in Optic-Nerve Atrophy, Hydrophthalmos and Exophthalmic Goiter. JAMES MOORE'S BULL.
4. Pathology of the Cervical Sympathetic. JOHN E. WEEKS.
5. Pathology of Inebriety. T. D. CROTHERS.
6. Carcinoma of the Spine and Meninges Secondary to Cancer of the Breast. F. SAVARY PEARCE and A. C. BUCKLEY.
7. Report of Ten Cases of Morphinism. A. J. PRESSEY.
8. The Treatment of Emotional Disturbances. HOWELL T. PERSHING.
9. Pulp Hypertrophy of the Teeth. OSKAR ROMER.
10. The Control of Prostitution and the Prevention of the Spread of Venereal Diseases. M. L. HEIDINGSFELD.

1.—See *American Medicine*, Vol. V, No. 25, p. 984.

2.—**Physiology of the Sympathetic in Relation to the Eye.**—G. E. deSchweinitz draws the following conclusions from his review of the entire literature of the subject: The sympathetic should not be considered the nerve of secretion for the lacrimal gland. The dilating impulse to the iris passes from a center in the medulla as far as the second dorsal nerve, following its branch to the cervical sympathetic and through the long ciliary nerves reaches the muscular tissue of the iris. The weight of evidence favors the ciliary ganglion belonging to the sympathetic. Its removal does not influence intraocular tension. The sympathetic seems to have no relation to accommodation or changes in refraction. Section or extirpation causes a temporary fall of tension. Electric stimulation causes retraction of the nictitating membrane and proptosis. It is followed by contraction of the bloodvessels of the conjunctiva and iris. Stimulation of certain cortical areas causes pupillary dilation and all the symptoms of stimulation of the cervical sympathetic. Division of the sympathetic at the same time stops the other symptoms but not the dilation, which is supposed to be due to inhibition of the tonic action of the third nerve. Myosis is greater after excision of the cervical sympathetic ganglion than after section of the sympathetic cord. The myotic pupil responds to light stimulus, is still further contracted by eserine and may be dilated by atropine. It is uninfluenced by cocaine, which, however, may widen the contracted palpebral fissure. Sympathectomy or gangliectomy may cause increased vascularization of the eye ground, perhaps ciliary hemorrhages and alteration in the retinal ganglion cells. [H.M.]

3.—See *American Medicine*, Vol. V, No. 21, p. 822.4.—See *American Medicine*, Vol. V, No. 22, p. 864.5.—See *American Medicine*, Vol. V, No. 20, p. 778.6.—See *American Medicine*, Vol. V, No. 25, p. 985.7.—See *American Medicine*, Vol. V, No. 24, p. 945.8.—See *American Medicine*, Vol. V, No. 25, p. 985.

9.—**Pulp Hypertrophy of the Teeth.**—O. Romer, in the coarse granulation tissue of which the newgrowth consists, finds nerve fibers absent, while in the pulp cavity itself and in the root canals there are numerous nerve bundles. A study of preparations has convinced him that the difference claimed between pulp hypertrophy and pulpitis chronica hypertrophica granulomatosa does not exist. The striking point in all the specimens is the richness of the blood-supply. In almost all cases there are found partly attached and partly free pulp stones and calcareous deposits, these occurring often well above the pulp chamber and the hypertrophy itself. These show cell inclusions similar to those found in the formation of secondary dentin inside the pulp chamber. The writer believes hypertrophy occurs only in pulp elements possessing great vital energy. The pulp stones are an attempt at defense from external injury. Hypertrophied pulps are frequently ingrafted with alveolar growths when coming in contact with gum tissue. Both are easily injured in chewing so that autotransplantation occurs. These hypertrophies may be excised, destroyed by arsenic, or capped as a whole with a filling or crown inserted over the cap. [H.M.]

10.—**Control of Prostitution and the Spread of Venereal Disease.**—M. L. Heidingsfeld believes that suppression of

prostitution is impossible and control impractical; it is absolutely incapable of coping with the larger and more dangerous class of clandestines, and it is powerless and impotent to materially prevent the spread of venereal diseases emanating from those directly under control. The more rational and legitimate measures for the prevention of the spread of venereal diseases are in the thorough education of our youth in the dangers that attend improper relations, in teaching that continence and abstinence are strictly compatible with the best of health, in giving instruction as to self-protection to those who believe that sexual desire must be gratified, in suppressing abortionists and in adopting regulative measures inquiring into the self-supporting character of female industrial life, and the close association of the sexes in the workroom, the enactment of legislation for segregation of prostitutes, the abolition of common drinking cups and utensils, and education in regard to unclean dental, manicure, chiropodist, and surgical instruments. The writer reports the discouraging results in Cincinnati during the regime of prostitution control. [H.M.]

Boston Medical and Surgical Journal.

January 28, 1904. [Vol. CL, No. 4.]

1. Experiments with the McGraw Elastic Ligature. FRED. T. MURPHY.
2. Differential Diagnosis of Rheumatism and the Arthritides. THOMAS J. HARRINGTON.

1.—**Experiments with the McGraw Elastic Ligature.**—Fred. T. Murphy gives a general review of experiments that have been made to ascertain the practicability of the McGraw method, and reports his own experiments. The latter were made upon 19 cats and 1 dog, and the operations included 19 gastroenterostomies and 1 enteroenterostomy. His conclusions are as follows: These experiments show that a successful anastomosis between the stomach and intestines, or 2 loops of intestine, is possible by means of the elastic ligature. The method is not applicable when an immediate opening is required. The time of the cut-out varies, depending upon the character of the ligature, the method of application, and the resistance of the tissues in any case, but the ligature will ultimately cut out. A knot at either end of the elastic loop increases the rapidity of the cut-out. The pinching of the gut by the ligature seems to cause no bad symptoms. The serous surface of the outside of the joint when completed is smooth. The anastomosis by gross or microscopic examination shows no evidence why there should be any greater tendency to contraction of the opening than with the ordinary methods of intestinal suture. The procedure causes a minimum operative risk, both as regards shock and infection. Adhesions across the opening are a possible, but not a probable complication. Extending these conclusions to practical operative work, it is his opinion that in cases in which an immediate opening of the bowel is not imperative, and in which the avoidance of operative shock is an important factor, the elastic ligature may prove to be the operation of choice in gastroenterostomy and lateral anastomosis. [A.B.C.]

2.—**Differential Diagnosis of Rheumatism and the Arthritides.**—T. J. Harrington believes there is but 1 form of rheumatism—the acute. He names 15 forms of infective arthritis, including the rheumatic, and classifies the others as arthritis deformans, osteoarthritis, traumatic, gouty, hemophilic, and senile arthritis. As a general rule all acute arthritides are secondary manifestations. In doubtful cases the probability of mixed infection must be borne in mind. The role played by the nerves is very great. If rheumatism is an infection we cannot speak of the diathesis. The cases known as chronic, should be termed recurrent. Any acute case which leaves the joint impaired or fails to yield to salicylates should be considered other than pure rheumatism. The author takes up the diagnosis of different forms, seriatim, and in detail which does not lend itself to valuable abstract. [H.M.]

Medical Record.

January 30, 1904. [Vol. 65, No. 5.]

1. The Movement of Plague in the Philippine Islands. E. L. MUNSON.
2. Report of a Case of Brain Tumor Involving the Right Lateral Ventricle. WILLIAM M. LESZYNSKY.
3. Contributions to the Obersteiner-Redlich Theory of Tabes Dorsalis. G. B. HASSIN.

4. An Antiseptic Toilet for the Hands and Vulva. DOUGLAS H. STEWART.
5. Instruments for the Production of Abortion Sold in the Market Places of Paris. FREDERIC GRIFFITH.
6. Scarlatinal Panotitis: Exfoliation of a Portion of the Labyrinth: Radical Operation. CARL KOLLER.
7. An Unusual Case of Potassium Iodid Idiosyncrasy. HENRY GATHMAN.

1.—Plague in the Philippines.—E. L. Munson reports a mortality of 83.8% for the outbreaks occurring in 4 successive years, while in Hongkong it has been 87.6%. Manila is the only place where it has a permanent foothold. The reason it has not spread is due to the fact that cascos, bancas and lorchas afford no retreats in which rats can hide and interisland steamers discharge at other ports, by means of open lighters, well off shore. Transportation by rail or vehicle is practically nil and the canals and flooded lowlands leave few opportunities for natural migration. It should be possible by comprehension and long-continued sanitary measures to exterminate the plague though infection is extremely insidious. He gives the distribution of the cases by districts, showing that it has prevailed most largely among the Chinese, along the waterfront, and in the congested mercantile districts, where the buildings are insanitary. It seems able to extend and perpetuate itself only with considerable difficulty in other quarters. This indicates where special efforts against the disease should be made. Mortality is greatest among the Chinese. It is a disease of early and middle adult life according to Manila records, but the statistics are misleading from the fact that the Chinese population consists largely of able-bodied men of working age. The preponderance of cases in males has the same explanation, and is also due to Chinese men going barefooted. [H.M.]

2.—Tumor of the Brain Involving the Right Lateral Ventricle.—W. M. Leszynsky reports the case. A girl of 19, without history of traumatism or previous infection, began to suffer with severe headache; later there was vomiting, vertigo, and in the course of a few months blindness, slight left hemiparesis with hyperesthesia, unilateral convulsive attacks of the voice, subsequently involving the arm and leg, and ultimately becoming general. The lesion was believed to be a characteristic picture of irritation. Its affecting the right Rolandic area and originating in the fauces center, and on account of the tonic character of the spasms, the lesion was thought to be subcortical. Operation was performed, but the tumor was not discovered, though permanent relief resulted from excessive intracranial pressure and the resulting irritating symptoms. The patient died, and a necropsy showed a tumor the size of a hen's egg, which appeared to spring from the inner wall of the right lateral ventricle. It was diagnosed as sarcomatous in character, probably a glioma. The author believes that had operation been performed earlier that a second operation might have located and successfully removed the tumor. [A.B.C.]

3.—The Obersteiner-Redlich Theory of Tabes.—G. B. Hassin says he discussed in a former paper the most important theories of pathogenesis of tabes dorsalis and had to come to the conclusion that the most satisfactory tabes theory is that of Obersteiner-Redlich, namely, that from the spinal roots some pathologic process extends to the pia mater (chronic inflammation, tumor, etc.), compressing the posterior roots and thus producing their degeneration, with the subsequent atrophy of the posterior columns. He now points out that lately, especially in France, there has arisen a movement among the most competent and famous neurologists in favor of the membrane theory of tabes dorsalis. The characteristic feature of this movement is the attempt to establish a connection between the pathologic processes in the spinal cord and those in the membranes. The membrane theory receives additional strength in cystoscopic examination of the cerebrospinal fluid of tabetic patients. From the standpoint of the membrane theory that tabes is a product of meningitis, we must expect that every case will be accompanied by a lymphocytosis, especially in recent cases, and this Babinski, Nagotte, and Vidal have found. [A.B.C.]

4.—Antiseptic Toilet for the Hands and Vulva.—D. H. Stewart gives what he considers the best antiseptic treatment for sterilizing hands and vulva, having compared it with 28

other methods and found it produced the best results. For mechanical cleansing he uses this: A teaspoonful of lime and 1 of powdered pumice on a saucer with wooden nail-cleaners; a basin with 2 quarts cool water mixed with 1 teaspoonful each of calx chlorata, of table salt, and of aqua ammonie, and potassium carbonate. In this basin is a nail brush. Dip the hands in this solution, take the wooden nail-cleaners and apply the pumice under and around the nails. After scrubbing, use the following solution for 5 minutes: 2 teaspoonfuls of fresh calx chlorata and 1 teaspoonful of acetic acid to the pint of sterile water. If this solution stands for 10 minutes without stirring, the necessary chemic changes are complete. In sterilizing the vulva, a solution a third the strength of the above should be used. The same for compresses on septic wounds. [W.K.]

6.—Scarlatinal Panotitis: Exfoliation of a Portion of the Labyrinth.—Carl Koller reports the case. A child of 4 developed diphtheria; the first evidence of any trouble with the ears appeared at the end of the first week; she complained of deafness, and this was followed by discharge on both sides. The deafness was absolute within 24 hours after the appearance of the ear symptoms. The child recovered from the diphtheria, but discharge continued from both ears, and there was considerable swelling of the submaxillary and cervical glands, both ear drums were perforated. In the hope of relieving total deafness, and to remove the dead bone, operation was performed upon the left side; the antrum was found filled with pus and granulations, the ossicles were disconnected, and from the middle wall of the attic a loose shell-like sequestrum was detached. This proved to be the labyrinth. The patient recovered unevenly from the operation, but there was no restoration of the sense of hearing. [A.B.C.]

New York Medical Journal.

January 23, 1904. [Vol. LXXIX, No. 4.]

1. The Dietetic Value of Patented Foods. W. D. HALLIBURTON.
2. Hepatic Drainage in Infection of the Biliary Tracts. JOHN B. DEEVER.
3. Sterile Water Anesthesia in the Office Treatment of Rectal Diseases. SAMUEL G. GANT.
4. Puerperal Sepsis, and its Treatment by Iodin. WILLIAM R. PRYOR.
5. Public Health and Food Preservatives. R. G. ECLES.
6. Some Investigations of a Bacterial Treatment of Tuberculosis. STEPHEN J. MAHER. (Continued.)

1.—Value of Patented Foods.—W. D. Halliburton says some of the milk preparations have almost no dietetic value. Many of the widely advertised farinaceous foods are even more harmful to the child than altered milk. Beef tea or "beef extract" is in no sense a food, but merely a palatable and stimulating drink, ordinarily harmless, though possibly harmful in gouty conditions. Greater or less quantities of powdered meat fibers are sometimes added. The class of food products whose claim for recognition is based upon their contents of the results of proteolysis and in which the foods are presented in the form of albumoses and peptones, have a real nutritive value proportionate to the amount of albumoses and peptones they contain. In many cases where the digestive system is at fault these preparations are of undoubted value. [C.A.O.]

2.—Hepatic Drainage in Biliary Infection.—J. B. Deever reports several cases and arrives at the following conclusions: 1. Suppurative cholangitis should be operated on before the infection injures the liver cells and before the retained bile has a chance to react injuriously upon the general organism. The presence or absence of gallstones is of no moment in deciding for early operation, though they are usually present. 2. Cholecystotomy is the operation of choice when the lesion is acute and the gallbladder has been functioning up to the time of infection. 3. Excision of the gallbladder can safely be performed in chronic calculous cholecystitis with an obstructed cystic duct. 4. Hepatic drainage must be provided for in all cases where infection is present or suspected; either through the gallbladder, or by opening the common duct or the hepatic duct. 5. Abscess of the liver is prevented and pancreatitis relieved by prompt drainage of infected bile ducts. [C.A.O.]

3.—Sterile Water Anesthesia.—S. G. Gant says sterile water properly injected is a trustworthy local anesthetic, and from experiments carried out in more than 150 cases of rectal affections radically operated on by the writer, he is convinced

that it is the most desirable local anesthetic in these operations, because it produces a sufficient degree of anesthesia, and in no instance has its employment been accompanied or followed by any of the annoying and dangerous complications which are frequently encountered when cocaine or similar drugs are used. The cases in which the method has been successfully employed include radical operations for fissure, ulceration, protruding and nonprotruding internal hemorrhoids, cutaneous and thrombotic external hemorrhoids, polypi, prolapsus ani, ordinary, complete and blind internal and external fistulas, and marginal and follicular abscesses; excision of perineal cysts, sacral dermoids, and lipomas of the buttocks; removal of foreign bodies beneath the skin and mucosa; division of the sphincter in constipation, when the muscle was so hypertrophied that division had proved ineffective; fixation of an elongated sigmoid to the anterior abdominal wall; colostomy and exploratory laparotomy. This method is not practicable, however, for extensive operations; neither is it applicable for opening the abdomen in some cases in which there is a thick layer of fat and the tissues are so loose and flabby that a proper degree of distention is impossible. [C.A.O.]

4.—Puerperal Sepsis.—Of 37 patients operated on by W. R. Pryor, streptococci were found in the uterine scrapings of 36, and in 37 they were secured from the culdesac. He believes that in every case of pure puerperal sepsis, sepsis which does not yield to simple local cleansing, peritonitis or annexal lesions are always produced, except in those rapidly fatal cases in which death takes place from septicemia before local lesions can occur. The author endeavors not only to combat the disease within the pelvis, but also to counteract the general infection. He seeks to secure this result by isolating the infected uterus between masses of iodoform gauze, and by local and systemic iodism to destroy the cocci. The operation and technique of dressing are given in detail. [C.A.O.]

Medical News.

January 30, 1904. [Vol. 84, No. 5.]

1. Criminal Procedure against the Unlawful Practice of Medicine. HON. JULIUS M. MAYER.
2. A New Method for Performing Intestinal Anastomosis. JOHN W. KEEFE.
3. A Fatal Case of Chorea Complicated by Endocarditis, Pericarditis, and Nephritis. AUGUSTUS A. ESHNER.
4. Notes on the Widal Reaction: (1) The Question of Dilution; (2) The Influence of Jaundice. E. LIBMAN.
5. A Brief Note on the Röntgen Ray Treatment of Glandular Tuberculosis. FRANK P. VALE.

2.—New Method of Performing Intestinal Anastomosis.—J. W. Keefe describes his method, which in brief is as follows: Draw that portion of the intestine to be excised through the abdominal wound, clamp it at right angles with a $\frac{3}{8}$ -inch blade electrothermic angiotribe and apply a current of 60 amperes a minute. The compression and heat cause complete hemostasis and occlusion of the gut; clamp in like manner at the other extremity of the section to be excised. Now clamp each desiccated transverse strip with artery forces, simply as a precaution; sever the intestine by cutting through the 2 desiccated strips and clamp the mesentery to the segment to be excised in the same manner as was done to the intestine, but for a briefer space of time; cut through the desiccated strip and remove the segment of bowel. The desiccated ends of bowel are next approximated and end-to-end anastomosis is effected with a modified and interrupted Lembert suture, which is reinforced by the Cushing right-angle suture, care being taken to effect complete union at the mesenteric attachment and properly dispose of redundant mesentery. Next invaginate the intestine with the finger after the method of Loreta and use sufficient force to make a lumen through the desiccated strip; press gas and feces through the anastomosed ends to see there is no leakage. The advantages of this method are immediate hemostasis, perfect asepsis, no intestinal obstruction, no erosion of mucous membrane, no stenosis, firm union and rapid operation. The author has performed 8 of these operations upon dogs and one upon a patient and is satisfied with the results. [A.B.C.]

3.—A Fatal Case of Chorea.—A. A. Eshner reports a case in a child of neurotic heredity with slight rheumatoid

symptoms, and signs of endocarditis, in which striking relief was afforded by the administration of appropriate remedies, but in which a marked exacerbation of the choreic manifestations followed upon a severe fright, and in the sequence of which there developed pericarditis, nephritis, and myocarditis, and finally a grave anemia, with a fatal termination. Since chorea may be safely looked on as an infectious disease, it is not difficult to understand that such complications should occur, perhaps as a varied result of a common cause. How emotional disturbances act in the etiology is beyond our present knowledge. They probably give rise to certain metabolic changes. [H.M.]

4.—The Widal Reaction: (1) Dilution; (2) Influence of Jaundice.—E. Libman states that in collecting dried-blood specimens care must be taken that the blood dries before it coagulates. The reaction is better in 3 or 4 hours than immediately after withdrawing. In 1,500 specimens examined, 950 were not typhoid, and in these a Widal reaction, even in a dilution of 1 to 20, was never reported. He believes that standard of dilution should be such that the report of positive agglutination should be equivalent to labeling the case typhoid. He has sometimes had a positive result in 1 to 50 dilutions when not clearly so in 1 to 20. In some instances the lytic action of the serum is so marked that one cannot obtain a clear picture. In others, the presence of proagglutinoids is the explanation of failure. Frequently the 1 to 20 dilution is positive before the 1 to 50. Both should be used in making the test. The writer reviews the literature as to the influence of bile, and states that in his own investigations in no case could he get a positive reaction. The serums of 35 cases were tested. In those reported by others the deficiencies have been such that they demonstrate nothing to interfere with our clinical diagnosis. [H.M.]

5.—Tuberculous Glands treated by Röntgen Rays.—Frank P. Vale reports that an otherwise healthy man presented himself with a swelling in the left side of his neck. This had increased slowly for 6 months and the man had lost 55 pounds in weight; 2 months later he lost 10 pounds additional and the growth was larger. He was placed under röntgen ray treatment twice a week for 15 to 20 minutes at each sitting; no medicine was given internally. Improvement was noted at once and after 6 weeks the swelling had reduced at least half, the patient was rapidly regaining his lost weight and it was apparent that he was getting well. Vale wished to know absolutely the variety of tumor being treated and a small incision was made and 2 or 3 enlarged glands were removed, which, upon microscopic examination, were unmistakably tuberculous. The patient regained almost his normal weight. Almost a year later he returned complaining of defective speech, loss of sense of taste, left leg and arm numb and weak, memory poor, knee-jerk on the left side exaggerated and other evidences of intracranial complications. He was again subjected to röntgen ray treatment and after several months returned to his work apparently fully recovered. The author deems the case worthy of report since little is seen in literature in reference to the cure of tuberculous adenitis by the röntgen rays. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

The Question of the Identity of Human and Bovine Tuberculosis.—A. v. Szekeley¹ has made a most valuable critical digest of the recent contributions to the question of the identity of human and bovine tuberculosis. First, as to the transmissibility of human tuberculosis to cattle: Park injected 4 calves subcutaneously with tuberculous sputum, and mixed such sputum with their fodder. His results were practically negative, except that in one case there was some enlargement of the lymph-glands. Moeller's feeding and injection experiments on calves likewise proved negative. The results of Cipollina, Baumgarten, and Dinwiddie

¹Cent. f. Bak., Parasit., u. Infektionskr., Bd. xxxiv, Hefte 6 and 7, December 3, 1903.

were also negative. Pearson and Gilliland, in their immunization experiments, found that young cattle could bear large quantities of human tubercle bacilli, when injected intravenously. Schottelius succeeded in producing tuberculous lesions in a cow and 2 calves, by adding tuberculous sputum to the fodder of these animals. Stenstrom obtained chronic tuberculous lesions by intrapulmonary, intratracheal, and intraperitoneal injections of tuberculous sputum. Orth produced tuberculous in a calf by the intraperitoneal inoculation of 2 pieces of tuberculous kidney obtained in the following way: Material from a human tuberculous cavity was inoculated into a guineapig, and bacilli from this animal were cultivated on brain media and carried through a rabbit, the kidneys of which served for the injection into the calf. Aside from producing local lesions, the injections of Bang into the anterior chamber of the eye proved negative. De Jong reports an interesting case: A woman whose occupation had brought her into contact with cattle developed pulmonary tuberculosis. A calf and a goat, inoculated with bacilli from this patient, which had first been carried through a guineapig, died with general tuberculosis. Hamilton and Young succeeded in 3 out of 5 feeding experiments. There was tuberculosis of the tonsils and of the lymph-glands connected with the intestinal tract. In 7 out of 9 experiments in which the material was injected subcutaneously, tuberculous lesions resulted. In 3 of these, the lungs, and in 1 the spleen, were also involved. Two inhalation experiments were likewise successful. Kossel's experiments, made with pure cultures of human tubercle bacilli, resulted as follows: Of 39 cultures examined, 19 produced no reaction in cattle; 9 caused minimal foci; 7 produced slightly more extensive, but still focal lesions; and 4—2 from cases of primary intestinal tuberculosis in children, and 2 from miliary tuberculosis in children—caused general tuberculosis in the cattle. DeSchweinitz and Schroeder's experiments with bacilli from 3 cases of generalized tuberculosis in children proved positive. These and other researches seem to settle the question as to the infectiousness of human tubercle bacilli for cattle in a positive way; although, as a rule the bovine bacilli are more virulent for cattle than are those of human origin. The observations do not justify a belief that the two organisms are of different species; the difference is merely in the degree of virulence. Schütz, in a discussion, agreed with Koch that human tuberculosis is not transmissible to cattle, inasmuch as the latter had reference not to the experimental, but to the spontaneous transmission of the disease. Not much new has been discovered regarding the morphologic differences between bacilli from different sources. Müller has found the bovine bacilli somewhat more slender than those from human tissues; slight cultural differences were also noticeable. DeSchweinitz and Schroeder have discovered that while the form of the bacilli depends to some extent upon the animal species from which it is derived, it is still more dependent upon the nature of the artificial medium upon which the bacilli are grown and upon the length of the time of cultivation. Von Szekeley also reviews the cases of skin tuberculosis that may be referred to infection with bovine tubercle bacilli, and quotes those of Lassar, Krause, Ravenel, Schütz, Spronck and Hoefnagel, and Troje. A number of cases in which the tuberculosis was attributed to the ingestion of milk from cows suffering with pearly disease is also cited. The advocates of Koch's view believe to have found a strong argument in the rarity of primary intestinal tuberculosis, but von Szekeley contends that this point really has no weight; for (1) the cases of primary intestinal tuberculosis are not very rare, (2) the intestine has a fairly strong resisting power against infection with tubercle bacilli, and (3) the bacilli may enter the organism through the intestine without the latter's becoming diseased. In feeding experiments on animals, observers have discovered that the intestines

may escape infection, while the lungs and the bronchial glands become the seat of tuberculosis. In concluding, von Szekeley states, concerning the essential point of the discussion, that while the question of the identity of human and bovine tuberculosis can not be considered as definitely settled, the view expressed by Koch that bovine tuberculosis is not dangerous for man cannot be maintained.

REVIEW OF LITERATURE

Blood-pressure and the Exchange of Fluid Between Blood and Tissues.—O. Hess¹ has investigated the question of the influence of variations in blood-pressure on the filtration of fluid from the blood into the tissues and vice versa. The concentration of the blood is affected only in the venous system by variations in pressure. Before the blood reenters the arterial system, it either receives or gives off fluid, in order to bring the concentration back to the normal. This adjustment of concentration takes place in the lungs, where the blood is brought into intimate association with the lymphatic system. The great factor which makes this adjustment possible in the lungs is the independence of the vasomotor tone in the pulmonary circulation; the variations in pressure, which occur in the greater circulation, have little or no effect on the pulmonary vessels. The liver also seems to take part in restoring fluid to the blood, where the latter has become more concentrated as a result of increased blood-pressure. [B.K.]

Pneumothorax.—C. P. Emerson² presents a most thorough and exhaustive historic, clinical and experimental study of this condition. His method of presenting the literature of the subject is admirable when the necessary space is at the disposal of the writer. Appended to each of the 358 references is an abstract of the article giving the salient clinical and pathologic data which it contains. This furnishes a very valuable treatise on the subject in question and will prove a boon to all future investigators along this line. Emerson then reports in detail the cases of pneumothorax, 47 in number, occurring in the service of the Johns Hopkins Hospital. Of these, 22 were certainly due to tuberculosis, 18 being males and 4 females. There was no preference for sides, 11 being on the right, 11 on the left. Bronchiectasis was responsible for 2 cases, only 11 other cases being recorded in literature. One case was certainly, another possibly, due to metastatic abscess of the lung. Brief notes of 9 cases of gunshot and 5 of stab wounds of the lung not followed by pneumothorax, are given. Experiments on dogs lead to the conclusion that gas analysis has very little value in the diagnosis of the condition of the fistula. Among the points leading to this assertion are: 1. There is a rapid accumulation of CO₂ in the pleura after death, this ruling out the majority of the analyses previously published. 2. The presence of a purulent exudate is an important factor in determining the composition of a gas. 3. Postmortem accumulation of CO₂ may explain the high tension of the gas which hisses from the chest on the autopsy table. The article closes with a brief discussion of the course, symptoms, diagnosis, prognosis and treatment of pneumothorax. [A.G.E.]

Paralysis of Multiple Cranial Nerves.—O. Aronsohn³ reports an interesting case of palsy of the facial, trigeminal, and auditory nerves. The patient, a man of 30, after exposure to a cold wind, developed swelling of the left face, which, however, disappeared in a day. In the course of 2 weeks there appeared the characteristic symptoms of paralysis of the facial and trigeminal nerves. A constant loud humming was heard in the left ear. Previous to his exposure his sense of hearing was perfect, but he now noticed that he was unable to hear anything with that ear. The author was able to exclude brain tumor, lues, or any organic constitutional disease. On account of a troublesome vertigo, potassium iodid was prescribed. This treatment was promptly followed by disappearance of the symptoms, due to paralysis of the facial and trigeminal nerves. This seemed to indicate strongly that syphilis at the base of the brain was the cause of the paralysis. No change, however, occurred in the symptoms caused by the diseased state of the

¹ Deut. Archiv f. klin. Med., Bd. lxxix, p. 128.

² Johns Hopkins Hospital Reports, Vol. xl, 1903.

³ Berliner klinische Wochenschrift, November 9, 1903.

auditory nerve. The potassium iodid, together with inunctions of mercury, were continued for several months, but with no improvement in the left ear. Aronsohn concludes that the auditory nerve was diseased in the same manner as the other nerves, but to a greater extent, and that when that nerve is once paralyzed it is irreparable. [W.E.R.]

Treatment of Renal Calculus.—The treatment of this condition divides itself into the treatment of renal colic and that of the diathesis which provokes the formation of renal calculus. For mild forms of renal colic, Ch. Vinay¹ merely employs a warm bath at a temperature of 37° C., prolonged for an hour, and followed by a cold sponge. For more severe cases morphin is required, but may sometimes be substituted by a very hot bath, 40° C. to 42° C., for 15 to 20 minutes. For the treatment of renal lithiasis, Vinay employs piperazin, or its derivative, sidonal, and urotropin. Sidonal is given for a week in doses of 3 gr. to 5 gr. 3 times a day; followed by urotropin, 7.5 gr. 3 times a day for a week, and then some mild mineral water for the third week. The alkaline treatment may also be employed, using the salts of sodium, potassium or lithium. The best diuretics to be employed are water and milk. Water is best taken in the form of some mild, noncarbonated, mineral water between meals. As to diet, the green vegetables are especially recommended, and the starchy vegetables restricted. It is useless to draw a distinction between white and red meats. Fruits are also recommended. The diet should consist of one-fourth meats and three-fourths vegetables. Exercise should be moderate, and not forced to the point of fatigue. [B.K.]

The Age Incidence of Tuberculosis.—In an article written from the standpoint of the relation of tuberculosis to life insurance, T. D. Lister² furnishes statistics that controvert the idea usually held regarding tuberculosis as being principally a disease of the young. By a diagram he shows that the deaths from tuberculosis form a band of practically even width throughout the various decades of life while that of every important group of death-causes begins as a minute wedge, and grows constantly broader from youth to old age. A slight falling off in the rate from tuberculosis is seen in the later years, but this is ascribed to the fact that tuberculosis may be the termination of chronic diseases, and not be recognized as the terminal event. The 3 elements to be considered are hereditary vulnerability, acquired vulnerability, and the danger of infection. The first decreases with age, the second increases with age, and the third remains constant. [A.G.E.]

Comparative Value of Oral and Rectal Temperatures in Tuberculosis.—T. N. Kelynaek and S. R. Williams³ conclude that oral temperatures taken during rest are reliable, but when taken during or shortly after exercise, they are not trustworthy, on account of local conditions influencing the temperature of the mouth. Rectal temperature is usually higher than that in the mouth during rest, and is always considerably higher during or after exercise. However, for practical purposes the authors found it sufficiently accurate to take the temperature by mouth during a state of rest. [B.K.]

Yellow Fever and the Stegomyia.—G. Sanarelli⁴ presents the attack on his views and laboratory methods made by Professor E. Perroncito,⁵ of Turin. The objections by the latter are personal rather than scientific. The views quoted by Perroncito are by unknown men, and as to the charge that Sanarelli left off his studies unfinished, and with the valueless protective serum as the only result, it may be said that this matter must for the present give way to other affairs, "since alone it is not worth a life study." Sanarelli asserts that with the publication of his treatise in 1897 the etiology of yellow fever is determined. Seven years went into its preparation; he is not to be censured for haste or lack of reasonable investigation. Sanarelli joins the verdict of the recent medical congress at Rio Janeiro, which opposes by all its scientific element the idea that the stegomyia is an essential factor in the etiology of yellow fever, although Professor Perroncito believes its conclusions the reverse. The author is sustained by Brazilians of

repute. Attention should be drawn to the paper of Rocha Faria (Professor Hygien., Rio Janeiro), an epitome of which the author includes. Credit of initiatory work belongs to Richardson, of Philadelphia, and Jones, of New Orleans, in 1878. Since then the best work is recorded by C. Finlay, Le Dantec, Sternberg, Sanarelli, Reed, Agramont, and G. B. Lacerda. Perhaps most interesting is the work of Ivo Bandi, and this is very strongly appreciative of the role played by *B. icteroides*. The results of work in Cuba are in distinct opposition, and to be viewed with hesitation. Sanarelli deplors the misrepresentations in his own country, and the injustice which has arisen from "aged peripatetics and antiquated academicians." [T.H.E.]

Results in India of the Haffkine Prophylactic.—B. R. Slaughter¹ gives the results of a personal investigation in India of the results obtained from the use of the Haffkine prophylactic in checking the spread of plague. The benefits of that material are thus summarized: (1) It renders a person immune for 3 months; (2) it acts within 24 hours; (3) when inoculation is given in the incubation stage of the disease, that is, before signs of plague appear, it has in many cases the power to abort the disease; (4) inoculation has no effect on other diseases, except possibly eczema, which appears to be benefited by it; (5) inoculation confers a high degree of immunity and greatly reduces the number of plague attacks; (6) when, in spite of inoculation, a person is attacked, his chances of recovery are greatly increased. The principal reason why, in spite of England's persistent efforts to exterminate the plague, so little has been accomplished is said to be the laxity of the natives in carrying out the necessary precautions. [A.G.E.]

Antithyroid Serum.—J. Lepine² has succeeded in immunizing the goat against thyroidism, the process being, however, long and difficult. The serum of the immunized animal produces no bad effects in the dog, if used in doses under 20 cc. and at several days' intervals. In this dose the serum seems to diminish the function of the thyroid gland. The author believes that this serum may be employed with benefit in cases of exophthalmic goiter, but must be used with care. [B.K.]

GENERAL SURGERY

A. B. CRAIG MARTIN B. TINKER C. A. ORR

EDITORIAL COMMENT

Gastric Tetany.—The surgery of the stomach has been developed almost entirely within the past twenty-five years, and the number of cases successfully treated by operation has been steadily increasing. Almost every practising physician is familiar with the brilliant results which have been obtained recently in the surgical treatment of gastric ulcer, and the numerous distressing gastric symptoms resulting from benign obstructions of the pylorus which have been relieved. Gastric tetany is one of the less frequent affections of the stomach, the symptoms of which, perhaps, have not been generally recognized. In a recent paper on this subject, Mr. B. G. A. Moynihan,³ of Leeds, Eng., gives a very interesting and satisfactory discussion of this somewhat unfrequent affection. He uses the term gastric tetany to include all cases of tetany and tetanoid spasm associated with or directly due to disease of the stomach, and he believes that it is more common than is generally known. In the early stages the patient complains of peculiar numbness, prickling, tingling, or a feeling of pins and needles in the extremities; coldness, heaviness, or a feeling of fatigue are also mentioned. Formication frequently follows vomiting, and in almost all fatal cases severe and uncontrollable vomiting precedes the attack. As formication increases, a tetanic contraction of muscles occurs, fixing the fingers and hand, and often the muscles of the entire forearm and arm. The muscles of the face, jaws, neck, and abdomen are involved at times. The other symptoms of the affection are fully described, but these

¹ Lyon Medical, January 3, 1901.

² The Practitioner, November, 1903.

³ British Medical Journal, October 24, 1903.

⁴ Il Politecnico, Rome, November 21, 1903.

⁵ American Medicine (abstract), Vol. vi, No. 21.

¹ Johns Hopkins Hospital Bulletin, November, 1903.

² Lyon Medical, November 20, 1903.

³ Boston Medical and Surgical Journal, Vol. cxlix, p. 501.

are the most important indications of the disease. The general effect of the attack varies with the severity and duration of the seizure. Records of many writers show that it is an extremely serious and often fatal disease. Albu reported 31 deaths in 40 cases; Bouveret and DeVic, 18 deaths in 23 cases. Moynihan believes that in almost all cases of gastric tetany there is a grave mechanical obstruction to the passage of food, which causes dilation and hypertrophy of the stomach, and the only rational treatment is to relieve the obstruction by operation. Gastroenterostomy is the method of choice in simple cases, and if promptly treated gastric tetany of the fatal type will soon be a forgotten disease. In three cases out of five in which he has operated, duodenal ulcer associated with gastric ulcer was found. The very high mortality in cases treated medically and the comparatively slight danger of surgical treatment seem to indicate the wisdom of Moynihan's suggestion. Gastroenterostomy is an operation which has been performed with increasing frequency and with most satisfactory results in a large number of patients suffering from various forms of gastric indigestion, and the mortality has been greatly reduced in recent times from 65.7%, which Haberkant reported in a series of cases operated upon between 1881 and 1885 to 33.9%; in a series collected by Chlumschij between 1891 and 1896, while recently Mayo has reported a mortality of only 10% in a series of 80 cases in which he operated personally, and Dalziel reported 30 operations with only one death. This great improvement in statistics is due solely to improvements in operative methods and antiseptic technic. In conditions so grave as gastric tetany the indication for operation would be definite even were the mortality of gastroenterostomy much greater.

REVIEW OF LITERATURE

Experimental Studies of Antiseptic Dressings.—Noetzel,¹ in his investigations, infects freshly made wounds of rabbits with anthrax; one is placed with the control without a dressing, one with a dry dressing, one with dressings moistened in salt solution, and another dressed with moist mercuric chlorid 1-1,000. Each experimental animal had its corresponding control inoculated with the same culture. The results of his experiments were as follows: All the undressed animals died; of the 7 whose wounds were dressed with dry gauze, 3 died; of the 7 dressed with moist salt solution gauze, 2 died; and of the 7 dressed with moist bichlorid, 3 died. Noetzel says dry gauze succeeds as well as the moist in absorbing virulent anthrax bacilli so that no infection results, and from his experiments neither evinces a decided advantage. He found in the moist gauze the bacteria had reached the outer layers of the gauze from the infected wound, whereas in the dry dressings they were found in the layers near the wound only. In the sublimated gauze neither the anthrax bacilli nor the bacteria of the surrounding skin remained viable. [J.F.]

Intestinal Anastomosis, Occlusion of a Portion of the Intestine, and Death.—R. W. Murray² reports that a boy of 12 was presented who had been well until 3½ years before, when for intestinal obstruction a surgeon had performed enterostomy to the left of the median line. Relief was afforded for a short time, when obstruction again occurred, and enterostomy was performed on the right side. Since then life had been miserable, all the feces escaping from the last enterostomy, and a marked prolapse occurring at each opening. Murray now operated, removing the prolapsed intestine and closing the orifice at the site of the first operation. Some 3 months later operation was again performed, and the small intestine at the site of the last operation was anastomosed to the transverse colon, thus occluding a portion of the ileum, the cecum, and ascending colon. Though the bowels had not moved naturally for over 3 years, they now moved naturally, the patient gained much in weight, and did well for almost 2 years, when distension of the abdomen began, increased steadily for several

weeks, and the patient died. Necropsy showed the occluded portion of the intestinal tract greatly distended with mucopurulent fluid. He says the case demonstrates the danger of retaining in the abdomen any portion of the gut occluded at each end. [A.B.C.]

Tuberculosis of the Hernial Sac.—R. Lewisohn¹ has collected from the literature 58 cases of this affection, which he briefly describes and summarizes, together with 4 cases of his own. The principal symptoms on which a diagnosis may be made are: The presence of a tuberculous peritonitis; reducible fluid contents of the sac; larger nodules on the floor of the sac, separable from the spermatic cord and testicles; smaller nodules arranged in the form of a rosary along the inguinal canal. The prognosis following operative treatment is especially good, both in regard to recovery from the hernia and from the tuberculous affection. [B.K.]

Pathogenesis and Therapy of Acute Hemorrhagic Pancreatitis.—Bunge² reports a case which was cured by operation. The hemorrhage was diffused in the peripancreatic tissue and was accompanied by diffuse fat necrosis. He found a serosanguineous exudate in the peritoneal cavity; the exudation, he says, began in the omental bursa, and was followed by fat necrosis of the gastrocolic ligament, and by perforation of that structure. If the anterior wall of the lesser omentum is intact he cuts it, removes the exudate and packs the bursa with iodoform gauze; secondary perforation of the posterior wall is guarded against by raising the omentum, colon, and the stomach, and packing that region with gauze. Bunge inclines to the view taken by Hahn, who operates in the early stages of this condition. Bunge says the operation should be done early, before the entrance of bacteria from the intestines complicates the process. If the exudate in the lesser omentum is already infected, and if there is exudate free in the peritoneal cavity, the time for operation is passed. He says we are still deficient in diagnosing this condition; it must be made upon the frequent attacks of acute colic and the early vomiting of the small intestinal contents. Acute hemorrhagic pancreatitis differs from peritonitis by a lack of tenderness and rigidity of the abdomen in the first. As to the cause of acute hemorrhagic pancreatitis Bunge says we know practically nothing. The fat necrosis is in the majority of instances due to fermentative action of the steapsin of the pancreatic juice upon the neutral fat of the peritoneal cavity. [J.F.]

Protruding Auricles Treated by Operation.—T. G. Ouston³ reports that a boy of 11 was brought with the request that the appearance of his ears should be improved. The condition was congenital, and the margins of the pinnae curled forward considerably anterior to a vertical transverse plane through the centers of the external meati. Their posterior surfaces were smooth and convex, instead of presenting the normal depressions. They had a large amount of spring, the cartilage not even allowing temporary molding into the normal shape. The ears were operated on under ether separately, a "D" shaped piece of skin ½ in. by ½ in. was dissected up and removed from the prominent convexity of the posterior surface. The corresponding underlying piece of cartilage was cut round vertically to its surface, and the separation of its anterior surface from the skin effected by a small periosteal knife, the attachment being more intimate than on the posterior aspect. The pinna was now flaccid, and on pressing it backward onto the skin over to the mastoid, an accurate impression of the raw surface was mapped out in blood. This area of the skin was removed, and the posterior edges of the 2 raw surfaces united by fine sutures. With the left ear, the removal of the 1 piece of skin and cartilage proved sufficient. In the right, sickle-shaped strips of skin and cartilage had subsequently to be removed from the still overhanging upper margin. The illustrations are given, showing the admirable correction. The author states that in severe cases anything less than free removal to the extent of taking all spring out of the auricle will result in failure. [A.B.C.]

Dislocation of the Carpal Scaphoid.—Leonard W. Ely⁴

¹ Mitt. a. d. Grenzgeb. d. Med. und Chirurg., Bd. xi, Heft 5, p. 667.

² Arch. f. klin. Chir., 1903, Bd. lxxi, Heft 3.

³ British Medical Journal, July 4, 1903.

⁴ Annals of Surgery, July, 1903.

¹ Arch. für klin. Chir., 1903, Bd. lxxi, Heft 1.

² Lancet, August 22, 1903.

reports that a man of 25 sustained an injury to the right wrist and the lesion was diagnosed as a crushing of the tendons of the wrist and hot applications applied. When seen the next day, the wrist was much swollen, motion caused much pain, and the case was then diagnosed as Colle's fracture, and the patient given an anesthetic for reduction. Under ether, crepitus could be distinctly obtained in the wrist. By manipulation, the scaphoid could be easily dislocated on the dorsum of the wrist and by pressure could be replaced. From this symptom the diagnosis was made. Skiagram taken, showed a slight dipping forward of the scaphoid, chipping of the styloid process of the ulna. Dislocation of the carpal bone was unmistakable. The treatment was by anterior and posterior molded plaster splints, the posterior reaching to the end of the phalanges and the anterior to the metacarpophalangeal joint. Patient recovered with a good degree of motion in all directions. [A.B.C.]

Early Massage and Passive Motion in the Treatment of Fractures and Sprains.—D. N. Eisendrath¹ urges the use of more radical methods in the treatment of fractures. He believes that by the judicious, early use of massage and active and passive motions that the wasting of muscles and the stiffness of joints and tendons after fractures can be largely decreased. In the larger cities it will be best for the physician to secure the services of a masseur or masseuse, but where such aid is not to be obtained the physician himself can carry out the treatment. The method to be preferred is that of rubbing the limb principally with the thumb and finger tips of one or both hands toward the axilla in case of the arm and in the lower extremity toward the groin. At first they should be very light and last only 3 to 5 minutes. Later they can be made more vigorous and 10 minutes in duration. Hot application for 10 minutes previous will make the massage much less painful. The principal varieties of fractures of the long bones are considered separately, with the indications for massage. In the case of fractured patella, massage is begun within 48 hours after the injury has been received. The contraindications to the use of early massage are tendency to displacement of the fragments, compound fractures (until the wound is healed), when the condition of the skin permits of infection, and the presence of fragments which project but which do not penetrate the skin. [A.G.E.]

Exposing the Hip-joint by Larghi's Curved Incision.—A. von Bergmann² says from the number of cases treated it is impossible to judge whether an attempt to replace a congenital dislocation of the hip in adults is advisable. To draw any conclusions from the case successfully treated by him would be imprudent. If the dislocation is painful and causes distress, v. Bergmann advises operation, but impresses upon the patient the long-continued after-treatment and the possibilities of an unsuccessful operation. If an operation is undertaken upon a congenital dislocation, v. Bergmann believes the incision of Larghi is, in spite of its length, the best to be recommended, even if the acetabulum is developed only feebly. Since by this method replacement was successful in a patient of 22 years, one can commend it in younger individuals. [J.F.]

Ganglion of the Palm of the Hand.—Franz³ removed 3; 1, supposedly ganglion, was an encysted sesamoid bone, but the patient felt something burst at the site of the tumor the evening before the operation. Operation was refused in 1 case; in another the tumor disappeared by firmly grasping the sharp edge of a chest. The seventh case was found to be a thickened tendon sheath. He believes that through the constant exertion of pressure in the palm, many ganglions are bursted before they manifest their presence. Trauma, either acute or chronic, can be traced as a cause in 6 of his cases. Microscopic findings corroborated this view. When the ganglion is barely perceptible he recommends fixing the affected part in a pasteboard splint for 3 or 4 weeks. When it can be felt, he bursts the ganglion by pressure, and when this fails he extirpates. [A.B.C.]

Surgery of Penetrating Gastric Ulcer.—Hans Lorenz⁴ reports 2 cases of this condition in women of 52 and 57 respectively who were operated upon. In both cases the ulcers were

torn during the operation, but in spite of this the ulcers healed in a comparatively short time. In the first case the perforation was insignificantly lessened by a suture; in the second this procedure was not carried out, and instead a drainage-tube was inserted in the stomach, through which the patient was nourished. In both cases finally gastroenterostomy was done. [J.H.W.R.]

The Effects of the Röntgen Rays upon a Sarcoma of the Skull.—Krogus,¹ after treating an inoperable sarcoma for 14 days, found the second largest tumor and a number of the smaller ones had disappeared. One and a half months after instituting treatment, the largest tumor disappeared. Krogus persisted with the treatment for another month and saw the patient 4 months after that date; there was no evidence of a recurrence. Krogus says one can not conclude from this that all malignant tumors are curable with this treatment, but he is convinced that some cases are benefited, and that it should be tried in all cases, even if only one case in a hundred derives benefit from the treatment. [J.F.]

Surgery of the Ureter.—P. J. Freyer² holds that only when a stone is impacted in the lower end of the ureter, within 1 or 2 inches of the bladder, can it be differentiated from a stone in the kidney. A skiagraph may afford strong evidence, but it is less satisfactory than when applied to renal stone. The 3 situations at which impaction is likely to occur are: A point 5 cm. (2 in.) from the commencement of the ureter; at the brim of the pelvis; and at the vesical end of the canal. He reports somewhat in detail cases under the following captions: Calculus impacted in the left ureter 5 cm. (2 in.) below the renal pelvis, successful ureterolithotomy; calculus impacted in the right ureter 10 cm. (4 in.) below the renal pelvis, successful ureterolithotomy; calculus impacted in the ureter 2½ cm. (1 in.) above the vesical orifice, successful vaginal ureterolithotomy; calculus impacted in the lower end of the ureter, successful retroperitoneal ureterolithotomy; diverticulum of the ureter, forming a cystic tumor in the bladder wall, containing 2 calculi, successful suprapubic cystotomy; calculus impacted at the vesical orifice, successful suprapubic cystotomy. If the symptoms of renal or ureteral stone exist and stone cannot be located in the lower end of the ureter, then it is the recognized rule in surgery to do a lumbar nephrotomy. Open the kidney, and if the stone is not in that situation, pass a probe down the ureter, locate the stone, extend the lumbar incision parallel to Poupart's ligament and reach the ureter postperitoneally. Emphasis is laid on the intelligent use of the cystoscope. [A.B.C.]

Appendicitis Caused by Pin-worms.—Of all intestinal parasites found occasionally in removed appendices, thread-worms are the most infrequent. A. F. Kablukoff³ reports a case of catarrhal appendicitis which came to the operating table. From the removed appendix 4 pin-worms, all females, crawled out, and showed signs of unmitigated vitality. When we remember the disturbances caused by pin-worms in the rectum or in the vagina, we need not be surprised at their role in producing a catarrhal inflammation of the appendix. Indeed, we may surmise that many cases of appendicitis attributed to fecal concretions are in reality due to intestinal parasites, as contended recently by Dr. Oppe. [L.J.]

The "Gastrophore" as an Assistant in Operations upon the Stomach and Intestines.—Narath⁴ says this instrument, by fixing the stomach acts as an assistant by coaptating the walls of the organ prevents the escape of stomach contents, and also prevents hemorrhage. He further says the operation can be done easier and quicker, and if a button be used to anastomose it cannot fall into the stomach. The instrument consists of 2 arms united at one end as a hinge, upon the other end 1 arm contains a convex plate, and the second a ring. The arms can be fixed at any angle by means of a set screw. The convex plate is placed upon the posterior surface of the stomach, the ring upon the anterior, then the arms are pressed together and held in position by the set screw. In this position the mucosa of the posterior wall is in close contact with that of

¹ Chicago Medical Recorder, December 15, 1903.

² Arch. für klin. Chirg., 1903, Bd. lxxix, Heft 2.

³ Arch. für klin. Chir., 1903, Bd. lxxix, Heft 4.

⁴ Wiener klinische Wochenschrift, No. 41, 1903.

¹ Arch. für klin. Chir., 1903, Bd. lxxxi, Heft 1.

² Lancet, August 20, 1903.

³ Medizinische Obosrenie, ix, No. 14.

⁴ Arch. für klin. Chir., 1903, Bd. lxxxi, Heft 4.

the anterior, therefore Narath says, one must be careful when cutting the one wall that the other is not injured. [J.F.]

Buried Unabsorbable Ligatures.—C. Hamilton Whiteford¹ calls attention to the frequent sinus formation caused by unabsorbable ligatures, and the shedding of the same, months, and often years, after healing by first intention. In explanation of such occurrences, he says we are asked to believe that the ligatures were infected at the time of operation, but that the infecting bacteria did not prevent sound union by first intention, and these bacteria after lying dormant for weeks, months, or even years, have suddenly broken out and caused the ligatures to be shed. What actually happens is that the ligature uniting the soft tissues, which are constantly changing position, soon cuts its way loose and lies relatively free. It then becomes encapsulated, or it shifts its position to a place of least disturbance, and there becomes more or less encapsulated. So far the process is an aseptic one, and it would remain so but for the special affinity of bacteria for damaged tissues, i. e., the tissues surrounding the foreign body. The bacteria may come from the blood, or they may be the normal bacteria in contact with the tissue affected, as from the bowel. The only safe and rational way to avoid this trouble is to use only aseptic absorbable suture and ligature material. We now have such a material in catgut prepared with formalin or xylol. [A.B.C.]

Descending Tuberculosis of the Urinary Apparatus.—There are 2 forms of urinary tuberculosis, the ascending form, in which the kidney is infected from the bladder, and the descending form, in which the kidney is primarily infected through the blood. Guyon and his school have taught that the ascending form is the more common. Modern surgery has shown, however, that the descending form occurs much more frequently. A. Goetzl² reports 2 cases of the latter, in which the diagnosis of primary renal tuberculosis was made by careful examination. Cystoscopic examination in such cases will show that the bladder is not seriously affected, while the mouth of the ureter on the diseased side will show some inflammatory changes. The ureter should be catheterized, and the urine injected into guineapigs in order to make the diagnosis. [B.K.]

Radical Manipulation of Intestinal Invagination.—v. Elselsberg³ operated upon 13 patients, 11 adults and 2 children; 7 were chronic, 3 subacute, and 3 acute. He says it is not always possible to differentiate between the acute and the chronic. Twice the invagination was of small intestines only; 10 times it was at the ileocecal valve, and once at the sigmoid flexure. As causes of conditions, he says, there was present polypoid tumor 3 times, carcinoma of the sigmoid once, cicatricial stricture once, lymphosarcoma once, an ulcer at the head of the invagination that proved to be a tumor microscopically, once; in the remaining 6 cases there was an abnormally long mesentery. Pain was present in all his cases; vomiting in all but 3; diarrhea in 9; in 5 of these the stools contained blood; in 4 there was constipation; meteorism was always present; in 10 cases a distinct tumor was palpable; where the sigmoid was invaginated the tumor was palpable per rectum. He did 12 total resections; one died with gangrene and perforation soon after the operation; one died 3 weeks and one 6 weeks after operation of marasmus. He prefers total resection since with simple disinvagination there is a tendency to recurrence. [A.B.C.]

Have the Locality and Surroundings an Influence upon the Recurrence of Malignant Disease?—D'Arcy Power⁴ raises this question and cites a number of apparently nearly parallel cases, so far as could be judged, showing that in the one case the patient returned to the former home-life and environments after the primary operation, and speedy recurrence followed; while in the other case the patient similarly afflicted left his or her old environments, took up new habits of life, sought diversion of work in new places and amid different surroundings, with the result that recurrence was apparently much longer delayed, or did not take place at all. He admits that there is no direct proof that the change had an influence on the pathologic process; we can only judge from inference, and he

makes an appeal for other surgeons to make observations along this line that correct judgment may be rendered from a large compilation of facts. [A.B.C.]

A Few Modifications in the Radical Operation for Inguinal Hernia.—Petrulis¹ says in the first modification the skin incision is made according to Bassini, the aponeurosis of the external oblique is split longitudinally, the internal oblique and the transversalis are not cut, but the cremaster and the tunica vaginalis communis are incised. The sac is isolated and detached as far as the internal ring. The sac is drawn out, twisted, and then 2 sutures are introduced high up—one in the internal and the other in the external half of the sac. Both ends of each suture are brought out through the abdominal wall a little above and external to the internal ring; this process unites the sac to the abdominal wall and dislocates the internal ring upward and outward. After the sutures are tied the sac is cut off a short distance below them. He closes the wound by a double loop mattress suture and gives egress to the cord in the lower angle of the wound. He uses metallic sutures entirely. His second modification is not applicable to corpulent individuals. It differs from the first in that he uses a single loop mattress suture to close the abdominal wall instead of a double. [J.F.]

Gunshot Wound of the Longitudinal Sinus.—B. F. Curtis² reports that a man of 42 received a pistol wound in the back of the head, the ball coming from below and to the side. The ball penetrated the skull but there was not much bleeding at the time. There was complete blindness of the right half of the visual fields when he was brought to the hospital and at operation. In the attempt to remove the large fragment of bone there was profuse and violent venous hemorrhage. The wound was packed with gauze, 2 trephine openings were made adjacent to the wound, and the bridge of bone broken down to make one large opening. Hemorrhage was again violent. On being controlled by the gauze pressure it was found there was a large wound in the longitudinal sinus near the torcular herophili. An unsuccessful attempt was made to close the opening by suture, but packing had finally to be resorted to. The subsequent progress of the patient was rather stormy, his mental condition being unsatisfactory and various eye symptoms appearing. At the end of 15 days all the packing was removed. A skiagraph which afterward proved to be faulty, showed the ball to the right of the median line. Delirium developed. A subsequent operation was performed and an unsuccessful search made for the ball. The patient slowly recovered and was discharged from the hospital after 3 months. The right half of each field of vision was cut off vertically and about 5° to the right of the median plane in each. A subsequent skiagram taken carefully, showed the ball to be on the left of the median line, and accounted for the unsuccessful search made for it at an earlier time. The lessons the author would draw from the case are, the dangers from excessive hemorrhage, in the attempt to remove fragments of bone in the vicinity of the longitudinal sinus, and the utmost importance attached to the care in making skiagraphs, having the plates so marked that there is no possibility of mistaking one side for the other. [A.B.C.]

Rupture of the Bladder.—W. Nobe³ has collected 32 cases of traumatic rupture of the bladder, and added to them 3 occurring in his own practice; 21 of these, including his 3 cases, were operated upon; 18 (85.7%) recovered; of the 14 not operated upon, only 7 (50%) recovered. Of the 3 cases in which death followed the operation, one was operated upon on the fifth, another on the eighth day; both died of sepsis; the third died as the result of hemorrhage. He concludes, that the best and most conservative method of treatment in all cases, where vesical rupture is strongly suspected or diagnosed, is the operative method. The sooner the operation is performed the better is the prognosis. In extraperitoneal ruptures he advises an incision as in suprapubic lithotomy; he closes the ruptures, if they can be found easily, he tampons if not; he drains the wound, inserts a permanent catheter, and closes the abdominal wound. In intraperitoneal ruptures he searches until he finds the ruptured spot, sutures it, and closes the wound. [E.L.]

¹ British Medical Journal, July 26, 1903.

² Prager med. Woch., 1903, No. 48.

³ Arch. f. klin. Chir., Bd. lxxix, Heft 1, 1903.

⁴ Lancet, July 25, 1903.

¹ Arch. f. klin. Chir., 1903, Bd. lxxi, Heft 4.

² Annals of Surgery, June, 1903.

³ Centralblatt für die Harn- und Sexualorgane, 1903, xiv, 71 and 134.

Carcinoma of the Intestines.—v. Mikulicz¹ reports 106 malignant tumors of the intestines. Three sarcomas of the small intestines, 2 sarcomas of the colon, 1 epithelioma of the transverse colon, 5 carcinomas of the small intestines, and 95 of the large intestines. The higher in the intestinal tract the situation of the tumor, the more pronounced are the manifestations. An intestinal tumor may run a latent course, again it may produce indefinite symptoms; then again it may produce stenosis, and finally obstruction. These conditions may all be produced at identical situations in different cases. Ulceration and bleeding usually accompany the condition; bleeding and pus when the tumor is at the sigmoid, as a rule, when the neoplasm is high up. These complications, unless profuse, are often concealed. When peritonitis follows, the infection occurred at the time of the operation, or through an insufficiency of the sutures. The danger of primary peritoneal infection through the opened intestines is greater than is usually admitted. A patient with acute intestinal obstruction is, in consequence of an intestinal intoxication, so devitalized that he cannot resist even a minimum infection. The same is true of chronic obstruction, but in a less degree. [A.B.C.]

The Origin of Foreign Bodies in the Knee-joint.—Boerner² discusses the origin of foreign bodies in the knee-joint very fully, giving a bibliography, the results of clinical experiences and microscopic examination of a number of specimens. He finds, on microscopic examination of 28 specimens, that some of these foreign bodies are composed of bits of cartilage and bone from the joint surfaces. Some observers have maintained that all the foreign bodies of the knee-joint were of this kind; others have believed that they arose almost exclusively from disease processes, particularly arthritis deformans. Boerner finds microscopic evidence to support this latter theory also. Of the foreign bodies composed of bone and cartilage some were found in cases in which there had been no previous injury to the joint. In 4 cases at the time of operation small fatty tumors were found which had been mistaken for foreign bodies. In 1 other case a thickened fibrous mass, a fringe from the joint capsule had caused the symptoms, and in 2 cases a small piece of the semilunar cartilage had worked free in the joint. [M.B.T.]

Perforation of the Gallbladder.—H. A. Ledlard³ reports that a male patient of 70 was found with a distended abdomen, pain, vomiting, and all the usual symptoms of intestinal obstruction. After 3 days the patient died, and necropsy showed an abscess in the region of the gallbladder, with perforation of that viscus, general peritoneal infection, and 515 stones of various sizes, all small, in the gallbladder. The combined weight of the stones was 1½ ounces. The patient had not suffered from jaundice or biliary colic and nothing pointed to hepatic involvement. Another case is reported. The patient was a woman of 47, who had experienced attacks of biliary colic at various times for 3 years. The attacks usually yielded to hot applications and morphia and were not attended by jaundice. In the present attack there were jaundice, fever, and tenderness in the region of the gallbladder, but no tumor. A week later the abdomen was much distended, and a tumor in the region of the gallbladder was the size of an adult head. Incision in the middle line, the matted omentum showed a recent peritonitis, much bile-stained fluid escaped. The gallbladder, in a mass of omentum, contained a perforation on its anterior surface and a small stone lay outside the viscus. The opening into the gallbladder was enlarged and 13 additional stones were found. The perforation was closed by invagination and suture, the abdominal cavity thoroughly flushed, and the laparotomy wound closed without drainage. The patient recovered. [A.B.C.]

Operations upon the Choledochus Duct on Account of Narrowing.—Koerte⁴ says chronic pancreatitis may produce symptoms similar to those of obstruction of the duct, due to pressure by tumors, and that cholecystenterostomy relieves the condition. He reports 4 cases of obstruction of the duct, two were due to a chronic inflammatory condition and two were due

to carcinoma. Koerte says very often the obstruction is due to a fibrous stricture and it is taken to be due to malignant disease. Operation alone can clear up the matter. The origin of the stricture is obscure, but he believes an infection upon a catarrhal condition of the common duct is the true solution of the matter. In his first case he had an opportunity of studying the pancreatic juice; during fasting only 14 cc. to 18 cc. were secreted, but during digestion it gradually increased for 5 hours to 50 cc. The administration of sodium chlorid increased the secretion; the administration of fat had no effect. The secretion was found to split fat, but failed to split albumins without the addition of intestinal juice. Koerte particularly notes the high remittent fever and the continued pain, not colicky in character, in his first case. [J.F.]

Senile Calcification of the Vas Deferens and Seminal Vesicles.—H. Chiari¹ reports 3 cases of this localization of senile calcification, which has not been previously studied. The ampulla of the vas deferens is the part especially affected. The calcification occurs always in the connective tissue of the muscular coat, and is to be regarded as a pure retrogressive metamorphosis. It is preceded by an increase in the connective tissue, together with a sclerotic change in the same. The process must be distinguished from the thickening which results from chronic inflammation of these structures. [B.K.]

Points in Abdominal Diseases.—E. Stanmore Bishop² compares the inflamed abdominal cavity, or any portion of it, to an inflamed joint. In the latter, nature causes muscles surrounding it to become rigid in their efforts to immobilize the diseased tissues; similarly in the abdomen, if the peritoneum is inflamed, nature causes the protecting muscles to become rigid in their effort to produce immobility and rest. Abdominal rigidity he considers one of the most significant signs which we possess in making diagnosis of intraabdominal conditions. This occurs only when there is acute inflammatory condition of the peritoneum; it does not occur in the chronic forms, as in tuberculous peritonitis. He calls attention to the great fear of resulting peritonitis which we experience for the first few days after laparotomy. This can, in every case, be ruled out when it is found that the abdominal wall is flaccid and normal. In appendicitis, intussusception, strangulated hernia, etc., we have localized abdominal rigidity. Distension of the abdomen in obstruction is a sign that interference has reached a dangerous point, not so much because the gut is paralyzed but because of the stasis of the blood current in the vessels supplying the distended area, and gangrene may follow. In intussusception he emphasizes the difficulty of diagnosis in many instances, but the question of abdominal rigidity will always be of assistance. Hydrostatic treatment of this condition he condemns as a waste of time, and a most dangerous procedure, because, in many instances, the intussusceptum is practically screwed into the intussusciplens, and no reasonable amount of hydrostatic pressure can force it out; operation is the only procedure worthy of consideration. [A.B.C.]

Thrombosis and Embolism of the Mesenteric Vessels.—Falkenburg³ states that the clinical picture is nearly always that of an acute intestinal occlusion upon which peritonitis soon supervenes. In some cases the condition simulates perforation peritonitis and invagination of the intestine. With thrombosis and embolism of other organs and especially with failure of compensation, the same condition of the mesentery vessels may be suspected; upon these grounds he made the diagnosis in 2 cases, corroborated postmortem in 1. Operation in these cases is usually a failure, still he believes that in some cases laparotomy should be done, since small infarcts can be cured by intestinal resection. [A.B.C.]

Surgical Interference in Traumatic Liver Lesions.—W. N. Rosanoff⁴ considers operative aid in wound lesions of the liver tissue as absolutely necessary and justified *a priori* by the wellknown tendency of the liver to bleed profusely owing to its noncollapsible veins. According to statistics, most patients of this kind bleed to death inside of 24 hours if proper

¹ Arch. f. klin. Chir., Bd. lxxix, Heft 1, 1903.

² Deut. Zeit. f. Chir., 1903, Vol. lxx, p. 333.

³ Lancet, July 4, 1903.

⁴ Arch. für klin. Chir., 1903, Bd. lxxi, Heft 4.

¹ Zeit. für Heilkunde, Bd. xxiv, Heft 9; Abth. f. Path. Anat., Heft 4, p. 283.

² Lancet, September 12, 1903.

³ Arch. für klin. Chir., 1903, Bd. lxx, Heft 4.

⁴ Medizinskoje Obosrenie, ix, No. 17.

aid is not forthcoming. Hence in every case of wounded liver the hemorrhage must be stopped *in loco* by immediate interference. If any doubt exists as to the lesion, an exploratory laparotomy is indicated. Shock is hardly a contraindication to operating, as the danger of death from hemorrhage is so much greater than from shock. The diagnosis may be quite difficult, especially in subcutaneous rupture of the liver. Tension of the abdominal muscles, chiefly a rigidity of the recti, is a valuable sign of abdominal visceral wounds in general, and of liver injuries in particular. In recent years the reports of successful interference in liver trauma are becoming quite frequent. [L.J.]

Complete Suprapubic Prostatectomy.—Sir William J. Collins¹ reports that a man of 71 had suffered from enlarged prostate for several years, and during the past 2 years he had depended almost entirely on the catheter, his suffering being great. Under chloroform the bladder was irrigated and distended with boric lotion. A suprapubic incision exposed the bladder, and it was incised. A finger was introduced and the mucous membrane over the prostate stripped through. The prostate was then enucleated, and with the aid of 2 fingers in the rectum, it was detached and removed without further injury to the mucous membrane. Hemorrhage, which was not great, was controlled by hot boric solution. A large, rubber drainage-tube was made fast in the suprapubic wound, and a soft catheter in the urethra. For some 3 or 4 weeks, nearly all the urine was passed by the suprapubic wound, the catheter being left out on account of irritation after the fourth day. The patient soon began to improve in general health. In 36 days the suprapubic wound was entirely healed, and the patient remains cured of the condition. Sir William is of opinion that this, the Freyer method, is a safe, and in such cases most justifiable procedure. He adds a postscript which states that a similar operation has later been done on a man of 70, with equally good results. [A.B.C.]

Diverticulums of the Esophagus.—B. Fischer² reports several cases, and concludes that both pulsion and traction diverticulums of the esophagus may arise at times from a primary local inflammation, when the latter results in a scar. Pulsion diverticulums will be formed, especially if the scar be at a point where the greatest pressure is exerted, *i. e.*, at the narrowest parts of the esophagus. If the scar is adherent to surrounding tissues, a traction diverticulum may result from its shrinking. Injuries received in passing a stomach tube may give rise to diverticulums by the formation of scars. Pressure of surrounding structures plays a part in the development of diverticulums; hence the relative frequency of epiericoid, epibronchial, and epiphrenal diverticulums. [B.K.]

Pain and Tenderness in Inflammation of the Appendix.—Mansell Moullin³ says that since the alimentary canal is supplied by nerves which do not convey sensations of pain lesions of it, and of the visceral peritoneum, are painless; whereas inflammations of the parietal peritoneum and its subserous tissue are acutely painful. In reference to the appendix: 1. Absence of pain is no indication that serious mischief is not going on; the organ may have arrived at the stage of sloughing without pain. 2. The initial pain of acute appendicitis which is so commonly referred to the umbilicus is due to the peristaltic action of the cecum or appendix dragging upon the attachment of the peritoneum to the abdominal wall; it is most marked when the appendix is fixed by adhesions, or the mesentery is short or twisted. 3. Cessation of the umbilical pain without improvement in other symptoms is due to cessation of peristalsis caused by inflammation having spread to the muscular coat of the bowel, which prevents further contracting and therefore quiets the pain. 4. The development of local pain, which, as a rule, precedes the cessation of initial pain, means that the inflammation has spread from the appendix to the parietal peritoneum or its subserous tissue. Absence of local pain is without significance; severe pain is of serious import, as it implies inflammation wide-spread in extent or severe in degree. [A.B.C.]

¹ Lancet, July 4, 1903.

² Deut. Archiv f. klin. Med., Bd. lxxviii, p. 141.

³ Lancet, August 22, 1903.

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

The Therapeutic Use of Sea Voyages.—According to S. S. Cohen¹ the advantages of the ocean climate are its equability of temperature depending upon the radiation and absorption of the heat by the mass of water, the abundance of light, the freedom from dust and microbes and other impurities of the air, and the favorable atmospheric humidity. Aside from the climate, the prolonged rest and complete change of surroundings are important features in the curative effect of sea voyages. The disadvantages are the monotony, the cost, the poor ventilation of the cabins, the danger of poor food and the possibility of sea-sickness. Other things being equal, he prefers a sailing vessel to a steamship. Voyages of short duration are useful to give mental and physical rest, especially in convalescence from such depressing affections as influenza. Longer voyages of 1 or 2 months are useful in cases of neurasthenia, sometimes in asthma, in scrofulous conditions, and frequently in incipient pulmonary tuberculosis. Prolonged voyages, in which the vessel does not touch port are recommended only for those with high resistive power or for drug habitues. Sometimes the prolonged sea voyage is beneficial in pulmonary tuberculosis, as a restorative, or even in well-advanced cases as a palliative. Patients with severe cardiac disease should not take ocean trips at all. Those with far advanced tuberculosis, chronic gastrointestinal disorders, cholelithiasis, etc., should not take voyages of more than a week's duration. Neuralgic and gouty patients are frequently worse on sea than at home. [H.C.W.]

Catarrhal Jaundice and Cholelithiasis.—Kisch (Cronotherapy and Balneology, Blakiston, 1902) states that catarrhal jaundice, if it has not caused profound alterations and has existed for but a short time, often yields to the domestic employment of the alkaline acidulous waters of Bilin, Fachingen, Selters, and Gleichenberg. If, however, the jaundice has persisted for some time, and the liver is considerably enlarged, drinking-cures at Carlsbad, Ems, and Vichy, with the thermal waters of these places, are indicated, especially if the jaundice is attended with irritation of the lower portions of the intestinal tract, and diarrhea is accordingly present. Appropriate waters in the United States are those of Bedford (Magnesia) Springs, in Pennsylvania; Saratoga (Vichy) Springs, in New York; Greenbrier White Sulphur Springs and Irondale Springs, in West Virginia; Bedford Alum, Iron, and Lithia Springs, Rockbridge Alum Springs, and Bath Alum Springs, in Virginia; Bladon Springs, in Alabama. For full-blooded, strong, easily excitable individuals with jaundice, or when coprostasis is present, the cold waters of Marienbad, Kissingen, Homburg, and, in the United States, Saratoga, are to be preferred. The same differential indication is applicable in cases of gallstones, in which, as Frerichs had previously pointed out, complete courses of treatment at Carlsbad, Marienbad, Vichy, and Ems have proved the most effective remedy. This opinion, Kisch believes, remains completely sound at the present day, in spite of current operative tendencies. The waters may be used at the patient's home, or may be more effectively drunk at their source, for from 4 to 6 weeks. A considerable number of gallstones often is expelled as an immediate result. In order to prevent the formation of further concretions, the treatment should be repeated annually for several years. After operation in cases demanding surgical intervention, a similar course should be pursued.

Treatment of Tetanus by Subdural Injections of Antitoxin.—A. W. Elting² reports 3 instructive cases. The first was a case of puerperal tetanus in a woman of 35, the incubation period being 9 days. The patient received about 1,200 cc. of tetanus antitoxin subcutaneously and 150 cc. subdurally. The latter was given in 3 doses of 50 cc. each during a period of 27 hours by means of ordinary lumbar puncture. Each time this

¹ Reference Handbook of the Medical Sciences, Vol. vii, p. 85.

² Albany Medical Annals, January, 1904.

measure was resorted to the patient seemed in *extremis*, and each time there was great improvement in all the symptoms in from 1 to 3 hours after the injection. These large doses were without the least untoward effect. Recovery followed, and Elting firmly believes that the patient's life was saved by the subdural injections. The other 2 cases were both acute; treatment was not instituted until 36 hours after onset of symptoms, and death ensued in each instance. In one the temporary beneficial effect of subdural injection of antitoxin was very pronounced, while in the other it gave little relief. Autopsy in one showed that the injection of 50 cc. had produced no demonstrable anatomic lesion. The last 2 cases resulted from nail wounds of the foot, but no tetanus bacilli were found either by culture or inoculation of animals. A distinct local tetanus occurred in the leg of one of these patients, the spasms not relaxing under ether when the wound was excised. Elting believes that the antitoxin treatment is productive of better results than is any other method. Large quantities should be available for inoculation, but this too often is not the case. [A.G.E.]

Effects of Aspidospermin upon Respiration and Circulation.—H. C. Wood, Jr., and D. M. Hoyt¹ found that aspidospermin caused in the dog a very marked increase in the activity of respiration, the amount of air moved as measured by a special gasometer being increased in some experiments as much as 400%. The respirations were deeper and more rapid. The percentage of carbonic acid expired was slightly reduced although the total amount exhaled was considerably above normal. The observation of Penzoldt that the blood all over the body assumed the arterial hue, they noted in several but not all of their experiments. They believe the blood changes however, to be the result of increased respiration and not the cause. Repeated spectroscopic examination of the blood failed to reveal any new compound. The blood in aspidospermin poisoning does not lose the power to change the color of guaiac solutions and is capable, if the supply of oxygen is shut off from the animal, of giving off its oxygen to the tissues. The blood-pressure was reduced by aspidospermin, probably, Wood and Hoyt believe, by direct action on the cardiac muscle, as they found the vasomotor system not affected. Their experiments were made with the commercial amorphous aspidospermin which contains, as is well known, several alkaloids, and probably represents the whole activity of the aspidosperma quebracho blanco. [H. C. W.] [The clinical value of aspidospermin in many cases of asthma receives illumination from these researches. S.S.C.]

Treatment of Strangulated Hernia with Atropin.—According to Hagen,² the current views on strangulated hernia cannot be maintained. He believes that a reflex spasm of the abdominal muscles surrounding the hernial ring is responsible for the strangulation. The real cause lies in a paresis of the muscular coats of the bowel, preventing normal peristalsis, and bringing about an accumulation of intestine in the hernial sac. Also, in opposition to the view that atropin paralyzes smooth muscle fibers, he has found that small doses stimulate the sympathetic nerve endings in the iris and intestine, also the vagus fibers of the heart and intestine. He has therefore evolved a treatment for strangulated hernia, consisting in the injection in the immediate neighborhood of the sac, of .5 cc. (8 minims) of a 1 to 1000 solution of atropin; this is followed by light taxis. If unsuccessful, the dose is repeated at intervals of an hour, with the taxis. A double dose may be given, if deemed necessary. If no improvement is noted after 2 or 3 trials, or if the condition becomes worse, herniotomy can always be resorted to. Care must be taken not to wound the intestines by the hypodermic needle, and also to prevent so far as possible the systemic absorption of the atropin. [B.K.]

Treatment of Ankylostomiasis by Filmaron.—Filmaron is the nontoxic active principle of male fern, and in Nagel's opinion³ the part of male fern which benumbs the tapeworm; to remove the worm an active purge is always necessary. He has used the drug successfully in 9 cases, in which filix mas and thymol were used without success. Filix mas has been known to produce sudden blindness, and the discovery of its

active, nontoxic principle, therefore, will be a boon for regions in which ankylostomiasis is common. [E.L.]

The Use of Adrenal Extract in Gastrointestinal Atony.—Baccarani and Plessi¹ have obtained good results with an extract prepared from the medulla of the suprarenal capsules in the treatment of atony of the stomach. They reason that it has the same effect upon the nonstriated muscle of this organ as it has upon the bloodvessels, and they employed it in a number of cases with a certain proportion of immediate results. Experimental observations show an increase in the motility of the stomach. [H.C.W.]

The Treatment of Sciatica with Strychnin.—Encouraged by the report of Tchawoff at the Second Bulgarian Medical Congress, F. O. Sartsin² began to treat sciatica with hypodermic injections of strychnin. The nitrate was employed in doses of 1 mg. to 2 mg. ($\frac{1}{100}$ gr. to $\frac{2}{100}$ gr.) injected into the gluteal region at intervals of one to several days. Nine patients were thus treated; in 4 the attacks of pain disappeared; 3 patients were benefited; but not cured, while 1 patient suffering from sciatica and lancinating pains was relieved of the sciatica but not of the lancinating pains. Sartsin confidently declares strychnin to be the most efficient agent so far recommended against sciatica. [L.J.]

Therapeutic Use of Nafalan.—This is a new preparation made from naphtha and soap, and is closely related to naftalan, a therapeutic soap. S. Wischnowitz³ has found it a valuable, nonirritant, antiphlogistic, analgesic substance, greatly promoting resorption of cutaneous inflammatory infiltrations. It is efficacious in eczema, pityriasis versicolor, impetigo, herpes zoster, frost-bite, burns, röntgen ray dermatitis, and pruritus. It may also be used in articular rheumatism, epididymitis, sciatica, and tenosynovitis. It should not be employed in fresh, acute, moist eczemas. One of the best forms in which to employ nafalan is in a 50% ointment with zinc ointment, paraffin, and lanolin. It is best applied on a cloth, which is laid over the affected part. Wischnowitz has found nafalan very useful in the treatment of hyperidrosis, in which affection he first employs it in the pure state, and after desquamation occurs, in a 10% dusting powder. In burns and röntgen ray dermatitis it is also applied pure. In herpes zoster it may be employed in varying strengths, according to the severity of the symptoms. [B.K.]

Lead-poisoning or Mercurialism an Indication for Calcium Sulfid.—Enrique L. Abogado⁴ believes with Pigeau and Peyrou that workers in quicksilver mines should be administered regular doses of calcium sulfid; for it has been found by tests on syphilitic patients to increase the elimination by the kidneys of both mercury and lead. Each day's dose at first should be .20 gm. divided, and increased or diminished according to gastric tolerance. [T.H.E.]

Action of Strychnin in Polyuria and Diabetes Insipidus.—L. Feilchenfeld⁵ reports considerable diminution in the quantity of urine in 2 cases of polyuria and diabetes insipidus without change in the specific gravity, after hypodermic injections of strychnin nitrate 2.5 mg. to 5 mg. ($\frac{1}{20}$ gr. to $\frac{1}{10}$ gr.) daily. He supposes this is due to a direct action on the central nervous system on account of the promptness of the action and the absence of change in specific gravity.

Phototherapy in the Healing of Wounds.—Bieling⁶ recommends the use of light as a stimulant to the healing process of wounds, especially those in which there are large defects in the skin. He reports a case following abdominal operation in which there remained a space of granulation tissue about the size of a bean, over which, despite various methods of treatment, the skin refused to form. With 5 exposures to light there was an immediate stimulation of the epidermic growth, and closure of the wound. In another case following a crush of the shin, there remained a defect in the skin the size of the palm of the hand, which rapidly healed under the use of phototherapy. [H.C.W.]

¹ Med. Woch., 1903, IV, 393.

² Russki Vrach, October 11, 1903.

³ Prager med. Woch., 1903, Nov. 40 and 50.

⁴ Crónica Médica Mexicana, December 1, 1903.

⁵ Deutsche med. Wochenschrift, No. 31, 1903.

⁶ Balneologische Centralzeitung, November 16, 1903, p. 205.

¹ University of Pennsylvania Med. Bull., September 1903.

² Deut. Archiv f. klin. Med., Bd. lxxviii, p. 482.

³ Deutsche medicinische Wochenschrift, No. 31, 1903.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 23, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	Berkeley.....Dec. 31-Jan. 7.....	1	
	Los Angeles.....Dec. 26-Jan. 2.....	1	
	San Francisco.....Jan. 10-17.....	2	
Colorado:	Colorado Springs.....Jan. 8-16.....	1	
	Denver.....Nov. 28-Dec. 28.....	9	
Illinois:	Calro.....Jan. 21.....	4	
	Chicago.....Jan. 16-23.....	2	
	Danville.....Jan. 16-23.....	4	
Indiana:	Evansville.....Jan. 16-23.....	2	
Louisiana:	New Orleans.....Jan. 9-16.....	4	
Maine:	Smithfield.....Jan. 21.....	1	
	Staceyville.....Jan. 21.....	11	
Maryland:	Baltimore.....Jan. 16-23.....	1	
Michigan:	Detroit.....Jan. 16-23.....	2	
	Grand Rapids.....Jan. 16-23.....	1	
	Port Huron.....To Jan. 23.....	3	
Missouri:	St. Louis.....Jan. 9-23.....	21	
New Hampshire:	Manchester.....Jan. 16-23.....	2	
	Nashua.....Jan. 16-23.....	1	
New Jersey:	Plainfield.....Jan. 16-23.....	1	
	Three Imported.		
	Smithfield.....Jan. 21.....	1	
	Staceyville.....Jan. 21.....	11	
	Baltimore.....Jan. 16-23.....	1	
	Detroit.....Jan. 16-23.....	2	
	Grand Rapids.....Jan. 16-23.....	1	
	Port Huron.....To Jan. 23.....	3	
	St. Louis.....Jan. 9-23.....	21	
	Manchester.....Jan. 16-23.....	2	
	Nashua.....Jan. 16-23.....	1	
	Plainfield.....Jan. 16-23.....	1	
	Imported.		
	Trenton.....Jan. 16-23.....	8	
New York:	Buffalo.....Jan. 8-23.....	4	
	New York.....Jan. 16-23.....	5	1
Ohio:	Bucyrus.....Jan. 8-23.....	22	
	Cincinnati.....Jan. 15-22.....	5	1
	Cleveland.....Jan. 15-22.....	3	
	Dayton.....Jan. 16-23.....	5	
Pennsylvania:	Allentown.....Jan. 16-23.....	1	
	Johnstown.....Jan. 16-23.....	1	1
	From suburban district.		
	McKeesport.....Jan. 16-23.....	5	
	Philadelphia.....Jan. 16-23.....	106	13
	Reading.....Jan. 16-23.....	4	
	Titusville.....Jan. 16-23.....	1	
	Williamsport.....Jan. 16-23.....	4	
South Carolina:	Charleston.....Jan. 16-23.....	8	
Tennessee:	Nashville.....Jan. 16-23.....	5	
Utah:	Salt Lake City.....Jan. 8-16.....	7	
Wisconsin:	Milwaukee.....Jan. 16-23.....	19	
SMALLPOX—FOREIGN.		Cases	Deaths
Austria-Hungary:	Prague.....Dec. 19-26.....	8	
Brazil:	Pernambuco.....Dec. 1-15.....	15	
	Rio de Janeiro.....Dec. 20-27.....	40	40
Canada:	New Brunswick, Newcastle.....Jan. 21.....	1	
	Imported from Portland.		
France:	Paris.....Jan. 2-9.....	16	
Great Britain:	Birmingham.....Jan. 2-9.....	1	
	Glasgow.....Jan. 8-15.....	44	3
	Leith.....Jan. 2-9.....	1	
	Liverpool.....Jan. 2-9.....	1	
	Newcastle-on-Tyne.....Jan. 2-9.....	6	
	Nottingham.....Dec. 26-Jan. 9.....	14	1
	Sheffield.....Dec. 26-Jan. 2.....	1	
	South Shields.....Jan. 2-9.....	1	
	Sunderland.....Jan. 2-9.....	7	1
India:	Bombay.....Jan. 15-29.....	5	
	Karachi.....Dec. 20-27.....	2	1
Italy:	Catania.....Dec. 31-Jan. 7.....	1	
Mexico:	Mexico.....Dec. 13-Jan. 10.....	4	
Russia:	St. Petersburg.....Dec. 26-Jan. 2.....	31	
Spain:	Santander.....Jan. 4-11.....	8	
Turkey:	Smyrna.....Dec. 20-Jan. 3.....	11	
YELLOW FEVER.		Cases	Deaths
Brazil:	Rio de Janeiro.....Dec. 20-27.....	3	3
Jamaica:	Kingston.....Dec. 26-Jan. 8.....	2	2
Malta:	.....Dec. 26-Jan. 2.....	4	1
Mexico:	Merida.....Jan. 3-16.....	1	1
	Vera Cruz.....Jan. 8-16.....	2	
Venezuela:	Maracaibo.....Dec. 20-27.....	1	1
PLAGUE—UNITED STATES.		Cases	Deaths
California:	San Francisco.....Jan. 10-13.....	8	
PLAGUE—INSULAR.		Cases	Deaths
Hawaii:	Honolulu.....Jan. 10.....	1	
PLAGUE—FOREIGN.		Cases	Deaths
Brazil:	Pernambuco.....Nov. 15-Dec. 15.....	9	
	Rio de Janeiro.....Dec. 20-27.....	9	3
India:	Bombay.....Dec. 15-29.....	7	129
	Karachi.....Dec. 20-27.....	6	
Mauritius:	.....Dec. 24-31.....	53	29
CHOLERA.		Cases	Deaths
Java:	Batavia.....Dec. 5-12.....	14	3
Turkey in Asia:	Diarbekir.....Dec. 15-20.....	53	28
	Hitt.....Dec. 13-15.....	8	4
	Kerbela.....Dec. 13-20.....	447	443

Changes in the Medical Corps of the U. S. Army for the week ended January 30, 1904:

HUTTON, First Lieutenant PAUL C., assistant surgeon, is relieved from duty at Pekin, China, and will proceed to Fort Bayard and report at the United States Army General Hospital for duty.

WATERHOUSE, M. MANLEY, contract surgeon, now at San Francisco, Cal., en route to the Philippine Islands, will report to the commanding general, department of California, for temporary duty and for assignment to duty with the first detachment of troops to be sent from San Francisco to an eastern station. Upon his arrival at such station and the completion of the duty assigned to him, Contract Surgeon Waterhouse will proceed to his home, New York City, for annulment of contract.

PATTEN, First Lieutenant I. W., assistant surgeon, is granted leave for one month.

So much of orders of January 13 as relate to First Lieutenant Haywood S. Hansell, assistant surgeon, are so amended as to direct him to proceed to Pekin, China, and report to the commanding officer, United States Legation Guard, for duty.

KIRBY-SMITH, First Lieutenant REYNOLD M., assistant surgeon, is granted leave for twenty days from January 27, with permission to apply for an extension of seven days.

TURNBULL, First Lieutenant WILFRED, assistant surgeon, is relieved from duty at Fort Monroe, and will proceed to Fort Strong for duty, to relieve Captain Elmer A. Dean, assistant surgeon. Captain Dean will proceed to Fort Riley for duty.

PORTER, LEWIS B., contract surgeon, is relieved from duty at the United States Army General Hospital, Presidio, and will proceed to his home, New Haven, Conn., for annulment of contract.

Changes in the Medical Corps of the U. S. Navy for the week ended January 30, 1904:

ARNOLD, W. F., surgeon, sick leave extended two months—January 23.

SPEAR, R., passed assistant surgeon, ordered to the Naval Hospital, Washington, D.C.—January 25.

SHIPP, E. M., passed assistant surgeon, ordered to the Naval Hospital, New York—January 25.

STONE, M. V., assistant surgeon, retired from active service on account of disability incident to the service—January 27.

PAYNE, J. H., JR., passed assistant surgeon, detached from the Wabash and ordered to the Naval Hospital, San Juan, P. R.—January 23.

MORSE, E. T., pharmacist, detached from the Navy Yard, Portsmouth, and ordered to the Naval Laboratory—January 25.

Changes in the Public Health and Marine-Hospital Service for the two weeks ended January 23, 1904:

WERTENBAKER, C. P., passed assistant surgeon, granted leave of absence for five days from January 21—January 23, 1904. Detailed to make inspection of places in Mexico and the Texas border recently infected with yellow fever—January 23, 1904.

ROSENAU, M. J., passed assistant surgeon, one day's leave of absence, January 16, 1904, under paragraph 189 of the regulations.

GREENE, J. B., passed assistant surgeon, granted leave of absence, on account of sickness, for fifteen days from January 26—January 25, 1904.

VON EZDORE, R. H., passed assistant surgeon, granted leave of absence for thirteen days from January 25—January 23, 1904.

ANDERSON, J. F., passed assistant surgeon, granted leave of absence for six days from January 25, 1904, under paragraph 191 of the regulations.

MCCLINTIC, T. B., assistant surgeon, granted leave of absence for six days from January 25, 1904, under paragraph 191 of the regulations.

FOSTER, S. B., acting assistant surgeon, granted leave of absence for ten days from January 17—January 16, 1904.

SCHUG, F. J., acting assistant surgeon, granted leave of absence December 22, 1903, to January 5, 1904, on account of sickness—January 25, 1904.

WALKER, R. T., acting assistant surgeon, leave of absence granted for twenty days from January 13, 1904, revoked—January 21, 1904.

ALLEN, G. C., pharmacist, upon being relieved from temporary duty at Louisville, Ky., by Pharmacist G. C. Ferdinand, to rejoin station at New Orleans, La.—January 26, 1904.

HOLT, F. M., pharmacist, relieved from duty at Louisville, Ky., and directed to proceed to Washington, D. C., and report at Bureau for temporary duty—January 13, 1904.

FERDINAND, G. O., pharmacist, to proceed to Louisville, Ky., and report to the medical officer in command for duty and assignment to quarters—January 26, 1904.

Boards Convened.

Board convened to meet at the Bureau, January 25, 1904, for the physical examination of officers for promotion and applicants for admission into the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

Board convened to meet at the Marine Hospital, Port Townsend, Wash., February 1, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon J. H. Oakley, chairman; Passed Assistant Surgeon M. H. Foster, recorder.

Board convened to meet at Washington, D. C., January 26, 1904, for the physical examination of such officers of the Revenue Cutter Service and applicants for admission thereto as may present themselves. Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

Promotions.

Assistant Surgeons W. C. Billings, J. W. Kerr, and G. M. Corput commissioned as passed assistant surgeons, to rank as such from December 29, 1903, December 31, 1903, and January 6, 1904, respectively—January 12, 1904.

Appointment.

George O. Ferdinand, of New York, appointed pharmacist of the third class—January 21, 1904.

American Medicine 247

GEORGE M. GOULD, *Editor*

G. C. C. HOWARD, *Managing Editor*

COLLABORATORS

Clinical Medicine

DAVID RIESMAN
A. O. J. KELLY
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Legal Medicine
JOHN MARSHALL

General Surgery

MARTIN B. TINKER
A. B. CRAIG
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Vaccination a Condition of Entrance to Almshouses, Hospitals, etc.—The authorities of the Philadelphia Hospital have made it a rule that no inmates will be received at the almshouse and hospital unless there have been recent vaccinations, or the patients are willing to be vaccinated at once. More than 5,000 are given treatment, food and lodging at the institution, and if smallpox were not prevented the place might at least become a source of great public danger. Is this capital rule in existence in many or in most institutions of the kind in the United States? The taxpayers have a right to demand it, and the profession through its influence could undoubtedly secure the enactment and execution of the necessary laws. One caution is necessary; the antivaccinationists must not be allowed to defeat the preventive measure by nitric acid sores or other scars made to deceive. If there is no way of detecting the fraud some methods of lessening it should be devised. Should not test questions, and even affidavits, be demanded by the examiners?

Does the Pay-Patient Department Pay?—In its first annual report that excellent institution *The Hospital Association of Philadelphia* gives the answers made by a number of hospitals to a list of suggestive and important questions. Among them was this:—

Is the pay-patient department a profitable one?

The answers were as follows:—

"Yes," without qualification, was the reply of eight—The Philadelphia Orthopædic, Episcopal, Mercy of Pittsburg, Orange of New Jersey, Roosevelt of New York, Rhode Island of Providence, Buffalo, and Johns Hopkins.

"No," without qualification, was the answer of four—The German of Philadelphia, West Pennsylvania of Pittsburg, Boston City, Lakeside of Cleveland.

No answer was given by the Presbyterian of New York, Massachusetts General, University of Pennsylvania.

The Pennsylvania of Philadelphia says, "with a small number of rooms, as we have, the profits are small."

"Difficult to determine," writes the Presbyterian of Philadelphia.

St. Luke's of New York answers: "In wards, no; in private rooms, yes."

"Not satisfactorily determined," replies the New York Hospital.

The Boston City answers: "We do not consider paying patients profitable. The cost of a paying patient in a private room is not less than \$3.00 a day, and it is a losing game at that."

The Presbyterian of Chicago says: "Depends on how it is conducted."

The General Memorial of New York says: "Yes, for rooms renting above \$25.00 per week."

The conclusion to be drawn by hospital workers, supporters and endowers is a curiously mixed one. That there is glaring abuse of the private room system in some hospitals is asserted; that under the best circumstances it may be a failure is demonstrated. The question at least remains as to encouragement of the plan in hospitals to be built, or its extension in those already in use. Is it a proper use of money given for the benefit of the poor?

The Physician as Practitioner, Scientist, and Philosopher.—The ideal physician should possess a number of theoretic and practical qualifications such as an ordinary mortal but rarely combines. If a physician is a far-seeing individual, if he has the gift of quick and intelligent observation, together with the ability of associating ideas, if, in short, he is a man of shrewd common sense, it is not indispensably necessary for him to possess the highest possible erudition and scientific perfection to become an excellent clinician and perform most valuable services in the interest of humanity. But it certainly is a prerequisite to possess the philosophic qualifications for recognizing and diagnosing the cases he is called upon to treat and to take into proper consideration all the by-factors which may have a more or less determining influence upon the issue before him. A physician of that caliber, even without marching in the limelight of scientific supremacy, may be an ornament to his profession. On the other hand, the physician as a scientist pure and simple, may contribute the most learned dissertations on the special subject the exploration of which he has chosen as the task of his life; his scientific attainments may far exceed those of his humble confrere, the common-sense practitioner; and yet, for that matter there is no conceivable reason why he should be a greater or even as great a benefactor in the

realm of pathology. On the contrary, it is more than likely that he so binds himself up with that comparatively narrow circle of vision that pertains to his special branch of science that he is likely to approach everything from his own individual standpoint, look at everything through spectacles clouded by personal prejudice, try to explain matters of general import—so far as he attempts to explain them at all—from his own special point of view. He may, in fact, dote with the greatest possible application and fervor, with the zest and enthusiasm of the true scientist, upon minute details, but fail in the rudimentary principles of the common-sense practitioner. He lacks the power of initiative and force of creation. If nature has ever bestowed these priceless gifts upon him he is almost certain to lose them through one-sided study, through concentration upon one more or less theoretic subjects.

Champions of Retrogression.—Representatives of medical science, such as these, will but scantily contribute toward genuine progress in spite of the isolated discoveries which may, at few and distant intervals, light up their monotonous plodding like an unexpected shooting star in the dreary black of a dismal autumn night. When these scientists have once enshrouded themselves in their pet theories and notions, for the nursing of which they may have spent the best part of their lives, it is very difficult, and almost impossible for them to give the same up in favor of results attained by the genius of others, faulty though their own researches may have proved. In this respect they are veritable champions of retrogression; they obstinately cling to their own doctrines in which alone, they think, salvation lies ensconced, and thus produce a stagnation on the very field the cultivation of which they profess to have elected as their special domain. They thereby brand themselves as representatives of a doctrinary science—a science which has ceased to live, and which in reality is no longer a science from the moment that it is recognized to be false. Essentially great questions which have a true bearing upon the health of the individual, the health of the nation, the health of the human race, have never been asked by these representatives of science, but rather by those practical men who have no time for specifically scientific pursuits. From this point of view it would appear that the general practitioner who mixes with the people, who looks into the houses, into the beds, and into the stew-pans, who knows the world at large, and also the particular world in which he moves, who not only observes things, but also associates them with surrounding circumstances, can contribute far more food for the solution of philosophic problems than his brother who works with microscope and testing-tube. It is no cause for wonder, then, that the really great questions affecting the natural sciences have never been asked by professional scientists, nor is it cause for wonder that so many medical discoveries have been made—not by those who have devoted their lives to the confines within which the discoveries ranged, but by the unknown practical men who cannot boast the highest scientific education, and whose names are not always chronicled on the scroll of fame.

Scientific Drudgery.—There is, of course, no doubt that scientific drudgery is likewise a requisite adjunct to progress to a certain extent, but often there is little true thinking about it. It is drudgery pure and simple, and philosophy goes to the wall. And that is why the general practitioner who keeps his eyes open and his wits about him, who collects and sifts his impressions, and draws his practical conclusions, will usually recognize the seat and nature of an ailment in a far more satisfactory and reliable manner, and thereby render more good to his suffering brethren than his scientific confreres will do. Although scientific medicine so-called has made great strides in these latter days, especially in America, it is, if we want to be honest, sometimes nothing but a fad which presupposes and absorbs but little of the human mind—and the little minds of modern times are but too prone to follow slavishly a movement that requires but little perspicacity of mind to execute. It resembles the old story of the rat-charmer of Hamelin, whose alluring whistle the thoughtless youngsters of the village followed. Wholesale research in the laboratory is too commonly weak, but the practitioner possessed of good education and endowed with good powers of observation and association, who works by himself in the seclusion of his own study, and arrives at his own results and conclusions, represents a good type of individuality, and is strong. Paradoxical as it may sound, medical research as conducted nowadays is often nothing but hard labor, while the individual practitioner who exerts his intellectual faculties is the real philosopher.

"City Hall and Court House Sputistics" formed one of the most interesting and suggestive exhibits at the recent Tuberculosis Exposition in Baltimore. The following "sputistics" were collected by Dr. J. S. Fulton:

In eight walks around the City Hall on eight different days between the hours of 10 a.m. and 2 p.m., there were counted:

Separate deposits of sputum	2,013
Highest count, January 16, 1904	390
Lowest count, December 26, 1903 (bitter cold)	144
Average count	251.6

The filthiest spot was the Holliday street front; in the second degree disgusting, honors were divided between the southeast and the southwest corners.

In New York and some other cities it is reported that magistrates fine the spitters when brought before them, but in most cities there is no law against them, or no attempt at its execution. In Philadelphia *quis custodiet ipsos custodes?* Moreover, why build sanatoriums and permit the broadcast scattering of the germs for new infections?

The Atypical Child.—Under this title, Dr. Maximilian P. E. Groszmann read a paper Thursday night (Jan. 28), at the regular meeting of the German "Gesellig-wissenschaftlichen Verein," of New York. He said that he had suggested the use of the term "atypical" for a certain class of children, so as to distinguish them from the defectives, such as idiots, feeble-minded, blind, deaf-and-dumb, etc. While some provisions exist for the handling of the defective classes, little or nothing has been done for the atypical children. There may be distinguished three groups of these. The

first group is formed by what may be styled the "submerged classes," those who have for centuries been lagging behind the advance of civilization, and are really outside of it. They represent a primitive type of development. Their number is augmented by those children of originally normal conditions who, on account of some pathologic or other reason, have come to a stop in their natural progress. Especially the period of pubescence and adolescence is fraught with dangers; if children of this age are not properly handled, they may lose their bearings, and their rational development may be checked in the bud. While this first group is composed of children whose development may be said to be arrested, the other two groups represent merely a retarded or interrupted development. The second group consists of those where bodily causes, derangements of the digestive apparatus, difficulties of sense perception, etc., have thrown the child out of gear. Dr. Groszmann laid much stress upon the evil effects of adenoid vegetations. He said that the observable mental and moral difficulties can largely be cured by proper medical treatment, in addition to educational measures. There are also many children whose rate of mental growth is merely slow, but who really possesses much power. There is a third class, namely, that of children who are afflicted with disorders of the nervous system. Neurotic and neurasthenic conditions are very characteristic of modern life with its rush, excitement, and restlessness. There is overstimulation in school and home, under which so many children suffer; of the troubles of the adolescent girl whose nerves become shattered by overstrain in study at this critical period; of youthful hysteria; perverse tendencies; morbid conditions of fear; disturbances of sleep, appetite, and concentration; contrary activities; disturbances in the motor sphere, such as twitching, jerkings, habit tic, etc. Most of these children must be taken out of the ordinary school. For some it will suffice to establish special classes, such as are being instituted at present in some of our public schools. Others need an entire change of environment, proper hygienic conditions and exercise; a general tonic regimen, physical and mental, and a very rational method of instruction, including manual and physical training, and very much individualizing. Special schools will have to be established for their benefit, and a constant cooperation of physician and educator is necessary.

The Roman Catholic Church and Dissection.—In *The Messenger* for October, 1903, Dr. James J. Walsh corrects a popular error which has been inveterate during 600 years of modern history. It is asserted in practically all encyclopedia articles on the history of anatomy, that as a consequence of a Papal bull issued about 1300, forbidding the mutilation of the human body, all direct dissection, and consequently all opportunity for true progress in anatomy was hampered during several important centuries in the history of modern science. This presumed Papal prohibition is claimed to have precluded all possibility of the proper acquisition of anatomic knowledge until the beginning of the sixteenth century, when the golden age of modern anatomy set in. Notwithstanding almost universal concordance on the part of

writers of the history of anatomy in English, there are no good grounds for saying that the bull issued by Pope Boniface VIII was directed against the practice of human dissection. Moreover, this Papal document was not by any misunderstanding assumed by ecclesiastic authorities to forbid dissection. The practice of dissection can be traced at all the Italian universities during the two centuries in which the bull was supposed to have its deterrent effect; and these universities, it must be noted, were everywhere directly under the control of churchmen. During the fourteenth century the popes took up their residence in Avignon. This brought them into intimate relations with the university of Montpellier, and yet during their stay here the practice of dissection was not only not forbidden, but actually became one of the standard features of the university teaching, and special arrangements were made with the permission of ecclesiastic authorities by which the bodies of criminals were handed over to the medical department of the university to be treated as anatomic material. The story of the misunderstanding told by Dr. Walsh is convincing. It is strange that the real source of the historic error was a history written by churchmen. The object of the bull was to stop the practice of dismemberment and disemboweling which had arisen during the crusades.

Hospital Bookkeeping.—The Hospital Association of Philadelphia, through a special committee, renders a report upon hospital accounting which should receive the serious attention of all hospital superintendents and administrators. It recommends above all some uniform system whereby the statistics of expenses can be made of any use whatever in comparison with each other and for the benefit of those asked to contribute to support. For example, in determining the number of hospital days some only include actual days during which patients have been maintained—others count parts of days as full days, including dispensary patients, in their calculation. In determining cost of maintenance some deduct more, others less, from actual outlay. The Pennsylvania Hospital, the Presbyterian Hospital, the Germantown Hospital, the Methodist Episcopal, and the Jewish Hospitals include everything in cost of maintenance, except the cost and repair of permanent improvements. The University Hospital excludes medical and surgical supplies.

The committee believes that the actual cost of maintenance is the actual expenditure—but thinks it advisable to note, separately, the cost of creating and maintaining the hospital plant and the aggregate cost of maintaining the patients, without attempting to determine the total cost per day for each patient. It might be advisable to state the cost per day, per patient, for diet, medical supplies, light and heat, and nursing. But until there can be some agreement as to the basis of calculation one cannot expect statements of costs that may be correctly compared. The most of the hospitals reporting expressed the wish that there might be, at least, agreement in respect to the basis of calculation that correct statements of the cost of daily maintenance might be given to the public. It would hardly be pos-

sible to separate the cost of caring for private patients from the cost of caring for ward patients, and yet the average cost is of necessity greater in hospitals which care for private patients. Taking everything into account, it is the conclusion that the most satisfactory statement, both for the public and for the hospitals, would be something like the following:

- 1.—(a) Whole number of private patients treated.
- (b) Whole number of ward patients treated.
- (c) Number of full hospital days.
- (d) Number of patients remaining less than 24 hours.

These facts, fairly stated, would give a correct basis for calculating the actual service of the hospital.

2.—Cost of Plant Maintenance.

- (a) Administration and general wages.
 - (b) Improvements, furniture, and repairs.
 - (c) Interest, insurance, and taxes.
 - (d) Light and heat.
- Total cost of plant.

3.—Cost of Maintenance of Patients.

- (a) Medical and surgical supplies.
- (b) Nurses and attendants.
- (c) Food and clothing.
- (d) Emergency supplies.

Total cost of patients.

Courier or Companion Nurses.—The Hospital Association of Philadelphia brings up a new question as to the nursing profession. Because of the increasing demand for trained nurses as traveling companions, in care of the sick or convalescent patients, it recommends that the Association adopt or invite the preparation of an elementary textbook, possibly in the form of questions and answers, that will be useful to nurses and others needing information as to hotel and traveling rules and customs at home and abroad. It also suggests the desirability of acquiring a knowledge of French, possibly as a postgraduate course, by nurses contemplating acting as courier companions in foreign travel; the preparation for this service should be entirely elective or voluntary on the part of each individual nurse. The hospital records of graduate nurses should include a reference to the foreign languages they speak, if any, and attention should be directed to the fact that some of the hospitals, when they have desirable applicants and no vacancies in their training schools, endeavor to secure for such applicants temporary positions as companions, where no trained nursing is required, to occupy their time until an opportunity occurs to enter the training school.

Doctors and their Incomes in the United States.—There are about 200,000 doctors in the United States, or about 1 for every 350 people. It has been approximately estimated that the average yearly income of these men is \$750, or that the public in the country pays \$150,000,000 annually for medical attendance, omitting entirely the money spent for patent medicines which brings millions of dollars to manufacturers, or the amounts spent for doctors' prescriptions, or paid to quacks and commercial doctors. The preparation for the practice of medicine that gives a man a good standing in the profession means an expense of, liberally speaking, \$4,000 for 4 years in a reputable medical school, \$1,000 for general expenses during 2 years' hospital service, and, perhaps, another \$1,000 for setting up in practice. A year or two in Europe is also a help.—[*Leslie's Monthly*.]

AMERICAN NEWS AND NOTES.

GENERAL.

Sleeping Sickness.—According to newspaper accounts, a young girl of Centralia, Ill., has died from sleeping sickness. This is considered interesting in connection with the statement that Dr. Muhlberg, bacteriologist of the medical department of the University in Cincinnati, has found the germ which causes sleeping sickness in rats. It is thus believed that the disease may be conveyed by ships to ports of any part of the world.

Eddyite Treatment Failed to Cure Even a Cow.—The Denver *Republican* of January 14 says: "It is not expected that Mrs. Anna Tweedy will practise eddyite methods of healing upon dumb animals in the future. The State Humane Society, through Assistant Secretary Oliver E. Tuft, recently prosecuted her in Justice Byrne's court on the charge of cruelty to animals, alleging that she tried to heal the broken hip of her cow by absent treatment. The court imposed a fine of \$100 and costs, but owing to the fact that Mrs. Tweedy is not wealthy and is a cripple, the fine was remitted."

Miscellaneous.—THE DAILY MEDICAL is the title of a daily publication, the first number of which appeared February 8, 1904. Its editorial columns set forth that it is to be published daily, Sundays excepted, and is to be devoted to medical literature. It will combat the various evils which beset the medical profession of today, will advocate a united profession, and will urge legislation on all appropriate medical subjects. The first issue at hand is sprightly, interesting, and indicates that the journal will be worthy of success. The editor is Dr. M. W. Curran, and the *Daily Medical* will be published in New York. —SOUTHERN MEDICINE AND SURGERY is the title of a new monthly journal published in Chattanooga, Tenn. The first issue appeared in January and it contains some valuable reading matter.—It is reported that Dr. Nicholas Senn has gone to Japan, to assume charge of the surgical corps of the Japanese army.

To Fight Mosquitos.—The Monterey Board of Health is now distributing thousands of small earthenware bowls containing a mixture of sulfur and saltpeter and suspended by wires so as to be easily let down into a well. The object is to thoroughly disinfect all wells, and every householder is cautioned to ignite the sulfur and lower the bowl into the well by a cord, so that all portions may be cleansed of whatever mosquitos may live there. The expense of this is borne by the Board of Health department, and thus early means are taken to prevent a recurrence of yellow fever this year. No effort is being spared by the officials to kill every mosquito, and to this end the entire force of the Board of Health is working in harmony with the civil authorities. Various stagnant pools in different parts of town are being filled, disinfection is going on all the time, and everything possible is being done to avert the fever.

Filthy Money.—A bill has been introduced in Congress which provides that the banks shall forward to the treasury, for redemption and reissue, all notes coming into their possession, whenever the amount on hand reaches \$1,000. The explicit purpose of the bill is to do away with filthy bills which are constantly in circulation and thus diminish the dangers of infection from this source, to say nothing of the esthetic side of the case. The *Philadelphia Ledger*, commenting on this editorially, says in part: "A million or two of bacteria are carried in the pocket of nearly every one who possesses an old dollar bill, but a man who refuses a note because it is filthy is regarded as too eccentric for the transaction of business. We are all so eager to seize money in whatever form it appears that we do not wait to disinfect it. We boil suspected water, but we cannot boil our money. Possibly, long contact with infected money has made some of us immune; but even if there be no peril in the rags that are 'legal tender,' clean or unclean, the public is entitled to have decent bills. In some portions of the country a respectable looking bank note is a curiosity."

EASTERN STATES.

Typhoid Epidemic Caused by Flies.—Information from New Haven, under date of February 3, says: To flies which carried contagion is ascribed the epidemic of typhoid fever which afflicted 21 patients, causing 7 deaths, at the New Haven county jail. A report of Dr. H. E. Smith, of the Yale Medical School, and Dr. Edward Mahl, of Hartford, who were appointed to investigate the cause of the epidemic, says: "The occurrence of several cases of typhoid fever in houses in Hudson street, near the jail, which must have infected the premises, the abundance of flies, the open communication between the jail kitchen and the adjoining yards through the windows, all suggest the probability that the infection was brought into jail by flies. From the nature of the cases such transmission cannot be proved, but it is rendered probable by the conditions known to exist and the consideration that these insects have been a potent cause for the dissemination of typhoid fever during the warm weather in military camps."

NEW YORK.

State Charity Wards in New York.—The thirty-seventh annual report of the State Board of Charities, just sent to the Legislature, shows that there are 61,935 persons in the several charitable institutions. In addition temporary relief was given to 29,773 persons. The expenditures for 1903 amounted to \$1,863,218.83, and for this year \$2,334,325 is asked.

Reduced Deathrate in New York City.—The State Department of Health, in its bulletin of vital statistics, states that there were 127,100 deaths in 1903 in this State, a mortality of 16.7 per 1,000 population. The bulletin states: "The infant mortality exceeded that of 1902 by 1,500, but was 4,000 less than the average. The 22,000 deaths at the age of 70 and over, constitute the same percentage of the entire mortality as in 1902—17%. Smallpox caused 41 deaths, all but 16 occurring in and about Rochester. There were 10,250 deaths from pneumonia and 7,960 from Bright's disease. The acute respiratory mortality was about the average. The grip is estimated to have caused 8,000 deaths, and its annual recurrence is apparent during the closing weeks of the year."

Insane in New York State.—A large increase in the number of insane persons who have gone for treatment to the various State hospitals and licensed private asylums is noted in the annual report of the State Charities Aid Association, which has just been issued. For the past 6 years the total increase of the insane in both public and private institutions has averaged 708, but the increase up to October 1, 1903, was 941 over the previous year. The increase in the State hospitals, not including the 2 asylums for the criminal insane, was 918; as against 663, the average of the past 6 years. There are at present nearly 26,000 patients in the insane asylums of the State. It is proposed to erect 2 reception hospitals in Greater New York for preventive treatment in incipient stages for those afflicted with mental disease. These would do away with the concealment and neglect so usual at present, and would also serve as centers from which knowledge could be disseminated to the medical schools and throughout the medical profession. With such a hospital, it is declared, the city could do away with a psychopathic ward in connection with the new Bellevue Hospital.

Guarding the Water Supply in New York State.—In a recent message to the Legislature, the Governor of New York, concerning typhoid and other infectious diseases, says: "A complete record of the sources of public water supplies and the possible conditions which may produce epidemics of typhoid fever or other infectious diseases should be secured by the Health Commissioner, and I recommend that an appropriation be granted by the Legislature for this purpose." Commenting on this an exchange says: "According to a report from the State Commissioner of Health, there were nearly 25,000 cases of typhoid fever, with a mortality of 1,635 cases, in New York State during 1903. If we take each life sacrificed to the fever to represent \$5,000, as is commonly calculated, there was lost last year, through the deaths alone, \$8,175,000. Assuming the expense of nursing the 25,000 cases at the low figure of \$50 apiece, the cost of the sickness was \$1,250,000. If one-fifth of those who were sick were wage earners, receiving wages which averaged \$1.50 per day, and each patient was incapacitated for work about 6 weeks, the total loss of earnings would probably exceed \$270,000. Bringing these several items together, the grand total of the cost of typhoid fever to the citizens of New York State is found to have been over \$9,695,000."

Crowds of Immigrants and Their Diseases.—In an address before the Universalists' Club, New York City, Mr. Frederick H. Page is quoted as stating that 2 whole regiments of immigrants leave European ports every day in the year for New York. During 1 day on which he visited Ellis Island the officials handled 2,400 immigrants from Bremen and 200 from Liverpool. As many as 6,000 have been handled in a single day, while in 1 day, April 9 last, 12,600 steerage passengers arrived at Ellis Island. These immigrants are examined to determine if they are affected by any contagious disease. During the year 1902, 748 of them were deported because of being afflicted with trachoma. Beginning in April, 1903, a fine of \$100 was laid on steamship companies for every case found, which could have been detected before the ship sailed. Vigilance at Ellis Island has caused such diseased immigrants to enter the United States via Montreal and at other places on the Canadian border. But such vigilance has been shown by the United States inspectors there that the astonishing number of 5,158 diseased and otherwise objectionable immigrants have been denied entrance on the Canadian frontier. They are now coming in from Mexico, where our frontier is not so well guarded. Some 857,000 steerage aliens entered the United States in the year ended June 30, 1903, and 682,000 of them entered via Ellis Island, 63,000 through Boston, 56,000 through Baltimore, 28,000 through Philadelphia, and scattering thousands through the smaller gateways. This is not only an increase of 208,000, or 32% on the total immigration of the previous year, but it is the greatest year of immigration ever known.

PHILADELPHIA, PENNSYLVANIA, ETC.

International Course on Tuberculosis.—The next lecture in the International Course on Tuberculosis, under the auspices of the Henry Phipps Institute, will be given by Dr. Herman M. Biggs, chief of the Department of Health in New York, on Monday evening, February 15, at Witherspoon Hall, the subject being the "Administrative Control of Tuberculosis."

Decrease in Smallpox.—Smallpox showed a decided decrease in the number of new cases reported to the Bureau of Health for last week, as compared with the previous week or any week in the last 2 months. There were 54 cases and 16 deaths from the disease, compared with 65 cases and 17 deaths for the previous week. Typhoid fever also showed a marked falling off, 88 cases and 13 deaths being reported, as against 126 cases and 10 deaths for the preceding week.

American Society of Tropical Medicine.—Dr. James Carroll, who is now stationed in Washington, as instructor in bacteriology in the United States Army Medical School, delivered an address upon the etiology of yellow fever, on Saturday evening, January 9, in the auditorium of Houston Hall, Philadelphia. Dr. Carroll is a member of the celebrated commission appointed by the Surgeon-General to investigate yellow fever in Cuba, and is a wellknown expert on tropical diseases. He came upon the invitation of the American Society of Tropical Medicine. Dr. Carroll reviewed the early researches upon the etiology of the disease, giving special consideration to the work of Freire, Sanarelli, and Finlay, then the work of the commission, whose researches have now become world wide, and proving that yellow fever is propagated by the bites of the mosquito known as *Stegomyia fasciata*. It is only the female mosquito that bites, therefore, only the female mosquito that becomes infected. The mosquito is able to impart the disease only after 12 days have elapsed since its own infection, and may retain the ability to infect after many months, providing it does not meet with destruction in the meantime. A description of the experiments made to show the infectiousness of fomites, seemed to exclude all possibility of yellow fever being transmitted directly. Confirmation of all of the work of the United States commission has been given by the more recently appointed French commission. For information regarding the society, apply to the secretary, Dr. Joseph McFarland.

SOUTHERN STATES.

"Maryland Medical Journal."—Our esteemed contemporary, the *Maryland Medical Journal*, through the recent conflagration in Baltimore, has lost the entire issue for the month of February. This is especially regrettable on account of its containing a number of valuable papers and an exceedingly rare and valuable report concerning the recent Tuberculosis Congress held in Baltimore. The regrettable occurrence is a distinct loss to the profession.

Care of the Insane in Maryland.—News from Annapolis under date of February 3, says: "A notable reform is attempted by the bill introduced relating to the care of the insane in the State. Its provisions require the State to assume absolute charge of all insane persons who are residents of the State at present, or who may hereafter be adjudged insane, and that they shall be confined and treated in institutions under the management of the State. In furtherance of this purpose, provision is made for the transference, as soon as practicable after the passage of the bill, of all insane persons confined in institutions under the control of the different counties. In most of the counties of the State there are insane persons in almshouses, jails, and other such places, where the facilities for handling them are entirely inadequate and improper."

WESTERN STATES.

No Funds to Manufacture Antitoxin.—The University of Illinois, through President Draper, has refused to manufacture antitoxin at the University laboratory, because of lack of funds to start the work. It was stated that, although the University was empowered to manufacture antitoxin and vaccine lymph, it would be impossible to do so at this time, as no money was available for the purpose.

Vitality of Diphtheria Germ.—That diphtheria may live in packed clothing almost indefinitely is shown by an incident which occurred in an Ohio village. A child died of diphtheria and its mother packed its dresses and toys in a chest. The mother died 15 years afterward, and her daughter and granddaughter, who opened and handled the contents of the chest, were duly taken ill of diphtheria, although there had recently been no cases in the village.

Free Nurses Care for Thousands in Chicago during 1903.—Patients numbering 7,252 were cared for 46,058 times last year by members of the Visiting Nurses' Association, who expended \$23,321. This report was made recently at the annual meeting of the charitable organization in the Unity Building. The association has 19 nurses, and no pay is received from persons attended. Contributions of the year were \$25,768, and 408 cases of tuberculosis and 307 cases of typhoid fever were treated in 1903.

FOREIGN NEWS AND NOTES

GENERAL.

The Heathen Chinese.—Dissection has no place in the Chinese study of anatomy. The Chinese look upon the skull and the pelvis each as one bone. They think that the small intestine communicates with the cavity of the heart, while the colon terminates in the lungs; that the liver is the habitat of the soul; that the gallbladder is the receptacle of courage; that in its ultimate structure the body is composed of fire, water, earth, wood, and metal. Truly, this is fearful and wonderful.

To Purify the Air.—M. Desgrez, in the *Bulletin of the French Physical Society* (No. 185), describes a new apparatus for maintaining a supply of pure breathable air in a small closed space. It consists of a distributor which, by the action of clockwork, drops sodium peroxid into water at regular intervals, a cubical steel box, and a ventilating fan. The sodium peroxid is decomposed by the water with liberation of oxygen, absorption of carbon dioxide, and destruction of the other toxic products of respiration. A refrigerator is also supplied to counteract the heating effects of the chemic reactions. The complete apparatus weighs about 26 pounds.

New Method for Sterilizing Water.—Professor Paterno, an Italian, has suggested a process for the purification of drinking water, which constitutes a great step forward in the study of this important problem, says the *Tribuna*, Rome. From numerous and extensive experiments made by this author it appears that by adding to impure water, even that containing pathogenic microbes, an extremely small quantity of silver chlorid, there is accomplished the complete disinfection of the water. For this purpose 2 mg., or at most $2\frac{1}{2}$ mg., of the chlorid, insufficient to absolutely sterilize a liter of water and to eliminate every danger of infection. The sterilization is completed in a few minutes—10 at the most—and no apparatus is necessary beyond a small vial with a solution of silver chlorid.

OBITUARIES.

Joseph B. Roe, at his home in Woodbury, N. J., February 5, aged 68. He was graduated from Princeton University in 1858, and from the medical department of the University of Pennsylvania in 1861. He served as a surgeon in the Federal Army during the Civil war for four years. He served in both branches of the State Legislature of New Jersey, and was at one time postmaster at Woodbury.

Henry Buehler Buehler, at his home in Harrisburg, February 1, aged 69. He was a graduate of the Jefferson Medical College. He served as surgeon in the Federal Army during the Civil war, and for his bravery was made a member of the Loyal Legion of Philadelphia. Of late years Dr. Buehler had devoted most of his attention to insurance.

W. H. Gale, a prominent resident of Somerset county, Md., at his home February 3, aged 74. He was formerly in active practice, but retired some twenty years ago. At one time he was register of wills of Somerset county. He also served in the State Legislature and was well known in his community.

John B. Murphy, at his home in Brockville, Ont., January 17, aged 54. He was a graduate of the College of Physicians and Surgeons of Ontario, Toronto, in 1876. He was medical superintendent of the Hospital for the Insane at Brockville, and widely esteemed for his knowledge and ability.

Oliver Chase Wiggin, in Jacksonville, Fla., February 3, aged 63. He was a graduate of the medical department of Harvard University in 1866, and at one time president of the Rhode Island Medical Society, and president and secretary of the Providence Medical Association.

George Thompson, at his home in New York, February 2, aged 87. He was born in Belfast and came to this country in his youth, graduated in medicine and had practised in New York City more than forty years. He retired from practice some fifteen years ago.

D. F. Murphy, at his home in Woburn, Mass., January 31, aged 44. He was a graduate of Harvard Medical College in 1887, a member of the Massachusetts State Medical Society and of the Eastern Middlesex District Medical Society.

W. W. Firestone, at his home in Wooster, O., January 25, aged 61. He was graduated from the Charity Hospital Medical College, Cleveland, O., in 1865 and a member of the American Medical Association.

Aaron S. Van Buskirk, at his home in Fort Wayne, following an operation for gallstones, January 25, aged 56. He was a graduate of the Medical College of Ohio, Cincinnati, in 1876.

Charles J. Warner, at his home in Congress, Ohio, from cancer of the stomach, January 23, aged 68. He was a graduate of the Cleveland Medical School in 1862.

W. S. Charlton, at his home in Philadelphia, February 2, aged 46. He was a graduate of the University of Pennsylvania in 1883.

C. B. Naudain, at his home in Wilmington, Del., February 2, aged 67. Death was supposed to be due to paralysis of the heart.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

SCHOOL HYGIENE.

To the Editor of American Medicine:—In Dr. Smith's article on "School Hygiene," in your issue of November 7, there is one statement so at variance with the general good sense of the article that I feel that I must take issue with it, since were it to go unprotested it might do harm.

In speaking of the duties of a school janitor, she includes, very naturally, the supervision of the heating of the school building, which is unquestionably an all-important matter, for the temperature in which our children live and work has much to do with their health and welfare. When she says, however, "he should keep the temperature constant at from 76° F. to 80° F. for young children, and from 72° F. to 78° F. for older children, according to the climate," I feel that she is giving advice which certainly would be harmful in its results if generally followed. Unquestionably the average American is too used to rooms excessively overheated, and that is just the reason why he should begin to learn at school in early childhood what proper room temperature should be. I am sure that the pediatricists of this country will agree with me when I say that for no child in health is a temperature of a workroom from 76° to 80° proper, or even tolerable. Not only are these degrees too high, but the lower degrees of 72° to 78° far too great.

It has been very generally settled by hygienists, that the ideal room temperature is 68° F., which may be varied, however, to run from 65° to 70°. When you pass 70°, you begin to make heat harmful.

While this may seem a very small point to call forth a letter, I do not think that any one whose work causes him to pay careful and especial attention to hygiene would think so, and I trust that the Doctor herself in thinking over the matter, will agree to the correctness of my criticism and make her teachings in future more conformable to the standards that experience has set in this direction.

Asheville, N. C.

CHARLES L. MINOR, M.D.

I hope the foregoing letter may succeed in stirring up a general discussion and investigation of this most important question now under dispute; if so, the verdict of the majority will be accepted as the standard temperature for schoolrooms and I shall have done no harm.

I still believe that a "constant temperature at from 76° F. to 80° F. for young children and from 72° F. to 78° F. for older children, according to the climate," is correct for schoolrooms. The old fallacy of the "hardening process for children" is becoming quite universally discredited. I do, however, quite concur with you as regards "the ideal room-temperature" for healthy adults being from 65° F. to 70° F.; but how different are the conditions in these two instances! On the one hand, we have the fully developed adult, who only needs sufficient heat to carry on the ordinary processes of life, those incident to tissue waste and repair—the individual has become adjusted to his environment and he no longer needs the extra heat, unless he be engaged in some sedentary occupation requiring excessive mental labor and fatigue, in which case he, too, will find, providing the air is pure, the additional heat of from 2° F. to 4° F. above "the ideal room-temperature" almost necessary to his comfort and well-being while so occupied; even the older children engaged in some active occupation will find such a room temperature as you mention quite correct. But, on the other hand, children have the same conditions of life to meet as to tissue change and repair as does the adult, plus the strain incident to the developmental stages of life, hence they need more heat.

Let us stop for a moment to consider the lives led by average schoolchildren. They eat a hasty breakfast and hurry away to school. Those who are ahead of time engage in active play, while those who are late run part or the whole of the distance that they may be on time for "the bell." At any rate, when school opens the children are overheated, owing to the active exercise taken, the wearing of rubber raincoats or other

causes, and consequently, the blood is determined to the surface of their bodies and the process of digestion is retarded. Now let them sit for a while in a room with a temperature at from 65° F. to 70° F., they are very likely to "feel cold," with the result that the blood continues to be determined to the surface of their bodies and digestion, at best, to be carried on in a very imperfect way. Again, in the colder climates, children may become so chilled on their journey to the school that, if the room temperature be only from 65° F. to 70° F., their reaction to the warmth of the room may be so slow that they will remain uncomfortably cold for the rest of the school session. It cannot be otherwise, for they must sit quietly and study as diligently as they can be made to do—at any cost the school order must be maintained!

When you think how occupied their little brains are during school hours, with work that taxes their mental capacity to the point of bodily fatigue, and even to the point of exhaustion; how they must sit quietly at study and recitation, what a common experience it is for most brain-workers and others who are engaged in sedentary occupations to have cold feet; how cold feet are caused by an unequal circulation, which in turn tends to impair digestion, and thus cause other abnormalities, from which schoolchildren should be exempt; how many schoolchildren there are who arrive at school with damp clothing and, very many times, with wet feet, I think you will agree with me that it is not only important to have free air, but also to have a higher room-temperature to meet the manifold needs of the average schoolchildren than is essential to the requirements of the adult. Just here I might add, that in this climate, Tacoma, Wash., 66° F. to 68° F. would be the minimum, and from 70° F. to 74° F. would be the maximum temperature required.

I do not think, when the pupils are sitting during school time, there is so much danger to be feared from a constant temperature of 70° F. to 80° F. as from an irregular one, although, of course, we all recognize the evils of excessive temperature in the heating of rooms. But, also, we must not forget that a temperature that would be excessive for the adult may not be excessive for children; and that the temperature of the room for children at play or at work need not be as high as for children sitting quietly at study.

The great advantage I claim for the system of a medical supervision of schools, which I am advocating, will be that all matters pertaining to "school hygiene, the development of children, and preventive medicine," will receive careful consideration from those competent to understand the questions involved from a much more practical and comprehensive point of view than otherwise is possible.

It is only through such investigations, made after such a plan, that an objection like the one made by Dr. Minor can be satisfactorily studied and settled for the different parts of the country.

Tacoma, Wash.

ALICE M. SMITH.

GLUTEN FOODS.

BY

ARTHUR H. HOYT, M.D.,

of New York City.

To the Editor of *American Medicine*:—In your issue of November 21, is an article headed "The Diabetic Flour Swindle," in which you quote from the *New Hampshire Sanitary Bulletin*, the analyses made by its chemist of the various gluten flours advertised in this country. I am writing you from the standpoint of a manufacturer producing a flour that is being put on the market. I desire to criticize your article, not the part from the *Sanitary Bulletin*, which you have quoted, but more especially the editorial comment following: "And now comes the revelation, which we have in these columns prophesied. That there is no pure gluten flour to be had. That most of that so advertised is nothing more nor less than common wheat flour." We agree with you in stating that *much* so advertised, tests about the same as common wheat flour, but if you will look at the column of proteids in the table epitomizing

the work, you will notice No. 3, the analysis of ordinary spring wheat flour, which you undoubtedly mean when you say common wheat flour. The analysis of this practically shows a protein content of 11.38%. You will further note in the same column, 6 others that show a content of over 30%. Three in that same list are not called gluten flour, nor are they supposed to be advertised as diabetic foods. Some show a content of over 75% proteids, which is certainly very high, approaching nearly the highest we have ever obtained, which was 83% protein. There is certainly a great variation in the qualities of gluten flours mentioned in that table. But it seems to me the question for consideration, if you desire to give advice to the medical profession, is that it would pay to try to arrive at some correct standard.

There are manufacturers who are trying to produce an honest article, and the medical profession should arrive at some standard of purity, so that figures given in tables like this shall have some meaning. If you stop to consider that in the making of bread, yeast is used, and that the soil required for yeast is made up of carbohydrates, you will understand that it is quite necessary that there should be a certain amount of carbohydrates in gluten flour, otherwise the bread could not rise, that the yeast breaks up the carbohydrates into carbon dioxide and alcohol. When the gases have expanded, and the bread becomes baked or fixed in a loaf, the result should be pure gluten bread.

It is possible to take gluten, as it comes from the process of making wheat starch, and by further processes make it considerably purer. In fact, we are producing flour that is testing as high as 83% protein, but it has long since been found that such flour is impractical as a food, not because of its actual food value, but because it cannot be made palatable. Different batches of flour in our process produce gluten which varies somewhat, and which cannot be entirely controlled. Occasionally gluten is produced that would test as high as 53% protein, and almost invariably there is trouble in making bread from it. But regularly testing from 43% to 50%, makes possible good, palatable bread, and diabetics have had perfect results from its use. The small amount of starch represented can be oxidized if there is any vitality and no organ be over-taxed.

MAXIMUM AND MINIMUM FEES.

BY

JOHN MARSHALL GEST, Esq.,

of Philadelphia.

To the Editor of *American Medicine*:—In *American Medicine*, January 23, 1904, on page 127, appears a note entitled "Physician May Charge Maximum or Minimum Fees," containing the opinion of Judge Ashman, of the Orphans' Court, which is so inaccurate as to require correction. The case was not a contest between a Philadelphia physician and a "belligerent patient," but an attempt on the part of an Atlantic City doctor to charge a fee (adjudged by the Orphans' Court to be excessive) against the estate of his deceased patient.

The opinion of Judge Ashman on the question of "maximum and minimum" fees was stated by him to be merely his personal view, which was expressly repudiated by the other judges of the court in an opinion by Judge Penrose, which is given below.

In this case all the judges concurred in dismissing the claim of the physician for a larger compensation than that allowed by the auditing judge, and Judge Ashman said: "The charges of the several physicians and surgeons who attended the decedent in her comparatively brief illness exceeded \$1,500. A review of the testimony satisfies us that the award to the exceptant was made after careful deliberation, and is entirely just."

Penrose, J., concurring, January 7, 1904: That a physician may adopt a minimum rate of charge for his professional services to the poor, and a maximum rate, regulated only by his mere volition or fancy, in dealing with the rich, admits, of course, of no possible doubt, either as an abstract question of personal liberty or as a matter of bookkeeping; and if the maximum should be in excess of real value, the only conse-

quence would be that patients who survive the first employment will probably, after receiving their bills, not repeat it.

But when, in a court of justice, and especially in the court established to protect those no longer able to protect themselves, he demands payment for services rendered to a decedent, he is required to show not only that the services were rendered, but their value; and in the absence of proof of a special contract, or, at least, of knowledge on the part of the patient of the rates which he has thus seen fit to adopt, such rates will not avail him in the least degree. Here the distinction of rich and poor has no existence; the sole question is the intrinsic, commercial value of the services for which compensation is asked, and leniency on the part of the claimant in his dealings with the humble cannot be urged as a reason for demanding overpayment from the more wealthy. Manifestly his unsupported estimate of value will not be accepted as conclusive, while the fact, as in the present instance, that his "maximum" charge is only asserted as against rich, or supposedly rich, strangers temporarily sojourning at "first-class hotels or high-priced boarding-houses," while the so-called "minimum" is not only what equally reputable physicians charge in their general practice, but his own rate, to rich and poor alike, in his practice among resident patients, furnishes the strongest evidence that his maximum is unreasonable and excessive.

These, at least, are the views of the majority of the judges before whom the exceptions were argued, but as all were of opinion that the exceptions should be dismissed, the methods of reaching that conclusion are only important as affecting cases which may hereafter arise.

CASE OF PROTRACTED HIGH TEMPERATURE.

BY

L. H. MAYER, M.D.,
of Johnstown, Pa.

Protracted high temperature is so rare a condition that I consider the following case noteworthy:

The patient, M. B., was born September 17, 1902. There was nothing unusual about the delivery, and the child was plump and well developed. The mother states that from birth the baby seemed to be unusually warm. However this may be, when the baby was 3 months old, I was called to attend it in an illness which appeared to be due to pneumonia. The temperature was 104° F. and pulse 120, and she had all the other signs of a serious illness. There was gradual subsidence of pulmonary symptoms, but the temperature remained singularly high, and the pulse continued fast. After 3 weeks of vain attempts at reducing the temperature by means of the application of ice and sponging, and by the administration of digitalis or quinin, I reluctantly came to the conclusion that this treatment was of no avail. The child's general condition, however, was fairly good. It had lost very little, if any, in weight, was intelligent, but fretful, and slept well. A urinary test at this time revealed the presence of albumin, and I thought I had at last found a cause for the remarkable continuance of fever. Subsequent tests, however, proved the condition was transient. All treatment was now suspended, except that a digestive was used, as there seemed to be some tendency to stomach derangement. The baby up to this time was breast-fed; the mother was healthy. There is nothing in the parental history to indicate a hereditary taint, but 4 children died in early infancy. One child, however, is living, aged 13.

My little patient continued in her usual health until June 1, at which time an illness began similar to the one detailed, with the difference, however, of a much higher range of temperature. Treatment was practically without result. The mother has had in use probably a dozen thermometers, always getting another upon breaking one, and since the beginning of the first illness the temperature has never been under 101° F., and has usually been in the neighborhood of 102° F. During the second illness, when the child was about 8 months old, 4 teeth made their appearance in proper sequence. The child all this time had shown some tendency to gastric derangement, and because of a failure to gain in weight, artificial feeding was added to the mother's nursing. For some time now one or other of the iodine medicines was being used, and though without result, the child is still taking a prescription containing iodine in some form.

Recently I chanced to meet the father and asked him how the child was doing. He replied, "Oh, first rate!" When asked what the temperature for that morning was, he replied, "104°!"

The child has attained sufficient length and is apparently well nourished, but the skin has a peculiar unhealthy appearance. The tongue and teeth are apparently healthy. The eyes are large and bright, and all the senses seem active. The child plays and is quite intelligent. Examination of the back and all the joints reveals nothing, and she supports herself, but does not make an effort to walk. The mother says her temperature this morning was 102.4° F., and any thermometer you wish to use will now register not less than 102° F.

I have failed to find anything in literature resembling this case. In "Anomalies and Curiosities of Medicine," by Gould

and Pyle, reference is made to instances of very high temperature, but there is no mention of a case of protracted high temperature.

I think it is fair to assume that this is an instance of individual peculiarity, and this peculiarity may be stated to be due to a perversion of the heat center in the brain.

I have recently been using bromids and iodids, but I have little hope of improvement resulting from medication. I am forced to the unfavorable conclusion that the patient, though now intelligent, if she lives, will develop a brain lesion that will eventually deprive her of all intelligence.

EFFECTS OF AN OVERDOSE OF BROMOFORM.

BY

CHARLES E. FILBERT, A.B., M.D.,
of Atlantic City, N. J.

The case of "Poisoning Due to the Chemic Decomposition of Bromoform," cited by A. G. E. from A. L. Oberdorfer, and published in *American Medicine* of January 2, 1904, p. 39, calls to my mind a case I saw in the spring of 1903.

The cases are not precisely analogous, but have certain characteristics of similarity, and teach the same lesson, namely, a danger in the administration of a combination which has won its way, and rightly, into the profession as a valuable anti-pertussic remedy.

Whether the danger lies in the chemic decomposition of the preparation, or in its indiscriminate or injudicious administration, the occasional occurrence of cases like these sounds a note of warning:

The boy was about 4½ years old, and was suffering from pertussis previous to the family's leaving for the shore. His mother showed me a box labeled on the outside "Take as directed," Dr. ——. On the inside of the lid were the following directions to the apothecary: "Partially fill capsules with pulv. sacch., and drop 10 drops of bromoform on sugar. Then put this capsule into another larger one to prevent evaporation of the medicine."

The mother said she had given the child a capsule late in the afternoon, and as he did not seem bright, just before supper she repeated the dose. A short time after giving the second capsule he became very drowsy and was kept awake with the greatest difficulty.

On examination I found him pale, slightly cyanosed, with a rapid, feeble pulse. On being shaken and spoken to he would open his eyes, but immediately lapse into unconsciousness.

Strychnin sulfate 1 mg. (⅓ gr.) hypodermically, improved the pulse and aroused him somewhat. In the course of an hour he was himself again.

The case is interesting from the standpoint of overdosage and the lack of specific directions. "Take as directed" may mean every 4 hours 1 day and every 2 hours the next, depending entirely upon the memory of the nurse or mother.

TO PREVENT PNEUMONIA.

BY

BEVERLY ROBINSON, M.D.,
of New York City.

To the Editor of *American Medicine*:—May I add one do to some of the don'ts relating to pneumonia published in *American Medicine*, January 23, 1904, p. 124. The experimental researches of Welch show that *Micrococcus lanceolatus*, the admitted cause of croupous pneumonia, is a pathologic organism, but little tenacious of life, and whose loss of virulence is frequent and apt to occur rapidly. Is there not in this important fact a very substantial reason why we should endeavor to employ antiseptic inhalations early in the treatment of pneumonia, before lung consolidation has taken place, and while we may yet hope legitimately that the antiseptic vapor may reach every portion of the affected pulmonary area?

Families Decreasing in Size.—According to the Statistical Atlas of the United States, newly issued by the Census Office, the average number of persons to a family has declined from 5.6 in 1850 to 4.7 in 1900. In 1870 the average was a trifle above 5.

ORIGINAL ARTICLES

A CASE OF GUNSHOT WOUND OF THE BRAIN.¹

BY

JOHN A. WYETH, M.D., LL.D.,

of New York City.

A. T. I., aged 23, came under my care at the Polyclinic Hospital, August 11, 1903, through the courtesy of Dr. W. H. Sampson, of Mount Hope, W. Va.

In the February preceding, a spheric bullet fired from a 32-caliber pistol, had entered the cranium through the frontal bone, at a point about an inch to the right of the median line of the skull, and about the same distance from the junction of the interparietal with the frontoparietal suture. There was no wound of exit. The hemorrhage which was slight ceased spontaneously. He was carried to an emergency hospital in a neighboring mining town, but no effort was made to locate or remove the missile. He remained here about 2 months and was then removed to his home, being confined to bed the greater part of the time. While he was at no time entirely unconscious, he suffered evident impairment of the mind from the date of the receipt of the injury. He was at times delirious and while there was no paralysis of the sphincters the contents of the bladder and bowels were often passed without the consciousness of the patient. The track of the wound became infected soon after the accident and the opening was gradually plugged with a protrusion of granulation tissue through which a small quantity of pus discharged. There were at no time any symptoms of injury to the motor convolutions of the brain, nor to the special senses.

When, 5 months after the accident, I examined this patient, I found the local conditions as just described. The patient's intelligence was seriously impaired. He talked incoherently, was restless, and in order to prevent him from leaving his bed and wandering about the ward he had to be kept under constant watch.

Careful radiographs by Dr. J. A. Robertson, of New York, were taken from both sides of the skull, as well as from the front and back. That from the patient's right side showed the foreign body very distinctly. The picture from the left side was less distinct, while that from in front showed it, though dimly. The radiograph taken from the occipital region gave no trace of the missile.

As soon as the patient could be properly prepared for operation I cleared up the wound of entrance, and when a Nélaton porcelain-tipped probe was carefully introduced it practically found its way along a slightly tortuous route until at a depth of about 3 inches it came in contact with a hard substance resting upon the orbital plate of the frontal bone. Withdrawing the probe, I carried my finger in the direction which it had taken along the suppurating track to the base of the skull where I felt the bullet, and then by guiding a delicate forceps along the palmar aspect of the finger, the foreign body was extracted. In order to secure proper drainage the skull was cut through at the level of the orbital plate of the frontal bone just above the eyebrow, the dura thoroughly opened, and a soft-rubber drainage-tube passed through this opening to the deepest portion of the abscess. The original wound of entrance also gave exit to a drainage-tube. With the exception of a rise of temperature the day following the operation (104° F.) no unfavorable symptoms developed, and the patient steadily improved in every respect. The delirium disappeared after 3 weeks, he became rational, had full control of all his functions, and by October 10 journeyed unaccompanied to his home in West Virginia, where he arrived safely. At the time of his departure there was only a slight superficial granulation tissue about the wound, requiring a change of dressing every 2 or 3 days. This was looked after by his local physician until it entirely healed and the patient was discharged as cured. The wounds were entirely healed, all pain had disappeared, he talked and behaved rationally, and was able to resume his avocation.

While a brain, the right anterior lobe of which had suffered a very considerable loss of substance by traumatism and the destructive process of suppuration with

improper drainage, could not be expected fully to resume its normal function even after removal of the foreign body and with the establishment of thorough drainage and repair of the deep and superficial wound, yet this operation had resulted in the relief of all symptoms of brain disturbance with the exception of a slightly diminished intelligence.

The profession has been made acquainted with the remarkable case reported in the *American Journal of Medical Sciences* for July, 1850, by Professor H. J. Bigelow of Boston, in which there was recovery and resumption of function in a brain in which a large part of one anterior lobe was entirely destroyed. An iron rod 1½ inches in diameter, and 3½ feet in length, had, by the premature explosion of a blast, been driven through the patient's head, entering in front of the angle of



the jaw, passing obliquely upward through the anterior part of the cranial cavity, destroying the left optic nerve and emerging from the top of the frontal bone at the median line just in front of the point of union of the interparietal and frontoparietal sutures. The patient survived this injury for over 12 years, and notwithstanding the loss of so much brain substance from the anterior lobe, was able for a great part of the time to do the ordinary work of watchman and farm laborer. He finally died after a short illness accompanied by convulsions.

The treatment of gunshot wounds of the brain which are not immediately fatal may be considered under two different classes. 1. Those in which the missile passes entirely through the skull. 2. Those in which it lodges within the cranial cavity.

¹ Read at the ninety-eighth annual meeting of the Medical Society of the State of New York.

When a bullet has passed through the skull, the indications are to clear up the wounds of entrance and exit, enlarge these sufficiently to permit the removal of loose fragments of bone which may be driven into the dura or the brain substance near the wound of entrance, to remove any loose particles from the wound of exit, and to arrest by ligature all hemorrhage which may occur in the scalp wounds and in the wounds of the dura. When hemorrhage is occurring from the brain substance no effort should be made to arrest this by plugging either or both wounds for fear of compression upon the brain substance by retained clot. In order, however, to diminish pressure in the injured region and in this way to encourage intravascular coagulation, ligation of the extremities may be practised, in this way holding in the veins a certain proportion of the volume of blood which when the hemorrhage shall have ceased, may be gradually and carefully returned to the general circulation.

The question of drainage is important and the indications are in general met when a few strands of small catgut are placed along the track of the missile in the brain for a short distance and are brought out through the openings in the scalp. Should symptoms of intracranial abscess occur in these cases, the surgical indications are clear that an effort should be made to determine the location of the abscess and institute drainage.

In the second group, those in which the foreign body has lodged within the cranial cavity, any operative procedure must be determined upon by careful study of the conditions which are present. When the missile is of small caliber, and when no hemorrhage has occurred and there is no disturbance of function, I should advise careful antiseptic treatment of the wound of entrance, enlarging it for the purpose of removing any loose pieces of bone which may impinge upon the dura or brain, and of being assured that the foreign body had penetrated beyond the dura into the substance of the cerebrum.

About 1883 a case of this character came under my personal observation. A 26-caliber conical bullet entered the skull of a lad, 9 years of age, just over the middle line of the right eye, passing as well as I could determine from the history of the case and the appearance of the wound, directly backward through the brain. The hemorrhage had been insignificant. There was no paralysis, pain, or loss of function from this injury. Under an anesthetic, 24 hours after the accident, I made an incision, which exposed the wound of entrance through the skull, enlarged the opening with a rongeur, and removed several pieces of bone that had been driven into the dura. As the bullet had passed through this membrane and deeper in the substance of the brain, I deemed it unwise to attempt an exploration. The patient recovered without any unfavorable symptoms, and when I last saw him, 5 years after the accident, he was in perfect health, and had at no time suffered any suggestion of inconvenience from the presence of this piece of lead within the cranial cavity.

When the missile is of larger caliber, or when serious symptoms of injury to the brain are present, the indications are entirely different. The wound of entrance should be thoroughly exposed and cleansed, broken pieces of bone removed, and an effort made to locate the foreign body with a view to its removal.

By means of the radiograph the location of the bullet can be demonstrated, and when this apparatus is at hand no exploration along the track of the missile should be undertaken. When, however, circumstances do not permit the use of the röntgen ray, no better illustration of the method of procedure can be given than by the following instructive case, which was in Bellevue Hospital in 1884, in the service of my former colleague, Professor W. F. Fluhrer. The patient, 19 years of age, received a pistol shot wound, entering through the frontal bone and penetrating the brain. The wound of entrance was enlarged, and a very severe hemorrhage

from a vessel of the pia mater was controlled by a small clamp. A good-sized porcelain-tipped probe was carefully introduced and allowed to find its own way in the track left by the bullet. This instrument passed to a depth of 6 inches, where a slight resistance being met, it was allowed to remain. The direction of the probe indicated the point on the opposite side of the skull at which the missile had most probably struck. Slightly below this level a trephine was applied, and upon removing the disk of the bone the dura appeared dark, from blood effused beneath it. This was incised and the track of the bullet discovered, it having been deflected somewhat lower after impinging upon the concave surface of the skull. This route was followed by the trephine, the bullet found and removed. The probe was now carried entirely along the track of the missile in the brain, and through-and-through catgut drainage established. The patient recovered and returned to his occupation, suffering only with slight impairment of memory and occasional muscular spasms.

In the case which forms the subject of this paper it would have been better to have instituted immediate search for the bullet and to have removed it, for the amount of brain tissue injured in this effort would have been many times less than that which ultimately was sacrificed by the process of suppuration, which continued for several months before proper drainage was instituted; and even had no immediate operation been undertaken, upon the first appearance of the suppurative process, operation should have been no longer postponed.

THE PREVENTION AND TREATMENT OF PUERPERAL INFECTION.¹

BY

RICHARD C. NORRIS, M.D.,

of Philadelphia.

Assistant Professor of Obstetrics, University of Pennsylvania; Surgeon-in-charge, Preston Retreat, etc.

The application of the principles of asepsis to obstetrics has reduced the mortality from infection, in hospital practice, to a fraction of 1%, and our efforts now are to reduce to a minimum the morbidity. The same cannot be said of the results in private practice. A study of the statistics of large cities shows very plainly that almost as many women die from puerperal infection as in former years. This fact is doubtless due to several causes. The careless midwife attends a very large proportion of the foreign elements of population in our large cities; the rank and file of the profession have not learned sufficiently well or disregard the details of strict surgical cleanliness; and the earliest symptoms and signs of infection are disregarded and not promptly treated in time to avert serious and fatal results. These 3 causes are sufficient to explain the mortality which in large communities is not less than 5% of all women dying during the child-bearing age. Before discussing the methods of prevention and the treatment of puerperal infection, it will be necessary to review briefly the latest studies in the bacteriology of the genital canal. The conflicting results obtained by equally competent observers have been disheartening to the practical doctor, anxious to be correctly guided. But it must be borne in mind that the science of bacteriology is relatively young and beset with intrinsic difficulties not appreciated by the uninitiated. Recently, however, there have appeared results that are more in harmony. Errors of technic have been eliminated, and it now appears that the secretions of the vagina, cervix and uterus under normal conditions of health are sterile. The careful work of Krönig, of Menge, and of Williams is the most convincing at the present time. Furthermore,

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Doederlein's investigations have practically established the fact that the normal vaginal secretions, acid, sticky, and gelatinous in character, possess an inhibitory action upon pathogenic microorganisms through the formation of lactic acid by Doederlein's bacillus. The gonococcus is now believed to be the only microorganism that can retain its pathogenic potentialities in the normal vaginal secretions. Similar trustworthy investigations, both bacteriologic and clinical, have demonstrated, on the contrary, that the secretions about the vulva, the vaginal and anal orifices very frequently do contain pathogenic microorganisms, and herein lies the danger, which has direct relation to puerperal infection and the importance of which will appear when we discuss the technic of an aseptic delivery.

The bacteriologic investigations of the infected uterus after delivery are not characterized by conflicting results. Here the findings are rather constant. In 179 cases of puerperal endometritis, Krönig's investigations led him to describe 3 classes of cases—the pyogenic, the gonorrheal, the sapremic. In 79 of the pyogenic cases he found the streptococcus in 75, the staphylococcus in 4. He attributed 50 cases to the gonococcus. In 50 cases, the microorganisms in 43 would not grow in the culture media usually employed, and 32 were pure anaerobes.

Williams studied 150 cases. Streptococcus infection alone was found in 31 cases, associated with other microorganisms in 13. The colon bacillus was present alone in 11 cases; associated with others in 8. In 45 cases the microorganisms failed to grow on the usual media, and 25 cases were sterile. When the streptococcus and colon bacillus were associated, the resulting infection was more dangerous than with either alone. He refers to the dangers of the colon bacillus, and emphasizes the importance of this agent of infection by quoting Gilbert's and Dominici's estimate that an individual excretes from 12 to 15 billion colon bacilli daily, and that the perineum and anus therefore are fruitful sources of infection.

With these facts in mind the discussion of obstetric technic assumes a new importance. Autoinfection becomes a term rarely to be employed, and usually should be reserved for him who wishes a salve for his conscience or a cloak for his ignorance.

The *prevention* of puerperal infection guided by the most recent and reliable results of bacteriology, and of clinical experience requires a study of 3 important details of technic: (1) The antepartum toilet of the patient; (2) hand sterilization and the dangers of vaginal examination; (3) the immediate repair of injuries to the birth canal.

The antepartum toilet formerly required the routine douching of the vagina with antiseptic solutions. Both laboratory and clinical observations have demonstrated that antiseptic vaginal douches are unnecessary, and may be detrimental in normal cases.

The power to destroy pathogenic microorganisms possessed by the normal vagina is lessened by washing away the natural secretion; the corrosive action of the antiseptic upon the vaginal cells lessens the latter's power of resistance to infection; the danger of infection from unclean appliances is especially liable to be found in private practice; and finally the futility of a douche to reach and destroy the microorganisms when they are present is well known. All these facts have banished from the most enlightened technic the routine douche in normal cases. When the vaginal secretions are faintly acid or alkaline and are abnormal in color and consistency—that is, when they are dark-green or brown and of the consistence of cream, or when there is a suspicion of gonorrheal infection—more than a douche is required. Thorough scrubbing under ether with soap and water, alcohol, and mercuric chlorid solution will achieve all that can be accomplished. Even this rigid cleanliness will not always sterilize an infected vagina.

We have learned that the perineum, the vulva and labial folds, in the majority of healthy normal cases, contain pathogenic microorganisms and it is this area and this area only that we should attempt to sterilize routinely. Skin disinfection by any known method is not infallible and herein lies the practical difficulty, and the explanation of the fact that the modern surgeon has been driven to use the sterilized rubber glove. This admission means that were it practicable to apply our best methods of hand sterilization to the vulva and vagina, which for obvious reasons cannot be done without an anesthetic, even then we could not rely upon such methods in all cases. These facts simply fortify the position of those obstetricians—and I am of the number—who believe that vaginal examinations during labor, even with the rubber glove, should be reduced to the least number possible. Were they not necessary at times, for knowledge of mechanism, of progress of labor, and to detect and correct complications, the ideal delivery would be conducted without a single vaginal examination.

And here let me say that I know of no recent detail in obstetric technic more valuable, especially to general practitioners, than the use of sterilized rubber gloves. They should be boiled for each case before they are used and kept immersed in mercuric chlorid solution in the intervals between the examinations that after all are necessary in practical obstetrics outside of hospitals. The danger of carrying infection from the vulvar orifice even on the rubber-gloved finger and of the tendency to careless hand cleaning and handling the glove must not be forgotten.

The third important factor in prophylaxis is the attention required by injuries of the parturient canal. Linear tears of the vagina and perineum should always be united. Contused and ragged lacerations should be neatly trimmed of disorganized tissues before they are sutured. The question of immediate repair of cervical lacerations not producing serious hemorrhage, and of other injuries requiring a formal operation, at this time is debatable. Time does not afford thorough discussion now of that subject. My own conviction is that the dangers of infection, the contused condition of the tissues, the time required and the inopportune occasion in private practice all are in favor of delay until involution of the tissues has occurred.

There are other details of prophylaxis that require close attention. The antiseptic solutions used in the lying-in room for cleaning the hands or genitals should always be made with boiled water. The occlusion vulvar dressings must be changed frequently, and must be made of material known to be surgically clean, otherwise occlusion dressings are best discarded.

All implements, such as forceps, sutures, needles, needle-holder, syringe nozzle and catheter should invariably be boiled before they are used. An occlusion dressing wet with an antiseptic solution should be worn over the vulva throughout labor to prevent the patient from handling the genitals and to disinfect further the commonly infected area—the vaginal introitus.

The questions involved in the foregoing discussion of the technic of the prevention of puerperal infection have induced me to study my own experience at the Preston Retreat, where the responsibility for carrying out the details of the technic employed rests absolutely and only upon myself and my chief nurse. I have, therefore, studied the records in 1,900 consecutive deliveries under my own care with the following results:

In 742 consecutive cases a vaginal douche of mercuric chlorid solution 1 to 2,000 was routinely given to each patient immediately before and after delivery. There was no mortality from infection, and the puerperal morbidity from puerperal infection was 3.7%. That is to say, 28 patients required disinfection during the puerperal period; in 10 cases uterine curetage and an intra-uterine douche of 2% creolin solution were employed;

in 18 cases the vagina alone was disinfected by one or more vaginal douches of creolin, and in some of these cases vaginal ulcerations required applications of zinc chlorid, silver nitrate, or iodoform.

The next 392 consecutive patients received the antepartum mercuric chlorid douche, but the douche immediately after labor was omitted. The morbidity from infection for this group of cases was 3.3%. Of the 13 patients requiring disinfection, 6 received vaginal disinfection alone, and in 7 the uterus was cureted and douched with creolin. The temperature rise in two of the latter cases was subsequently demonstrated, by blood-examination, to be malarial in origin. There was no maternal mortality from infection.

All douches were discontinued in the next 766 consecutive cases, which, of course, included all operative cases, such as forceps, version or manual extraction of breech labors. The antepartum toilet comprised, as heretofore, the thorough cleansing of the vulva, perineum, anus, and vaginal entrance, but the vaginal douche before and after labor was omitted. The puerperal morbidity from infection for this group of cases was 1%. There was no maternal mortality from infection.

Eight cases of infection were noted. Of these three were cases of phlegmasia, one very severe, following a pressure slough of the posterior uterine wall at the site of a prominent promontory, which resulted in a fecal fistula through the uterus. In 4 cases the uterus was cureted and douched, the infection being due in 2 cases to a putrid fetus at delivery, in 1 case to retained membranes, and in 1 case to putrid endometritis. In 2 cases the vagina alone was disinfected. The results are shown in the following table for ready comparison:

1,900 CONSECUTIVE DELIVERIES WITHOUT MORTALITY FROM PUERPERAL INFECTION.

Cases.	Morbidity from infection.	Disinfection of vagina during puerperium.	Curetage and intrauterine disinfection.
Antepartum and postpartum mercuric chlorid douche (1-2,000).....	742	3.7%	2.4%
Antepartum mercuric chlorid douche... Toilet of external genitals douches not given	392	3.3%	1.5%
	766	1 %	.25%
			.5%

It is my purpose to discuss the treatment of puerperal infection in a distinctly clinical and practical manner. Any abnormal puerperal condition must be considered as due to infection until proved otherwise by prompt and systematic examination. Careful inspection of the vaginal mucous membrane from cervix to vulva should always be made with a speculum to detect and disinfect areas of ulceration, from which I have known virulent infection to spread through the lymphatics of the uterine appendages, sometimes permanently injuring the pelvic viscera, and in a few instances destroying the patient. While urging the importance of early inspection of the vagina, it must be remembered that the upper portion of the parturient canal is more susceptible to infection, and on account of its anatomic structure affords easy access to widespread systemic infection. Thus is explained the clinical fact that in the largest number of grave cases, the infection is located primarily in the uterus. Bimanual examination next searches for pain and tenderness in the abdomen and uterus, delayed involution, fixation of the womb or its appendages by inflammatory exudate, and the uterine cavity is explored with the finger to note the character of its contents and lining membrane. The character of the lochia is noted. Whether offensive in odor, frothy, and rather profuse, as obtains when the chill, rapid pulse, and temperature rise, are due to putrefaction of the uterine debris found by the examining finger (sapremic). An empty, relatively

smooth uterus, discharging little and not offensive lochia, accompanied by severe constitutional symptoms, indicates a graver form of puerperal endometritis (septic). For clinical purposes Krönig's three classes of cases of puerperal endometritis are of great practical value—the pyogenic, the gonorrheal, and the sapremic. Gonorrheal endometritis, in the absence of a clear history, cannot be determined without bacteriologic study. Septic endometritis due to streptococcus or colon bacillus infection, when not associated with putrid absorption, usually will be recognized by digital examination. The putrid variety will be recognized by the character of the discharge and the debris, but when associated with the septic variety the latter can only be determined either by the results of treatment or by bacteriologic examination of the uterine cavity. This brings us to an estimation of the practical value of the bacteriologic examination of the uterus, or vagina, or blood-current as an aid to the diagnosis, prognosis, and treatment of puerperal infection. Theoretically it does have a scientific value, but I am convinced that it will only be utilized for research work. Not being available to the mass of practitioners, it is fortunate that practical obstetrics can disregard it. A diagnosis that determines for us the course of treatment can almost always be made without it, and so far as prognosis is concerned, it is well known that patients recover even when streptococci are found in the blood, as well as in the uterus.

After all, a morphologic diagnosis of streptococci, for example, can never be so valuable as a differentiation of their virulence or pathogenic potentialities. Even when the latter is learned from animal inoculation, the outcome of an individual case of infection cannot always be predicted, for it will often depend upon the individual's unknown power of resistance. A clinical diagnosis of the channels through which the infection is traveling is of far greater value for both prognosis and treatment. Determine, if possible, whether the infection is spreading through the lymphatic or venous systems, whether thrombosis and pyemia are present, whether we have to deal with localized or general peritonitis. These problems are of far greater value than a knowledge of the anatomic variety of the microorganism that may be present.

Having made an early diagnosis of infection, the infected area, which is usually within the uterus, should be explored by the finger to determine further, if possible, whether we have to deal with putrid absorption from decomposing debris or the smooth endometrium of septic infection. If our cases always presented the striking contrast and the entire uterine cavity could be easily palpated, as described by some authors, it would at once settle the question of cureting the uterus. While it is true that the endometrium is often smooth and the uterus empty in septic endometritis, and the microorganisms have penetrated the tissues beyond the reach of douche or curet, in very many cases—indeed, in the majority in my experience, such can only be determined by examination under ether (even then with great difficulty), for in most cases there will be found at the placental site and elsewhere, roughened areas which will often leave one in doubt. The reaction that has appeared against the curet is certainly beneficial since we have learned that every patient with child-bed sepsis cannot thus be cured, and that many are really made worse. The dangers of perforating the womb, of carrying infection into the uterus through ignorant and faulty technic, of opening new avenues for absorption of toxic agents already present in the uterine or vaginal canal, of destroying the lymph barriers erected by nature to cut off lymphatic or circulatory absorption—all these real dangers should not deter us from utilizing a valuable means of treatment at the right time and in the right manner in the right cases.

The appropriate cases are those in which the uterus contains debris, often so closely adherent to the uterine

wall, that I am at a loss to understand how such removal can be efficient with the finger as is insisted upon by some able writers. The finger should try to locate the areas to be cureted, and in my experience the best results have followed the use of a sharp curet. Where the endometrium is smooth, of course there is no need for scraping. I have yet to see the case of puerperal endometritis after labor at term that shows the continuously smooth uterine cavity sometimes described by those who have no use whatever for the curet in puerperal sepsis. The danger of destroying nature's lymph barriers has been overestimated. This protecting zone is present especially in sapremia, the very class of cases to which the curet is applicable and in which it can do the least harm. The curet should be used by the skilled and experienced hand. In these cases curetage is not a minor operation and demands far greater surgical skill than the formal plastic operations of the gynecologist. The third condition for its successful use is that it should be used at the earliest possible moment after the diagnosis of infection has been made and after exploring the uterine cavity with the finger as thoroughly as possible. Following curetage, the question of the douche is also under discussion at the present time. For putrid endometritis a disinfecting douche is, in my experience, indicated. The patient must not be poisoned, and strong antiseptics that aim to destroy virulent microorganisms, which, as a matter of fact, in the septic variety, have passed into the tissues beyond the reach of the douche, are not only useless, but dangerous. Weak solutions of lysol (1%) or creolin (2%) are sufficient to combat putrefaction and can be used with safety. A gauze drain is then inserted to the fundus and removed in 24 hours. When, as rarely happens, we find the uterus empty neither curet nor douche are indicated. When indicated, the operation to achieve the best results must be done early and thoroughly, and should almost never be repeated. Repeated douching will be required very rarely, and only when an offensive discharge persists.

Turning now to the surgical treatment of puerperal infection we have problems, some of which have been definitely settled, and others which offer wide differences of opinion and practice.

Salpingitis that progresses to abscess formation requires evacuation and drainage, in some favorable cases, by the vagina, but more often an abdominal operation is preferred because of the uncertainty of exact diagnosis. General peritonitis rapidly developing from extension through the tubes or uterine wall will usually be fatal unless the surgeon is most aggressive and operates within the first or second day of the appearance of the grave symptoms. Rapid respirations (50-60); a weak, rapid and compressible pulse (150-160); a leaking skin and the characteristic facies of overwhelming sepsis are enough to predict a surgical failure and a fatal termination.

No one doubts the necessity for removal of ovarian or uterine tumors, injured or infected after labor. Extraperitoneal collections of pus are best removed by an extraperitoneal operation, an abdominal section being necessary sometimes to make an exact diagnosis. The foregoing surgical problems are fairly well determined and require no further discussion.

Hysterectomy for puerperal infection is by no means a settled question. All surgeons, I believe, agree that it is indicated when tubal or ovarian abscesses have been removed and there will be left behind in the pelvis, infected and infiltrated broad ligaments or a uterus containing areas of infection or suppuration which will finally spread to the peritoneum or permit septic absorption to continue until the patient succumbs. There is a difference of opinion as to its usefulness in the early cases of grave infection going from bad to worse under the usual treatment by curetage, irrigation and stimulants, in which cases there are no physical signs indi-

cating that the local septic process has spread beyond the womb, and for which immediate hysterectomy is performed (usually within the first week after delivery) in order to terminate abruptly septic absorption in time to save the patient's life. Such cases include especially the grave forms of septic endometritis in which the infection is yet limited to the uterus; cases in which the sloughing placental area is not removable by intra-uterine operation; cases of single or multiple abscesses in the uterine wall; and cases of uterine phlebitis before dangerous pyemic symptoms appear.

A few such patients have been successfully operated upon, but the practical difficulty is their diagnosis. Even when the diagnosis can be made, the necessity for hysterectomy to save life is not always plain.

Bacteriologic examinations of the blood and uterine contents, as made by Roux, Widal, Marmorek, and others, have utterly failed to settle this question. Pathologic anatomy has also failed to point to any definite indications. Clinical symptoms and signs, which thus far are the most reliable, seldom make the operation unmistakably necessary. Once in a great many cases a skilled surgeon who also has a wide experience in obstetrics, will by exclusion select hysterectomy and find he has not made a mistake. Usually the operation is determined upon too late or is unnecessary. Statistics of the relatively few operations performed up to the present time, show that abdominal hysterectomy for these cases has a lower mortality than vaginal hysterectomy. Fehling¹ collected 61 cases by 53 operators. In 19 abdominal total hysterectomies the mortality was 31.5%; in 33 vaginal hysterectomies, 69.6%. Jewett² collected 62 abdominal hysterectomies with 38.7% mortality; 25 vaginal with 52% mortality.

Ligation or excision of the uterine or spermatic veins when they are the seat of thrombosis with pyemic symptoms is the latest attempt to reach by surgery a very dangerous type of puerperal infection. The results of ligation of the internal jugular vein for pyemic thrombosis of the transverse sinus following purulent otitis, induced Trendelenburg³ to ligate the uterine and spermatic veins with success, having observed thrombosis of the uterine and spermatic veins in 21 of 43 fatal cases of puerperal sepsis, with only 4 of the cases combined with lymphatic infection. At the Rome congress this subject was discussed with favor and offers another important problem in the surgery of puerperal infection. That its usefulness will be limited, would appear from the facts that the thrombus may be beyond reach by the time there is evidence of pyemia, and that at present we cannot always make the diagnosis or predict a necessarily fatal termination since many patients with puerperal pyemia recover with the usual treatment by stimulants. Here again, diagnosis is the stumbling block. Wide fluctuations in temperature, repeated severe chills, a slower pulse than one would expect, an empty, freely movable normally involuting uterus, a pelvis and abdomen free from localized infection, all point to a pyemic process, and excision of a thrombosed vein should be borne in mind. The great number and inaccessibility of the veins involved (in 21 autopsies the thrombosis was bilateral in 14) renders the operation very difficult and although the thrombus tends to remain localized for a relatively long time, extension was found in 4 patients operated on by Trendelenburg with a fatal result. He had one brilliant recovery. The future must decide this question. At present it will require a bold surgeon to save these patients.

The constitutional or general treatment of puerperal infection requires little discussion. Easily digested or predigested food to the tolerance of the stomach, and free stimulation are, after all, our sheet anchors in these grave cases. Alcohol in large doses, but not enough to

¹ Monats. für Geb. u. Gyn., October, 1902.

² Am. Gyn., February, 1903.

³ Münch. med. Woch. April 12, 1902.

produce its untoward physiologic effect, digitalis, quinin, strychnin, nitroglycerin, ammonium carbonate by the bowel, and inhalations of oxygen will be useful. An ice coil to the abdomen, and the free use of subcutaneous or rectal injections of normal salt solutions, are of distinct value. High enemas of salt solution not only are absorbed to dilute and help the elimination of toxins, but serve the additional purpose of lavage of the intestines, which is very valuable for patients who are ill for a long period. Serum therapy has been wholly disappointing, and practically has been discarded. I have employed intravenous injections of formalin in salt solution, but with no results that I have not observed after salt solution alone. The intravenous injection of any antiseptic in sufficient strength to destroy virulent microorganisms or their products would in all probability destroy also the blood, and I have thought such treatment productive of more harm than good. Inunction with silver preparations has but few advocates, and the production of leukocytosis by nuclein has not been demonstrated to be of real value.

In conclusion, let me say, that while the problems referred to are being determined by the pathologist, the surgeon, and the obstetric clinician, it is our duty not to forsake old methods for any new method of treatment and not to lose sight of the fact that many lives have been saved by local antisepsis, intrauterine treatment, the curet, or other surgical means in proper cases, early and skilfully applied. The gravest forms of puerperal infection can very often be prevented by the early recognition of beginning infection and the prompt resort to our well-tried methods of treatment.

MYXONEUROSIS INTESTINALIS MEMBRANACEA.*

BY

PROFESSOR DR. C. A. EWALD,
of Berlin, Germany.

A catarrh of the intestine, especially of the lower portion, is very often combined with secretion of mucus or accompanied by glairy, unformed or string-like masses, sometimes ragged particles. Microscopically, small portions of mucus contained in or surrounding the fecal masses, are also seen. They are easily distinguished from similarly appearing food particles through their opacity upon the addition of acetic acid.

When the mucus is mixed thoroughly with feces, then one may conclude that the lower portion of the small and the upper portion of the large intestine are affected. The passage of pure mucus without feces, or small hard balls of feces which are enveloped in mucus, indicates catarrh of the lower portion of the colon. The more muscle fibers and starch granules found, the more is an affection of the small intestine to be considered. Soft masses of mucus and small pieces of tissue are characteristic of catarrh of the small intestine. Larger and more solid dejections, which are formed in the pouch-like portion of the colon, indicate a catarrh of the sigmoid and rectum.

There are two entirely different types of disease which are combined with discharges of mucus and accompanied by colicky pains:

1. During the course of a simple catarrh we find sometimes acute boring or griping pains in the left side or in the left epigastric region, which may last for days. We call these *Colica intestinorum*, and when accompanied, as ordinarily, by an increased amount of mucus, *Colica mucosa*. The cause is always a catarrh or inflammatory process, which affects the mucous membrane of the intestine—an enteritis.

2. In counterdistinction to this group is another characterized by the appearance at first of a mucous discharge, which may be sometimes, but not always, followed by

an enteritis. That is to say, a secretion neurosis which, as a functional disturbance, produces an abnormal amount of mucus. It may happen, as in other functional disturbances, that an intercurrent and anatomic condition may appear during the course of the disease. There is no difference between the findings of this disease and those of enteritis or *Colica mucosa*. This group of symptoms I have called "*Myxoneurosis intestinalis membranacea*," a name which clearly points out the character of the disease.

These 2 unique pathologic anatomic conditions were described, one by O. Rothman and the other by M. Rothman. Membranous enteritis depends upon a pathologic change in the intestinal mucosa, while in the condition described as myxoneurosis intestinalis the mucous membrane is normal. In both cases the stools are, aside from a small amount of fecal matter, composed almost entirely of mucous masses.

They are composed of tenacious mucinous bodies plus fibrin in small amount, nuclealbumin and globulin. The mucin can be differentiated from the fibrin by using triacid stain. The histologic peculiarities of these slimy masses have been studied by Wolf, Ewald, Nothnagel, A. Schmidt, Westphalen, and others. They consist of a homogeneous, somewhat opaque ground substance which is interspersed with cell detritus. This detritus is composed of nuclei which are recognized because of their strong refractile properties, cell elements, epithelial and round cells, as well as peculiar shining flakes which are thought to be due to hyaline degeneration or an imbibition of soap. The epithelial cells usually show granular degeneration, are without demonstrable nucleus, vacuolated, and frequently broken up. Beside these, there are cholesterin crystals, needles of the fatty acids, triple phosphate crystals, particles of undigested food, bacteria, and occasional red and white blood cells. It sometimes happens that there are sand-like concretions which resemble ground white pepper, and are easily mistaken for the seeds of strawberries or currants, but their character can be proved by the addition of acetic acid, in which they are soluble.

There are a great many reasons why this myxoneurosis is of a nervous nature. The cases are most frequent in women, and are frequently accompanied by some genital disturbance; coming especially during the climacteric and disappearing when this period has passed. A pronounced constipation of nervous origin, paralysis or spasm is a frequent cause. However, there are isolated cases in which there is an intercurrent nervous diarrhea present, or sometimes in the same patient there may appear a membranous enteritis, which disappears in a short time, and pure myxoneurosis remaining for some years.

Einhorn and myself had under observation patients in whom were combined an achylia gastrica and a nervous diarrhea. Cases combining the so-called nervous dyspepsia and enteroptosis also point to the nervous nature of the affection. The colic accompanying these cases is only one manifestation of the general nervous condition. Other symptoms of a nervous nature usually predominate, and the slimy stools may not be noticed, or, if so, only accidentally. In other cases there occur, in a rather regular manner, intermittent pains which are of a colicky nature. They come on sometimes suddenly and sometimes gradually, and are situated in the left side of the abdomen, may be diffused, or be radiated down the thigh. They may sometimes occasion bladder symptoms.

Most frequent, however, is the stubborn constipation. The mucous masses are discharged either with the stool or directly following. Sometimes, however, the call to stool may be rewarded only by the passage of the mucous masses. The colicky attacks may simulate an enteritis accompanied by slight fever, dysentery, or even typhoid fever. Also perityphlitis (Solis Cohen) or the so-called pseudo form of gallstone colic, especially when the pain

* Translated by C. O. Bechtol, of Chicago.

is located in the upper right quadrant of the abdomen. It is scarcely conceivable that these relatively small secretion anomalies could produce lasting injury, but it frequently so happens. Moreover, it happens that this disease is especially stubborn and extremely capricious in its coming and going; however, it does not threaten the life of the patient or weaken the strength of the organism. In case the latter should happen, it is due to primary nervous affection, and the patient may suffer severely, and the affection be a source of continuous annoyance and depression.

The therapy has the following problems to solve:

1. The intestines must be emptied without the use of strong, and especially, without saline agents.
2. The pain should be overcome without the use of narcotics.
3. The sequels of the obstipation, *i. e.*, gas formation, dyspeptic symptoms and autointoxication must be obviated.

To accomplish these things a great many methods may be employed, but especially recommended are vegetable laxatives, such as senna, castor-oil, flaxseed, etc., and proper regulation of the diet. Laxatives are objectionable because they must be given in increasing doses, and are not then followed by a cure. Injections of oil, as recommended by Kussmaul, are especially valuable and are given as follows: 300 cc. to 500 cc. of slightly warmed linseed, olive or sesame oil is injected high into the rectum by means of a soft rubber tube (not a hard rubber canula) while the patient lies on the left side. The injection should be made slowly, the patient remaining on the left side for about 10 minutes, and the enema should be retained as long as possible. It is only after this means has failed to produce a good movement that catharsis should be resorted to and some aperient mineral water be given.

Diet in all these cases plays a very important part in the treatment. When we remember that myxoneurosis is most frequently associated with obstipation, it is evident that food having some cathartic action is desirable. Remembering also that some patients are not constipated, it is easy to see that a fixed diet will not suit all instances. If the trouble is characterized by obstipation which is due to a simple intestinal inactivity or primary weakness of the intestinal muscles or secondary hysteric or neurasthenic disturbances of innervation, the diet would naturally be different from that in a case in which the disturbance was due to some mechanical hindrance as from the uterus or adnexa.

Recommended as specially efficacious when simple constipation accompanies the myxoneurosis, are the coarse breads, as black bread, graham bread and rye bread; fats, as butter, cream, or lard, salads with oil, fatty sauces, gravies; coarse vegetables of the cabbage family; curded milk with plenty of sugar; fruit juices, figs, syrup, jams, prunes, stewed fruits, and fresh vegetables of all kinds. If taken in the morning on an empty stomach, the following are frequently of value: Strawberries, raspberries, currants with milk or cream, or gooseberries, oranges, melons, grape fruit and apples. This diet acts not so much through the mechanical irritation of the coarse flour and seeds contained in it, as through the formation of gases and acids which stimulate peristalsis.

Most of these dietetic measures are known to the laity and especially to the patients themselves who have for a long time tried various foods and remedies for their trouble. The success of such a diet depends upon the exactness with which it is followed, for it can be hindered by the eating of various constipating foods, and such things should be naturally prohibited.

Such a regimen may be either gradually or immediately instituted. It happens unfortunately, according to my experience, that with such dietetic measures alone the results are not satisfactory, and that other means must be used in order to bring about the desired cure.

For this purpose, beside the diet recommended, it is well to employ some of the following measures: Mineral waters, massage, electricity, room gymnastics, or some of the various cold water treatments, especially the Scotch or alternating hot and cold douches. It is self-evident that such a diet is not practical in all cases, particularly those in which the action of the stomach is disturbed through food digested with difficulty. The patients with spastic constipation are also made worse by such coarse diet. When a spastic constipation exists and its nature is understood, opium and belladonna internally, or in combination as suppositories, employed along with injections of oil, work very well. When these measures, plus a coarse diet, produce a cure in a case with spastic constipation, it is in spite of the diet and not because of it.

It is only rational that in these last-named cases a mild, nonirritating diet should be instituted, which through its nonirritating qualities produces a laxative effect. This diet may be followed whenever constipation does not exist—a so-called lactovegetable or even constipating diet. The following diet scheme recommends itself for this purpose: Breakfast: Sweet milk, cocoa, oatmeal with cocoa, white or dark bread, with honey, jam, or fresh fruit. Dinner: (preferably at midday) Vegetables or fruit, as apples, plums, blueberries, raspberries, cherries, a broth or vegetable soup, spinach, tomato, or beet soup, a milk soup, or curded milk, butter, and a liberal amount of fresh vegetables are desirable, or pea, rice, or lentil soup, stewed vegetables with dumpling, macaroni, puddings, blanc mange with fruit juices, etc.; salads, and eggs variously prepared, bread with butter, and a light cheese. Supper: A thick soup, made with barley, rice, tapioca, etc., baked potatoes, eggs, bread, butter, cheese, milk, etc.

According to the needs of the patient the foregoing diet will be more or less carefully followed, and on certain days a small amount of meat may be allowed by way of variety.

While this diet is directed especially against the local intestinal condition, still it serves well to support and improve the general nutrition, because of the high percentage of carbohydrates and fats, which is very important. These are of special value in instances in which women have had repeated pregnancies, and as a consequence have pendulous abdomens with low-hanging intestines, in which the feces tend to stagnate. Through improved nutrition it frequently happens that the abdomen takes on fat, making the walls more firm, and consequently raising the intestines somewhat, thus indirectly relieving the constipation. In the cases not complicated by costiveness the results of dietetic treatment are not marked. However, through better nourishment the hysteria and neurasthenia are directly benefited.

SUBURETHRAL ABSCESS.

BY

RICHARD F. WOODS, A.M., M.D.,
of Philadelphia.

Suburethral abscess is an infrequent and very interesting condition. The subject is one that has received little attention, and I find that it is not even mentioned in the majority of textbooks. The following case is therefore of considerable interest:

CASE.—M. T., a white married woman, aged 36, presented herself at the gynecologic clinic of the Pennsylvania Hospital and gave the following history:

She has had 4 children and 1 miscarriage. Six months previous she began to suffer from painful and frequent micturition, the pain occurring during the act, and continuing for some time afterward. After 2 or 3 weeks she noticed a swelling in the vaginal vault, which increased in size until she came to the hospital.

When I first saw her the physical signs were as follow: A rounded egg-shaped mass was seen protruding from the vaginal

vault. It was red, tense, and painful on pressure, and poorly ribbed with the vaginal rugae. It extended back apparently to the cervix, which could not be seen or felt, owing to the intrusion of the mass in the vagina. When catheterized, the urine was found to be clear and healthy. She was advised to remain in the hospital, but refused. She was not seen for 3 weeks, when she again presented herself at the clinic. The mass at this time was found to have decreased in size, but retained most of the characteristics found at the first examination (the appended sketch was made at this time and not at the first examination). However, a positive diagnosis was made by the discovery of a small opening, just within the urethral orifice, which exuded pus when pressure was exerted on the mass in the vaginal vault. A probe was passed through this opening, and entered a large cavity. Firm apposition with the probe against the abscess wall could plainly be seen and felt through the thickened vaginal mucous membrane. A sound passed along the anterior urethral wall directly entered the bladder. The urethra did not seem to be dilated along its course to any extent. The case was, therefore, not one of urethrocele, but a suburethral abscess, occurring in the urethrovaginal septum.

The patient absolutely refused to have any radical means taken for her relief and left the clinic.

The symptoms of suburethral abscess are usually the same in all cases. There is progressive, painful, and frequent urination. The urine may be mixed with pus, or it may come away clear, more frequently the latter is the case, unless pressure is made over the tumor. Generally there are no constitutional symptoms, a febrile condition being rare. (In Cory's case, however, there was fever, loss of appetite, great thirst, and considerable delirium.) After a time a tumor is noticed protruding from the vagina. It varies in size from a hen's egg (Tait and Thomas) to the size of a marble (Routh).

In all advanced cases there is dyspareunia. In the majority of cases pressure on the tumor will cause pus to flow out of the urethra; sometimes a change of position may empty the sac; occasionally the pus may recede into the bladder, causing a cystitis. The smoothness and elastic hardness are rather characteristic of this condition. In examining the urethra, a sound can generally be passed through the opening in the urethra into the abscess cavity, while a sound passed along the anterior wall will travel directly into the bladder. In a great proportion of these cases there is no dilation of the urethra. The sac usually contains decomposed urine and pus; calculi are sometimes present. Priestley found the cyst contained sebaceous material in one of his cases. The walls of the sac are usually smooth and glistening, but they may be rough and granular. They are very thick and tough. There is generally only one opening from the pus cavity into the urethra. (In Routh's second case there were two.)

It is rare for the abscess to rupture into the vagina, although this occurred in one of Tait's cases. On examination he found a hole the size of a shilling in the vaginal wall of the abscess. His finger was admitted into a large pear-shaped cavity, with the apex up toward the urethra.

In the majority of cases the diagnosis of suburethral abscess is comparatively easy. In urethrocele the whole posterior wall of the urethra is stretched and relaxed, while the urethral canal is dilated along its whole course. Abscesses occurring in the lacuna of Morgagni are small and can not be observed from the vagina. A cyst of Gärtner's duct is also small (about the size of a marble) and has no communication with the urethra. (Veit, Boys deLoury, and Kiwisch all report cases of the latter.) A cyst in the vaginal vault could be easily differentiated owing to its thin walls, absence of pain, and, in the majority of cases, the failure to express pus from the urethra on pressure.

In some cases, an abscess in the urethrovaginal septum, has been caused by a stone in the urethra. Chéron reports a case of this kind in which a hard lump in the anterior vaginal wall turned out to be a stone encysted in a sacculation of the urethra. In Gentle's case there was a tumor in the vaginal vault, and symptoms of calculus; a catheter introduced into the urethra discovered the stone. Giraud also reported a case in which a foreign

body was felt in the urethra, the woman had been kicked 4 months before, a calculi was removed through the dilated urethra.

The microscopic appearance of the sac in a case of his is described by Kelly as follows: "On the outer vaginal surface a typical mucous membrane; beneath, the connective tissue rich in oval and spindle cells, with numerous dilated bloodvessels. The inner lining of the sac consists of mucous membrane eroded in places, and beneath this are irregular aggregations of polynuclear leukocytes, and the surface is rough with many elevations and depressions. In some of the depressions irregular oval cells with small oval nuclei are found either in short rows or scattered without order appearing identical with urethral epithelium." The average period in which this condition may occur is from 30 to 50. De Bary reported a case in a child 1 year old. This is probably the youngest patient whose case is recorded; while Chéron reports a case in a woman of 68.

It would be perhaps of interest to review some of the reported cases and recall their important characteristics.

The first case reported was in 1805 and was described by Hey. The woman had been troubled for 15 or 16 years with sudden and irregular discharges of purulent matter from the vagina. He found a roundish tumor at the os externum which when compressed yielded pus from the urethra. The urine when drawn did not contain the least mixture of purulent matter and he could pass a probe easily to the most dependent part of the tumor. He divided the tumor longitudinally and packed it. The woman made a speedy recovery. Since Hey reported his case there have been about 38 cases all told in medical literature. Routh reports 3 cases as follows: In his first case examination revealed granular endocervicitis and a urethral diverticulum the size of a marble. After local treatment for 3 weeks without benefit, the sac was dissected out per vaginam, and one gut suture was used to draw the vaginal wound together. The urine was drawn regularly and the wound healed nicely. Dr. Boulton who examined the specimen thought that it was originally a blood cyst, the result of injury during parturition, and that connection with the urethra was due to suppuration, inflammation being kept up through the access of urine to the sac.

In the second case the symptoms were as usual, the mass being about the size of a walnut. The abscess which was found to communicate with the urethra by 2 openings was dissected out. The third case was identical with the other 2 in regard to symptoms and physical signs; efforts were made in this case however to apply caustic to the cavity by dilating the anterior part of the urethra, this failing Routh operated as before.

Santesson's case dated from a confinement 3 years previous. The physical signs were typical except in the fact that pressure on the swelling caused its contents to flow back into the bladder. After 4 years of palliative treatment an elliptic piece was cut from the vaginal wall, the wound being united by sutures. The patient died 6 years after the operation, of cystitis and nephritis. Santesson, long after this, made the statement that in future cases he would remove the whole diverticulum, suture the margins of the wound, and keep a catheter in the bladder until union was accomplished. Baldy reports a case in a woman who had been operated on some time previous for pelvic inflammatory disease. On examination he found a thickened, indurated, and fluctuating broad ligament, and in addition a bulging tumor extending from urethra to cervix. He opened the abdomen, which was explored and closed. The anterior



lip of the cervix was then amputated; pus was found and continued to flow for a week, when the cavity was finally opened, washed, and drained.

William Priestley described in 1869, 3 cases. The first patient was 8 months pregnant. When labor came on the vaginal swelling ruptured and a quantity of thick pus was discharged from the urethra. In the second case sebaceous matter was found in the material from the cyst. In Hickenbotham's patient cephalotripsy was performed on account of a hard contracted cervix. The tumor ruptured into the vagina on the tenth day. Tait who was called in consultation, found on examination a mass protruding from the vulva with a hole the size of a shilling punched in it. Tait opened up the whole cavity, dissected out the mucous membrane and united the flaps by suture. This case with those reported by Priestley, Foucher, Galabin, and a case of Englisch's all were discovered before rupture had occurred into the urethra. In 1875 Tait published his first case. Ten years after, three others were reported by him. The symptoms of his patients were all alike and typical. The first case was of long duration. He treated all the patients (in the same manner) by cutting out an elliptic piece of the vaginal wall of the abscess and uniting by silver wire. He noted in all these cases the accompaniment of a remarkable amount of bleeding, altogether disproportionate to the operation.

Skene Keith's patient had one symptom, which is rather uncommon, involuntary passage of urine. This case was also complicated by prolapse of the uterus. He cut down in the median line and the mucous membranes of the urethra and vagina were sewed together, to prevent the too rapid closure of the wound.

Thomas attended a negress suffering from painful urination and cystitis. The vaginal canal was occluded by a tumor the size of a hen's egg. He removed the whole portion of the vaginal wall which constituted the tumor, and brought the lips together with sutures.

In Cory's case the constitutional symptoms were more marked than in any of the other cases. There was flushing of the face, delirium, and great thirst. In a violent fit of retching the sufferer felt something burst, which gave her immediate relief. Cory found a small rent within the meatus, $\frac{1}{2}$ inch from the orifice, with pus exuding on the slightest pressure. Cory did not operate on this patient, but the wound healed without trouble. Hermann treated his patient by dilating the urethra, and rubbing the interior with a solid stick of silver nitrate. In Englisch's case there was no communication between the abscess cavity and the urethra. In one of Galabin's cases he found the abscess cavity communicated with a tube, which extended toward the cervix, and contained purulent matter; there was no communication with the urethra. There is a possibility that this case might have been originally a cyst of the duct of Gärtner.

Cullen reports a case of Kelly's in which the patient had the ordinary symptoms. The swelling was 3 cm. by 2.5 cm. in the vagina, was just behind the urethral orifice, and communicated with the floor of the urethra. In Winckel's case the woman cured herself by applying lead-water poultices after repeatedly emptying the sac.

The cause of suburethral abscess is more often attributed to infection of the glands, ducts, and lacunae of the urethra than to any other cause. We find in reviewing the glandular anatomy of the urethra why this should be the case. Skene's glands, which are two in number, running parallel to the anterior third of the urethra, having their openings just within the urinary meatus, are often, from their exposed position during coitus liable to become infected. Littre's glands are also apt to suffer the same consequences. These glands are very numerous, there being 25 of them, but they are merely reduplications of the mucous membrane. Morgagni's glands also are numerous, and open by small ducts in the urethral floor.

Kelly believes the origin of suburethral abscess is in an infection of Skene's glands. I am inclined to think that this occurred in the case I reported. I believe the infection was gonorrheal, infecting the glands and closing their openings, a small abscess resulted in the gland, which ruptured into the surrounding tissue, became larger, and involved the entire septum, and finding the urethra less resisting than the vagina opened in that direction.

Routh thinks the causes are: (1) Closure of the ducts of preexisting urethral glands, retention cysts resulting, with suppuration and ulceration into the urethra; (2) blood cysts which have passed through similar changes; (3) the formation of pseudocysts by injury to the urethral floor during labor or instrumentation.

Parrish, Chéron, and Jenks all agree that the origin is (1) congenital; (2) caused by union between the urethra and a preexisting noncongenital cyst of the vagina; or (3) determined by a limited tear of the urethral floor during labor.

Boulton believes that the abscess which he examined was caused by a blood cyst, while Santesson suggests that it might be caused by an injury to the urethral floor.

Priestley believes his case arose from the follicular structure of the urethra.

Tait views the origin as follows: (1) That there is an error of development by which a small offshoot of the urethra, like a diverticulum of intestines, becomes infected with urine; and (2) that it is caused by the union between the urethra and a cyst of pathologic origin in the roof of the vagina.

Mann believes with regard to the diverticular form that a cyst of the urethra, probably congenital, has subsequently opened into the urethra.

Englich, of Vienna, writes of seeing these cysts with comparative frequency in the newborn; and it is possible, as Mann and English suggest, that they may give rise to this condition.

Of especial interest in this connection is the persistence of the duct of Gärtner and its relation to Skene's glands. According to Dohrn there are only 2 instances recorded of the persistence of this duct in adult women. One case is based on an apparently accurate record of a dissection made in 1559; the second is described by Furst, in a German work published in 1868. Fischel, Beigel, Dohrn, and Reider, all have failed to trace Gärtner's ducts lower than the highest portion of the vaginal walls, near their reflection on the cervix, and have not been able to trace them to the urethra.

There has been some difference of opinion in regard to the termination of Skene's tubules; some believe that they are the termination of Gärtner's ducts; others that the ducts of Gärtner disappear near the cervix, and that Skene's glands are the outlet of a pair of glands lying in the walls of the urethra. Skene himself believed them glands. He says: "I have called them glands because they differ in size and structure from the simple follicles found in abundance in the mucous membrane." Gärtner's ducts are generally thought to be the homolog of the vas deferens in the male.

Bland Sutton found in an examination of 70 cows that Gärtner's ducts became incorporated with the cervix, the lumen of the ducts being obliterated. In a few cases, however, they opened on the mucous surface of the vagina; in older cows he found the duct obliterated and the persistent portion of the duct dilated, especially at the cervix and vagina, forming cysts, which in some cases were as large as oranges, and bulged into the vagina.

Max Schuller has traced Skene's glands upward into a pair of true tubular glands, and he has failed to find any communication between them and the ducts of Gärtner.

The treatment of this condition, which seems in all cases to give the best results, is an elliptic incision which removes the vaginal portion of the sac. The

cavity should then be cleaned thoroughly and the edges drawn together with silk sutures; a small drain may be introduced. The bladder should be emptied by catheter for 6 or 7 days.

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THE VALUE OF HISTOLOGIC EXAMINATION IN CARCINOMA OF THE UTERUS.*

BY

BROOKE M. ANSPACH, M.D.,

of Philadelphia.

While röntgen ray therapy seems to have increased the armamentarium of the physician against carcinoma, the chief remedial agent today is found in surgical intervention. Many operations have been devised for the complete extirpation of carcinoma of the uterus. The fact remains, however, that a large proportion of the cases which reach the surgeon are incurable. This statement applies more to carcinoma of the cervix than to carcinoma of the fundus. It need not be proved that the earlier a case of carcinoma of the uterus falls into the surgeon's hands, the more favorable it is for cure. No matter how extensive the radical operation may be, if the carcinoma is of any age, its recurrence is more or less a matter of time. A large number of those who formerly practised the extensive radical operation for carcinoma have finally become convinced that if the disease has once advanced beyond the limits of the cervix, the case, so far as a permanent cure is concerned, is hopeless.

The reason for this is, that in the extension of a carcinoma we are dealing with an extension that involves histologic elements. When once these elements pass the confines of the cervix they invade the pelvic tissues in such a manner that their detection and complete removal is practically impossible. Thus the carcinoma cells may not only be deposited in any of the lymph-glands of the pelvis, but they may indeed grow along the lymph radicles themselves, as described by Mackenrodt, H. W. Freund, and Russel. Ernst has shown that the malignant cells also invade the nerve sheaths.

If, therefore, all the glands of the pelvis could be extirpated in the radical operation for carcinoma of the cervix, there would still remain the lymph radicles. Olshausen, Hofmeier, Van Ott, Richelot, Carstens, and Jordan believe that no operation, for carcinoma that has extended beyond the cervix, can be complete enough. Some operators (Kroenig¹) believe that if the grossly diseased parts (enlarged pelvic glands and parametrium)

are extirpated with the uterus the carcinoma cells remaining behind in the lymph radicles, etc., may be destroyed. If, however, one would confine his attempts to the removal of the enlarged glands alone, he should remember that some of the enlarged glands in uterine carcinoma are not carcinomatous, and, on the other hand, some of the diseased glands are normal in size.

Zweifel² and Schauta³ are inclined to look upon carcinoma of the uterus as analogous to carcinoma of an abdominal viscus, and to regard extirpation of the pelvic glands as offering little hope of cure.

Many times it is impossible to say from clinical means whether there has been any extension of the carcinoma into the parametrium. Kundrat, whose work will be described more fully later, found that even in the absence of induration there might be invasion of carcinoma in the parametrium, and, *vice versa*, that induration itself, if present, might be due to inflammatory reaction of the paracervical tissues.

It is probably the consensus of opinion that unless carcinoma of the cervix is strictly confined to the limits of the cervix, the prospect of cure, even after the most radical procedure, is very small. Although the advanced radical operation for carcinoma is still too young to speak definitely of its success or failure, it is only reasonable to suppose that its application does result in less recurrences than did vaginal hysterectomy; this is true because by a wider resection of the pelvic tissues there is more chance of extirpating all of the carcinoma cells. It is needless to say that if in any given case one could determine absolutely that the disease was confined to the cervix, vaginal hysterectomy or even amputation of the cervix would do quite as well as the most radical operation. The keynote to the possibility of curing carcinoma by surgical means lies in its early recognition. One has only to observe how often the disease comes to the surgeon after it is inoperable. Statistics concerning the percentage of operable cases are misleading because different surgeons recognize different bounds of operability, and this is especially true since the development of the modern operations.

Kundrat,⁴ an assistant of Wertheim, who advocates the advanced radical operation, has examined the parametrium in 80 cases of carcinoma of the cervix in which operation was done at Wertheim's clinic. His results afford a reliable opinion as to the operability of these cases, assuming that they are inoperable when once the growth has extended beyond the cervix. In but 32 of these 80 cases were the parametrial and glandular structures of the pelvis found free from carcinoma.

In reaching this conclusion, Kundrat examined the parametrium and glands of each case in serial sections, examining for this purpose 21,000 preparations.

The percentage of operability, therefore, in Wertheim's cases of carcinoma of the cervix is 40—assuming that after the disease has advanced beyond the cervix the case is hopeless. These figures of Kundrat may be accepted as being nearly correct. He says in his paper that every patient at Wertheim's clinic is operated upon whether the disease is far advanced or not. But there must be some advanced cases in which the radical operation would be unjustifiable, so that we may regard Kundrat's percentage of operability as somewhat high. It would seem true, however, that the actual operability of cases of carcinoma of the cervix does not exceed 40%.

If results in the surgical treatment of carcinoma of the uterus are to be improved, the number of operable cases must be increased, for it is in these alone that there is any reasonable hope of cure. An early recognition of carcinoma is, therefore, of prime importance. There must be an early stage in every case of carcinoma in which it might be recognized by using the means at our command.

Israel,⁵ who recently discussed the etiology of carcinoma, concluded that its origin was directly related to the biologic properties of epithelium. After the embryo-

* Read before the Philadelphia County Medical Society.

logic development of the epithelial or endothelial covering, the cells remain inactive, except when their multiplication is necessary to cover some area that has become bared. More proliferation than is necessary to make up for the defect is common.

So long as the epithelial proliferation and the connective tissue hyperplasia remain proportionate the growth is benign (condyloma acuminatum); but if the proliferation of the epithelium is greater than the resistance offered to it by the connective tissue, the epithelial cells penetrate the lymph spaces of the latter and we have the beginning of carcinoma.

The incentive to such a proliferation of the epithelium is analogous to the procreative activity that is observed in the lower forms of life when they are exposed to difficult conditions of growth. For example, a destruction of some of the epithelial cells upon a surface, results in an increased activity of those remaining in an endeavor to replace the defect. Through repeated insults, which result each time in proliferation of the epithelium, a condition is finally reached, in which, from the more or less continual irritation, the cells take on an abnormal activity of growth. In this light, carcinomas cannot be looked upon as infectious growths; they are rather the result of repeated epithelial insults produced by chemic or mechanical means, and perhaps, indeed, the irritative action of microorganisms.

Although the etiology of carcinoma is not plain, Israel's views seem to be well founded. The manifest relation between cervical injuries and carcinoma need not be discussed. As for the parasitic nature of carcinoma, the burden of proof still rests with those who would account for it in this way.

Recognition of the earliest epithelial invasions in carcinoma, involving as it does histologic elements in histologic proportions, depends, I believe, upon histologic methods.

It has been repeatedly urged that carcinoma of the cervix may as well be recognized by clinical means as by histologic examination of excised tissue from the cervix. It is true that in advanced cases the microscope usually but serves the purpose of confirming the clinical diagnosis. During the past 3 years in Dr. Clark's service at the University Hospital, the diagnosis of cervical carcinoma has never been made by histologic methods alone. In every case sections were taken and an examination made. This served to confirm the clinical diagnosis in well-marked cases, or in strongly suspected ones settled the question one way or the other. This histologic examination has several times prevented hysterectomy that would have been considered advisable in the absence of the help afforded by the microscope.

In no case, however, in which the clinical diagnosis was carcinoma has the histologic examination failed to agree. And in no case, so far, has the microscope discovered carcinoma of the cervix where it was unsuspected. But it must be remembered that cases which find their way to the wards of a hospital are usually advanced cases. Kundrat's percentage of 40 must be looked upon as high. Furthermore, hospital cases usually fall into the hands of men who have had abundant opportunity in the differential diagnosis between benign and malignant affections of the cervix. One who is thoroughly familiar with the disease can diagnose carcinoma about as well by clinical means alone as the physician can recognize tuberculosis. A mistake in diagnosis by clinical means alone would doubtless be infrequent if all women with atypical discharge or hemorrhage could be immediately placed in the hands of a specialist.

With the average physician, who sees comparatively few cases of carcinoma of the cervix in his experience, an early diagnosis must of necessity be many times more or less problematic. It is in such instances that histologic examination would be especially valuable. Outside of large cities there are many difficulties at times in securing the services of a consultant. The patient may feel

indisposed to travel a long distance to have a consultation, and the expense of doing so, together with the objection which most women have to an examination by any other than their own physician, would often, I think, make the physician loath to advise this course strongly unless he was nearly certain of his diagnosis. Curetage and excision of portions of cervical tissue in such cases could be readily undertaken and the specimens submitted to a competent pathologist. In this way many cases of cervical carcinoma would be discovered in their incipency. What has been said about my own experience with cases of Dr. Clark at the University Hospital, of cervical carcinoma, in no way casts doubt upon the value of the microscope. We unfortunately do not see these patients as a rule early enough to make the diagnosis entirely by histologic means.

In carcinoma of the fundus there is a somewhat different problem. Here the parts are less accessible to the finger and to the eye. Many have argued that even here carcinoma gives indubitable clinical signs which are sufficient for a diagnosis. In a large proportion of cases this is true. But, on the other hand, there are many times when a benign condition may so closely resemble carcinoma as to be subjected needlessly to a radical operation, and there are cases of early carcinoma of the fundus which would never be diagnosed by clinical means alone.

In a previous paper⁶ I reported 2 cases in which, although the physical signs pointed to carcinoma, microscopic examination of sections from the cervix and particles cureted from the uterus showed their benign nature. Without the assurance given by the microscope in these cases, the clinician would not have been justified in refusing to perform hysterectomy. One cannot afford to temporize in suspected cases. The diagnosis must be made at once. How often carcinoma has become hopelessly incurable while the effect of palliative treatment was being observed in an effort to establish the diagnosis! A case of Dr. Clark furnishes a very instructive example of a diagnosis made upon the histologic examination of scrapings from the uterus. The clinical symptoms were not only negative, but indeed, strongly indicated a benign process:

The patient, a single woman, aged 53, had complained for nearly a year of profuse bleeding at the time of her menstrual periods, which were undergoing the irregularity characteristic of the menopause. Pelvic examination showed a virginal condition of the external genitalia and cervix. The uterus was small, even rather undersized, and the adnexa were normal. Curetment was performed and the scrapings examined as a part of the regular routine following all curetments. I found in these scrapings an adenoma malignum beginning to undergo carcinomatous degeneration. The report was sent to Dr. Clark, who had some difficulty in convincing the family that hysterectomy was necessary. The case had seemed so undoubtedly benign at the time of the curetage that they had been assured that no further treatment would be required. Under some lingering doubt hysterectomy was performed. Even after removal of the organ there was not the slightest indication that it was the seat of a malignant growth. A small fibroid nodule was found embedded in the cervical wall, and this was enough to explain the metrorrhagia. After the uterus had been opened, however, there was no doubt as to the correctness of the histologic diagnosis.

One such case as this justifies the routine histologic examination of cervical tissue or curetings in the face of a hundred cases in which such an examination proves unnecessary. Bearing these facts in mind, the physician should employ the microscope in all cases of metrorrhagia in which the diagnosis is not entirely plain. After every amputation of the cervical lips, the excised tissue should be routinely examined to detect whether a malignant has been mistaken for a benign process. In cases strongly suspicious of carcinoma, a positive diagnosis can be made while the patient is under ether; so that if a malignant growth is found, hysterectomy may be immediately undertaken. Suitable sections for diagnosis can be prepared in 15 minutes by means of a freezing microtome. It should be remembered that the

cervical tissue excised for diagnosis ought to be a section through the entire suspected area; diagnostic curetage must include every part of the endometrium. Many times a failure of the microscope in these cases can be attributed to insufficient material.

Excised portions of the cervix or curetted particles of endometrium should be placed for preservation in 4% formalin; tissues improperly preserved are also unsuitable for a positive histologic diagnosis.

Winter⁷ recently estimated the percentage of cases coming to his clinic in which the disease had not invaded the parametrium. In 240 cases, he believes 40% were operable in the sense in which the term has been employed in this paper. He believes every case would be operable if it was taken at the first onset of symptoms. In order to increase the percentage of operability he advocates calling the attention of physicians and midwives to the proper course in every suspicious case. Every physician should be urged to pay the closest attention to any suspicious symptoms occurring in the child-bearing woman about the menopause, and to take every means at his command to determine at once if there is any possibility of malignant disease.

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FACIAL PARALYSIS.¹

BY

NORTON L. WILSON, M.D.,

of Elizabeth, N. J.

Ophthalmologist, Otolologist, and Laryngologist to the Elizabeth General Hospital, etc.

The subject of facial paralysis has been chosen for consideration because it is one which interests not only the otologist, but the general practitioner as well.

To Sir Charles Bell we owe the discovery that in the nerve trunks there are special sensory filaments which serve to transmit impressions from the periphery of the body to the sensorium, and special motor filaments which convey motor impressions from the brain or other nerve centers to the muscles. He showed that no motor nerve ever passed through a ganglion, and likewise demonstrated, both from theoretic considerations and actual experiment on living animals, that the anterior roots of the spinal nerves were motor and the posterior roots sensory in their functions.

His discoveries have been regarded as the greatest since the time of Harvey. Following is an excerpt from a paper on the nerves of the face, read by him before the Royal Society, July 12, 1821:

The nerves of the face are first the trigeminus, or fifth, of Willis, and that familiarly called the portio dura of the seventh, but which in this paper will be called the respiratory nerve of the face.

If an ass be thrown and its nostrils confined for a few seconds, so as to make it pant and forcibly dilate the nostrils at each inspiration, and if the portio dura be now divided on one side of the head, the motion of the nostril of the same side will instantly cease, while the other nostril will continue to expand and contract in unison with the motion of the chest.

On the division of the nerve the animal will give no sign of pain, while touching the superior maxillary branch of the fifth nerve gives acute pain.

This experiment proved conclusively that the seventh nerve was the motor nerve, and the fifth nerve was the sensory nerve of the face. It also afforded a reason for calling it the respiratory nerve of the face, as it controlled the motions of the nostril.

It is to this illustrious physician that gratitude is due for showing that all cases of facial paralysis are not due to intracranial lesions.

He related the case of a lady who, in the eighth month of pregnancy, suffered from partial paralysis of the muscles on one side of her face, due to the action of mercury in her mouth. The sore mouth, which caused inflammation of a lymphatic gland between the mastoid process and the angle of the jaw, compressed a branch of the seventh pair of nerves.

We thus see that early in the last century, Dr. Charles Bell actually described palsy of the facial nerve. To what he discovered and described, little has since been added. The facial nerve has its origin in the floor of the fourth ventricle, its fibers wind around the nucleus of the sixth cranial nerve, and it emerges from the medulla between the olivary and restiform bodies. It then travels side by side with the auditory nerve, passing forward and outward across the base of the brain, and enters the internal auditory meatus. Within the meatus it lies on the inner side of the auditory, and as it approaches the bottom of the meatus it is found directly over the eighth nerve. Here the auditory nerve divides into two branches, one going to the cochlea, the other to the vestibule, while the facial nerve enters the aqueduct of fallopius, crosses the upper part of the cochlea, and bears downward and backward. It is at this point that we find the geniculate ganglion. This is a small oblong enlargement or knot. Until recently this ganglion has been described by anatomists as belonging to the seventh nerve. It is now almost definitely settled that it belongs to the pars intermedia of Wrisberg. As to the function and origin of the pars intermedia, there is much uncertainty and contrary opinion.

Gray says it may be regarded as the sensory root of the facial nerve analogous to the superior root of the fifth. Its root would be the geniculate ganglion.

Allen says it is remarkable for not involving all the fibers of the facial and for receiving the terminal fibers of the pars intermedia. Bigelow believes that the chorda tympani is a continuation of the nerve of Wrisberg and Sapolini calls it the thirteenth cranial nerve and ascribes to it a function concerned in the power of speech.

Deaver says "the seventh nerve arises as two portions, the pars intermedia of Wrisberg arises deeply from the forepart of the nucleus of the ninth cranial nerve. It is considered a portion of the glossopharyngeal nerve. The facial nerve proper has its origin in the floor of the fourth ventricle." It is evident from Deaver's description of the nerve that he is uncertain about the pars intermedia and that he is not ready to declare whether it is a part of the seventh or of the ninth. If the facial nerve is purely a motor nerve we do not understand why it should have a ganglion. Sir Charles Bell demonstrated that no motor nerve passed through a ganglion. We therefore think it safe to conclude that this ganglion belongs to the pars intermedia which is a true sensory nerve, that the nerve just described by Deaver as a portion of the seventh or ninth, is nothing more or less than the dendrites of the geniculate ganglion going back to the brain and that all the so-called sensory filaments of the facial nerve terminate in the geniculate ganglion and are not branches of the facial nerve itself.

Let me further call attention to the fact that the facial nerve passes backward from the ganglion above the fenestrum ovale for about one centimeter, then turns downward for 12 mm. or 14 mm. where it emerges from the stylomastoid foramen, here to spread itself out to supply the muscles of expression of the face, the auricle, the stylohyoid, the posterior belly of the digastric and the postauricular space.

Most anatomists say that there are connecting twigs between the auditory and facial nerves in the internal

¹ Read before the Clinical Society, March 17, 1903.

auditory meatus. I have seen these twigs, but I believe they connect the auditory nerve with the pars intermedia and not the facial nerve with the auditory. Secretory branches are received from the parotid and submaxillary glands into the ganglion, but here again I cannot share the opinion that they come from the facial nerve, although efferent fibers may be secretory. I incline to the belief that these glands are stimulated through the nerve of Wrisberg, which is so intimately connected with the facial nerve as to be involved when ever the seventh nerve is injured in the aqueductus fallopian.

The 3 petrosal nerves which are said to arise from the geniculate ganglion are sensory filaments going to the ganglion. The first branch of the facial nerve is the stapedius; this supplies the stapedius muscle, which is inserted in the neck of the stapes and raises its forepart, thus compressing the contents of the vestibule.

The so-called second branch of the facial is a twig to the pneumogastric nerve, which apparently comes off the facial trunk just above the chorda tympani. This, like the other filaments to the ganglion, is sensory, and undoubtedly goes to the geniculate ganglion, being a part of the pars intermedia.

The chorda tympani is considered the last branch of the facial in the fallopian canal, but it is nothing more or less than a continuation of the pars intermedia; it supplies the anterior two-thirds of the tongue with taste.

From the foregoing description it is to be gathered that there is but one branch in the facial canal which actually comes directly from the facial nerve, and this is the stapedius. The other branches are all sensory, and probably are a part of the pars intermedia. It is impossible to injure one of these branches in the facial canal without involving the others, and therefore from a clinical standpoint the distinction which has been drawn is of no practical value.

Morbid Anatomy.—The view held by many writers that paralysis of the facial nerve is an interstitial neuritis with swelling of the sheath of the nerve and compression of the nerve elements, is purely hypothetical. The fact is, that Markowskie found true degenerative neuritis in a case of Bell's palsy. True interstitial neuritis is rare, and in the light of modern pathology we should not designate it as neuritis, but rather as a degeneration of the nerve.

Etiology.—Facial paralysis may arise from (1) a lesion of the cortex, which includes the internal capsule in connection with cerebral hemorrhage, softening, tumors or abscess of the brain; (2) from the effect of toxins of infectious diseases, particularly those of diphtheria; (3) from lesions in the nerve between the pons and the entrance into the facial canal, due to gummatous or other tumors, meningitis, or fractures at the base; (4) from lesions in the aqueductus fallopian due to surgical operations upon the mastoid or middle ear, otitis media or caries in the middle ear, or fractures of the petrous portion of the temporal bone may cause this form of paralysis; (5) from lesions in the peripheral portion of the nerve, external to the stylomastoid foramen due to mumps or lymphatic enlargement; pressure from obstetric forceps, or the action of cold wind blowing upon the face.

Roulland¹ reported several cases not due to forceps. In these cases the pressure is believed to be exerted from the promontory of the sacrum and superior strait, or by the ischium at the inferior strait, if the head is long arrested at one of these points. Facial paralysis has not been observed with face or breech presentations. Otitis media, and especially the chronic form is a frequent cause in children. I was under the impression until I began to prepare this paper, that otitis media furnished a large percentage of the cases, but I am forced to admit after looking over the histories of those coming under

my personal observation, and those of others, that only a small percentage of these cases (about 8%) are due to this cause.

In the majority of cases, facial paralysis is due to cold wind striking the face; such cases are called rheumatic neuritis, although Reiks¹ believes them to be due to catarrhal conditions of the middle ear.

Syphilis is rarely responsible outside the cranial cavity.

Hare says facial paralysis may result from hysteria, but, of course, it would be associated with other symptoms of hysteria.

It may also come from locomotor ataxia with a lesion in the pons.

It is hardly necessary for me to give a description of the symptoms, as all are familiar with the drawn face on the well side and the smooth face on the paralyzed side.

The diagnosis or location of the lesion is, however, important, as the prognosis depends upon its location. If the lesion is external to the stylomastoid foramen, we have complete paralysis of the facial muscles, involving the orbicularis and frontalis. The sense of taste and hearing remain normal. This is Bell's palsy.

If the lesion occurs within the lower part of the facial canal, we have complete paralysis of the face as before. In addition, however, we have loss of sense of taste in the anterior two-thirds of the tongue on the paralyzed side and a diminished secretion of saliva. The sense of hearing remains normal. This lesion involves the chorda tympani and twig from the glossopharyngeal nerve.

If the lesion is in the upper part of the facial canal, so that the stapedius is involved, and not the ganglion, we have all the last-named phenomena, and in addition, there will be found abnormal acuteness of hearing as the stapedius muscle is cut off, and the tensor tympani has its own way, and makes the drumhead tense.

Nearly all the authors to whose writings I have had access, in speaking of the paralysis of the soft palate, attribute it to the involvement of the superficial petrosal assuming that this nerve comes from the geniculate ganglion. In this assumption I cannot concur, because these filaments, in my judgment, are sensory, and not motor in their character. It is the fifth nerve which innervates the soft palate, and is the one involved when the palate is paralyzed.

As confirming my contention, I desire to report the following case:

John P., aged 39. Previous history good. He fell from a bridge to the street, a distance of about 18 feet, was picked up unconscious and taken to a hospital. He bled from both ears for 2 days. It was noticed that he was totally deaf, and that the left side of his face was paralyzed. The tuning fork placed upon his skull proved him totally deaf. He complained of tinnitus and vertigo. There was a fracture at the base of the skull involving both eighth nerves and the seventh nerve of the left side. The patient had no sense of taste in the anterior two-thirds of the tongue on the left side. The uvula and the soft palate were normal, and salivary secretion was apparently diminished on the left side. There was a scar about 2 inches long over the left mastoid process. Contractility of the muscles of the left side of the face was lost for the faradic current, but was apparently increased for the galvanic current.

If the geniculate ganglion was affected and the contention of writers is correct, the soft palate would be involved, but in this case the palate was normal.

If the lesion is in the nucleus, there is no disturbance of taste. This fact seems to prove that the chorda tympani is the nerve of taste. It proves further, that it is not a branch of the facial nerve, but is a continuation of the pars intermedia. In nuclear or infranuclear lesions the reflexes are lost, reactions of degeneration are present, and paralysis of the sixth nerve. If the lesion occurs in the cortex, the muscles of the lower half of the face are paralyzed, while the secretion of saliva and the

¹ Holt, p. 108.

¹ Johns Hopkins Bulletin, April, 1902.

sense of taste remain normal, because they are not innervated by the facial, but are controlled by the pars intermedia. The orbicularis and forehead muscles are intact, the patient being able to close the eye-lid. These muscles are innervated by the upper branch of the facial nerve. This feature, together with the normal electric excitability, points to a supranuclear lesion. The involvement of the lower half of the face is due to the fact that only the inferior or face branches of the facial nerve receive exclusively crossed innervation, while the upper branch, which supplies the orbicularis and frontalis and motor trigeminus is innervated from both hemispheres, so that a defect in one may be equalized by the other. That the upper and lower branches of the facial nerve have separate nuclei, has not been as yet anatomically proved. That they are, however, functionally distinct is further shown by the fact that in bulbar paralysis, a disease of the nerve nuclei of the medulla, only the inferior facial nerve is involved.

Church and Peterson say, "the nucleus of the seventh nerve receives fibers from the oculomotor nucleus which go to the orbicular muscles of the eye-lid."

These hypotheses do not explain the fact that the secretory and gustatory functions escape involvement.

It seems to me the explanation is to be found in the fact that they are branches of the pars intermedia, and not branches of the facial nerve.

In cortical lesions we also have the arm and leg of the same side involved, hence it is not difficult to locate a cortical lesion.

Facial paralysis with arm paralysis of the same side, followed in a short time by paralysis of the leg of the opposite side, is quite characteristic of syphilitic arteritis at the base of the brain.

When we find facial paralysis on one side and arm and leg of the other side, the lesion is in the pons above the decussation of the pyramid and below the facial fibers.

I recall a case in which a boy had facial paralysis of the right side, followed in a day by paralysis of the right arm and on the next morning by an involvement of the right leg. The case was one of thrombosis in the right lateral sinus due to middle-ear disease. At the autopsy an abscess in the left temporosphenoidal lobe was found, due to infection by the streptococcus.

After a diagnosis has been made and the lesion located, what should be done for the patient?

We must remember that electric changes soon develop in paralyzed muscles. The reaction of degeneration, partial or complete, appears in 4 or 5 days after the paralysis occurs.

According to Starr:

The electric contractility in the facial muscles is usually altered. In some cases the faradic contractility is preserved and the galvanic contractility is slightly increased, so that the muscles respond to a weaker current than those upon the normal side. In these cases, recovery occurs within 3 or 4 weeks.

In cases of medium severity however, there is a partial reaction of degeneration. The faradic contractility is very much diminished, or even lost, while the galvanic contractility is heightened, so that only a weak current is necessary to produce contractility. In severe and permanent cases there is a total reaction of degeneration, a complete loss of faradic contractility, and a gradual reduction in the galvanic contractility.

One can readily see how important are the electric reactions, not only as symptoms, but as prognostic indications.

Electricity should not be applied, therefore, until the end of the third week, except to ascertain the excitability of the muscles. One month after the paralysis has occurred, electricity and massage should be used regularly and systematically. If the muscles respond to faradism, that current should be used. If they do not respond to the induced current, galvanism should be used, and should be used only with the galvanometer, so that the strength of the current may be known and gradually increased, if necessary.

Flannel wrung out of hot water, or the hot water bag applied to the side of the face for the first 4 days does something toward relieving the stiffness of the muscles and dilating the vessels, thus favoring the process of degeneration and regeneration. Blisters over the mastoid, in my opinion, do more harm than good, except for their mental effect.

Endeavor to ascertain the cause, and if due to ear trouble, remove the cause. If syphilis is suspected, potassium iodid and mercury should be given in full doses.

The eye must be protected by hanging a patch over it, or by the wearing of colored glasses. It must be kept clean by washing with a solution of boric acid. Internal medication is of little or no value.

DRAINAGE OF THE CHEST IN EMPYEMA.¹

BY

LEON BRINKMAN, M.D.,
of Philadelphia.

I have selected the subject of "Drainage of the Chest in Empyema" with the hope that interest may be more thoroughly aroused in the improvement of the technic of surgery of the chest, which has not kept pace with surgery in other lines. It is true that the immediate performance of the operation for empyema, is not so brilliant as operations done for abdominal and pelvic disease, nevertheless the immediate and remote effects on the patient, obtained by the method I shall describe, are so patent, that I trust a more universal adoption of the method will be assured.

In considering the subject of pleural effusions, one must think of the degree of pleurisy which preceded. It is certain that before suppuration took place there must have been inflammatory changes in the serous membrane lining the chest wall. For a fair presentation of the subject, which is a complication, we must consider the etiology of pleurisy. The frequency of purulent pleurisy should not be underestimated. According to the records of St. Bartholomew's Hospital, London, for 10 years (1884-1893), the number of patients treated for pleurisy, in whom the pleurisy was the main and foremost disease, and not secondary to any other disease of a less serious nature, was 867; of these, 620 were males, and 247 females. Of the 867 cases 216 were purulent pleurisy, almost 25%, and of the empyemas 85 cases were in children, under 10 years of age, or 39.3%.

Purulent pleurisy is a secondary disease, rarely primary, and occurs as a sequel to serofibrinous pleurisy, to various infectious diseases, scarlet fever, measles, whoopingcough, pneumonia, enteric fever and tuberculosis; also the infections following traumatism either from a punctured wound of the pleura, from a fractured rib or from a penetrating wound.

The types of the infecting agent vary bacteriologically; the pneumococcus, streptococcus, and the tubercle bacillus have been found. Flexner,² in a study of 11 cases of acute pleurisy as terminal infections, found that the streptococcus was the infecting agent in 4 cases, *Micrococcus lanceolatus* in 2, *B. coli communis* in 1, *B. proteus* in 1, streptococcus, staphylococcus and bacillus in 1, *B. aerogenes capsulatus* and *B. coli communis* in 1, and *B. coli communis* and an unidentified bacillus in 1. He also found the infection gained entrance through the peritoneum in 4 cases; intestine in 3, bronchitis 1, infarction of lung 1, and doubtful 2.

The prognosis of purulent pleurisy depends upon the character of the infecting agent and the primary disease. From its very nature the tuberculous variety would not present a favorable outlook, yet in a small percentage of cases recovery does occur. A streptococcus infection and

¹ Read by invitation before the Philadelphia Academy of Surgery, and the Burlington County Medical Society.

² Journal of Experimental Medicine, Vol. i.

empyema from gangrene of the lung may in some instances result in cure, if early surgical interference is instituted. There is no case of empyema too desperate to prevent the attempt at evacuation and drainage. In performing this procedure, the most rigid asepsis should be observed, in order that an additional infection of the pleural cavity will be avoided.

In order to avoid clogging of the needle in the exploratory puncture, I would suggest from experience that it would be wise to have the barrel of the syringe half filled with warm sterile saline solution, which can be expelled into the chest cavity before aspiration is begun. As a further means to avoid infection, it is a good precautionary measure to make a small incision under local anesthesia, so as to preclude infection of the needle while being pushed through the skin. Treatment in the past has been limited to aspiration, aspiration with irrigation, permanent aspiration, simple incision, resection, and the Estlander excision.

Aspiration as a surgical measure should be condemned, except as a means of arriving at a diagnosis or when the amount of purulent secretion is too extensive to make a radical procedure a safe measure. In the latter instance, the radical operation should be performed some hours after aspiration, so that a fatal syncope may be avoided.

Aspiration and irrigation are open to a much greater objection than simple aspiration, due to the introduction of an irrigating fluid. I shall speak later of the dangers attending irrigation.

Permanent aspiration is probably the least objectionable form of palliative treatment, although even this has many features to condemn it. The fluid withdrawn from the chest by this method must not contain any cheesy masses or loose flakes of fibrin, otherwise there is a stoppage in the tube and failure to perform its function; ulceration occurs around the tube or canula, and the entrance of air follows, one of the things which should be avoided; again, it is not a practical procedure for private practice, as a constant supervision is necessary to prevent infection through the tube. Simple incision for drainage, like the preceding measure, is well enough as a temporary means in the treatment of empyema, but it is a failure as a curative measure, as the incision ceases to perform its function after a short period of time.

Until a comparatively recent date, simple excision of the ribs and the introduction of tubular drainage has been the ideal means of surgical treatment of empyema. There is no doubt that this affords a very excellent means of disposing of the purulent accumulation but, like the measures spoken of previously, some strong arguments may be urged against it: (1) It does not dispense with a foreign body in the chest; (2) the tube acting as a foreign body is a continual source of irritation, and adds a factor in the continuance of the discharge; (3) the tube may slip into the chest, and its disappearance remain unaccounted for. I operated upon a patient in which this occurred, and recovered 2 pieces of drainage-tube. This patient had been operated upon twice before.

The necessity for extensive excision in children will depend upon the amount of lung involvement by adhesion and fixation in the upper portion of the chest cavity. As a rule, excision of 1 or 2 ribs will suffice if done early before adhesions have formed; if, however, these are present, 3 or 4 ribs may have to be divided, in order to allow sufficient space for the manipulation necessary to free the lung and permit it to expand.

The question as to the proper anesthetic to select in operations for empyema is a delicate one to decide. In 27 cases in which operation was done by the improved method ether was administered in 6, and chloroform in 21. In my opinion, chloroform is the ideal anesthetic provided the heart is in good condition and not too much displaced, and it is especially indicated in children. The advantages it possesses over ether are the avoidance of

the laryngeal and bronchial irritation, the shortened stage of excitement, and the prevention in a large measure of the usual struggle just prior to complete anesthesia. Ether is a respiratory depressant. If there is a large accumulation in the chest then aspiration should be performed several hours prior to the administration of the anesthetic.

The operation advocated by Estlander, while a distinct advance in the treatment of empyema, is a very extensive one, and does not possess any advantage over the following method. Among the 27 cases in which immediate drainage was instituted there were several in which, had it not been adopted, I would have been compelled to do the Estlander operation, which entails a much greater amount of manipulation, destruction of tissue, and has a greater mortality.

Dr. Carl Beck has devised an operation similar to the one which I advocate, but it differs in several vital points. I was not aware of the method employed by Beck until the September, 1902, meeting of the Pennsylvania State Medical Society, when it was brought to my notice by Dr. Gibbon, of Scranton. Since these facts were brought to my attention, I have carefully gone over the literature, and found that Dr. Beck reported his experience with suture of the pleura to the skin as early as 1894; he, however, introduced tubal drainage after several days to avoid hemorrhage. The operation as recommended by Beck consists in making an incision over and parallel to the rib, reflecting the superficial structures, denuding the rib of its periosteum, introducing a special pair of scissors beneath the rib, which serves the purpose of a periosteal elevator as well, and excising 4 inches of the ribs the pleura is opened in the axis of the wound and stitched to the skin.

The main points of difference between the operation of Beck and the one I am about to describe are: That in the latter, additional facility is afforded to manipulate within the chest cavity; that with each inspiratory movement of the chest wall a wider range of lung expansion is possible; a freer inspection of the chest cavity is permitted, making it easy to avoid the formation of pockets, and doing away with the necessity for packing the chest cavity.

The operation for immediate drainage of the chest for empyema is performed in the following manner:

After the patient is properly prepared, a vertical incision is made in the midaxillary line down to and exposing the fifth, sixth, and seventh ribs, more if necessary. The skin, superficial fascia and muscles are reflected back on either side of the wound, so as to expose at least 2 inches of the ribs; the periosteum is freed from the anterior surface so as to permit the easy introduction of the periosteal elevator beneath the ribs. An elevator is carefully introduced beneath each rib successively, denuding them of their periosteum and underlying structures. The ribs are divided; the pleura is protected from injury by the special elevator, which performs the twofold purpose of freeing the periosteum and elevation and fixation of the ribs, so as to facilitate the division of the bone with cutting forceps.

The pleura having been exposed, a small vertical incision is made in it at the lower angle of the wound, and about the middle of the space previously made, to permit the more gradual escape of the pus. Upon complete evacuation the incision of the pleura is continued upward until it reaches the upper angle of the wound.

A free inspection of the chest cavity is possible by retraction of the wound; if the lung is found bound down and collapsed in the upper portion of the chest cavity, an attempt should be gently made to separate the adhesions; if these are too firm to admit of this, then they must be incised, and blunt dissection resorted to, avoiding unnecessary force, which might produce extensive laceration of the lung tissue.

When the condition within the chest cavity is complicated by encysted pockets of pus, either interlobular or between the lung and the posterior chest wall, it may be necessary to go as high as the third rib in the excision.

The operation is completed by stitching the pleura and skin together around the entire wound, thus offering a large free opening for the escape of the succeeding secretion. In order to avoid injury to the diaphragm, all incision should be made with this organ in view or touch, a finger introduced within the chest cavity acts as a guide, when going below the seventh rib.

Before completing the operation, the periosteum should be carefully dissected away, other wise, during the process of

repair and closure of the wound, masses of fibrous and calcareous tissue are formed.

A serous membrane like the pleura, which under normal conditions has such great absorptive powers, is capable of taking up a toxic amount of drug from any fluid thrown into the chest cavity which would contain a sufficiently strong antiseptic to alter the character of the pus. Although the character of the pleura is changed by the inflammatory process, still it is capable of absorption.

In commenting upon the practice of irrigation of the chest cavity, the dangers of this procedure should be well borne in mind; fatal syncope and hemiplegia are prominent among these. I have found from experience that irrigation of the chest after operation does not diminish the amount of discharge, but rather, on the other hand, favors its increase.

During the past 5½ years I have spent considerable time and thought in perfecting an immediate method for drainage of the chest without tubes, and have had opportunity to compare it with excision and tubular drainage. The total number of patients operated upon for empyema was 47; 20 by excision and tubular drainage, 27 by excision and suture of the pleura to the skin. The results by the immediate method of drainage were so conclusive that I believe the benefits from it are unquestionable. Of the 27 patients treated by this method of drainage, but two had a protracted convalescence, and this would have been the case under any method employed.

The first was a young girl with tuberculous empyema, complicated by an extensive tuberculous involvement of the base of the right lung. It is now 2 years since she was operated upon. Her condition is as follows: A small discharging sinus is seen at the site of the former operation at about the middle of the scar, from which a slight amount of semipurulent secretion makes its escape. Microscopic examination of the discharge from the sinus and of the sputum fails to reveal tubercle bacilli. Her general health has improved in the past 4 months to a remarkable degree, her weight having increased 30 pounds. The area of lung involvement in the impaired lung has decreased to half its former dimensions.

Since this paper was written and at the present time the sinus has closed completely.

The other case also occurred in a young female. The empyema was a secondary complication to pneumonia. In addition to the empyema, there was a localized patch of gangrene of the lung, which upon separation developed into a bronchial fistula. With the gradual decrease in the size of the wound by cicatrization, there has been a perceptible decrease in the amount of discharge, and of the air making its escape through the sinus. At the present time there is scarcely any discharge, and air can only be forced through the sinus when the breath is held and forcible compression of the chest wall made.

This patient is also well at the present writing, the sinus having closed shortly after completion of the article.

The remaining 25 patients operated upon by this method have all made successful recoveries, the shortest time for a cure to be established was 3 weeks, and the longest 5 months.

It will be found necessary in some few cases to freshen the edges of the wound and bring them together with sutures, so as to hasten the closure. This was done in 5 of the 27 cases, the discharge having ceased after 3 weeks.

The breaking up of the adhesion between the lobes of the lung and chest wall so as to allow the lung to expand, in a great measure robs the convalescence of a very distressing complication—the almost constant cough. It also permits the patient a much greater degree of comfort, and the securing of more sleep.

Children Gain Weight Periodically.—Some curious experiments have been made at one of the royal philanthropic institutions in Copenhagen. For some years back the 70 boys and girls in the place have been carefully weighed every day in groups of 15 and under. Thereby it is proved that the children gain weight mostly in autumn and in the early part of December. From that time to the end of April there is scarcely any increase in weight. More remarkable still, there is a diminution till the end of summer.

SPECIAL ARTICLES

MEDICUS ET MEDICA.

BY

HELEN MACMURCHY, M.D.,

of Toronto, Canada.

[Concluded from page 234.]

But to return to the history of the London School of Medicine for Women. The guilds and great companies of the city of London are among its benefactors, but it has never received a subsidy from the government, though it does public work; it can still boast of its poverty, a poverty combined with efficiency.

Since 1881 its students have taken 8 gold medals in medicine from the London University, 3 other students having obtained standing qualifying them for medals; and 2 students have obtained standing qualifying them for medals in the B.Sc. examination, while many stand high in the honors list.

Private munificence has done something for the College, one of its benefactors being Mrs. Oakes, of Paramatta, N. S. W., who gave £4,000. The Pfeiffer bequest made it possible for the trustees to build the new Pfeiffer wing, which was opened in 1898 by the Prince and Princess of Wales. This mark of royal favor, the success of the occasion, and the interest displayed, greatly encouraged the friends of the school, and the whole school is now being rebuilt at a total cost of about £35,000. The administration of the school has always been excellent, so that with all their expansion they have kept out of debt.

It should be remembered that much of the distinction and success of English women physicians is due to the fact that they and their friends founded the "New Hospital" officered entirely by women, and that the work done by the doctors there in advanced surgery, medicine, clinical teaching, and the various departments of specialists' work showed that these higher walks of medicine were not beyond them.

The school has now 200 students, and in its short history there is already something of which to be proud. Not to speak of the living, there were two brilliant students of whom the highest hopes were entertained when, in the glory of their youth, untimely death closed their brilliant careers.

Miss Mabel Webb took her M.B., London, in 1898, and was curator of the Royal Free Hospital Museum at the time of her early death, having devoted her talents to the study of pathology. She was earnest and enthusiastic, and deeply mourned by her friends, who have founded the Mabel Webb Memorial Scholarship for the School. Her mother is rebuilding the museum and laboratories in memory of her gifted daughter, so that the students of the college may be practically acquainted with the methods of modern pathologic research.

Miss E. Helen Prideaux, who took the gold medal and scholarship in anatomy at the University of London in 1881, and was placed in honors in every subject at the M.B. and B.S. examination in 1884, was appointed house surgeon at the Children's Hospital, Paddington. She contracted diphtheria in the discharge of her duty, and after great suffering, borne with the utmost fortitude and heroism, died November 9, 1885. Her ability, her refinement and sympathy, gave promise of great things in her professional career, and her friends have sought to perpetuate her memory in the Helen Prideaux Scholarship.

As has already been stated, the Conjoint Scottish Colleges of Physicians and Surgeons opened their examinations to women in 1886, and then separate medical classes were organized for women in Edinburgh, the Edinburgh School of Medicine for Women being opened in 1887, with 14 students; Leith Hospital being its clinical school. Among the first students of this school was the first Hindu lady who ever studied medicine in Great Britain. The dean of the school was Dr. Sophia Jex-Blake, one of the great pioneers of the movement. She was also the first woman to receive appointment as a lecturer in any British university, being appointed extramural lecturer on midwifery to the University of Edinburgh in 1888. The Edinburgh School

of Medicine for Women remained open till 1898, when the executive committee was reluctantly compelled to close its classes on account of the action of the University Court, which gave the Edinburgh School of Medicine for Women to understand in 1886 that "mixed classes" in medicine were objectionable (and therefore the School of Medicine for Women was a necessity), but in 1898, while stating that they "adhered" to the principle of separate classes, stated also that they "granted permission" for "mixed classes." But the 12 years' record of the Edinburgh School of Medicine for Women is a proud and successful one. Dr. Jex-Blake retired from practice in 1899, after nearly 40 years of work, and is now living in Sussex, England, where she was born. Her great services to the cause for which she made so many sacrifices will not pass unremembered. The farewell reception tendered to her in Edinburgh was attended by rich and poor alike. Edinburgh, where she passed nearly half her life, will never forget her. Her Edinburgh residence, Bruntfield Lodge, is now a woman's hospital, which would have been called after her if she would have permitted it.

The Medical College for Women, Chambers street, Edinburgh, has now been in existence over 10 years. It was founded and is conducted by the Scottish Association for the Medical Education of Women. It has the great advantage of a place of residence for its students, Muir Hall. In its first year its students numbered 9; in 1900 there were 105. The students are admitted to the Royal Infirmary (where 80 beds are reserved for their instruction), the Royal Hospital for Sick Children, and the Royal Maternity Hospital.

Queen Margaret College is the Women's Department of the University of Glasgow founded as the result of a movement for the higher education of women, begun in Glasgow in 1868 by Mrs. Campbell of Tulliechewan. She arranged for courses of lectures for women from Professor Edward Caird and others, and in 1877, at a public meeting, the Glasgow Association for the Higher Education of Women was formed. In 1883 this Association was incorporated as a college, and the college was named after Queen Margaret, wife of Malcolm Canmore, the first Scotch patroness of the Liberal Arts.

In the same year Mrs. John Elder of Govan, widow of the great ship-builder and engineer, presented to the college the buildings and grounds now occupied by it on condition that £20,000 should be raised as an endowment fund. This condition was fully met by the endowment fund collected and presented by Mrs. Campbell, amounting to over £25,000. In 1893 the College Council having regard to Ordinance No. 18 of the Universities' Commissioners, transferred to the University of Glasgow their endowment funds, and, with the concurrence of Mrs. Elder, the buildings and grounds, which had cost over £15,000. There were 52 students of Queen Margaret College who took the degree of M.D., and it is interesting to add that the founders of the college, Mrs. Elder of Govan and Mrs. Campbell of Tulliechewan received the honorary degree of LL.D. at the recent celebration of the Ninth Jubilee of the University of Glasgow, being the first women to receive that honor.

Among other institutions now making provision for the medical education of women may be mentioned the University of Aberdeen, the University of Durham, and the University of St. Andrew's. At St. Andrew's the munificence of the late Lord Rector, the Marquis of Bute, enabled the University to erect separate practical anatomy rooms for men and women students, and the late Dr. W. T. Thomson founded 14 annual bursaries, for the express purpose of furthering the medical education of women.

In Great Britain over 100 poor law, asylum, and hospital appointments are held by women physicians. A woman physician is on the medical faculty of Birmingham University, another on that of the University of St. Andrew's, and a third is examiner in midwifery of the Royal Colleges of Ireland.

Women physicians are lecturers or examiners to the County Councils of London, Westmoreland, and Montgomery; medical officers, lecturers or examiners to the school boards of London, Edinburgh, Nottingham and Sheffield. They are also medical officers to the general postoffices of London, Liverpool and Manchester; medical referees and examiners to insurance companies, etc. The North London Collegiate School for Girls,

the Maria Grey Training College, the Manchester Industrial School, Clapham High School, St. Mary's College, Paddington, Central High School of Newcastle, Wycombe Abbey School, and others have women physicians as consulting or resident physicians.

Another recent appointment is that of the Hon. Ella Scarlett, M.D., daughter of the late General Lord Abinger, and formerly court physician to the Emperor of Corea, as medical officer to the Refugee camps for Boer women and children. Several women physicians have been in the Indian Medical Service, and also on plague duty in India and Egypt. Many women physicians are members of the British Medical Association and other medical societies. At the meeting of the Edinburgh Obstetrical Society, held January 9, 1901, R. M. Milne-Murray, M.D., in the chair, it was resolved, *nemine contradicente*, that women should now be admitted to the fellowship of the society.

The first woman physician in Canada was Dr. Emily Howard Stowe, of Toronto, who graduated in New York, in 1867. The Woman's Medical College, Toronto, was founded in 1883, by Dr. Michael Barrett, assisted by Mr. James Beatty, Q.C., M.P., and others, especially by the following members of the profession: Dr. George Wright, Mr. Irving H. Cameron, Dr. A. H. Wright, Dr. McPhedran, Dr. Reeve (now dean of the Faculty of Medicine of Toronto University); Dr. Nevitt (now dean of the Woman's Medical College); Dr. Wishart, and Dr. Augusta Stowe Gullen (who was the first woman to take a medical degree in Canada, graduating from Victoria University, Cobourg, in 1883).

Dr. Barrett, first dean of the college, was a just and kind man. He, and all the other members of the faculty and their successors, have, with the chivalry and generosity characteristic of the noble profession to which they belong, carried the college through all these years—years of toil and self-sacrifice never mentioned by themselves, and almost unknown to others.

The examinations and degrees of Canadian universities are all open to women, and women have studied medicine at Queen's University, Kingston, the University of Manitoba, Winnipeg, and Dalhousie University, Halifax. The Woman's Medical College at Toronto is the only medical college for women in Canada, and has had over 80 graduates.

In 1867 the first medical school for native women in India was started at Bareilly by Surgeon Corbyn, and in 1875 the Madras Medical College was opened to women. The natives of India themselves really began this movement, and in 1883, by the munificence of a Parsee gentleman, the Kama Hospital (named after the founder) was established. It is now one of the hospitals of the Indian Medical Service, and a dispensary in connection with it was established by the liberality of a Mussulman. Her Majesty Queen Victoria took a deep personal interest in this movement, and the kind Countess of Dufferin, as all the world knows, was the life of it in later years, so that in 1888 there were 30 hospitals in India entirely under the charge of women physicians, and in 1896 the number had grown to 133, and in 1900 there were 247 hospitals, dispensaries, etc., many of them in connection with Christian missions where 1,667,329 women patients were treated by women physicians.

The first woman to receive the Doctor's degree in Germany was Dorothea Erxleben (nee Laporin), and the date was June 12, 1754. Her father, a physician, educated her and encouraged her to aspire to a Doctor's degree; her brother's schoolmaster, Rector Eckhard, taught her Latin, and predicted that in her the Muses would have one whom they could recognize and proclaim as "an ornament of her sex and theirs." In November, 1741, her father did Frederick the Great a service, and the King at his request undertook to recommend her to the Medical Faculty at Halle, as soon as she thought fit to remind him of this promise. But Dorothea loved the young minister of the Church of St. Nicholas in her native town, married him, and in the next thirteen years discharged faithfully the duties of a wife and mother, caring for her four children, nursing her husband through a long illness, passing through the great bereavement of her father's death, but never quite forsaking the profession she loved. At the age of 39 she reminded Frederick the Great of

his offer, and the King kept his word, and ordered the Faculty at Halle to admit her to examination forthwith.

"For two whole hours," writes the Dean, "Frau Erxleben stood alone, exposed to the questions of the examiners, which she received with admirable modesty and cheerfulness, answering fully and distinctly, solving doubtful matters with extreme skill, and using so free and sweet sounding a Latinity that we seemed to be listening to some matron from old Latium speaking in her native tongue." Deduct a little for the politeness of a Dean—the Dean of a Medical Faculty—and the fact remains that her examiners could raise no objection to her claim on the score of proficiency. Nevertheless they hesitated to go further with the business, and, after consultation, decided to report progress to the King. "Frau Erxleben," said the examiners, "has passed her examination well, and shown herself a man" ("optime in examine steterit et virum se præstiterit"), but Frederick the Great summarily ordered that the degree should be bestowed. The doctor practised her profession till her death in 1762. Her husband became a Dean and two of her sons rose to eminence.

There are now 406 women engaged in studying medicine in different places in Germany, but their position has heretofore been a difficult one, as they have only been allowed to attend lectures under special conditions. In April, 1901, two ladies passed the German State examination for medical practitioners in Freiburg, Baden, both obtaining the mark "very good." These are, it is stated, the first ladies to qualify in the ordinary way in the German Empire.¹

There are 700 women physicians in Russia. Many of them hold government appointments and are eligible for pensions. The Poor Law Service, the County and City Medical Service, and the Municipal Ambulance Service all have some women physicians on their staff.

The first woman physician in France, Madeline Bres, graduated in 1875, and now there are 85 women physicians practising there, 71 of them being in Paris. In Austria women were allowed to begin the study of medicine in 1897, and in 1898, 50 women had taken advantage of this permission.

There are 20 women physicians in Italy, one of them physician to the Queen, and there is a number in Sweden, Switzerland, Holland, Norway, Denmark, Finland, Roumania, Greece, Portugal. A Swiss lady is court physician to the Emperor of Abyssinia, and an English lady court physician to the Emperor of Corea. There are two women physicians in Egypt, a number in Persia, and also in Turkey. Several have graduated from the University of Mexico, and in Colombia, in Chili, and in Peru, women have begun the practice of medicine.

Nor have the labors of women physicians been without praise and reward.

The Bishop of Stepney, preaching the sermon of the Anniversary Festival Service of the Guild of St. Luke, in St. Paul's Cathedral, October 19, 1899, before the Lord Mayor of London and the sheriffs, who attended in state, together with the chief officers and many members of the Corporation of the City of London, and before a large congregation of doctors in academic costume, took for his text the words, "Jesus went about . . . healing every sickness and every disease," and remarked in the course of his sermon that he welcomed the presence of ladies among the medical graduates; their sympathy with suffering and their ability to commune more freely with some patients than men could, gave them a special mission.

The *British Medical Journal* (June 2, 1900) says: "The West Ham Board of Guardians are advertising for a female assistant medical officer for their workhouse and schools. This is said to be the first time that a lady has been advertised for in this capacity. Other Boards have merely signified that women were eligible. The new departure may be taken as proving that in the other poor law appointments which women have held, they have done well."

The secretary of the Melbourne Hospital, Australia, stated that the two women physicians who were the first to hold appointments on the resident medical staff of that hospital "carried out the duties of their office with much credit to themselves and to the benefit of the charity."

The medical superintendent of one of the largest London infirmaries says: "All the lady assistants I have worked with have been a great success."

In the last New Year's Honors List for India there were but five rewards bestowed on plague medical officers, and one—the Kaiser-i-Hind silver medal—was given to Miss Alice Cathorn, M.B. The same reward was bestowed in May, 1900, on Miss Adams, M.D., of Jodhpore; Mrs. Smith, M.D., of Jullemder, and Miss Campbell, L.R.C.P. and S., of the U. P. Church of Scotland, Ajmere.

One of the first decorations bestowed by His Majesty King Edward was the Royal Red Cross given to Miss L. Emma V. Saville, M.D., of the London Mission, for services at the International Hospital during the memorable siege of the Legations at Peking.

"The two crying evils of our time are the overcrowding of the profession and its decadence in scholarship. This defect of scholarship is associated with, and to my mind, too often begets defect of manners; and the courtesy and old-time courtliness of professional intercourse is rapidly disappearing."¹

These words it were well if men and women entering the medical profession, as well as those responsible for advising and preparing them to enter it, bore in mind. Overcrowding the profession—defect of scholarship—defect of manners. The entrance of women into the profession will have a tendency to increase the first, and it is our duty, as members of the profession, to watch jealously our own professional ethics that no low commercial standards or methods may increase this evil or taint our relations with our patients or with other members of the profession. It is the best return in our power for all that the profession has done for us to make ourselves as worthy members of it as we can be—to love and encourage learning, to prize scholarship, to think as little as possible of our rights and the duties of others to us, while we constantly consider the rights of others and the duties we owe to them, and sedulously cultivate that excellence of character and that beauty and dignity of manner and bearing by which we can best ornament our profession. There are in true womanhood, as in true manhood, some special privileges and endowments which are our share of the perfection of humanity. Let us take these with us when we enter professional life that we may enrich and not impoverish our calling.

The doctors of Queen Anne's time reminded Addison of the British army against which Cæsar fought in 55 B.C. "Some slay in chariots and some on foot."

There are many kinds of success, the making of a professional income sufficient to drive a chariot not being the highest kind. Still, it is not to be despised, and it has been honorably attained by women physicians in London, New York, Philadelphia, and elsewhere.

To do the thing that is right, to enlarge (if so great a thing lie in our power) the boundaries of the kingdom of knowledge, or to help some one else to do so, to win that confidence that comes with power over disease and its evil effects, to know the happiness of making others well and happy, to grow greater in heart and soul and power of service by means of our work and the personal relations which it brings and to do that work from pure motives and with a constant memory of the high references of life—these are the better part of professional success.

Typhoid Fever in Germany.—Thanks to the improvements in the public sanitation in many large German cities in which formerly numerous cases of illness and death and even widespread epidemics were caused by typhoid, this disease has become rarer. It prevails, however, largely in the country and in many cities. In the 20 years from 1877 to 1896 49,948 persons died from typhoid in the towns of Germany which have population of not less than 15,000, being a yearly average of 2,497 deaths for the whole empire; still, since 1877, there has been a steady decline in the number of deaths from typhoid. In the 5 years from 1877 to 1891 the average was only 2,269 annually, although there has been a great increase in the urban population during the same period; from 1892 to 1896 the average was 1,666, and in the year 1897 there were only 1,552 cases of death from typhoid.—[*Public Health and Marine-Hospital Service.*]

¹ Presidential Address at the Thirty-second Annual Meeting of the Canadian Medical Association, Toronto, 1899. By Irving H. Cameron, M.B., F.R.C.S., England.

¹ *Lancet*, April 27, 1901.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

February 6, 1904. [Vol. XLII, No. 6.]

1. General Practice a Continuous Postgraduate Clinic. EDWIN WALKER.
2. The Influence of Resection of the Cervical Sympathetic Ganglia in Glaucoma. WILLIAM H. WILDER.
3. Some Histologic Facts that Contradict the Generally Accepted Odontoblast Theory. MICHAEL MORGENSTERN.
4. Diabetes and Obscure Physiology. CARL RAMUS.
5. Radium and Radiant Energy. JOHN INGLIS.
6. The Conflicting Claims of General Education and Professional Education. ARTHUR TWINING HADLEY.

1.—See *American Medicine*, Vol. VI, No. 17, p. 653.

2.—See *American Medicine*, Vol. V, No. 21, p. 822.

3.—Facts that Contradict the Accepted Odontoblast Theory.—M. Morgenstern objects to the theory that the odontoblasts are perennial and that they at the same time perform the functions of nutrition, sensation, and of metaplastic transformation as regards the dentin. He presents illustrations showing that at least in the earliest developmental stages of the teeth an odontoblast originates from several cell units, that during the different periods of tooth formation a multiple layer of odontoblast cells can be demonstrated, that finally the external rows undergo metaplastic transformation so that they disintegrate. Replacement occurs by proliferation of the small underlying pulp cells that are connected by protoplasmic anastomoses with the dentin cells. The cells within the dentin are not invading leukocytes, but mesodermic and dentin cells that have been passively enclosed. Dentin, under the influence of irritants, may be formed without the typical layer of odontoblasts, which is merely a transitory stage. The pulp becomes included in the process of dentin formation and consequently grows smaller and smaller. He shows the dentin fibers originating from cells deeper than the odontoblasts. He believes he has definitely solved the question of the sensibility of dentin by demonstrating the entrance of axis-cylinders. [H.M.]

4.—Diabetes and Obscure Physiology.—C. Ramus reports the results of a series of experiments, and adduces those of other writers, these in connection with each other showing that in normal blood, dextrose undergoes chemico modification before absorption by the tissues, developing alcohol, which is present in minute quantities in the urine of total abstainers; that in chemically pure solutions of dextrose and levulose treated with pancreatin, sugar is lost and alcohol (and carbonic acid?) developed, the change being more marked in the case of levulose, the agent being an enzyme normally present in blood and having its origin in the pancreas alone, for when that organ is removed dextrose remains unchanged. The disturbance of this function initiates diabetes mellitus. The demonstration of this enzyme was the object of the experiments. The principal source of error is infection with saprophytic bacteria. The absence of glycogen from the liver in diabetes is due to overstimulation of its nervous mechanism by the demand of the tissues for alcohol not now elaborated by the pancreatic enzyme. Levulose and probably lactose is more easily converted into alcohol than dextrose, hence milk is comparatively well tolerated. The digestive functions of liver and pancreas are diminished by the other demands made on their activity, thus favoring the development of acid substances ultimately changing the reaction of the blood. If the writer's theory is correct, the importance of alcohol in treatment is correct. Pancreatic extracts could be useful only in large quantities with or preceding meals. He thinks mescal de tequila, a fermented liquor from the maguey plant may have specific influence on the kidneys. In health man needs no ready prepared alcohol, except such as occurs naturally in some of the foods. [H.M.]

5.—Radium and Radiant Energy.—J. Inglis describes this new element with a history of its discovery, the latter bringing about almost a revolution in our theory of matter. It practically establishes the Thomsonian corpuscle theory, one atom of radium containing 120,000. The unknown radiations traversing space are arrested and transformed into radioactive energy by radioactive substances. The corpuscles that flow between the atoms are negative, and may be drawn out of the straight path by magnetism. Whenever there are 34,000 of these

electromagnetic undulations we see light; if 61,000, violet light. The discovery of such elements as radium we owe to spectrum analysis. It is found in pitchblend, and belongs to the alkaline group with calcium, strontium, barium. It is more valuable than diamonds, and is used to distinguish the real from the spurious. It maintains a temperature of 2° to 5° above the surrounding atmosphere. One grain will melt a grain of ice every hour. Long months of activity show no chemico, microscopic, or spectroscopic change. Its weight remains the same. Its ray penetrates opaque substances like the röntgen ray. A piece carried in a glass tube in the pocket will set up a dermatitis. The source of its energy is unknown. It may in time evolve into another simple body or may be capable of utilizing some unknown radiations which cross the space. Radium induces an activity which persists, while the activity of the röntgen ray ceases on the removal of the rays. It has placed the first question mark against the principle of the conservation of energy according to Kelvin. It has marked bactericidal properties. Normal salt solution may be impregnated and used as a spray. It inhibits growth of diseased tissue, and has been successfully used in cancer, lupus, and is suggested for optic atrophy. It requires no apparatus but a test-tube, and is free from wear and tear, and is portable. [H.M.]

6.—General and Professional Education.—A. T. Hadley believes in encouraging men to do the preliminary work for their several callings while they are in the broader atmosphere of the college rather than in the narrower atmosphere of the professional schools. The professional course secures intensity, but there is danger of fostering the spirit of commercialism, and undue exaltation of those elements of study and practice which form the basis for triumphs of technical skill, and a sort of tradesunionism which affects adversely the political and moral influence of the physician. [H.M.]

Boston Medical and Surgical Journal.

February 4, 1904. [Vol. CL, No. 5.]

1. Report of Cases of Trephining for Epilepsy. JOHN C. MUNRO.
2. Some Conclusions Based on a Study of 134 Cases of Calculus in the Ureter: with a Report of Three New Cases. BENJAMIN TENNEY.
3. Decapsulation of the Kidney. EDWARD REYNOLDS.

1.—Trephining for Epilepsy.—John C. Munro reports 11 cases of trephining for epilepsy. He states that in practically every one of these cases there was some pathologic lesion or abnormality found at operation but vaguely suspected beforehand, and, although the results so far obtained in these cases are at the present time somewhat discouraging, the author reports the cases in the hope that such report may add something to our knowledge in these cases and enable us to arrive at some conclusion in regard to the relatively few cases which are amenable to surgical treatment. He holds that, of course, in the large majority of instances surgery is not indicated in epilepsy but there does remain a certain percentage of cases, even without the previous history of traumatism, in which it is proved that surgery will give relief. A detailed report of the 11 cases is given but is too detailed for valuable abstract. [A.B.C.]

2.—Conclusions Based on a Study of 134 Cases of Calculus of the Ureter.—Benjamin Tenney reports 3 new cases, and a study of 131 additional cases. Of these 134, 12 were relieved by proceedings other than surgical; of the 122 patients operated upon, 98 recovered and 23 died. Eleven of these deaths occurred in the 21 cases operated upon while suffering from anuria or partial anuria, making a mortality of 52% in these cases. Of the 15 cases suffering from pyelonephritis there was a mortality of 47%, excluding the anuria and pyelitis cases. There remain 85 patients operated upon without such complication, and among these there were 5 deaths. His conclusions are as follows: Intermittent pain on one side, with varying amounts of red blood in the urine, are constant symptoms of stone in the ureter. Though the best means of locating stones, the röntgen ray cannot yet give evidence sufficient in itself to warrant us in operating or refusing to operate on certain cases. If a calculus starts from kidney to bladder, it is likely to catch within an inch or one of 3 places, all of which are accessible to the surgeon through extraperitoneal openings. A single calculus is the rule, but the exception occurs, according to these

cases, about once in 8 times. The opening in the ureter or kidney pelvis for removal of the calculus should be sutured if possible. Both sorts of suture materials have been used with equally good results, and wounds in both locations apparently heal equally well. The recovery is only delayed if sutures are not used. A calculus in the ureter is a menace not only to health but to life, and its removal is an operation of low mortality, provided it is undertaken before secondary changes appear in the kidneys. [A.B.C.]

3.—Decapsulation of the Kidney.—Edward Reynolds reports 4 cases in which he operated for nephritis, slashing the capsule in several places parallel to the long axis of the organ, rather than doing a complete decortication. He believes that the relief obtained in either case is a result of reduced tension upon the organ. In two of his cases in which the disease was apparently unilateral, relief from symptoms occurred. In the other two the disease was bilateral. One was distinctly improved, while the other showed no permanent improvement. His conclusions are: 1. We must admit that our present knowledge of the pathologic physiology of renal disease is still defective, but we are justified in believing that nephritis has, as a rule, an infective origin, and probably that the defective renal drainage, due to swelling of the organ within a rigid capsule, plays a part in maintaining the disease. 2. The cases in which general uremic symptoms are more prominent than the physical signs obtained on the examination of the urine are unpromising cases for operation. 3. Where the urinary signs and constitutional depression outweigh the distinctly uremic general symptoms, we may regard the cases as favorable for operation. 4. Where one kidney is mainly or predominately affected, a unilateral operation upon that kidney offers an excellent chance of prolonged improvement in health, if not, indeed, of ultimate cure. 5. In women, in whom ureteral catheterization involves little trauma and less risk, all cases of chronic nephritis should be subjected to ureteral catheterization and the unilateral ones selected for operation. [A.B.C.]

Medical Record.

February 6, 1904. [Vol. 65, No. 6.]

1. Some Groups of Kidney Disease. FRANCIS DELAFIELD.
2. Some Modern Views of Gastrointestinal Troubles and their Treatment by Massage. GUSTAF NORSTRÖM.
3. Practical Points on Hernia. F. D. GRAY.
4. Orbital Cellulitis: Empyema of the Ethmoid Cells and the Frontal Sinus: Abscess of the Frontal Lobe: Pneumococemia: Death. E. GRUENING.
5. Unusual Sequels of a Submammary Hypodermoclysis. O. PAUL HUMPHSTONE.

1.—Some Groups of Kidney Disease.—F. Delafield discusses the kidney lesions occurring in the course of infectious diseases, differentiating those accompanying influenza, scarlatina, diphtheria, yellow fever, and acute yellow atrophy. An important group is those associated with endocarditis. He describes 7 varieties, also the various types accompanying pregnancy, those with anemia in children and young adults, and other forms, acute, recurrent, and continuous. The groups are classified clinically rather than pathologically. [H.M.]

2.—The Treatment of Gastrointestinal Troubles by Massage.—Gustaf Norström discusses the clinical results of massage of the stomach, based upon a long experience, and he shows the relation which exists between the general improvement that is said to follow and the chemic activity of the stomach. He reports a number of cases, such as chronic gastritis, hypochlorhydria, atony of the stomach, dilation of the stomach, hydrochloridia, diarrhea, cramps at the pylorus, constipation, intestinal paresis, intestinal atony, etc., cured or much relieved by massage. He says: Massage influences the glandular elements of the stomach, modifying the chemic action. It tends to approach the relations expressed in the formula to the normal relations. It reestablishes the equilibrium in the components of the gastric juice, lowering them when excessive; raising them when deficient. It acts particularly upon the "evolutif" troubles, in increasing and regulating in a constant and manifest manner the evolution of digestion. [A.B.C.]

3.—Practical Points on Hernia.—F. D. Gray says:

Never forget the possibility of an unsuspected incipient or small hernia, as a possible cause of obscure abdominal symptoms or of obstruction; remember the usual as well as the ordinary locations of hernia; never practise taxis or delay operation in strangulated cases, nor neglect to open the sac and carefully inspect the contents; bear in mind the simple problem of radical cure, restoration of smooth flat peritoneum at the ring, and narrowing or closure of rings and canal, with peritoneum, aponeurosis, and muscle as building materials; transplantation of the cord is not an essential of the Bassini or of the Halstead method; a successful operation on inguinal or femoral hernia dispenses with the necessity for even a temporary truss, but after cure of umbilical or ventral hernias a well-fitting abdominal supporter is a comfort; removal of the entire sac is not always necessary, and in the inguinal variety the distal portion is better left than to risk injury of the cord by a difficult and tedious dissection. It should be remembered that in childhood all forms of hernia are usually curable by persistence in the use of a suitable truss, while after 55 the mortality rate increases, and as activity usually then decreases, a truss answers very well. Young and middle-aged adults—especially males pursuing an active life—ought by all means to have the benefit of an operation. [A.B.C.]

4.—Orbital Cellulitis with Abscess of the Brain.—E. Gruening reports that a man of 26 suffered from chronic supuration of the ethmoid cells and frontal sinus; the infection was pneumococcus in variety as shown from the bacteriologic examination of the discharged pus. Infection occurred by way of the nose, thence to the ethmoid cavities, the orbit and the brain. He was admitted to the hospital with his left eye chemotic, both lids swollen and the globe forced downward and forward. Operation evacuated a quantity of pus from the orbit. Three days later, the patient not having progressed satisfactorily, the original incision along the inner margin of the orbit was extended, the inner plate of the orbital process removed, pus found, and a sinus leading through the dura was followed which ended in an abscess cavity in the frontal lobe of the brain. The abscess was evacuated, flushed, and drainage instituted, but the patient died 5 days after the second operation. Microscopic examination of pus from the brain abscess showed pneumococci in great numbers. [A.B.C.]

5.—Unusual Sequels of Submammary Hypodermoclysis.—O. P. Humpstone reports that a woman patient during delivery suffered such hemorrhage that hypodermoclysis was performed; 600 cc. of salt solution was injected, half under the left breast and half under the right. The injection was done rapidly, owing to the serious condition of the patient, massage being employed meanwhile. The fluid was promptly absorbed from beneath the left breast, but not from the right, which remained distended. On the fourth day an attempt was made to aspirate the fluid, without success, and an incision an inch long was made and 200 cc. of turbid fluid and sloughing material evacuated. Cultures were negative, no milk had appeared in either breast. On the second day after incising the breast 225 cc. of milk escaped from the sinus but none could be expressed from the nipple; the other breast did not functionate. Belladonna ointment and a tight bandage caused a cessation of milk secretion in the right breast within 4 weeks and the breast healed spontaneously. Humpstone says: Hypodermoclysis should, under all conditions, be given slowly and not too hot. Particularly when, because of shock, the lymph sinuses are slow in absorbing the fluid. If a "water boil" is formed it should be evacuated promptly to prevent sloughing of the under surface of the breast, thus opening milk ducts which in a pregnant woman may secrete and delay prompt healing. [A.B.C.]

New York Medical Journal.

January 30, 1904. [Vol. LXXIX, No. 5.]

1. A Case of Purulent Pericarditis, Secondary to Pneumonia, with Operation and Recovery. J. A. SCOTT.
2. Solitary, or Fused, Kidney, with Report of a Case. WARREN A. DENNIS.
3. Some Investigations of a Bacterial Treatment of Tuberculosis. STEPHEN J. MAHER.
4. Public Health and Food Preservatives. R. G. ECCLES.

1.—Purulent Pericarditis.—J. A. Scott reports a case of purulent pericarditis, secondary to a double pneumonia, in which an operation was followed by recovery. On the thirteenth day the pericardium became involved. An exploratory needle was inserted in the fourth right space, and about 10 cc. of turbid, light-greenish fluid secured, in which pneumococci were found. Later, the pericardium was aspirated, and 14 oz. of fluid removed, with almost immediate relief to the urgent symptoms. Seven days later, reaccumulation had occurred, and under cocaine anesthesia the fifth space was incised in site of normal apex beat, the pericardium opened, and between a pint and quart of nonodorous pus slowly liberated. The drainage-tube was removed 26 days later. The features of interest in the case are: 1. The absence of a leukocytosis during the pneumonia, and its development with the pericarditis. 2. The absence of the pericardial friction, both before and after the pericardium was opened. 3. The absence of fever—subnormal temperature—with pus in the pericardium. 4. The recovery of the patient without the physical signs of an adhesive pericarditis. [C.A.O.]

2.—Fused Kidney.—W. A. Dennis reviews this condition and reports the case of a woman of 26, who was operated on for movable kidney. On account of the size of the kidney (between 6 inches and 7 inches long) a nephrotomy was done, and nothing discovered abnormal. The disagreeable symptoms were relieved; with the closure of the wound, however, there was a gradual return of all the symptoms. The kidney remained firmly fixed, but fluctuated in size from time to time. Cystoscopic examination with catheterization of the ureter failed to disclose any obstruction, and the urine flowed freely from the catheter. It was seen to escape normally from the left ureteral orifice. A nephrectomy was done, and over the lower half of the kidney, which at the time of the previous operation had been supported by gauze, the adhesions were so dense that the capsule was stripped back in freeing the kidney and tied together with what appeared to be a broad adhesion. The patient passed no urine after the operation and died uremic at the end of 7 days. An examination of the specimen showed that the adhesions about the lower half had concealed a second pelvis and ureter and the lower portion represented the displaced and fused left kidney. An autopsy showed that there was no kidney in the left loin and that the lower ureter crossed the median line to the left side just below the promontory of the sacrum, behind the rectum, and in front of the great vessels, and that it then followed along the left wall of the pelvis and opened into the bladder at the normal site. [C.A.O.]

3.—Bacterial Treatment of Tuberculosis.—The germ used by S. J. Maher in his investigations is an organism of nearly the same size and shape as the tubercle bacillus, and is called by him the x bacillus. It is found in the whey of the milk from tuberculous cows. H. W. Conn says it does not exactly agree with any described species, except *B. mycoides* III, Conn, and it differs slightly from this. In concluding his report, he emphasizes the following points: 1. X bacillus can, with absolute safety, be injected alive and in pure culture into the human system. 2. After injection it remains alive in the human system often for weeks. 3. After injection it causes a variable febrile reaction which is never serious. 4. After injection it has been found in the urine, and blood, and sputa of persons injected. 5. After injection into the groins of persons suffering from tuberculosis there is often a subjective sense of local reaction at the site of the tuberculous lesion. 6. After injection into the connective tissue about tuberculous fistulas in ano, a marked improvement, even to the closing of the fistula, has followed. 7. After injection into the ear of persons suffering from tuberculous otitis media, such persons have been in no wise harmed but have, in several instances been cured of otorrhea and other symptoms. 8. After its application on gauze or cotton packing to sinuses leading from carious bone, supposedly tuberculous, such sinuses and caries have healed with surprising promptness. 9. Its hypodermic injection into patients suffering from tuberculosis of the lungs has been followed in many cases by marked relief. 10. Its instillation into the open tuberculous pleural cavity has caused the drying up of a purulent discharge. 11. Its hypodermic injection into tuberculous patients has, in several demonstrable

cases, been followed by the apparent cure. 12. As a valuable scavenger of the tuberculous human system, the x bacillus claims the interest of the medical profession for the further reason that it grows in acid or alkaline media, that its product is alkaline, that it grows in the presence or absence of air, that it feeds only on dead matter, that it grows more quickly and has more vitality than the ordinary pus-producing germs. [C.A.O.]

4.—Food Preservatives.—R. G. Eccles enters a plea in favor of the judicious use of food preservatives. He calls attention to the fact that during the 20 years that modern preservatives have been growing in favor and the quantities used of them increasing, public health has been steadily and surely improving, and the deathrate diminishing. He says that, no doubt, general sanitation deserves the chief credit for the lessened deathrate, but if chemie preservatives were half as injurious to public health as the opponents of them would like to have us believe, the great bulk of sanitary effort should have been neutralized. [C.A.O.]

Medical News.

February 6, 1904. [Vol. 84, No. 6.]

1. Some of the Physical Properties and Medical Uses of Radium Salts: With Report of Forty-two Cases Treated by Pure Radium Bromid. FRANCIS H. WILLIAMS.
2. Late Results of Röntgen Ray Treatment of Sarcoma. WILLIAM B. COLEY.
3. Abdominal versus Vaginal Hysterectomy. JOHN B. DEEVER.
4. The Occurrence of Tenia Nana in Texas (the First, or at Least, the Second, Reported Case in North America). JOHN T. MOORE.
5. Two Advantageous Procedures in Anesthesia Work: Report of Cases. VICTOR C. PEDERSEN.
6. Laboratory Aids to Diagnosis for the General Practitioner. VICTOR A. ROBERTSON.

1.—Forty-two Cases Treated by Radium Bromid.—Francis H. Williams states that of the 42 patients treated, 9 were suffering from acne, 2 each of eczema and psoriasis, and 4 of lupus vulgaris. Of the 33 remaining, 1 was a keloid, 5 were cases of rodent ulcer, 23 of epidermoid carcinoma, and 4 were cancer of breast. The keloid case has improved, 2 of the 5 cases of rodent ulcer have healed, and 3 show improvement. Of the cases of epidermoid cancer, 11 have healed and 12 are improving, and of the 4 breast cases 3 are improving. The author made experiments to test which were the more beneficial, the beta or the gamma rays from radium; these showed that the beta rays do not penetrate and are therefore suited for superficial treatment, while the gamma rays have a marked power of penetration. His conclusions are as follows: Experience thus far teaches that there is much similarity between the action of the radiations from radium and the röntgen rays; that if the results obtained by radium prove permanent, this new therapeutic agent will be largely used instead of the röntgen rays, but that the two will supplement each other. 1. Certain diseases promise to yield more readily to treatment by radium and others to the röntgen rays. 2. A disease that has attacked different parts of the body of a given patient may be better treated in certain regions by radium and in others by the röntgen rays. 3. It is quite possible that in some cases the 2 remedies used together on the same area and at the same sitting may accomplish better results than either alone. [A.B.C.]

2.—Late Results of Röntgen Treatment of Sarcoma.—William B. Coley has observed 103 cases of malignant tumor treated with röntgen rays; 30 were recurrent carcinomas of the breast, 42 sarcomas in various localities, 28 cancers of the head, face, and neck; and 3 miscellaneous. He reports a number of cases, and concludes as follows: We are already beginning to see the evil effects of the too optimistic reports as to the value of the röntgen ray in cancer. Pusey and Caldwell, in their carefully reported series of cases, state that of 27 cases of superficial epithelioma, 21, or 77.7% are, as far as can be told from present conditions, cured. Yet only 7 were well over 8 months; and only 1 as long as 15 months. The use of röntgen ray in cancer should be limited to recurrent and inoperable cases, with the sole exception of small superficial epithelioma of the face. Even here the results of excision will prove better and more lasting, save in the proximity of the eyelids and nostrils. It is most misleading to report as cures, cases in which malignant tumors have merely disappeared under the influence of the röntgen ray, since speedy return is

the rule rather than the exception. At the present moment there is no evidence to prove that any permanent cures have been obtained, save possibly in the case of rodent ulcer. [A.B.C.]

3.—Abdominal Versus Vaginal Hysterectomy.—J. B. Deaver discusses the methods of hysterectomy, with special reference to operation as a remedy for cancer of the uterus. If the uterus is adherent and fixed in the pelvis, the broad ligaments extensively infiltrated, and the vaginal vault involved, operation is inadvisable. When operation is advisable he opposes vaginal hysterectomy for cancer of the cervix except in the presence of obstacles necessitating such a course. Vaginal operation suffers from the imputation of being an incomplete operation, dangerous to the ureters and liable at any time to give rise to severe secondary bleeding. The writer does not think any necessity exists to dissect out the iliac glands, as the additional mortality from operation is not repaid by lessened recurrence. In performing abdominal hysterectomy for carcinoma, he first cures the cancer area and cauterizes with pure carbolic acid, and then recleanses the vagina thoroughly. He does not make a median incision, but prefers to incise through either rectus muscle close to the median line, thus avoiding hernia. Deaver does not use the cautery of Downs, but is satisfied with his results by the use of suture and ligature, and thinks those cases calling for the cautery to destroy tissue are not adapted to radical operation. He adds that a multiplicity of instruments, awkward to handle, and which tend to make a complicated out of a simple operation, is to be deprecated. [W.K.]

4.—Taenia Nana in Texas.—J. T. Moore reports a case in which the parasite was contracted near Galveston. He describes the characteristics of both genus and species, illustrating from his own specimen. The ova are perhaps ingested with water or vegetables. From irritation there is apt to be loss of appetite, diarrhea alternating with constipation, colicky pains, and nausea. The nervous symptoms are headache, disturbance of vision, dizziness, melancholia, and in many cases attacks of epilepsy. Anemia follows later. Male fern is the best drug. In 1873 another case was reported and the specimens placed in the College of Physicians of Philadelphia, but Leuckhart is disposed to think the specimen was *Tenia flavopunctata*. This would make the author's the first recorded case of *T. nana* in North America. [H.M.]

5.—Advantageous Procedures in Anesthesia.—Victor C. Pedersen advocates anesthesia by means of a nitrous oxid ether sequence. The first procedure is an advantageous means of administration of the nitrous oxid ether sequence. Strictly speaking, it is a new sequence in which the series is nitrous oxid, then nitrous oxid and ether combined, and finally ether alone. The purposes of the technic are to avoid producing any gas cyanosis, to induce ether narcosis very slowly without exciting any reflexes, such as coughing, and finally to obtain a full degree of ether narcosis with the utmost safety and convenience to the patient. Explanation is given as to how this is accomplished and the results of his experience given. Pedersen has tried this method in 150 patients, only one of which showed the usual gas cyanosis in more than a moderate degree. The author also explains how an anesthetic should be given in operations upon the kidney; the point being that the patient is first anesthetized in the ordinary position, and when ready for operation is placed prone. To permit the head and neck to be free, both for manipulation by the anesthetizer and for respiratory comfort, a sandbag is placed underneath the upper part of the chest, the point of each shoulder resting thereon. This brings the pressure of the chest upon the shoulders and upper sternum instead of the base of the neck, permitting the patient to breathe with comfort, and enabling the anesthetizer to manipulate the head with ease. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

The Symptomatology of Pancreatic Lithiasis.—The symptomatology of pancreatic calculi is one of the most interesting chapters of this affection, both on

account of its great variableness and diagnostic importance. The symptoms are objective and functional. The former are rare, usually in the form of a cyst produced by obstruction of the canal of Wirsung or the presence of one or several calculi in the feces. They are with difficulty found in the stools as they are present in the form of white sand or calculi composed of carbonate of lime. Regarding the functional symptoms, let it first be said that the pancreas has two functions—an internal and an external secretion—both of which are changed by the presence of calculi. The principal symptom of the first, which may be considered as somewhat pathognomonic is pancreatic colic, similar in many respects to biliary or nephritic colic. Those due to pancreatic calculi are most difficult of recognition, but at all events less intense probably on account of the weak contractility of the canal of Wirsung; they are quite acute, and the attacks come near together. The site of the pain is also characteristic, situated between the umbilicus and epigastrium; it may also extend along the costal border on the left, reaching the spine and left shoulder, or to the lumbar region on the same side. It is difficult to differentiate it from painful affections of the stomach or neighboring viscera. The patient complains of a feeling of weight in the epigastrium or of repeated attacks of paroxysmal pains similar to neuralgia of the cardiac plexus. The pain is increased by movement, the patient holding himself as rigid as possible, and finally complains of general malaise with cold perspiration and nausea, ending in bilious or alimentary vomiting. These attacks, like biliary colic, may occur before or after meals, or without any regular time. Stearrhea is a common symptom of various diseases of the pancreas, so frequent, indeed, that Moyses, Ancelet, and other authorities have considered it as the principal diagnostic sign of pancreatic lesions. The importance of this condition of the feces is much exaggerated, however, because it is absent in many instances, and it is also present when the pancreas is normal. The characters of fatty stools vary, and in reality have been inadequately studied. The feces in stearrhea is composed of small whitish balls, the size of an olive, and feel unctuous to the touch. These small fatty masses are often mixed with soft or hard matter, but still more frequently the feces are enveloped at the time of defecation by a layer of liquid fat, which soon becomes solid upon standing. The desire to go to stool is increased in frequency because stearrhea acts like a glycerin enema, irritating the sensibility of the rectum. The reality of fatty feces can, however, only be positively admitted after a chemic and microscopic examination has been made. It is well to mix the feces in ether, and after filtration of the liquid a piece of blotting paper will become transparent when dipped in the solution as if oil-soaked. By evaporation the ether leaves a deposit of fluid fat, which burns with a blue flame. Microscopic examination shows fat globules, soluble in ether, and crystalline needles, which after evaporation leave a deposit of fat. Once the diagnosis of stearrhea is made, one should not give it too much importance, for it may be made to disappear by regulation of the diet, or it may be due to suppression of fat absorption by the intestine, when, for example, the thoracic duct is compressed. Stearrhea is an important symptom, inasmuch as it will lead one to suspect a lesion of the pancreas. Lipuria also coexists with stearrhea, but only a few cases are recorded of lipemia. All these symptoms, taken separately, are of no particular value, and no one of them is pathognomonic; their coexistence is a precious diagnostic guide, and cannot lead one into error. Beside these important signs, there is another which accompanies them and confirms the diagnosis, we refer to the syndrome of diabetes with wasting. This, as we know, is produced by the suppression of the internal secretion of the pancreas, and in cases of pancreatic calculi takes on a special physiognomy which should be

studied. At the commencement of the disease, when colics make their appearance, it is only temporary, while the symptoms noted are polydipsia, polyuria, glycosuria and polyphagia, all of which are probably due to an inhibition of both the internal and external secretions of the pancreas, similar to those observed when a renal calculus obstructs one of the ureters. After a few weeks the patient again feels well, but the attacks soon reappear, and with one or two years the calculi produce a profound change in the pancreas in the form of atrophy, thus constituting diabetes with wasting with all its particular symptoms. The debut is so sudden that the patient can tell almost to a day the time that the symptoms commenced. Within a variable time following an attack of pancreatic colic the patient is taken with an intense polydipsia, due, without doubt, to an increase of sugar in the urine. The amount may reach to from 400 gm. to 800 gm. in 24 hours. The quantity of urine is also increased on account of the polydipsia; it is usually clear and limpid, having a density of from 1,030 to 1,040. The urea reaches from 30 gm. to 60 gm. in 24 hours. Whether or not this increase is due to the polyphagia, or not, is as yet an unsettled question. Polyphagia is excessive in these cases, but it would appear that the food ingested does not nourish. These subjects always commence to emaciate as soon as they begin to eat excessively, the loss of flesh being, so to speak, in direct relation to the amount of food taken. The fat rapidly disappears, the muscles atrophy, and memory becomes weak. Physical and genital vigor decline, the patient making his *exitus letalis* in coma or from some inflammatory complication. These various symptoms are due to a functional insufficiency of the pancreas; diabetes with emaciation is not a morbid entity, but is simply a revealing syndrome of this insufficiency. Pancreatic lithiasis consequently has more or less important clinical signs when taken separately, but whose ensemble and coexistence are necessary for a diagnosis. Other less common symptoms may arise, such as intestinal hemorrhage or temporary icterus, but they are exceptional, and in most instances the affection has a nearly identical symptomatology.

REVIEW OF LITERATURE

Radioscopy of Peristaltic Movements.—F. Lommel¹ studied the peristaltic movements of the stomach and intestines of normal, trained dogs, whom he had fed with chopped meat mixed with bismuth, by means of the röntgen rays. The dogs were tied in such a way as to enable the study of the different parts of the gastrointestinal tract with ease. The fact that the dogs were absolutely well adds considerably to the value of these tests. From 2 to 6 minutes after the feeding, the first rhythmic movements could be seen starting from the greater curvature. Within 5 minutes the entire stomach took part in the peristalsis. Ten complete waves occupied usually 120 seconds in all animals, although some slight variations were occasionally seen. Application of heat to the epigastrium did not affect the number or rapidity of the waves. Peristalsis started earlier when heat was applied, and the pylorus opened a little sooner in some of the animals. Application of cold had no influence over the peristaltic waves. If somatose was added to the food, 10 peristaltic movements passed off in 110 seconds and evacuation from the stomach began considerably sooner; if meat extracts were employed, there were 10 waves every 100 seconds, thus proving their value as digestive stimulants; the importance of this, or whether it is important at all, the author is unable to tell. Psychic influences are more important in regard to digestion than physical or chemic factors. Animals not accustomed to laboratories showed no peristaltic waves for hours, while trained animals' stomachs began to digest within a few minutes; even these animals showed no digestion if made uncomfortable in any way, while animals of the first class showed waves as soon as permitted to roam about. This justifies the supposition that the stomach of man is more influenced by psychic

emotions than by therapeutic measures. Examination of the intestines demonstrated antiperistaltic waves and a periodic relation between gastric evacuation and intestinal peristalsis. [E.L.]

The Clinical Relation of Stomach Disorders to Diabetes.—J. P. Sawyer¹ says that comparatively little has been written regarding the relation of these conditions. He gives the histories of 6 diabetics who have shown such remarkable response to measures directed to the local condition of the stomach that he has become convinced of a hitherto overlooked importance of the conditions of the stomach in the treatment of cases of diabetes. The results seem sufficiently uniform to exclude the idea of simple coincidence. The treatment instituted was regulation of the diet but not deprivation, as often employed, and more or less vigorous lavage with alkaline solutions. Two of the cases were particularly interesting as they showed a uniform sugar excretion under lavage once daily while the sugar was at once lowered by a more alkaline solution used twice daily. A striking effect was produced upon the thirst, this being so regular that Sawyer is led to urge the trial of lavage of the stomach with alkaline solutions in all cases where great thirst is noted. The excessive hunger of some of the patients was also markedly lessened. The conclusion of the writer is that the stomach disturbances of diabetes should not be considered as of trifling importance and only due to the sugar in the blood; in many cases they are likely to afford a point of attack by which a degree of relief from distressing symptoms and prolongation of life may be secured better than by other means. [A.G.E.]

Symptomatology of Basedow's Disease.—Bruns² gives a critical survey of the rarer symptoms of 24 cases of Basedow's disease which came under his observation; 20 of the patients were women, 4 were men. Of the cardinal symptoms, tachycardia, exophthalmus, and goiter, he has little to say; the first is very rarely absent, and then only in the first stages of the disease. Graefe's sign was present in 10 cases; it seems to be proportionate to the exophthalmus. Moebius' sign (lack of convergence of the two eyes) was noted often, but Stellwag's sign (diminished number of closures of lid) was rare; in several cases he observed an increase in the amount of winking. Ophthalmoplegia was seen but in one case. Chronic diarrhea is a very frequent and often a very early sign; 11 of his patients suffered from it. Vomiting over a prolonged period was seen 3 times. If the two coexist, the prognosis is grave, on account of the extreme emaciation, which will result. Emaciation may be noted without this, however, and without any apparent cause, and is often interrupted by an equally ununderstandable increase in weight. Polydipsia, polyuria, and bulbinia have been noted. None of his patients had glycosuria. Of cutaneous symptoms, free perspiration is the most frequent; melanosis was seen 3 times. Symptoms of bulbar palsy, mental excitability, and melancholia were observed. One patient presented typical symptoms of Korskov's psychosis. Hysterical attacks were also common. Bruns recommends absolute rest and overnourishment as treatment. He has never had a patient operated on, but believes it to be philosophic treatment, as he shares Moebius' opinion regarding the cause of the disease (intoxication through abnormal thyroid products.) [E.L.]

Dependence of Cyclic Albuminuria on the State of the Circulation.—P. Edel³ made the statement in previous papers that albumin excretion in cyclic albuminuria depends upon difference of blood-pressure, and in this article he presents further arguments to prove that it is due to an insufficient blood supply going to the kidney. He noticed that during the period of fatigue, such patients had a small pulse and invariably the urine contained albumin; during the time when the pulse was strong and full there was no albuminuria; the Riva-Rocci apparatus verified this. Numerous tests with this instrument confirmed this constantly. Such patients were given warm baths, cold washes, were made to climb stairs, and take bicycle trips, always with the same result. During the period of exertion, the pulse showed considerable pressure, the urine

¹ Cleveland Medical Journal, January, 1904.

² Allgemeine Zeitschrift für Psychiatrie, 1903, lx, 751.

³ Deutsche medizinische Wochenschrift, 1903, xxix, Nos. 36 and 37.

¹ Münchener medizinische Wochenschrift, 1903, l, No. 38.

contained no albumin; during the period of rest, the pulse sinking in volume, albuminuria began. The blood-pressure always sank abnormally low in these patients after exertion. Artificially produced disturbances in respiration produced the same fatigue and urinary result, although the urine was perfectly normal before. The underlying cause of the condition is most likely a weakened cardiac organ and bloodvessels, which are too weak to contract when increased cardiac activity demands it. He concludes from this that cyclic albuminuria should be treated by measures to tone up the heart muscle, instead of rest, as usually advocated. He has cured cases of cyclic albuminuria by treating along these lines (gymnastics, etc.), and has always seen good results in treating chronic nephritis the same way. While the blood-pressure is high, the kidneys are capable of taking care of all the fluids without showing any disturbance, but as soon as their nourishment diminishes in amount, albumin shows itself. Diuretics benefit by increasing the circulation. [E.L.]

Second Attack of Scarlet Fever within Eight Months.—W. A. Dunckel¹ reports this case which occurred in a boy of 3. The first attack was typical as was also the second with the exception* that the desquamation was somewhat irregular. That phenomenon appeared on the seventh day and was complete in 3 days. The eruption was more pronounced than during the first attack. About the fourth day of the second attack both the mother and nurse had redness and swelling of the fauces and tonsils, chilly sensations, headache, pain in the lumbar region, moderate prostration and febrile disturbance. Neither developed a rash. Dunckel thinks it less difficult to believe that the immunity conferred by an attack of scarlet fever is short enough to allow a second invasion of the same disease within 8 months than to believe the alternative—that there can be 2 diseases so nearly alike, varying only as to the eruption and the severity of desquamation. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Operative Treatment of Hernia in Infants and Young Children.—Robert Campbell² states that the essential cause of hernia in children is the presence of a patent funicular process, and therefore any method of treatment which aims at curing the deformity must secure obliteration of this pouch. He is opposed to the use of a truss; in these cases it is tedious, difficult, uncertain, and the patient constantly runs the risk of strangulation. All hernias in children should be treated by operation, with the possible exception of easily controlled hernias in children of well-to-do parents. He says: (1) By operation the funicular process is completely removed; (2) the time in curing a hernia by operation is about a fortnight, as compared with 3 years by the use of a truss; (3) the cure by operation is almost certain to be permanent; (4) the risk of operation is at most not greater than the risk of death from strangulation during the use of the truss. Campbell reports 114 cases of radical cure in children. All the cases were inguinal; over two-thirds of them were leftsided; 109 were males and only 5 were females. The age at the time of operation varied from 3 weeks to 10 years; in about 9 out of every 10, though there was a funicular process, it did not communicate with the vaginalis testis; there were 8 cases of strangulation. The mortality was nil. A modified Mitchell-Banks operation was used in children under 2 years of age, unless the hernia was large; in older children and large hernias the method of Bassini was selected. [A.B.C.]

Torsion of the Pedicle of the Spleen.—A woman of 37, who had given birth to 5 children, was again seized with violent vomiting, and dated a sixth impregnation from this, as she had been wont to vomit with each of the previous ones. One night she went to bed apparently very well, but awoke at midnight with vomiting, violent pain, and tenderness in the left side; a large mass could be felt beneath the border of the

left ribs, which was diagnosed either as a strangulated floating kidney or twisted splenic pedicle. An operation proved the latter to be the correct diagnosis, the spleen being turned on its long axis. It was not displaced to any great extent, and differed from other reported cases in these 2 points. The spleen was removed and the patient recovered. In spite of the marked torsion, the circulatory disturbance was but slight. K. Buedinger,¹ who reports this case, is not clear about the etiology, but he is sure that it is not due to an abnormally long splenophrenic ligament; a weakening of its supports, associated with enlargement of the organ, had probably more to do with it than anything else. An operation is indicated when the floating spleen is the cause of occasional or permanent disablement; he does not advise operation simply because a torsion may be thought to be possible, as splenectomy is often followed by very serious consequences. [E.L.]

Traumatic Aneurysm of the Gluteal Artery.—Allan H. Muir² reports the case. A man of 28 was admitted, thought to be suffering from an abscess of the hip following an injury 4 months previously. He had fallen and struck on his right buttock. A swelling the size of a hen's egg almost immediately developed, and the patient was confined to bed for 5 weeks, during which time and later the swelling gradually increased in size, till it now covered almost the whole of the upper gluteal and iliac region. Pulsatile motion could be observed and bruit could be heard. Aneurysm of the right gluteal artery was diagnosed. The patient was given increasing doses of potassium iodid, and put to bed on modified Tuffnel diet. For 3 weeks improvement could be noted, then the tumor began to increase in size, and breaking of the skin seemed imminent. Operation being decided upon, laparotomy was performed and pressure made upon the right internal iliac artery, then a long incision was made in the line of the gluteal artery. The large sac was opened and evacuated, the rupture in the gluteal artery found, that artery ligated in 2 places and the wound closed. The patient made a good recovery. Incidentally an ununited fissure fracture was found extending from the top of the sciatic notch to the crest of the ilium. [A.B.C.]

Hemiplegia Immediately Following Ligature of the Carotid.—M. Beutter³ reports a case in which the submaxillary gland was removed for malignant growth, during which operation it was necessary to cut the right common carotid between 2 ligatures. Twenty minutes later, while the patient was recovering from the anesthetic, his left arm and leg became completely paralyzed. This paralysis almost completely disappeared within 2 or 3 weeks. The explanation is doubtful. It may have been due to anemia of the affected hemisphere, or to a congestion, owing to paralysis of the vasomotor nerves included in the ligature of the carotid. [B.K.]

Gangrene of Meckel's Diverticulum.—E. Oliver Ashe⁴ reports the case. The patient was a boy who with his parents lived in South Africa. The patient, who was suffering from violent abdominal pain, was seen by a physician, who ordered him taken to Kimberley for operation. The distance was 60 miles by wagon and then 40 miles by train. There was great distention of the abdomen, and operation revealed a Meckel's diverticulum, 7.5 cm. (3 in.) long, which sprang from the ileum about 10 cm. (4 in.) from the cecum. The distal half of this diverticulum was gangrenous. The whole was cut off close to the ileum, and closure effected with Lambert sutures. The vitality of the patient had been so exhausted by the long delay, the extensive journey, and the operation that he died 6 hours after the latter was completed. [A.B.C.]

True Acquired Diaphragmatic Hernia.—A woman of 75, who had suffered for years with an umbilical hernia, which often became incarcerated was operated upon with apparently very good results. She collapsed on the thirteenth day after the operation, dying very soon after. F. Lucksch⁵ performed the autopsy, which revealed the case to have been one of acquired diaphragmatic hernia instead of an expected congenital defect in the diaphragm. The muscle fibers between

¹ Wien. klin. Woch., 1903, xvi, 269.

² Lancet, August 29, 1903.

³ Lyon Médical, December 27, 1903.

⁴ British Medical Journal, July 25, 1903.

⁵ Prager medicinische Wochenschrift, 1903, xxviii, 169.

¹ Archives of Pediatrics, January, 1904.

² The Lancet, January 9, 1904.

costal and sternal portions of the diaphragm had been forced apart and the intestines forced their way through. The cause of the hernia is found in the frequent incarcerations, during which the inflated intestines were forced against the diaphragm ultimately forcing its fibers apart. [E.L.]

Intussusception of Vermiform Appendix.—F. P. Conner¹ reports that a boy of 9 suffered from the symptoms of intussusception. Laparotomy revealed an intussusception, which was mostly of ileum. This was easily reduced, when a marked dimple on the posterior and inner aspect of the cecum was observed. Investigation showed a completely invaginated appendix, the mesentery of which was drawn into the dimpled area. Attempts at reduction were futile, so the caput coli and invaginated appendix were removed en masse, and the opening thus made, closed with tier sutures. Shock was pronounced, but recovery was uneventful. Since the child had received a blow a month previously in the region of the appendix, resulting in nausea and vomiting, Conner feels convinced that this was the cause of the intussusception, which he is of opinion was originally appendiceocecal. The irritation from this polypoid invagination led to the intussusception above. [A.B.C.]

Aerophagy: A Hitherto Undescribed Symptom of Esophageotracheal Fistula.—E. Adenot and L. Cadet² report a case in which there had been steadily increasing difficulty in deglutition and phonation for 2 years. At the time of observation there was complete inability to swallow; attempts to do so caused violent paroxysms of coughing. Cancer of the upper part of the esophagus, with tracheoesophageal fistula was diagnosed. Gastrotomy was decided upon, and at operation it was found that the stomach was enormously distended, and that the distention followed the movements of respiration. Usually in esophageal carcinoma the stomach is small and retracted. The above diagnosis was practically confirmed at autopsy. Explanation for the gastric distention was that a negative pressure in the esophagus during inspiration caused a rush of air through the fistula into that organ; during expiration this air was forced into the stomach. [B.K.]

Operative Treatment of Cranial Depressions in Infants. J. Henderson Nicoll³ reports 6 cases, 4 of which were of birth fractures and 2 were fractures due to injury in infancy; operation was similar in principle in all the cases. This consisted in inversion of the depressed area of bone. The scalp and pericranium having been reflected in one layer, the depressed portion of skull was cut by trephine (1½ in. to 2½ in. in diameter) inverted on the dura mater, and fixed in position by suturing over it the replaced skull and pericranium. The result in five instances was complete correction of the deformity and in the sixth partial correction. Failure in the one instance was due to the use of a trephine which was too small, and therefore the entire area of depression was not removed with the button. A striking feature in each instance was the rapidity of bone union observed at the end of a week. When the scalp sutures were removed the inverted disc of bone was in every instance found firmly united to the skull. [A.B.C.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

EDITORIAL COMMENT

Uterine Disease and Constipation.—The frequent coincidence of constipation and uterine disease is a fact of diurnal experience in the practice of every medical man. And the peculiar obstinacy of this symptomatic form of constipation is quite as noticeable as its frequency. All the items of the approximately endless roll of laxatives and purgatives, intestinal lavages, abdominal massage, electric stimulation, resort to the special routine treatment carried out at the health resorts established in connection with the noted mineral springs—all are tried in turn, all give temporary relief, and all fail to establish a permanent cure. But the fact is none the less

true, that in many cases of obstinate constipation, in which no definite symptoms have been referred by the patient to the generative organs, the causative influence of the uterus is frequently overlooked. Dr. Marchais has recently published a series of four such cases; a consideration of which cannot fail to be instructive. The first was that of a lady aged 33, who married at 20—in a state of perfect health. She had borne two children without any special trouble, except that in her second confinement, as the uterus appeared somewhat inert, the forceps was employed. No immediate trouble appeared to result. But from that date she became a victim of obstinate constipation and suffered frequent intestinal pains. From time to time false membranes and slight hemorrhagic discharges passed from the bowel. She underwent the various specific treatments, without permanent relief. But the uterus had not been examined. The history induced Dr. Marchais to suspect its influence. He found the organ prolapsed to a moderate extent; and after application of gynecologic kinesiotherapy, combined with massage of the abdominal wall and gastrointestinal massage, a satisfactory cure was soon effected. The second case was nearly similar, but the complete absence of any complaint on the part of the patient regarding the condition of the pelvic organs—or abdominal organs generally, excepting the negative symptom of obstinate constipation—allayed suspicion; and the patient's complaint was referred to atony of the muscular coats of the intestine. The case was accordingly treated by massage, but no improvement resulted. Suspicion was then aroused and a vaginal examination revealed partial prolapse of the uterus, which was also enlarged and the "annexes" of the right side were involved. A course of gynecologic kinesiotherapy was then adopted, and a thoroughly satisfactory result was soon obtained. The conclusion drawn was that although a condition of general atony of the intestine was undoubtedly the primordial cause of the special symptom present, the latter would never have reached the prominence which it displayed without the pressure on the rectum caused by the displaced uterus. The third of Dr. Marchais' cases was that of a woman of 29, who had been married at 21, but had never been pregnant. There was the same obstinate constipation, but a complete absence of all other abdominal, or pelvic, symptoms. The patient complained of some lumbar pain during menstruation, but nothing beside. Accordingly, massage was practised for a week and the result appeared quite satisfactory. But, when discontinued, there was an immediate relapse. A vaginal examination was then made and displayed well-pronounced retroflexion of the uterus. There were no adhesions, and no salpingitis, and the derangement yielded to a proper course of gynecologic treatment. The disappearance of the constipation progressed (*pari passu*) with that of the uterine displacement. The fourth case was that of an unmarried woman of 29, who had suffered a great deal of pain, both before and during menstruation, ever since its first appearance—at the early age of 12. Her brother was a medical man, practising in Paris, and had treated her by the usual routine methods, specially including massage and electricity. There were no other abdominal or pelvic symptoms. She had undergone an operation for an urgently acute attack of appendicitis at the age of 25. As in the last-mentioned case, a course of abdominal massage gave temporarily satisfactory relief, but relapse at once occurred when the treatment was discontinued. Local examination displayed the existence of retroversion of the body of the uterus—with the appendages of the right side. The fundus uteri was tumefied and painful to the touch, and pressed on the rectum. Gynecologic therapy was duly carried out and gave relief, which, however, proved to be but temporary. Massage was then adopted with a like result. As there appeared no hope of permanent improvement from such palliative procedures a more radical one was decided on.

¹ Lancet, August 29, 1903.² Lyon Medical, December 27, 1903.³ British Medical Journal, December 19, 1903.

Hysteropexy was performed with success and the result in its effect on the prominent trouble proved satisfactory and lasting. The inevitable conclusion drawn by the author is, that in all rebellious cases of constipation in the female, lesion of the uterus should be suspected, and efficient treatment adopted—palliative or radical.

REVIEW OF LITERATURE

Vaginal Cystotomy for Stone in the Bladder.—C. R. Robins¹ reports 2 cases and concludes that cystotomy is the operation of choice for stone in the bladder. Lithotripsy is often difficult to accomplish, as it is difficult to retain sufficient fluid in the bladder to work the lithotrite with safety, as the urethra permits its passage during the manipulation of the instrument. Extraction through the urethra is only applicable when the stones are quite small, as dilation beyond a certain point is liable to rupture the sphincter muscle and establish permanent incontinence. Suprapubic cystotomy makes a prolonged and disagreeable convalescence and does not drain at the most dependent point or permit of so satisfactory irrigation of the bladder. Vaginal cystotomy is the ideal operation in most cases. It is easily and quickly executed, and if necessary can be done under cocaine anesthesia. It gives the best drainage, if cystitis is present. The only objection that can be urged is the danger of forming a vesicovaginal fistula. He believes that if we refrain from sewing the mucous membrane of the bladder and vagina together and rely instead on a daily opening of the incision, that we will seldom encounter this complication. [w.k.]

A Case of Unusual Obstruction in Labor.—J. Saks² reports the case of a primipara of 38, in whom normal delivery was prevented by what, on vaginal examination, seemed to be an ovarian tumor filling the vagina. But when the abdomen was opened, Saks was astonished to find that the apparent tumor was the inflated large intestine bent upon the sigmoid flexure, and in the abdominal cavity there was a small amount of bloody fluid. After the twist was loosened, it was not judged practicable so to arrange the distended intestines as to make normal delivery possible. Hence a longitudinal incision was made in the uterus and both fetus and placenta removed and uterus and abdomen closed. The patient, however, died the following day. [w.k.]

The Gynecologic Conditions following Placenta Prævia.—Erich Radtke³ has made a study of 80 patients as to their condition following placenta prævia and states that of these 56 retained the power of conception, and 24, or 30% were sterile. Of the 80 patients 23 aborted in the subsequent pregnancy. Seven of these had a previous history of abortion, but the other 16 had not, and as cause of the abortion they were found to be suffering from various pathologic conditions such as endometritis, laceration of cervix, etc. Also 57 of the 80 suffered from subsequent anemia with weakness, faintness, vertigo and headache. From the facts obtained from these studies Radtke concludes that in very many cases marked injury to health results from placenta prævia and that it is the duty of the physician to keep such patients under observation, and by examination, to determine the condition and combat any local or general disturbance according to the fundamental principles of gynecologic and medical therapeutics. In many cases it is possible to remove the objective changes resulting from placenta prævia, and not only improve their general condition and capacity to work, but also to contribute to the avoidance of abortion or premature delivery, or the repetition of placental anomalies. [w.k.]

Puerperal Eclampsia.—R. E. Skeel¹ thinks that the importance of the kidney as a factor in causing eclampsia has been overestimated. He reports a case in which there was not a trace of albumin in the urine before the first eclamptic convulsion. Almost complete suppression of urine followed the convulsion, and the small amount was loaded with albumin. Hence Skeel considers that the convulsive seizures gave rise to the renal lesions by the internal passive congestion which they produced. A multiplicity of factors seems to be concerned in

the production of eclampsia, varying greatly with different cases and different forms of the disease. Convulsions occurring before delivery almost invariably subside in a few hours after delivery, while those coming on after delivery vary from the very mild to the rapidly fatal and the treatment varies widely according to the form of the attacks. The antepartum convulsions, if severe, demand delivery, and any method which is necessary to relieve the mother is justifiable, when we consider the high proportion of cases which recover if delivery has been successfully effected. And his experience has convinced him that if vaginal examination shows a long, rigid cervix, which does not readily dilate, time should not be wasted in vain attempts at dilation, but that cesarean section should be at once performed. A table of 15 cases with treatment and results is given. [w.k.]

Condyloma Acuminata.—R. R. Smith¹ reports a case of abundant growth of condyloma acuminata in a female infant aged 19 months. There was no trace of syphilis, but the mother had had gonorrhea 9 months before the child was born. The growth extended well up on the mons veneris and backward an inch beyond the anus, involving both labia, was about 1½ inches in breadth, like a cauliflower in appearance, and hampered in color. Here and there were ecchymosed pinhead spots, evidently the seat of slight hemorrhage. The growth was entirely superficial and was clipped close to the base for its entire length, the hemorrhage being controlled with sponges and the cautery. Pointed condylomas in the female rarely attain the proportions here given. [w.k.]

Treatment of Postpartum Hemorrhage.—H. Fritsch² explains in detail 2 methods of treating postpartum hemorrhage according as it is due to atony of the uterus or to laceration. In the former the loss of blood may be the cause of the atony; and the blood which has gushed into the uterus must be quickly removed by pressure. Raise the uterus, place the hands posterior, press it strongly forward until the inner os uteri lies directly above the pubic bone. The space behind the uterus is filled with sponges or pads, so that the uterus remains pressed against the abdominal wall. Then either rolled bandages or towels knotted together are so applied as to keep the uterus in this position and render any collection of blood in the uterus impossible, as the inner walls are so pressed together that a cavity no longer exists. After 12 hours the bandage may be removed, as the vessels will then be closed by thrombus and the uterus may be restored to its normal position. When hemorrhage follows laceration, after removal of the placenta, he with the right hand presses the uterus as deep as possible into the pelvis, whereby all clots are pressed out, then with the left hand grasps the vulva, presses both labia firmly together, and in this manner exerts such pressure that the hemorrhage ceases. The position and technic of this procedure are fully described. The patient lies quite still during the half or three-quarters of an hour that the pressure is maintained, after which bleeding rarely returns. The advantages of this method are that the entire treatment is extravaginal, and excludes all danger of infection, and that this rational method of controlling hemorrhage is favorable to the early healing of the laceration. [w.k.]

The Influence of Fibromyoma in Pregnancy and Placental Formation as Well as in the Puerperium.—The dangers, says J. Nussbaum,³ that a fibromyoma brings to the pregnant woman, are not small. It may cause torsion of the pedicle with after-following gangrene with fatal results. Submucous fibroids produce a tendency to hemorrhage with severe anemia and interruption of pregnancy. The manifold pathologic changes of the placenta, and increased secretion, sometimes give rise to hydrorrhea of the gravid uterus. The firm adhesion of the placenta to the fibromyoma often observed, increases the difficulty of loosening the placenta and the danger of hemorrhage. This danger is also enhanced by the dilation of the bloodvessels, and by the fact that the presence of this neoplasm interferes with the contraction of the uterus. An infection of the myoma may also result in case a manual loosening of the placenta is necessary. Rubber gloves are

¹ American Gynecology, December, 1903.

² Münchener medicinische Wochenschrift, December 22, 1903.

³ Zentralblatt für Gynäkologie, November 19, 1903.

¹ American Gynecology, December, 1903.

² Deutsche medicinische Wochenschrift, January 1, 1904.

³ Wiener klinische-therapeutische Wochenschrift, January 3, 1904.

serviceable in such cases, also for removal of any placental remnants. Necrosis may ensue on the second day after delivery, usually later, and the necrosed portions show themselves in abundant lochia, fever, and other symptoms of sepsis. Abundant and oft-repeated irrigation of the uterus in necrosis of myoma is of more value than tamponade of the uterus. Of course all methods of treatment require on the part of the physician the utmost patience and care, in order to relieve such dangerous conditions and save the life of the patient. For internal treatment in checking hemorrhage in puerperium, dialysed secale cernutum is most valuable, and also tends to induce contraction of the uterus. [W.K.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPELMAN

E. LINDAUER

REVIEW OF LITERATURE

Therapeutic Value of the Serum of Truncceek.—Scheffler¹ reports 18 cases of various diseases in which he employed with good results this serum, which he claims is of distinct therapeutic value, despite the adverse criticisms of many writers. The site of choice for the injections is the buttock, the pain being very much less than in the arm or thigh. No untoward local or constitutional effect has been observed in more than 1,200 injections. The cases reported are types of the 80 which have been thus treated, and include neurasthenia, insomnia, dyspnea, pruritus, vertigo, etc. No effect is exerted on confirmed anatomic lesions. It is believed that the serum has an elective action upon the nerve centers, and thus upon general nutrition. The lessening of arterial pressure facilitates this action upon the nerve centers. Scheffler is now experimenting with a serum which he has devised, the preliminary results being very satisfactory. The composition of this serum is:

Sodium phosphate	3.23 gm. (50 gr.)
Potassium phosphate	0.60 gm. (9 gr.)
Potassium sulfate	0.45 gm. (7 gr.)
Sodium chlorid	9.70 gm. (23 dr.)
Distilled water	100.00 cc. (3½ oz.)

[A.G.E.]

Mineral Waters in Chronic Enlargement of the Spleen.

—According to Professor Kisch, the chronic enlargement of the spleen that remains after malarial fever, as well as the hypostatic enlargement of the spleen dependent upon circulatory disturbance or digestive disorders, and the like, responds favorably to drinking-cures with the sodium sulfate waters of Carlsbad, Marienbad, Tarasp, and Rohitsch, in connection with which an after-cure with pure ferruginous waters is necessary in order to improve the disturbed hemogenesis. As the most efficient adjuvant to bring about reduction in the size of existing enlargement of the spleen, and to improve the anemic and the leukemic state of the blood, the use of the peat baths containing the greatest quantity of iron sulfate at Marienbad, Franzensbad, Elster, Meinberg, and Muskau is highly recommended. If the enlargement of the spleen is one of the manifestations of a constitutional disorder, such as syphilis or mercurial cachexia, the sulfurous waters, especially of Aachen and Baden in Austria, and the iodine waters, as for instance those at Hall, Kreuznach, Krankenheil, and Lippik, are indicated; brine baths and sulfurous baths being employed in addition. The enlargement of the spleen that occurs in scrofulous and rachitic individuals is favorably influenced by drinking-cures at Kissingen, Homburg, Nauheim, Kreuznach, Baden-Baden, and Wiesbaden; and by the employment of the baths provided at these resorts. Hinsdale mentions among suitable resorts and waters in the United States those of Saratoga, Sharon, Richfield, and Glen Springs in New York; Roanoke Red Sulfur Springs in Virginia; Parkersburg Mineral Well in West Virginia; Ypsilanti and Mt. Clemens in Michigan; Calistoga Hot Springs and Coronado Springs in California; Tampa Spring at Glenwood, Colorado; and Lower Blue Lick Springs in Kentucky.—[System Physiologic Therapeutics, Vol. ix.]

¹ La Médecine Moderne, December 23, 1903.

Therapeutic Management of Febrile Diseases in Children.—A. Caillé¹ states that in children the important points in the management of acute febrile diseases are diet, hydrotherapy, rational stimulation, and free breathing of pure cool air. Drugs are useful occasionally, but they no longer dominate therapeutics. After the bowels have been made to move, drugs are not indicated unless for some special and substantial reason. The more intelligent have lost faith in drugging, and medical men should not countenance or encourage superstition or credulity in drugs. When a placebo seems indicated, the administration of a few drops of dilute hydrochloric acid in sugar water is rational and does no harm. [A.G.E.]

The Use of Ichthyol in Tuberculosis.—Spangler² speaks very highly of the value of the internal use of ichthyol in tuberculosis. In order to get good results it is wise to give the drug in ascending doses. The disagreeable taste and eructations may be largely overcome by giving the drug in capsules. The method he employs is to have the patient begin with No. 1 empty capsule, which he himself fills with ichthyol, taking one after each meal for the first week, adding another to each dose during the second week, and 3 such capsules in the third week, 3 times a day. If discomfort arise from eructations it is a sign that the stomach is not appropriating the full amount of ichthyol, and the period between the administrations should be lengthened. [H.C.W.]

Theobromin as a Hypnotic.—L. Gallavardin and M. Péhu³ have obtained very satisfactory results from the use of theobromin in the insomnia accompanying certain cardiac or vascular lesions. It is especially efficacious in the affections called arterial, that is, in which the cardiac lesion is due to or accompanied by atheroma of the aorta, syphilitic aortitis, etc. Minimal doses generally suffice, from 1 cachet to 4 cachets of 8 gr. (50 cg.) each, given during the afternoon or evening. The drug is believed to have a particular action on the cerebral tissues in these cases. [A.G.E.]

The Treatment of Seasickness.—S. Solis Cohen⁴ recommends as a preventive of seasickness that all work, so far as possible, be avoided for 24 hours before embarking, so that the system may not be exhausted, and as hearty a meal as possible be eaten before going on board. A calomel purge, followed by saline should be used 1 week before sailing, and again 2 days before. Saline laxatives or enemas should be used daily for the first few days on shipboard. As much time as possible should be spent on deck, if necessary, in a reclining position. Light, easily digested foods should be taken at frequent intervals. Strychnin, atropin—or better, picrotoxin, may be given in small, frequent doses for a few days before sailing, and continued until sea legs are gained. Beside this, he believes that the use of epinephrin (suprarenalin) in doses of 3 mg. to 5 mg. ($\frac{1}{4}$ gr. to $\frac{1}{2}$ gr.), dropped on the tongue, is useful in some cases. After onset of the naupathia, the patient should take small amounts of light foods, such as soups, junket, beef juice, peptone and the like at short intervals. Many experienced ship surgeons prefer solid food when possible to get patients to take it. Effervescent drinks, as dry champagne, seltzer, etc., are frequently beneficial. Counterirritation over the epigastrium is highly recommended. The Winternitz combination compress, which consists of a cool compress enclosing a warm epigastric coil has been found of value in other forms of vomiting, and should be of benefit, if available. Outside of the laxatives, the drugs which have been recommended are the bromids, chloral, and other hypnotics. Cohen has seen benefit only from the bromids and occasionally from morphin. The vasomotor stimulant effects of cocain, strychnin, and atropin have been lauded by many authors, and are frequently of use. [H.C.W.]

The Treatment of Emphysema.—Bjorkman⁵ does not believe that any permanent benefit is gained in emphysema by the use of drugs or by the use of ordinary pneumatotherapy. The best method of treatment consists in making firm pressure with the hand on the lower part of the chest during expiration,

¹ The Postgraduate, December, 1903.

² Proceedings of the Philadelphia County Medical Society, Vol. xxii, p. 357.

³ Lyon Medical, November 8, 1903.

⁴ Reference Handbook of the Medical Sciences, Vol. vii, p. 82.

⁵ Merck's Archives, 1903, Vol. v, 369.

the patient keeping the glottis open by a prolonged ah, which treatment should last from 5 to 10 minutes, and be repeated daily. Pneumatotherapy may give temporary relief, but its benefits are usually not permanent. Drugs are useful to relieve accompanying catarrh. [H.C.W.] [Bjorkman is wrong. Pneumatotherapy is permanently useful, although it does not restore lost alveolar septa. s.s.c.]

The Use of Electricity for Urethral Stricture.—O'Neill¹ asserts that the treatment of urethral and other strictures by electrolysis is unjustifiable, since any current which is strong enough to have a distinct action and carry away scar tissue will leave a scar behind it. This he has demonstrated experimentally on external scars. Attempts to remove them by electric treatment has invariably led to destruction of the tissue and healing by granulation. The application of electric currents of 2 milliamperes to the mucous membrane of the mouth led to sloughing of the part and the reparative process required 7 days for its completion. He has seen a number of cases of urethral strictures in which much harm was done by the use of strong electric currents. Electrocautery incisions are equivalent to internal urethrotomy, excepting that the scar must slough off before healthy granulation can take place. [H.C.W.] [Which simply means that plumbers are not watch-makers.—s.s.c.]

NERVOUS AND MENTAL DISEASES

J. K. MITCHELL

F. SAVARY PEARCE

EDITORIAL COMMENT

Fatal Termination of Chorea.—The prognosis of chorea has of recent years been exercising the clinical wits of many of the foremost physicians, as its pathology has never ceased to do from the dawn of its history down to the present date. The early authorities on this interesting disease (Sydenham, Sauvage, and Bouteille de Manosque) did not seem to recognize the possibility of a fatal termination. In their experience it would appear to have nearly always ended in a complete recovery; and the unfavorable sequence was represented by one or more relapses or by transition to the chronic state. So far as we can trace, a fatal ending of this disease was first placed on record by Pretchard in 1825. He attributed the untoward result to some (undetermined) medullary lesion. In 1831, Courtois described the symptoms which ushered in the fatal termination; and this was again discussed (in 1833) by Ieanjacquet, who collected and discussed all the cases which he had found previously reported. Since that date every author of note who has examined the subject of chorea has recognized such results, and discussed them with more or less luminosity. With regard to the cause, it may be said that although an almost endless series of lesions have in turn been reported as causative or coincident, their existence and the theoretic consequences therefrom deduced have proved on critical examination to be so various and so irreconcilable, both as to their seat and their nature, as to be bewildering rather than instructive. Here are the principal ones; and by a glance at their enumeration every intelligent reader can, without possessing the advantages of the special pathologist, judge for himself how much scientific certainty can be created from the elements of such an anatomic chaos: Calcareous patches of the cerebellum (Bazin); of the choroid plexus (Boscredon); of the general pia mater (Frank); of the centrum ovale (Brown); of the cerebrum (Guersant); acute meningitis of the convexities of the hemispheres (de Beauvais); ossification of the cerebral pia mater (Fargues); formation of false membranes on the surface of the hemispheres (Semmering, Lélut); atrophy of the convolutions, with sclerosis of the grey matter (Meynert); induration and hypertrophy of the medulla oblongata and medulla spinalis (Bergeon, Hutin); lesions of the tubercula quadrigemina (Puccinotti, Serres). One item of judicial concession must however be granted be-

fore pronouncing sentence collectively on the purveyors of the materials of this pathologic chaos. It is this: That till comparatively recent years the purposeless and incoordinate movements of chorea were confounded with those of various phases of hysteria, of tetany, of "electric" chorea, of Jacksonian epilepsy, of Huntington's disease, of Charcot's disease, of paralysis agitans, of myoclonus, and of other conditions in which symptomatic incoordination of muscular movements happened to be present. Some such cases have, as might be expected, displayed lesions in the neighborhood of, or actually involving, the nerve bundles of which structural alteration produces, hemichorea (as Charcot and Raymond have shown). Dr. Vicq¹ has recently collected a vast mass of evidence on the subject of fatal chorea, and finds that the lesions found are usually of the congestive type. Those may be either localized or diffused; comparatively slight, or so intense as to have gone on to the production of extravasation (intracranial or intraspinal hemorrhage). In fact hyperemia—meningeal, meningo-encephalic, and meningomedullary—is the pathologic condition which usually determines the fatal issue in this class of cases. Still the idea that such lesions are the essential causes of true chorea is sharply controverted by Dr. Vicq. It is admitted by all, that corresponding local hyperemias are found in cases in which no choreic symptoms have presented themselves during life. On the other hand, reports of pathologic examinations of fatal cases of chorea have been published by the most reliable authorities (e.g. Barrier, Bright, Damaschind, Charcot, Dufossé, Denegès, Gerhardt, Gombault, Grisolle, Quinon, Hache, Heokin, Maynier, Ollivier, etc.) in which the most minute scrutiny of the nervous system failed to detect even a microscopic lesion. So that up to the present date we find ourselves in the humiliating position of being obliged to admit that the primary cause of chorea still remains a mystery. Even the attractive "embolic" theory of Kirkes and Hughlings Jackson has ceased to retain the confidence of scientific pathologists. So that an unoccupied niche in the temple of (pathologic) Fame stands ready for the successful solver of this sphinx-like problem.

Cerebral Rheumatism.—As our readers are doubtless aware, the clinical entity of cerebral rheumatism was for the first time definitely recognized by the great French physician, Trousseau. His description of its characteristic phenomena still remains a classic in the literature of medicine. But the means of examination at his disposal did not enable him to recognize any of the structural changes which accompany its development and progress. And ever since his time, comparatively little has been written on the subject, for till quite recently a practical technic had not been elaborated which could enable the pathologist to throw any new light on the intimate nature of the condition. But we are pleased to note that in Paris, the city which witnessed its discovery, a report has just been made which illuminates its nature. At the meeting of the *Société Médicale des Hôpitaux* on October 16, M. Iosué and M. Solomon described the results of the postmortem examination of a fatal case of a woman 38 years of age. Her illness began with sore throat, 4 days before her admission to hospital; soon after the feet became painful, and the joint affections rapidly extended to the knees, hips, wrists, elbows, and shoulders. Also violent headache developed, and abundant perspiration appeared. On admission to hospital the face was flushed, and the pupils contracted. There were jerky contractions of the muscles of expression; also of the muscles of the limbs. She was completely delirious. The articulation of both feet, and of the right knee, left elbow and wrist were distinctly swollen, and the overlying skin was hot. On the following morning the temperature was 102.5° F.; in

¹ American Electrotherapeutic and X-ray Era, July, 1903, p. 239.

¹ These de Paris, 1903, I. Rousset.

the evening it was 104.5°. There was no cardiac murmur, but the sounds were muffled. There was disproportionate dyspnea, as the only pulmonary signs were some subcrepitant rales at the bases of the lungs. There was a trace of albumin in the urine. Sodium salicylate was administered, and on the next day the evening temperature was a degree lower (103.5°), but the delirium persisted. Next day but one, the delirium was less pronounced, but the face was cyanotic and there were pronounced bronchitic rales over both pulmonary areas. On the following day the patient became violent, and restraint was necessary to prevent her getting out of bed. Death occurred in the night. An autopsy was made. There was no increase of cerebrospinal fluid, but the brain was intensely congested, especially on the basic aspect and throughout the frontal lobes. The lungs were congested and edematous in the basic segments. There were some filamentous pleural adhesions. There was no endocarditis, but some gelatinous patches were found at the origin of the aorta, around the orifices of the coronary arteries. The right knee-joint contained a considerable quantity of a thick, cloudy fluid. The brain was examined with special care. Sections of the frontal lobe and of the motor region were stained according to Nissl's method. The meninges over the frontal lobe showed no evidence of leukocyte infiltration. But the nerve cells had undergone profound alteration. The chromatophile granules had entirely disappeared. The achromatic substance displayed a uniform tint, with a granular appearance and a tendency to "fragment." Some of the cells were fissured. The nuclei were stained with more than normal vividness. "Neurophagia" was observed in many of the sections. Some cells had been attacked by 2 or 3 "neurophages," which had excavated a kind of notch in the side of the affected cell. In others, the whole of the protoplasm had disappeared, leaving only the nucleus with one or more neurophages in a vacuole; and in some instances the cell had been completely destroyed, leaving but a mass of neurophages in a clear space. The neurophages themselves presented 2 varieties: Some were like macrophages, and had a large, clear nucleus; the others had but a small nucleus, and displayed some resemblance to lymphocytes. In the motor area of the brain the meninges gave a mononuclear leukocytic reaction. The changes in the nerve cells showed some difference from those which had taken place in the cells of the frontal lobe. The cells had been less affected, and there were fewer neurophages present in proportion. Large diplococci and bacilli were found in the vessels of the pia mater, which took kindly to Gram's stain. There were also diplococci in the pia mater, and in some of the capillaries of the cerebral substance. The result of this report is an important item of pathologic enlightenment on the subject of an interesting and previously very obscure series of clinical phenomena. The intensely marked microscopic lesions certainly display a curious contrast to the trivial macroscopic ones.

Responsibility and Crime.—No more difficult problem in medical jurisprudence exists for us than the conscientious determination of responsibility of the accused in acts of criminality. There are those who on one extreme would have it that most criminals are mentally diseased—a gross exaggeration. In law, if a man can be proved sane on acts which are criminal, he is given "just" punishment even if he is insane on other subjects. To our mind psychopathy is often engendered by passions permitted to run riot, and if such can be proved to be the malicious will of the later developed moral pervert (there being no frank insanity), he is, in our judgment, a responsible agent for his crime, and justice is subverted by his punishment. Beside the moral lesson to contemporary criminals of like stamp is thus enormously accentuated; punishment will tend,

more than anything else, to bring them into the paths of rectitude. The late Herbert Spencer believed in the progressive evolution that *knew* the mind of man was increased in breadth by education. Progeny of such held the better or worse "plate" upon which were more or less easily registered impressions. Given a healthy brain ("plate"), if the subject does not develop it properly it is his own default, and the "black sheep" of a family often has his parents to blame in forcing upon him a poor plate; while he is "responsible" in the measure that he develops the moral qualities of his mind.

REVIEW OF LITERATURE

Local Panatropy.—W. R. Gowers¹ applies this name to a curious affection as a fitting designation. There are quite universal atrophic patches upon the trunk, limbs, or face, which vary in diameter from that of a nut to that of an orange, or larger. There seems to be wasting of all subcutaneous tissues down to the bones, with slight change also in the skin, which is there distinctly thinner and slightly discolored. The aspect of the areas may be described as that of a subcutaneous excavation. The patches are distributed quite irregularly without apparent relation to the muscles or to the nerve distribution. When the wasting is considerable, the muscles are much affected but never entirely disappear, but the electric irritability remains always normal. There may be implication of bones. It may be in relation to facial hemiatrophy, but no definite pathologic changes have been determined. [The name of this disease describes a distinct clinical entity.]

A Case of Pathologic Sleep in a Hysteric Subject.—Serge Soukhanoff² reports this instructive case, and concludes after noting several long instances of sleeping (one of 38 hours) in the patient, that the pathologic sleep had two morbid elements: 1. The patient unconsciously tried to isolate herself from outside impressions; this she did under the influence of mystic delusional ideas. The latter could easily be compared to those induced by toxic doses of hashish. 2. There was a distinct hysteric phase of the disease, since the patient showed hysteric tendencies during the course as well as before the onset. [Such a case as this recorded in the lay journals has proved to be *bona fide*.]

Treatment of Early Mental Cases in a General Hospital.—M. Springthorpe³ makes a plea for early and doubtful cases of alienation, also the separation of curable cases in small wards or detached hospitals. The author has treated some of his insane patients in wards of the Melbourne Hospital, and arrives at the conclusion that early cases and mild forms of mental diseases are better so treated than in State asylums.

Microscopic Adolescent Survivals in Art, Literature, and Pseudoethics.—James G. Kiernan⁴ goes over this comprehensive subject in a paper to be continued. "At puberty, according to Lombroso, exaltation flings the nervous system into turmoil, fatal to weakness, but raising strength to a vertiginous height, because at this complete organism transformation, psychic centers suffer." These phenomena are transitory among normal being, but occurs in a large scale in geniuses, and the mentally morbid. "Impressions received by sexual psychopaths during puberty thereafter tinge mentality." An analytic study of even the above short abstract of the subject will be a source of help to the psychologist who hopes to prove of some value in practical sociology. The baneful effect upon pubescent youth of the land in recent lynchings is a sad blow to moral progress.

Diagnosis and Operative Treatment of Meningeal Tumors of the Spinal Cord.—F. Schultze⁵ reports 11 cases of extramedullary tumors of the spinal cord. The diagnosis was made with considerable certainty in 8 cases. The diagnosis between meningeal tumor and chronic meningitis is sometimes difficult, especially if tumor-like thickening of the membranes

¹ Review of Neurology and Psychiatry, January, 1903.

² Journal of Mental Pathology, October and November, 1902.

³ Intercolonial Medical Journal of Australia, April 20, 1903.

⁴ Alienist and Neurologist, May, 1903.

⁵ Mitt. a. d. Grenzgeb. d. Med. und Chirurg, Bd. xii, p. 153.

occurs. Intramedullary tumor may be diagnosed by the absence of neuralgic premonitory symptoms, and by the early development of sensory disturbances, especially a dissociation of sensations. Compression by disease of the vertebrae must also be excluded. The upper limits of the tumor may be determined frequently by a zone of hyperesthesia lying above the hyperesthetic area. The extent of the tumor is often difficult or impossible to determine. Extramedullary tumor may be diagnosed with considerable certainty, if syphilis and myelitis be excluded, by a permanent and progressive motor and sensory paralysis, whose upper limit remains nearly constant. Seven of the reported cases were subjected to operation, of which 3 were cured, and 1 received considerable improvement. [B.K.]

Tabes and Trauma.—Windscheid¹ discusses the importance of a possible traumatic origin of tabes and the opinion concerning the causes of the disease. In 70% lues is proved; the remainder is explained by cold, overexertion, sexual excesses, and trauma. Whether trauma is capable of producing similar lesions cannot positively be denied, as the pathologic and functional results of traumatism are unknown to us. The insults of trauma are divided into 3 groups depending upon the portion of the body affected—the back, the head, the peripheral nerves. The production of tabes from trauma may possibly be explained by action on peripheral nerves but not against the other 2 portions; it used to be taught that trauma may produce neuritis, and this ascending may produce tabes, but recent investigations have proved that only the spinal ganglia, posterior roots and columns degenerate, and the peripheral nerves escape. Trauma may produce the disease as syphilis does, through the formation of toxin. As tabes in so many cases has such an insidious onset and course, it cannot be proved that trauma is the cause; the chances are that before the trauma a latent tabes existed, which was made manifest by the injury. The trauma is probably capable of giving an impetus to the disease. [E.L.]

Amyotrophic Lateral Sclerosis.—Joseph Collins² states that amyotrophic lateral sclerosis is among the rarest of all organic nervous diseases. In his clinic the diagnosis has been made 6 times in 5 years, during which time about 7,000 new cases of nervous diseases have been under observation. Six or 7 cases have been seen in 10 years at the City Hospital. Collins gives in detail the clinical, autopsy, and histopathologic notes of a case occurring in a woman of 38. This is followed by a general consideration of the subject, during which he states that it is impossible to settle positively, from histologic study of these cases, the disputed point as to whether the peripheral or central neuron is first affected. Probably it is the former in some cases, the latter in others. Because of cases like the one reported by Collins, it must be admitted that the lesion in some instances begins in the cells of the anterior horn, and that destruction of those cells causes at least part of the phenomena of the disease. The spasticity and exaggerated reflexes are to be explained by an alteration in the central motor neuron in the brain. Collins freely admits that the lesion of amyotrophic lateral sclerosis is often, perhaps always, if the disease lasts long enough, a degeneration of both systems of neurons throughout their entire course. His contention is that such involvement is not necessary for the existence of the disease clinically. Regarding the etiology of the disease, Collins is unable to contribute anything. The pathologic chemist is not unlikely the one who must solve that problem. A statistical study of 104 cases is appended. [A.G.E.]

Changes in the Spinal Cord after Loss of An Extremity.—Q. Mathyas³ reports 2 cases. In Case I the left lower extremity was amputated at the middle of the leg, seven years before death. The spinal cord showed atrophy of the left posterior column and left anterior horn, most marked in the lumbar region; also slight ascending degeneration of Goll's column on the left side, most marked in the cervical region. The cauda equina and the column of Clark on the left side also showed atrophy. In Case II the left leg was amputated 3 months

before death, and the left arm in its lower third 4 years previously. In this case the spinal cord showed atrophy of the left anterior horn in the lumbar, upper dorsal and cervical parts, and ascending degeneration of Goll's tract in its anterior two-thirds; also atrophy of Burdach's column on the left side, beginning at the third dorsal segment, and being almost complete at the sixth cervical, above which it again diminishes. The cauda equina and Clark's column on the left were also affected here. The changes in the posterior column are to be regarded as atrophy of disuse. Those in the anterior horn are due to secondary changes of nutrition and function that occur in the ganglion cells, following section of their nerve fibers and consequent loss of function. [B.K.]

Brachial Neuralgia.—Robert M. Simon¹ states that neuralgic pains affecting some branches of the brachial plexus are common in aneurysm, cancerous growths in the thorax or axilla and in aortic disease, but brachial neuralgia not symptomatic of these conditions is rare, and is of such extremely painful nature as to demand the more than slight attention which it receives. He reports several cases which he regards as typical, and he believes that the condition is usually due to traumatism or strain which causes a perineuritis, and he appears to lean to the view that the condition is not truly neuralgic, but a painful neuritis and perineuritis. The essential points in a typical case are recited. A woman of 45 fell from a tram car; she was stunned, but quickly recovered, and was unconscious, having sustained injury. In a week she began to suffer from pain in both arms along the distribution of the brachial plexus, and there some tenderness about both shoulders. This was followed by increasing pain and tenderness, especially on moving the arm and great loss of power in both hands and arms, and some muscular wasting. It was thought she had sustained spinal injury, and she claimed compensation from the tram company. Simon was called to see her, and believed it was simply a painful condition from pressing muscles caused by the fall, and that the nervous symptoms were due to secondary perineuritis and pressure on the branches of the brachial plexus, which proved to be true, and under rest the patient made a complete recovery. [A.B.C.]

Compulsory Movements in Localized Lesions of the Brain.—W. A. Muratow² makes an exhaustive analysis of literary data, and of several original observations concerning involuntary movements in cerebral lesions. He sums up as follows: 1. Compulsory movements are dependent on destruction of the connecting cerebellar crura. This is proved by his data with all requisite scientific strictness. 2. The existence of an independent sensory tract in the internal capsule is doubtful. 3. The theory of a cortical origin of convulsive movements must be abandoned, because the clinical picture of cortical convulsions is different from athetosis and chorea, and because there is no anatomic basis for the theory. 4. While the convulsive disorders are thus seen to have a subcortical origin, we may admit a reflex influence on the cortex and the pyramidal tracts. This will explain the motor disturbances observed after lesions of the optic thalamus. [L.J.]

Landry's Paralysis.—Rolly,³ basing his observations on the study of 7 cases, considers Landry's paralysis an acute polyneuritis, and not a disease *sui generis*; in 5 of his cases the neuritis was positively demonstrated; in the other 2 the study could not be made sufficiently complete. In addition to the pathologic identity he also found many clinical resemblances, and the 2 points of difference (the preservation of certain groups of muscles in neuritis and the method of attack, which in Landry's paralysis is ascending, affecting all the muscles quickly, and in neuritis jumps from one group to another with possible intervals of days or weeks) are insufficient in his opinion, to separate the 2 diseases. He feels certain that if in all cases careful histologic examinations are made, neuritis will always be discovered. [E.L.]

The Fasciculus of Türk.—Pierre Marie and G. Guillian⁴ contribute a lengthy article, containing 21 illustrations, to

¹ Münchener medizinische Wochenschrift, June 30, 1903.

² American Journal of the Medical Sciences, June, 1903.

³ Zeitschrift für Heilkunde, 1903, Bd. xxiv, Heft 1, Abth. f. Path., Heft 1, p. 14.

¹ British Medical Journal, July 11, 1903.

² Medizinskoe Obosrenie, lix, No. 11.

³ Münchener medizinische Wochenschrift, Nos. 30 and 31, 1903.

⁴ La Semaine Médicale, July 15, 1903.

the study of the origin and degeneration of this fasciculus. They have made a histologic study of 19 cases which they briefly detail. They believe their statistics to be the most important contribution, either in France or in other countries, to the anatomy of the nervous system. Their cases prove that the fasciculus of Türek is a descending fasciculus, and not, as was for a long time held, a sensory ascending tract. The facts adduced by them show that the fasciculus degenerates from above downward, following cortical and central lesions. It is true that this degeneration is more rare than that of the pyramidal tract. They give a scheme showing the site of the lesion most often leading to degeneration of the fasciculus in question. This is situated between the temporal convolutions and the external wall of the occipital cornua of the lateral ventricle. They believe that the fibers of this fasciculus arise, for the greater part at least, in the third temporal convolution, as in several cases of involvement of the first and second convolutions degeneration did not follow. The writers admit their ignorance of the function of the fasciculus of Türek. [A.G.E.]

The Problem of Insanity in Ireland.—W. R. MacDermott¹ recalls the immunity of Ireland from insanity in the first half of the last century. The age of predisposition is from 25 to 60. Those below 25 are relatively free. Whatever character the individual may possess it is confirmed by age and more capable of transmission. The Irish population in the first half of the century was, to a considerable extent, the offspring of young and now in increasing degree of elderly parents. Under the stress of economic conditions prevailing between 1841 and 1851, the sum of nonprolific individuals had an immense advantage over the general mass encumbered with a heavy burden of child life. The survivals were either unmarried, or with small families, in general elderly, and with determined habit of life. Not in Ireland alone but all over western Europe increase of insanity is peculiarly a phenomenon of agrarian life effected by diminution in the unstable mass of laborers, leaving the stable class proportionately larger. In general the heads of families are of mature age and the custom of primogeniture selects the eldest to perpetuate the family. [H.M.]

Changes in the Spinal Cord in Diphtheric and Alcoholic Paralysis.—J. M. Clarke² reports a case of paralysis of all 4 extremities, of the diaphragm, and with bronchitis. Abundant virulent diphtheria bacilli were found in the throat, but absolutely no local lesion had occurred. At necropsy degenerative changes were found in the cells of the anterior horn and their extensions, also in the cells of Clarke's column, and in the afferent fibers of the posterior roots and posterior columns. A second case of alcoholic paraplegia is also mentioned, in which similar degenerative changes were found in the cells of the anterior horns in the lumbar region. [B.K.]

Babinski's Toe Reflex.—A. Richter³ has studied the phenomenon on 500 individuals with probably normal pyramidal tracts. In 9 of these (1.8%) a positive Babinski phenomenon was noted, indicating that the symptom possesses a high, although not absolutely pathognomonic value. [E.L.]

History of a Case of Cerebral Tumor Eight Years after Removal.—Thomas Oliver⁴ reports that 8 years ago Mr. Williamson removed an angioma from the motor area of the left side of the brain in a patient who was then 23 years old. Following the operation it was noticed that she had lost power of speech; she could say yes and no but often used them incorrectly. Otherwise the patient was in good condition except that there was paralysis of the right hand and arm and paresis of the right side of the face and the right leg. By degrees she gradually recovered the use of the right side of her body, but her speech was very defective, though she understood all that was said to her. In the intervening years her speech has gradually improved though it is yet somewhat defective. There is still considerable loss of power in the right hand and forearm. The fingers are firmly flexed on the palm of the hand, there is well-marked wrist and knee-jerk which is explained by the descending degeneration caused by the tumor itself and subsequently by the operation having destroyed the

cortical centers. Though the power of speech has not been fully regained yet, the recovery has been very considerable. The recovery may be due to improved nutrition of the remnant of speech center in the left side of the brain that escaped injury at the operation, or it may be that the right cerebral hemisphere has undertaken the function of speech through education, an assumption to which the patient, by cultivating the use of the left hand in writing, may have contributed. [A.B.C.]

Antirabic Inoculation and Nervous Disease.—There are reports in literature of spinal disease following Pasteur's inoculation in persons bitten by mad dogs. T. K. Chmielewski and F. F. Skshivan¹ had occasion to observe closely two such instances. The nervous symptoms were chiefly those of spinal meningomyelitis. The entire affection resembled an acute infectious disease, there being fever, respiratory difficulty, facial and ocular palsies. The duration is $\frac{1}{2}$ to 2 months. Recovery always takes place. The clinical picture corresponds closely to that of paralytic rabies in man, and the authors are strongly inclined to consider the peculiar symptom-complex as a benign form of paralytic rabies, weakened by antirabic inoculations. [L.J.]

Infantile Paranoia.—Heinrich Schlöss² describes a case of paranoia occurring in a boy 8 years old. Aside from the fact that his brother had killed himself in his sixteenth year, there was no history of psychosis or neuroses. At 4 years of age he suffered from laryngismus stridulus, from which, together with an early use of alcohol and masturbation, his brain had suffered. His grandfather, who cared for him, had been extreme in his disciplinary measures in the child's early youth, and, furthermore, at the age of 8 years he was sent to an educational institution. His record in the school was for distinct ethical defect. He was idle and obdurate. He would steal, lie, was insulting, and had no regard for religious matters. He was also inclined to the use of alcohol. This conduct might in part have been due to hallucinations. He was extravagant, and had the hallucination that water had an offensive odor, and, therefore, refused with great excitement to bathe. His peculiarities regarding his food at the age of 8 years, clearly indicated the presence of delusions. At 12 years of age he insisted in changing his food with that of another boy, and only ate after it had been previously tasted by the caretaker. He developed delusions of persecution; he feared the anarchists who only kill the rich; his food was poisoned; his wash-water smelt of urine; his food was mixed with urine and filth; his companions gave him no rest. At night he saw persons that scoffed at him and laughed. He gradually grew worse, until he was unable to make any progress with his studies. The interest in this case centers in the fact that delusion occurred at such an unusually early age. [J.H.W.R.]

Multiple Sarcomatosis of the Central Nervous System.—W. G. Spiller and W. P. Hendrickson³ report 2 cases of this affection and one of intramedullary primary sarcoma of the spinal cord. The first patient was a woman of 21. Two intramedullary sarcomas were found in the thoracic region of the spinal cord, and numerous small tumors in the spinal pia. A large sarcoma was found in the left cerebellar lobe. The second patient was a man of 42, on whom an unsuccessful attempt was made to remove a supposed cerebellar tumor. At autopsy a tumor was found in each cerebellopontile angle, about the gasserian ganglia, pituitary body, floor of the fourth ventricle, right internal auditory meatus, and right jugular foramen. Numerous small tumors were also found in the pia of the spinal cord. The third patient was a man of 39, in whom a primary sarcoma was found within the spinal cord just above the midthoracic region. Full clinical and autopsy notes of the 3 cases are given. Spiller dwells at length upon the diagnosis of sarcomatosis of the brain and cord, saying that it may cause great difficulty, and in some cases even be impossible. This is partly because of the escape of the nervous tissue in many cases. An incorrect diagnosis of syphilis is not unlikely. Sarcomatosis may also give the signs of tuberculous meningitis. The occurrence of a cerebellar tumor in so many of the recorded cases of sarcomatosis of the central nervous system is consid-

¹ Edinburgh Medical Journal, September, 1903.

² British Medical Journal, September 12, 1903, p. 582.

³ Münch. med. Woch., June 16, 1903.

⁴ British Medical Journal, July 11, 1903.

¹ Voprosy Nervno-Psichicheskoi Meditsiny, 1902, Vol. VII.

² Wiener klinische Wochenschrift, No. 23, 1903.

³ The American Journal of the Medical Sciences, July, 1903.

ered to be remarkable. The possibility of operative treatment is discussed. Spiller does not believe that an encapsulated tumor of the spinal cord can be removed with much benefit to the patient. [A.G.E.]

Brain Affections Following Carbon Monoxid Poisoning.—C. Sibelius¹ reports the case of a young man who, after 5 minutes' exposure to carbon monoxid gas, remained unconscious for a day. On awaking he was totally blind. A few days later fever set in, with cramps, loss of consciousness, twitchings, dilated and immobile pupils. The patient again recovered consciousness, but showed signs of extensive cerebral involvement until his death, 3 months later. These symptoms were paralyzes in various parts of the body, hallucinations, bedsores, epileptiform attacks, and dementia. A complete pathologic examination was made after death, especially of the brain. In the latter were found degenerative changes in the bloodvessels, with consequent multiple hemorrhages; also multiple degenerations and softenings of the gray substance, irregular degenerations of nerve fibers, and increase in neuroglia. The changes in the bloodvessels in many places led to thickening of their walls, the latter causing ischemia of the brain substance, with resulting softenings. All of the degenerative changes in the nerve elements, however, cannot be attributed to this ischemia alone, but must in part be ascribed to the direct influence of the CO, and also to the hemorrhages. The various important and peculiar symptoms are discussed and explained pathologically. A bibliography is appended. [B.K.]

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 5, 1904:

SMALLPOX—UNITED STATES.			Cases	Deaths
District of Columbia:	Washington.....	Jan. 23-30.....	1	
Florida:	Jacksonville.....	Jan. 23-30.....	4	
Indiana:	Evansville.....	Jan. 23-30.....	2	
Iowa:	Des Moines.....	Dec. 28-29.....	1	
Louisiana:	New Orleans.....	Jan. 23-30.....	2	
Maine:	Orono.....	Jan. 22.....	1	
Michigan:	Detroit.....	Jan. 23-30.....	1	
	Flint.....	Jan. 23-30.....	1	
	Grand Rapids.....	Jan. 23-30.....	2	
Missouri:	St. Louis.....	Jan. 23-30.....	13	
New Hampshire:	Manchester.....	Jan. 23-30.....	2	
New Jersey:	Camden.....	Jan. 23-30.....	1	
New York:	Buffalo.....	Jan. 22-29.....	1	
Ohio:	Bucyrus.....	Jan. 23-30.....	4	
	Warren.....	Jan. 23-30.....	1	
Pennsylvania:	Allentown.....	Jan. 23-30.....	1	
	Erie.....	Jan. 23-30.....	1	
	Johnstown.....	Jan. 23-30.....	2	
	McKeesport.....	Jan. 23-30.....	5	
	Philadelphia.....	Jan. 23-30.....	65	17
	Pittsburg.....	Jan. 23-30.....	15	
	Reading.....	Jan. 25-Feb. 1.....	2	
	Williamsport.....	Jan. 24-31.....	1	
Utah:	Salt Lake City.....	Jan. 23-30.....	1	
Wisconsin:	Milwaukee.....	Jan. 23-30.....	3	

SMALLPOX—FOREIGN.			Cases	Deaths
Austria:	Prague.....	Jan. 2-9.....	5	
Brazil:	Rio de Janeiro.....	Dec. 27-Jan. 3.....	41	27
China:	Shanghai.....	Dec. 19-21.....	1	1
France:	Paris.....	Dec. 26-Jan. 16.....	50	3
Great Britain:	Edinburgh.....	Jan. 8-16.....	9	
	Glasgow.....	Jan. 15-22.....	65	4
	Leith.....	Jan. 8-16.....	1	
	Liverpool.....	Jan. 8-16.....	1	
	London.....	Jan. 2-16.....	10	1
	Manchester.....	Jan. 8-16.....	1	
	Newcastle-on-Tyne.....	Jan. 8-16.....	2	
	Sunderland.....	Jan. 8-16.....	1	
India:	Bombay.....	Dec. 29-Jan. 5.....	3	
	Karachi.....	Dec. 27-Jan. 3.....	7	1
Mexico:	Tampico.....	Jan. 10-24.....	11	
Netherlands:	Amsterdam.....	Jan. 8-16.....	2	1
Russia:	Moscow.....	Dec. 26-Jan. 2.....	5	
	Odessa.....	Dec. 16-Jan. 2.....	2	
	St. Petersburg.....	Jan. 2-9.....	24	1
Spain:	Santander.....	Jan. 10-17.....	2	

YELLOW FEVER.			Cases	Deaths
Africa:	Grand Bassam.....	Dec. 12.....	Present.	
Brazil:	Rio de Janeiro.....	Dec. 28-Jan. 3.....	2	
Mexico:	Vera Cruz.....	Jan. 16-23.....	1	

¹ Zeitschrift für klin. Med., Bd. xlix, p. 111.

Panama:	Panama.....	Jan. 5-12.....	8
Venezuela:	La Guaira.....	Jan. 2-9.....	Present.

PLAGUE.			Cases	Deaths
British Burmah:	Rangoon.....	Dec. 9.....	1	
China:	Hongkong.....	Dec. 5-12.....	1	1
India:	Bombay.....	Dec. 29-Jan. 5.....	125	
	Karachi.....	Dec. 27-Jan. 3.....	7	
South Africa:	Natal (Pietermaritzburg).....	Dec. 5.....	3	2

CHOLERA.			Cases	Deaths
Straits Settlements:	Singapore.....	Dec. 5-19.....	3	
Turkey in Asia:	Diarbekir.....	Dec. 28-Jan. 4.....	15	
	Ineb.....	Dec. 28-Jan. 4.....	1	1
	Kerbela.....	Dec. 21-23.....	15	
	Latakia.....	Dec. 28-Jan. 4.....	11	7
	Mossul.....	Dec. 28-Jan. 4.....	1	1
	Mussieb.....	Dec. 28-Jan. 4.....	18	18

Changes in the Medical Corps of the U. S. Army for the week ended February 6, 1904:

STUCKEY, HARRISON W., contract surgeon, is granted leave for two months, on account of sickness, with permission to visit Japan.

WELLS, FRANCIS M., contract surgeon, is granted leave for two months, with permission to visit the United States, and with authority to apply for an extension of two months.

ALLEN, IRA A., contract surgeon, is granted leave for two months, with permission to visit the United States.

UNDERWOOD, FRED R., contract surgeon, will proceed to his home, London, Ohio, for annulment of contract.

JORDAN, EDWARD H., contract surgeon, is relieved from further duty with the Twenty-eighth Infantry, Infantry Cantonment, Presidio, and will proceed to his home, Denver, Col., for annulment of contract.

STONE, FRANK P., contract dental surgeon, will proceed to the Presidio for duty, relieving Contract Dental Surgeon William G. Hammond.

HENRY, JOSEPH N., contract surgeon, now at Philadelphia, Pa., will proceed to Fort Slocum for duty.

OHLINGER, LORIN B., contract surgeon, is granted leave for one month, on account of sickness.

MURRAY, First Lieutenant ALEXANDER, assistant surgeon, is assigned to duty as surgeon on the United States transport Sheridan, to take effect upon the arrival of that transport at Manila, P. I., relieving First Lieutenant John W. Hanner, assistant surgeon. Lieutenant Hanner will report to the commanding general, Philippine Division, for assignment to duty.

APPEL, Major AARON H., surgeon, extension of leave on surgeon's certificate granted November 28, is extended three months.

BURKHART, JOHN., contract surgeon, now at Grand Rapids, Mich., will proceed to San Francisco, Cal., and report for transportation to Philippine Islands.

BARBER, ERNEST C. A., sergeant first class, Military Hospital, Pumping Station, Rizal Province, P. I., will proceed to San Francisco, Cal., for orders.

Changes in the Medical Corps of the U. S. Navy for the week ended February 6, 1904:

STRINE, H. F., assistant surgeon, detached from the Naval Station, Isabela, P. I., and ordered to the Navy Yard, Olongapo, P. I.—January 30.

CRANWELL, A. G., surgeon, granted sick leave for three months from February 2—February 2.

HEIMER, R. G., assistant surgeon, ordered to the Naval Hospital, New York—February 2.

STOOP, R. E., assistant surgeon, ordered to the Naval Hospital, Norfolk, Va.—February 2.

SPEAR, R., and SHIP, E. M., surgeons, commissioned surgeons from March 3, 1903—February 2.

MORSE, E. T., pharmacist, detached from the Naval Laboratory, February 21, and ordered to the Naval Station, Cavite, P. I.—February 2.

Changes in the Public Health and Marine-Hospital Service for the week ended February 4, 1904:

WARREN, B. S., assistant surgeon, granted leave of absence for seven days from February 12—February 3, 1904.

FOSTER, S. B., acting assistant surgeon, department letter granting Acting Assistant Surgeon Foster leave of absence for ten days from January 17, 1904, amended to read ten days from January 21—February 3, 1904.

MAGUIRE, E. S., pharmacist, relieved from duty at Fort Stanton, N. M., and directed to proceed to Mobile, Ala., and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist J. E. Beck—February 1, 1904.

BECK, J. E., pharmacist, upon being relieved from duty at Mobile, Ala., by Pharmacist E. S. Maguire, to proceed to Fort Stanton, N. M., and report to medical officer in command for duty and assignment to quarters—February 1, 1904.

HOLT, E. M., pharmacist, granted leave of absence for twenty-seven days from January 1, 1904, on account of sickness—February 3, 1904.

Promotion.

ROBINSON, D. E., assistant surgeon, commissioned as passed assistant surgeon, to rank as such from December 28—January 28, 1904.

Appointment.

FOSTER, WILLIAM J., appointed acting assistant surgeon at Lexington, Mich., for examination of keepers and surfmen of the Life Saving Service—January 27, 1904.

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The immigration problem of the United States is intelligently discussed from a number of standpoints in a recent number of *Charities*. Careful calculations have been made of the cost of caring for the poor of New York State, the amount being placed at \$24,000,000 a year. As the foreign born are over half, the cost of their maintenance is at least \$12,000,000 a year in one State only. The alien insane of the whole country will cost something like \$50,000,000 a year within the next ten years. The 1901 report of the United Hebrew Charities of New York says that, "A condition of chronic poverty is developing in the Jewish community of New York that is appalling in its immensity. Forty-five percent of our applicants, representing between 20,000 and 25,000 human beings, have been in the United States over five years; have been given the opportunities for economic and industrial improvement which this country affords, yet notwithstanding have not managed to reach a position of economic independence." Dr. Shively has estimated that 23,000 tuberculous immigrants were landed in New York in 1902. Every teaching of medicine, of patriotism, and of sound common sense dictates the more rigid and thoroughgoing exclusion of the undesirable immigrant. We are deteriorating as regards the national health and degrading the future of our country in all ways by the wretched folly of freely admitting the diseased and the paupers of foreign countries.

The Colorado Medical Legislative League is an organization which should find imitators in most of our States. Not deterred by the recent failure to secure the desirable legislation demanded as regards the practice of medicine in the State, the public spirited physicians have united to carry on the struggle until success shall be gained. "The purpose of this league," says the constitution, "shall be to form a nonsectarian body through which the united medical profession of the State of Colorado may succeed in improving and in enforcing the medical statutes. The league will confront every legislator and candidate for office, including aspirants to the gubernatorial chair, with the proposition of support or antagonism, as the case may be, if they favor or oppose its objects." This will make the influence of the profession felt politically. Further, the league desires to carry on a campaign of education, that the many erroneous ideas

promulgated by the press may be corrected and the purposes of genuine professionalism shown in their true light. The organization will work in harmony with the previously active National Auxiliary Congressional and Legislative Committee for Colorado, the peculiar conditions making the two bodies a necessity in the State. The quacks of every kind of fraud and every degree of ignorance will always be united, and the powerful influence upon State legislators which they can always rally must be offset by similar unity on the part of the intelligent who know the price which the community must pay in money, health, and life, where charlatanism abounds.

Greed and the Establishment of Tuberculous Camps.—According to report the State Charities Aid Association of Pennsylvania charges that the bill recently adopted by the Legislature regulating the establishment of camps for the tuberculous was made so restrictive as to location by the influence of rich men that practically such camps are almost prohibited except in cities. The bill is declared to be one of the most disastrous measures which has ever received legislative and executive sanction. Those who favored the law, says the association, showed an unwarranted fear of the effect of establishing camps of the sort contemplated on the health of the neighborhoods in which they are located, and the law as it stands may prevent thousands of sufferers from tuberculosis in the State from receiving the care and treatment which would result in their improvement. We have previously alluded to the prejudice of many in the community as to the establishment of hospitals in their neighborhood, when the truth is that the hospitals, of course, exercise the most beneficial, instead of a baneful effect upon the health conditions of their vicinity. One can hardly believe that the men owning tracts of land in the highland and forest regions of Pennsylvania are both so stupid and so malevolent as the above report implies. Any one of them may be either so dull-witted or so egregiously selfish, but a combination of the two characteristics is too great an affliction for a large number of persons, even if riches be added. If the report is true, the voters and physicians of Pennsylvania have it in their power, and should speedily execute their will, that such legislation and such legislators should receive a sharp command of *about face!*

Oysters Preserved by Boric Acid.—The New Hampshire State Board of Health continues to show what noble work State boards may do when they are both scientific and imbued with the proper spirit of protecting the health of the people. Those interested in the pure food question and the adulteration of foods should read the January number of the *New Hampshire Sanitary Bulletin*. Among other reforms, we notice its crusade against the use of boric acid in oysters and clams. Seventy-seven samples of oysters were examined for boric acid, and in 34 cases it was present. When the inspection was first commenced every sample of tub oysters contained boric acid, and the results obtained from samples from Dover, Portsmouth, Manchester, and Concord showed conclusively that it was the practice of Boston wholesalers to add boric acid, or a preparation known as "preservaline," and containing boric acid, to every tub of oysters that they sent out. A vigorous correspondence with dealers in Norfolk and Providence River tub oysters produced such beneficial results that on the last inspection of oysters from the above-named cities but little boric acid was found. The practice of preserving oysters by the liberal use of boric acid permitted the small grocer or marketman to keep oysters on his counter, without ice, in warm weather, as long as any remained unsold. Undoubtedly a preservative active enough to arrest decay in such perishable articles as oysters, under such conditions, would not fail to arrest, in a like manner, the action of the digestive ferments. Clams are equally liable to adulteration by preservatives, and because of their less common use may contain even larger quantities of boric acid. The action of the wholesale houses in quickly abandoning the use of boric acid when notified by their customers that they were not allowed to sell goods so treated, proves the practice to be unnecessary.

Gardens of Medicinal Plants.—In connection with a recent editorial on the conservation of medicinal plants we wish to call attention to a very practical suggestion by Dr. Albert Schneider, of the California College of Pharmacy.¹ After pointing out the value of botanic gardens, in an historic review of the subject, he outlines briefly a plan for the establishment of gardens of medicinal plants in the United States. Regarding the possible criticism that this plan is premature, the statement is made that partially successful and abortive efforts have been made to establish such gardens and that plans for the establishment of several others on a large scale are now maturing. While the writer believes that the United States should possess several large gardens of medicinal plants he strongly emphasizes the unprofitableness of duplicate work. It therefore is desirable that these gardens should be supplemental to each other, each to investigate and develop the resources of its surrounding territory and of certain definite foreign lands. The following gardens are already begun or contemplated: New York Botanic Gardens (ready for active work); Shaw Botanic Gardens, St. Louis (in operation); Philadelphia (contemplated); Ann Arbor Garden (in operation); Indiana

State University (contemplated); San Francisco Garden (active work begun). The suggestion offered, and one that we hope to see adopted, is that the movers in the establishment of these and any other contemplated gardens meet in the near future, mature their plans, and determine upon a division of labor. Such gardens, which would serve for the instruction of students and the public, develop the possibilities of the country for raising medicinal plants, and in time add millions of dollars to the resources of the United States, should be laid out only on the broadest lines. Hence the necessity for cooperation that the work may be properly begun.

One Overlooked Factor in the Increase of Insanity.—The new element in modern civilization which is not recognized, and which is known to be a profound source of many derangements is school life and reading. Suddenly, the compulsory or chosen occupation of reading and near use of the eyes in a thousand occupations has been the dominant element in the life of the city dweller. Printing, books, schools, libraries, cheap books, newspapers, and handicraft occupations have appeared, and compel a physiologic or unphysiologic activity which, whether harmful or not, is a new function, and one to which in evolution, neither the mind nor the body has been habited, and especially to which the highest, most delicate, and most used sense organ has never been bred. Moreover, this sense organ is demonstrably imperfect in a large proportion of all persons, and the action of the malformed eye, as has been demonstrated by science, and by thousands of clinical cases, begets disease of eye, of cerebral action, of feelings, and of nutrition. Malfunction is the beginning of all disease, and of many it is the middle and end. Suicide, it has been found, is exactly in proportion to the number of hours of school life and study demanded in the country concerned. To this suggestive fact is now added the demonstration that insanity is almost precisely in the same proportion. When, lastly, it is observed that the use of the eye demanded by the civilization of the last century or two is one that its evolution has never provided for, either in structure or physiology, one gets a glimpse of morbid mental action in the making. When it is found that the insane and criminal have an astonishingly high proportion of high optical defects, the suggestion grows to conviction that the morbid action of the eye and its resultant cerebral functions are considerable causes of the increase of insanity.

Suicide of a Convicted Financier.—Probably no more dramatic incident can be found recorded in the whole dark page of the annals of crime than the termination of the life of the late financier, Whitaker Wright, which occurred in the London Law Court some days ago. But, most astounding of all is, perhaps, the consummate coolness with which he comported himself during the last scene, while knowing that his mortal existence was limited to a few minutes. The fact of his maintaining a quiet conversation with his legal adviser during this interval, and falling back in his chair to enter on the death struggle, while engaged in the act of

¹ American Journal of Pharmacy, January, 1904.

"lighting his second cigar," is one which cannot, we believe, be paralleled in the whole dark history of self-destruction. And the perfect finish of every detail of his preparation is still further illustrated in the fact that he must have had "the very best advice" in the choice of a poison. The deadly compound, potassium cyanid, to the use of which the suicide is attributed, causes destruction of life by the same mysterious power over the vital functions which is possessed by prussic (hydrocyanic) acid, the most rapid in action of all known toxic agents. A molecule—the smallest particle of a chemic compound which displays the characteristic properties thereof—consists, in the case of each of those compounds—of three atoms. That of potassium cyanid is represented by KCN; that of prussic acid by HCN. The difference lies in one atom only, and that one harmless. Chemistry defines an acid to be: "A compound containing hydrogen replaceable by a metal." The H of prussic acid is replaced, in the formation of potassium cyanid, by the element (K) potassium. And this atom of K is in turn easily displaced by (H) hydrogen, when exposed to the action of an acid. The latter agent is always present in the normal contents of the stomach. Accordingly, the change of potassium cyanid into prussic acid is always effected after swallowing. But, as a rule, this change is gradual, as the quantity of acid present in the stomach is usually small. On this account there is generally an interval—up to 15 minutes or 20 minutes, or so—before the consequent symptoms begin. When a fatal dose of prussic acid has been taken, the symptoms, in typical cases, commence instantaneously; the patient at once falls in a state of complete insensibility, and passes into a state of violent tetanic convulsions. Life has been known to become completely extinct in so short a period as two minutes. But the (usually) gradual decomposition of potassium cyanid in the stomach, and its consequent gradual absorption, leaves a well-marked interval before the onset of the symptoms. For a similar reason, the onset is likely to be very much less violent; the tetanic convulsions may be completely absent. Consideration of these various facts strongly indicate the unsurpassable skill with which the poison used by Wright had been chosen. No other lethal agent known to science could have given so dramatic an effect. The result of taking prussic acid would have been a ghastly termination of life. Most of the other potent poisons would have left a possibility of antidotal treatment; and many of the most destructive offer but a terribly painful means of ending life. The skill with which the convicted man availed himself of this means of escape was remarkable. Nobody saw him take the poison, and he was under continuous supervision. It is surmised that he swallowed the poison when passing his handkerchief across his face, immediately after the sentence was passed.

Fatal Mistake of Potassium Cyanid for Ammonium Carbonate.—There is another physical feature of potassium cyanid which is of very great importance in connection with its poisonous properties. This is a resemblance in appearance of its crystals to fresh ones of ammonium carbonate. This crude resemblance has

caused loss of human life. Of course, the odor of ammonium carbonate would form a sufficiently distinctive criterion to most observers; there is also the fact that crystals of ammonium carbonate soon become covered with a white powder—from the facility with which the superficial molecules give off their water of crystallization—which does not occur to those of potassium cyanid. But the fact remains that the mistake has occurred with the worst effects. The ammonium salt is very frequently prescribed in conjunction with syrup of wild cherry as a stimulating expectorant—especially in the bronchitis of old people. Such a prescription was issued from a Dublin office about a third of a century ago, and the mistaken substitution of potassium cyanid was followed by a fatal result.

"Ref. D.," is the degree conferred by an M.D. and LL.D., upon graduates of his college, and he promises that every \$9.00 invested with him will realize at least \$100. To prove it he publishes glowing testimonials that the business of the Ref. D.'s (Doctors of Refraction) is netting his graduates \$15, \$20, \$25, and even \$30 a day—"better," as one of them says, "than a \$5 a day position." A personal letter from the Doctor of Laws to one of our subscribers reads:

As a number of druggists, physicians, dentists, and jewelers have expressed a desire to have a short course on the eye, and also the theoretical part of optics and applied part of refraction taught them, we have decided to give a postgraduate course in refraction, for one month, to all of this class for \$25. Certificate with name engrossed therein would cost \$2.

This course will be given one month, beginning the first of January and continuing for four months, thus giving all students a week at a time at the college, with the privilege of returning home and reading for three weeks of each month and returning one week of each month to the college. This one time is the only opportunity you will have, as we have plenty of room in our hall so we can accommodate two hundred and fifty students which we hope to have. Should you decide to take one month here straight through it will be all O. K. with us.

The medical profession is particularly instructed that "a diploma from this school admits you to any State in the Union without taking any more examinations." The diseases and abnormalities of the eye, according to permitted popular custom do not concern medicine, or the practice of medicine. In legislation the eye is not a part of the body. If not ethical and scientific, the M.D., LL.D. faculty, board of trustees, and college, is at least religious, although he has not D.D. attached to his name. He heads his circular with a fairly pertinent and suggestive quotation from the Bible: "Ye shall know them by their fruits. He that reapeth receiveth wages, and gathereth fruit unto life that both he that soweth and he that receiveth may rejoice together."

Therapeutic Stones.—The sacred, magical and curative properties of certain stones—large and small—appear to have ranked among the items of the *Pseudodoxia epidemica*, among all races and nations, and throughout all recorded ages. The colossal monolith and the small "graven image" of stones are wellknown examples of the first of these properties. Among the prominent specimens of the second, may be noted the items of popular medieval belief, that a *diamond* placed

under the pillow would notify the conjugal infidelity of a wife; that an *emerald* would break if worn during sexual intercourse; that the wearing of a *sapphire* was a preservative against all enchantments; that the fume of an *agate* would effectually avert the approach of a tempest; that the wearing of a *chrysoprase* would "make one out of love with gold;" and that the carrying about of an *amethyst* surely preserved the owner from being "overtaken" by drunkenness—an item of belief to which the etymology of its name is due. To a kindred form of credulity must be ascribed the wondrous properties which were ascribed to *China dishes*, when first imported to Europe from the Celestial empire. It was confidently said of these "by Scaliger and others;" "that they admit no poyson, that they strike fire, that they will grow hot no higher than the liquor in them ariseth." With regard to the curative powers of various stones, we may seasonably quote the remark of the celebrated author of the "Religio Medici:" "He must have more heads than Janus, that makes out half of those vertues ascribed unto stones, and their not onely medicall, but Magicall proprieties, which are to be found in Authors of great name. In Psellus, Serapion, Evax, Albertus, Aleazar Marbodeus; in Maiolus, Rueus, Myllus, and many other." And the same author goes on to state some of his own opinions in this connection: "That Lapis Lazuli hath in it a purgative faculty we know, that Bezoar is Antidotall, Lapis Judaicus Diureticall, Corall, Antiepilepticall, we will not deny, that Cornelians, Jaspis, Heliotropes, and bloud-stones, may be of vertue to those intentions they are impled; experience and visible effects will make us doubt." And just now the fact of the persistence of such forms of belief is forcibly brought home to us by the announcement—in a diurnal (lay) contemporary—of the unquestioning faith which is placed in the efficacy of "mad-stones" by a large proportion of our own fellow-citizens. There are even now many of those precious talismans in this country; and "the believers in their efficacy always know where the nearest one is kept." One of them had long been the property of an Ohio negro, and was placed after the death of its owner in the State Library at Columbus. There it was recently applied to the wound caused by the bite of a supposedly rabid dog. The dog recovered, and the woman to whom it was applied died of blood-poisoning caused by the unclean contact. We are also informed that such a stone was kept in the Virginia State Penitentiary for years, and was open to all comers for application to the bite of a mad dog, or other allied wound. One such (perhaps the same) was at a later date sold by auction for \$39. Still more famous was that brought from Russia in 1887 by a physician of that country who settled in Nevada. It had previously been exploited in that country for at least a century and a half—a fact supported by documentary evidence. The document was written in native Russian; and as nobody concerned could read it, everybody implicitly believed what they were told of it. The owner offered the stone for sale at \$1,500, and a joint stock company was formed for the purchase. A thousand shareholders advanced \$1 each; and the balance was made up by a farmer who became

its keeper when the purchase was completed. Its fame still flourishes and it is said that an offer of \$3,000 has been refused for it. Such is faith—in our own land of progressive enlightenment! Can we be surprised that eddyism, antivivisectionism, antispectacleism, and all other such isms, still continue to flourish—in so fertile a soil?

BOOK REVIEWS

A Practical Handbook of the Pathology of the Skin: An Introduction to the Histology, Pathology, and Bacteriology of the Skin, with Special Reference to Technic.—By J. M. H. MACLEOD, M.A., M.D., M.R.C.P. Philadelphia: P. Blakiston's Son & Co., 1903.

The first 7 chapters of this handbook are devoted to a consideration of various fixation, embedding, and staining processes, and to the special microscopic technic found most useful in the study of the morbid anatomy of the skin. In subsequent chapters the general pathology of the skin is considered, the various lesions characteristic of cutaneous disease are described as they occur in the epidermis, the corium, and the several appendages of the skin, such as the hair, nails, sebaceous and sweat glands, etc. The special diseases of the skin are not considered, except as they serve to illustrate the occurrence of the lesions described. A brief account of the normal histology of the several divisions of the skin precedes in each instance the description of the alterations produced in them by disease. A chapter is devoted to an account of the blood changes occurring in certain diseases of the skin, and to the special methods used in their demonstration and study. The concluding chapters of the manual are concerned with the various pathogenic micro-organisms found on and in the skin, and the various staining and culture methods employed in their demonstration. Many excellent illustrations are scattered throughout the book, which serve to make the text still clearer. We have only words of praise for this handbook, which should be found upon the work-table of every student engaged in the serious study of diseases of the skin. In it are to be found all the modern methods employed in the microscopic study of the pathology of the skin, as well as clear and concise descriptions of the tissue alterations characteristic of cutaneous disease. The demand for, and the appearance of, such books is a striking indication of the real scientific spirit with which diseases of the skin are being studied at the present time.

The American Year-book of Medicine and Surgery for 1904.—Edited by GEORGE M. GOULD, A.M., M.D. In 2 volumes. W. B. Saunders & Co., Philadelphia, New York, London, 1904.

The American Year-book of Medicine and Surgery continues to maintain its high place among works of its class. Indeed, the issue of 1904, if anything, is even better than the excellent issues of the previous years. The distinguished corps of collaborators which the editor has enlisted as his assistants is sufficient guarantee that the essential points of progress are brought out, and the collaborators' notes and commentations are excellent. In the illustrative feature the 1904 issue fully maintains its reputation, there being 14 full-page insert plates, beside a number of excellent text-cuts. The volumes are as nearly authoritative as possible, constituting a necessary part of each physician's library.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences.—Edited by HOBART AMORY HARE, M.D., assisted by H. R. M. Landis, M.D. Vol. iv, December, 1903. Lea Brothers & Co., Philadelphia and New York.

Volume iv, the concluding volume of 1903 of Progressive Medicine, comprises a critical review of the recent literature on diseases of the digestive tract and allied organs, the liver, pancreas, and peritoneum, by Dr. John C. Hemmeyer; on anesthetics, fractures, dislocations, amputations, surgery of the extremities, and orthopedics, by Dr. Joseph C. Bloodgood; on genitourinary diseases, by Dr. William T. Belfield; on diseases

of the kidneys, by Dr. John Rose Bradford, F.R.C.P.; on physiology, by Dr. Albert P. Brubaker; on hygiene, by Dr. Charles Harrington; and a practical therapeutic referendum, by Dr. H. R. M. Landis. The reviews of the literature are excellent—little if anything of importance having escaped the observation of the different departmental editors, who themselves add to the value of the reviews by their critical comments. Together the 4 yearly volumes afford a valuable and comprehensive review of the progress of medicine.

Transactions of the American Surgical Association. Volume xxi.—Edited by RICHARD H. HARTE, M.D. For sale by William J. Dornan, Philadelphia.

This comprises a volume of more than 700 pages, which includes all the papers, together with the discussions, presented at the meeting of the American Surgical Association in Washington, D. C., May, 1903. This, of course, warrants for it much information on nearly all the prominent surgical subjects before the profession today.

Modern Microscopy.—By M. I. CROSS and MARTIN J. COLE. Third edition, revised and enlarged. Chicago: W. T. Keener & Co., 1903.

The third edition of this work contains 285 pages and 76 illustrations. It is divided into 3 parts: 1. The microscope and instructions for its use. 2. Microscopic objects; how prepared and mounted. 3. Microtomes: their choice and use. The book is still intended for beginners and students and can be recommended as a valuable aid. It furnishes very many points of detail that cannot be found in larger and more pretentious works upon the subject. At the same time many of the directions are necessarily short, this being particularly true of the preparation and use of stains. Parts I and III are the most satisfactory.

Transactions of the Association of American Physicians.—Eighteenth session held at Washington, D. C., May 12-14, 1903. Volume xviii. Philadelphia, 1903.

The appearance of the transactions of this Association is always looked forward to as being largely the record of medical advancement in this country during the preceding year. The present volume is no exception to the rule. It contains 46 papers, being a book of 709 pages. Mention of the articles worthy of attention would be practically giving a list of contents. Many of them have already been published in current journals. Among the most important are: Studies on Certain Phases of Bovine Tuberculosis, by Kober and Smith; Chronic Cyanosis, by Osler; Phases of Anemia and Leukemia, by Morse, Blumer and Gordinier, Kelly, Dock and Warthin; Studies on the Action of Alcohol, by Hare and Cabot; Anatomic Studies of Cases of Hereditary Ataxia, by Barker.

A Compend of Pathology, General and Special. A Students' Manual in one Volume.—By A. E. THAYER, M.D. Second edition. Philadelphia: P. Blakiston's Son & Co. 1903.

This volume is a combination, with revision, of the 2 compends issued by the author in 1902. A chapter on the Nervous System and several illustrations have been added. The work in its present form contains nearly 700 pages, and is attractively bound in limp cloth. While this compend, as all books of its type, must be of greatest value to the students of the author, it will undoubtedly prove of assistance to other students and to practising physicians who have not the time for consulting more pretentious works upon the subject.

Diseases of the Horse.—Special report of U. S. Department of Agriculture, Bureau of Animal Industry. By Drs. PEARSON, MICHENER, LAW, HARBAGH, TRUMBOWER, LIAUTARD, HOLCOMBE, HUIDEKOPER, STILES, and ADAMS. Revised edition. Washington: Government Printing Office, 1903.

This book of 600 pages is the revised edition of the Special Report, issued in 1890. The greater number of the chapters have been revised by their original authors. A new chapter on "Examination of a Horse" by Dr. Pearson, has been added. As much as possible of the text has been freed from technical terms in order that horse owners generally may make practical use of the work. To them it must prove of great value. The Chief of the Bureau, Dr. D. E. Salmon, under whose super-

vision the book was revised, states that the present edition is issued for distribution principally by senators, representatives and delegates in Congress, the Department having no copies for general distribution.

Manual of Medicine.—By THOMAS KIRKPATRICK MONRO, M.D. W. B. Saunders & Co. Philadelphia, New York, and London, 1903.

The author of this manual states in his preface that the book is intended primarily for students, but it is hoped that it may also be of service to junior physicians. This hope should be realized, as the work is one of the best manuals of medicine that we have seen. Many points are omitted, as must be expected, but in the 877 pages is condensed a vast amount of information. The most valuable feature of the work is that what is given is put in such plain, easily-read style that the student can understand it, and thus appropriate it to his own use. The subject matter is thoroughly up to the date of publication, but in these days of progress a work on medicine lacks some things, even on the day it comes from the press.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Third Biennial Report of the Board of Control of State Institutions of Iowa: For the Biennial Period ending June 30, 1903.—Bernard Murphy, State Printing, Des Moines, 1903.

Social Diseases and Marriage.—By PRINCE A. MORROW, A.M., M.D., Emeritus Professor of Genitourinary Diseases in the University and Bellevue Hospital Medical College; Surgeon to the City Hospital; Consulting Dermatologist to St. Vincent's Hospital, etc., New York. In one octavo volume of 390 pages. Cloth, \$3.00, net. Lea Brothers & Co., Publishers. New York and Philadelphia, 1904.

Prostatic Hypertrophy from every Surgical Standpoint.—By GEORGE M. PHILLIPS, M.D., and 40 distinguished authorities. Edited and compiled by S. C. MARTIN, JR., M.D. Lewis S. Matthews & Co., St. Louis, Mo. Price, \$1.75.

The Neurological Practice of Medicine: A Cursory Course of Selected Lectures in Neurology, Neurology, Psychiatry and Psychiatry. Applicable to General Practice. With 177 illustrations. Designed for students and general practitioners of medicine and surgery.—By CHARLES H. HUGHES, M.D., President of the Faculty and Professor of Neurology, Psychiatry and Electrotherapy, Barnes Medical College. Former Major and Surgeon-in-Chief of Schofield, Winter, Hickory Street and McDowell's College Military Hospitals, Superintendent Missouri State Insane Hospital, etc., 1903.

The Blues: (Splanchnic Neurasthenia); Causes and Cure.—By ALBERT ABRAMS, A.M., M.D. (Heidelberg), F.R.M.S., Consulting Physician, Denver National Hospital for Consumptives, The Mount Zion and the French Hospitals, San Francisco; President of the Emanuel Sisterhood Polyclinic; formerly Professor of Pathology and Director of the Medical Clinic, Cooper Medical College, San Francisco. Cloth, 240 pages, illustrated, postpaid, \$1.50. E. B. Treat & Co., Publishers, New York.

The Self-Cure of Consumption without Medicine: With a Chapter on the Prevention of Consumption and other Diseases.—By CHAS. H. STANLEY DAVIS, M.D., Ph.D., Member of the Connecticut Valley State Medical Society; Physician to the Curtis Home for Old Ladies and Children, etc. E. B. Treat & Co., New York City, 1904. Price, 75 cents.

How to be Successful as a Physician: Heart to Heart Talks of a Successful Physician with his Brother Practitioners. The Church Publishing Company, Meriden, Conn., 1902.

A Textbook of Legal Medicine and Toxicology.—Edited by FREDERIC PETERSON, M.D., Chief of Clinic, Nervous Department of the College of Physicians and Surgeons, New York; and WALTER S. HAINES, M.D., Professor of Chemistry, Pharmacy, and Toxicology, Rush Medical College, in affiliation with the University of Chicago. Two imperial octavo volumes of about 750 pages each, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Per volume: Cloth, \$5.00 net; sheep or half morocco, \$6.00 net.

A Manual of Operative Surgery.—By SIR FREDERIC TREVES, F.R.C.S. New second edition, revised by the author and JONATHAN HUTCHINSON, JR., F.R.C.S. In two octavo volumes. Volume I containing 750 pages and 245 illustrations. Volume II, 824 pages, 228 illustrations. Per volume, half morocco, \$6.50 net. Lea Brothers & Co., Publishers, Philadelphia, New York.

Diseases of the Eye.—By L. WEBSTER FOX, A.M., M.D., Professor of Ophthalmology in the Medico-Chirurgical College of Philadelphia; Ophthalmic Surgeon in the Medico-Chirurgical Hospital. With 5 colored plates and 296 illustrations in the text. D. Appleton & Co., New York, London, 1904.

Army Inefficiency: Its Greatest Cause.—By A. C. PROFFIT, M.B. J. & A. Churchill, London, 1903. American selling agents, P. Blakiston's Son & Co., Philadelphia.

A Short Practice of Gynecology.—By HENRY JELLET, B.A., M.D., B.Ch., B.A.O. (Dublin University), F.R.C.P.I., L.M., Ex-Assistant Master, Rotunda Hospital, Extern Examiner in Midwifery and Gynecology, Royal University of Ireland, etc. Second edition, revised and enlarged, with 223 illustrations. J. & A. Churchill, London, 1903. Price, \$3.75.

The Sympathetic Nerve: From Original Dissections: Life Size.—By BYRON ROBINSON, M.D., Chicago, Ill. E. H. Colegrove, Chicago, Ill. Price, 50 cents.

Acute Poisoning: A Chart giving Descriptive Classification and Varieties with Special Symptoms, Chemic and Physiologic Antidotes, Fatal Dose, Simple Tests and Remarks on Treatment.—Victor Koechl & Co., New York City.

AMERICAN NEWS AND NOTES.

GENERAL.

Examination for Pharmacologists.—The United States Civil Service Commission announces an examination on March 1, 1904, to secure eligibles from which to make certification to fill a vacancy in the position of pharmacologist (male) in the Bureau of Plant Industry, Department of Agriculture, at \$1,800 per annum, and other similar vacancies as they may occur. Applicants will not be assembled for this examination. Persons who desire to compete should at once apply to the United States Civil Service Commission, Washington, D. C., for application form 1312, which should be properly executed and filed with the Commission at Washington, with the material required, prior to the hour of closing business on March 1, 1904.

The AngloAmerican Medical Association of Berlin desires to inform the profession of its organization and purposes. Realizing the difficulties which beset the path of the stranger, the Association places its services at the disposal of physicians who intend to study in Berlin. They are cordially invited to attend the meetings which are held weekly, and any information concerning the work to be had here will be gladly given to any member of the profession who will communicate, on his arrival in Berlin, with Dr. J. H. Honan, president, Latzow Strasse 78, or with any of the undersigned committee.

ALBERT J. MAYER, M.D., Secretary,
DAVID SHANNON, M.B.,
WM. W. GRAVES, M.D.

Examinations for Army Medical Service.—The examination of applicants for appointment as assistant surgeon in the United States Army will be resumed in Washington immediately after the close of the present session of the Army Medical School; it will embrace the full examination (as heretofore), at the conclusion of which those found qualified will be commissioned. Full information as to the requisite qualifications for appearance for examination, method of application, nature and scope of examination, etc., may be obtained upon application to the Surgeon-General, U. S. Army, Washington, D. C. The examining board will probably reassemble about the middle of April next, and those desiring to present themselves before the board should make application at once. Applicants are restricted in age to 30 years, and a year's hospital experience or its equivalent in private practice is required.

Bequests to Charity.—PHILADELPHIA: By the will of Henry C. Cochrane, who died December 18, 1902, a sum aggregating nearly \$100,000, was left to numerous hospitals, homes for the aged and other charity institutions in Philadelphia. The largest recipient was the Pennsylvania Hospital, which received \$10,000. The remainder of the sum was divided in smaller amounts among various institutions. By the will of Hannah W. Gadsen more than \$20,000 is distributed among 25 charities in the city of Philadelphia, the Episcopal Hospital, which received \$5,000, being the largest recipient. NEW YORK: By the will of Mary C. Seguin the sum of \$10,000 was left to the Sheltering Arms of New York; \$10,000 to the Society for the Relief of the Destitute Blind; \$10,000 to the Home for Old Men and Aged Couples. By the will of Mrs. E. W. Aldrich, \$80,000 is left to various charity institutions. Among the hospitals which are recipients of various sums are St. Luke's Hospital, Home for the Incurables, New York Protestant City Mission Society, etc.

Miscellaneous.—DR. WILLIAM OSLER, professor of medicine at the Johns Hopkins University, will give this year the Ingersoll lecture at Harvard University, his subject being "Science and Immortality."—THE PRIZE OF THE SWEDISH MEDICAL ASSOCIATION has been awarded to Professor M. G. Blix, of Stockholm, for his work on the temperature of the muscles.—MR. HENRY PHIPPS has given \$20,000 to the Johns Hopkins Hospital to establish a clinic for tuberculous patients. THE TENTH QUADRENNIAL CONGRESS OF THE POLISH PHYSICIANS AND SCIENTISTS will be held this year in Lemberg, Austria, July 20 to 24. Professor E. Machek is the chairman of the committee of arrangements, and Professor W. Sieradzki is secretary. Dr. Francis E. Fronczak, of Buffalo, N. Y., is the representative of the committee for the United States.—THE UNION PROTESTANT INFIRMARY OF BALTIMORE: One of the heaviest losers in the conflagration was the Union Protestant Infirmary, and it has been stated that the institution would be required to close its entire new building, and limit the scope of its work to 15 beds. The hospital is one of the best known in the city. It was almost entirely supported by charitable contributions and bequests, and the entire new building and porches were built in this manner. It is understood that practically all of its funds and endowments were in warehouses in the devastated territory, and that the insurance will not begin to cover its losses.—MEDICO-CHIRURGICAL HOSPITAL, PHILADELPHIA: One year ago an explosion occurred in the Medico-Chirurgical Hospital, which damaged the structure to a considerable extent. The State Legislature appropriated \$20,000 to aid

in reconstructing the building. This has now been completed, and a number of new improvements have been added.—THE AMERICAN JOURNAL OF NURSING contains, among other valuable reading matter, an account of the Pennsylvania State meeting. This was the second meeting of the Pennsylvania Nurses' Association, and was held in Harrisburg, January 20 and 21, the president being Miss Anna E. Brobson. A paper was presented by Miss Sarah A. Rudden, entitled "The A B C of Registration." Rebecca Halsey, of the Jewish Hospital, Philadelphia, was the author of a paper entitled "A Plea for Organization"; this was read by Miss Greaney, of the Woman's Hospital. Reference was made by Miss Milne, of the Presbyterian Hospital of Philadelphia, to the preliminary education for nurses, a course which is being given at the Drexel Institute, Philadelphia. A reception was given to the nurses by the members of the Academy of Medicine, at which more than 200 guests were present.—THE JOHNS HOPKINS NURSES ALUMNÆ MAGAZINE: The number published in December, 1903, appears in a neat and attractive form, containing much valuable reading matter, particularly for nurses. A brief editorial review of what has been accomplished in the work of this journal and its supporters.—THE MEDICAL RECORDER is the title of a monthly journal, the first number of which appeared in January, 1904. The editor is Dr. Oscar Dowling; the associate editors are Dr. Louis Abramson and Dr. R. H. T. Mann. The journal is published at Shreveport, La. The first number contains a number of valuable papers and suggestions.—JOHNS HOPKINS' LOSS: The Baltimore Sun says: One of the results of the Baltimore disaster has been the serious crippling of the work of the Johns Hopkins Hospital, whose income was largely derived from the rent of buildings which it owned in the burned district. Sixty-eight warehouses, widely scattered, belonging to the hospital, have been destroyed, and the hospital has lost the income from them for possibly 2 years. The hospital property destroyed aggregates nearly \$1,300,000. Owing to the complete destruction of the general office of the hospital, on Holliday street, it is impossible to estimate how much insurance may be recovered. The money derived from the rental of these buildings, which is estimated at \$100,000 a year, was devoted to the free work of the hospital, with about \$35,000 derived from the rental of other property in control of the trustees.

EASTERN STATES.

New Hampshire Licensed Embalmers' Association.—The fourth annual convention of the New Hampshire Licensed Embalmers' Association, held this month in Concord, was very successful, and exceedingly profitable to all who attended. We believe it to be the duty of every licensed embalmer in the State to join this organization. Methods and practices in connection with the disposal of the dead have been so advanced in recent years that the demands upon the embalmer and undertaker are much greater than formerly. The better preservation of the dead, methods of protecting the public in cases of infectious and contagious diseases, transportation of corpses, the legal requirements of other States in the preparation of bodies shipped to them, and many other questions make it necessary for the embalmer to be well-informed upon these points. The only States in the union that have not yet established rules and regulations to govern the transportation of the dead are Arkansas, California, Maryland, Massachusetts, Mississippi, New Jersey, Nevada, Oregon, Rhode Island, and the District of Columbia. New Hampshire was the first of the New England States to establish such regulations. The result is, that bodies cannot now be transported unless they are properly prepared, and, furthermore, it is now possible to ship bodies dead of certain contagious and infectious diseases that prior to the adoption of the regulations was not permitted. The advantages of the law have been demonstrated in many ways.—[New Hampshire Sanitary Bulletin.]

NEW YORK.

Typhoid in Watertown.—Information from Watertown, under date of February 11, says: Typhoid fever is prevalent in this city. Local health officials state that there are between 150 and 200 cases, and the 2 public hospitals are crowded. The State Health Commissioner has appointed Professor Olin H. Landsteth, of Union College, as sanitary expert to investigate the cause of the epidemic and take charge of the situation.

Pneumonia and Architecture.—The Bulletin of the Chicago Health Department, for the week ended January 30, says: "Pneumonia is a disease of modern architecture—of the custom, steadily growing during the past 15 or 20 years, of covering every available square foot of land with the building and using every available square inch within its walls for little cubby-holes and cubicles in which human beings are to work and live and sleep. Air famine is the most potent cause of pneumonia, as it is of tuberculosis. The high priest of modern hygiene, Edmund Parkes, more than a generation ago, formulated a table demonstrating that 3,000 cubic feet of air per hour is necessary for healthy life indoors, and during the latter third of the generation our architects have been steadily getting farther and farther away from this standard, and the pneumonia incidence and mortality have been as steadily increasing."

Trade Unions to Fight Tuberculosis in New York City.—It is planned that the fight against tuberculosis shall be taken up by the various trade unions, and committees have been appointed accordingly. The *Weekly Bulletin of the Clothing Trades*, in its January issue, says: "A systematic inspection will be inaugurated with the aid of the business agents of the different local unions so as to ascertain the sanitary condition of the shops and cause the observance of precautions that would tend to eliminate the disease so largely prevalent in the congested districts where the making of clothing is centralized. It is proposed to interest the operatives in the subject and enlist their cooperation. Rules, in the different languages, are to be posted in all the shops for their guidance, and circulars and pamphlets are to be distributed so as to acquaint the workers with the nature and gravity of the disease and the necessity for following the instructions of the best authorities. In this way it is hoped to effectively cope, so far as the industry is concerned, with the dread scourge that has so sorely afflicted mankind."

Important Legal Decision.—The gist of a case carried before Justice White, of the Supreme Court of the United States, is this: A New York firm sold to a Baltimore firm goods, which, on delivery, were found to be adulterated; they were not accepted and litigation arose, the contention being made by the New York firm that the goods were not adulterated, at least within the meaning of the New York statute. Justice White emphatically sustains this view, allowing a wide latitude to the several States for the exercise of their police power in the enactment of sanitary laws. The court says in part: "We are of opinion that it is within the power of a State to exclude from its markets any compound manufactured in another State which has been artificially colored or adulterated so as to cause it to look like an article of food in general use, and the sale of which may, by reason of such coloration and adulteration, cheat the general public into purchasing that which they may not intend to buy. The Constitution of the United States does not secure to any one the privilege of defrauding the public."

PHILADELPHIA, PENNSYLVANIA, ETC.

Testimonial in Recognition of Gift.—The College of Physicians of Philadelphia decided, without a dissenting voice, to express their thanks to Andrew Carnegie for his magnificent donation of \$50,000 to that institution. The acknowledgment will be in the form of an engraved certificate enclosed in a gold frame and sent to the donor.

Cases of Tuberculosis to be Registered.—The Public Health Department of the city of Philadelphia has inaugurated an extension in its fight against tuberculosis. The plan calls for the registration of every case of tuberculosis, giving the name, color, age, and address of the person affected so soon as the diagnosis of the case is made. The establishment of this system will, physicians say, be a great aid in combating the spread of tuberculosis. With the knowledge of every case of the disease in the city, the authorities can take intelligent means to prevent infection. The spreading of the disease is said to be largely due to the fact that the tuberculosis germs are conveyed from the tuberculous to other persons who live with them or move into houses where they have lived. Under the new system it will be possible to follow every case, take proper sanitary measures and disinfect houses where the tuberculous have lived before any one else is allowed to move there.

SOUTHERN STATES.

Instituting War on Yellow Fever.—Information from Laredo, Texas, under date of February 2, says: "A party of distinguished physicians left Laredo for Mexico to confer with members of the Board of Health there in an effort to devise means to prevent a recurrence of a yellow fever epidemic such as visited northern Mexico and the southwest border of the United States last year."

WESTERN STATES.

Mortality of Michigan During January, 1904.—There were 3,126 deaths reported to the Secretary of State for the month of January, corresponding to a deathrate of 14.7 per 1,000 population. The number was 184 larger than that registered for the preceding month, and is also greater than the number for January, 1903. By ages there were 490 deaths of infants under 1 year of age, 210 deaths of children aged 1 to 4 years, and 982 deaths of elderly persons over 65 years of age. The age distribution was practically the same as for the preceding month. Important causes of death were as follows: Pulmonary tuberculosis, 176; other forms of tuberculosis, 25; typhoid fever, 57; diphtheria and croup, 83; scarlet fever, 34; measles, 12; whoopingcough, 19; pneumonia, 412; influenza, 101; cancer, 134; accidents and violence, 180. There was 1 death from smallpox, which occurred in Kalkaska county.

Distress during the Year 1903.—The *Chicago Tribune* says: "The loss of life by disasters in 1903 has been large. Shipwrecks on the ocean and inland lakes and rivers have taken 1,935 lives. Over 4,000 persons have been killed and over 5,000 injured in railroad accidents. These figures include only

the severely injured, and the list of killed is mainly passengers. The complete returns, including those killed and injured on electric roads, will be much larger, as *The Tribune's* record includes only prominent disasters. There have been numerous other disasters involving heavy loss of life. Cyclones and rock-slides in April killed 127 persons. By cyclones and the floods at Topeka and Kansas City in May 286 persons perished. In June there was a series of unusual disasters. Eighty lives were lost by a cyclone at Gainesville, Ga.; 58 by a flood at Spartansburg, S. C.; 31 by a cloudburst at Clifton, Ariz.; and 200 by a cloudburst at Heppner, Ore. Then the country enjoyed immunity from great disasters until December 30, when between 500 and 600 lives were lost by the burning of the Iroquois Theater—the crowning horror of the year's record at home or abroad. The embezzlers and defaulters in 1903 got away with \$6,586,165, not a large sum as compared with the average of the last 50 years."

FOREIGN NEWS AND NOTES

GENERAL.

Decrease of Tuberculosis in Germany.—Official figures show that in German cities of 15,000 or more inhabitants tuberculosis has been steadily decreasing in fatality; the number per 10,000 in the 5 years ending in 1881 was 357.7; in 1886, 346.2; in 1891, 304.5; in 1896, 255.5, and in the 5 years ending 1901, 218.7.

How Long Has This Been Going On?—An exchange says editorially: The London *Daily News* has constantly mocked at the perils of "dumping," alleging with much reason that it was an advantage to buy the things you need as cheaply as possible. Examination of a recent bill of entry, however, has shaken this faith, for interpolated in a long list of drugs and nostrums appeared "£800, Common Sense Exterminator." Whether this lethal import be "made in Germany," or whether it bespeaks the malice of the subsidized American patent medicine industry, has not yet appeared, but the matter, in any case, demands the earnest attention of Mr. Chamberlain's fiscal commission. The *Daily News* finds in this item an explanation of the general abeyance of common sense in the kingdom, and asks pathetically, "How long has this been going on?"

A Heroine Martyr.—Dr. John F. Jackson, F.R.G.S., having recently visited India, says: "When I reached India I learned that there were 500,000 lepers in that country, who lead a life of absolute loneliness, and who are considered unclean outcasts. Their religion puts them under a curse, and of all people they are the most needy and most helpless. I visited 30 colonies of lepers, and in many instances found the people in them living in huts unfit for habitation, neglected and uncared for. I visited Miss Mary Reed, the American missionary, who is doing such heroic work among the lepers. Her experience is painfully unique from the fact that she is the only living missionary who has become a leper. She contracted the disease while engaged in ordinary mission work and resolved to devote her life to her fellow sufferers. She has been working devotedly for 12 years. I found her presiding over a fine institution, which she herself founded, in a remote corner of the Himalayas."

Women Medical Inspectors Appointed in England.—The Battersea Council, says an English exchange, has appointed a woman inspector, who is charged with instructing young mothers in their duties toward their children. What she has to do is put down as follows: To visit houses where births have occurred, and to instruct the mothers in the preparation of infants' food and the proper method of infant feeding. To keep under constant supervision houses occupied by dirty tenants. To endeavor to raise the standard of cleanliness. To visit certain houses where there are cases of nonnotifiable disease, such as whoopingcough, and to advise as to the nursing and care of the patient. To visit houses where there are dirty and neglected children. To visit houses where infantile deaths have occurred. To assist, as far as possible, in house-to-house inspection. Women who have undertaken similar works in Liverpool and other English cities have been found extremely useful persons.

OBITUARIES.

John M. Adler, at his home in Philadelphia, February 11, aged 76. He graduated from the Princeton University in 1844 and from the medical department of Columbia University, Washington, in 1847; one time surgeon to the Panama railroad during its construction. During the Civil war he was in charge of the military hospital in Davenport, Ind. Some years later he settled in Philadelphia, becoming a member of various medical societies and a Fellow of the College of Physicians. He was for several years consulting physician to Girard College and chief medical examiner in Pennsylvania for the Mutual Life Insurance Co., of New York. He was recognized as an authority in literature, especially in the period represented by the writings of Samuel Johnson.

E. A. deSchweinitz, at his home in Washington, D. C., of uremia, February 15. He was a graduate of the University of North Carolina in 1882; received the degree of Ph.D. from the University of Göttingen, Germany, in 1886; and graduated in medicine from the medical department of Columbian University, Washington, D. C., 1894. He was dean of the National Medical College, Medical Department of Columbian University, Washington, D. C.; professor of toxicology in the same and director of the biochemical laboratory of the Agricultural Department, Washington, D. C. He was one of the best known chemists in the United States. He was a Founder of *American Medicine*.

Jacob Repelye Ludlow, at his home in Easton, Pa., February 10, of pneumonia and a complication of allments, aged 80; a graduate of the medical department of University of Pennsylvania in 1845 before he was 21 years of age. He served as surgeon in the Union Army during the Civil war both on the field and hospital service. He was a member of the Loyal Legion and prominent in Masonic circles. He retired from active service five years ago.

Howard J. Seeley, of Brooklyn, February 7, at Asheville, N. C.; a graduate of the Long Island Medical College in 1898. He was appointed professor of histology for the summer course in his alma mater and assistant surgeon to the Williamsburg Hospital. His health failing he was obliged to take up his residence at Asheville, where he died.

Edwin Barnes, at his home in Pleasant Plains, N. Y., January 22, aged 59; a graduate of the Albany (N. Y.) Medical College, in 1865, one time president of the Dutchess County Medical Society, vice-president of the New York Medical Association, and at the time of his death was physician of Vassar Hospital at Poughkeepsie.

August H. Trow, at his home in Ethan, S. D., aged 81; a graduate of the Medical School at Castleton, Vt., in 1862. He formerly practised at Maysville, N. Y., and later at Chatfield, Minn., having lived at Ethan, S. D., 2½ years. He was a member of the Minnesota House of Representatives in 1859, 1860, and 1872.

John Herbert Sangster, of heart disease, at his home in Toronto, January 27, aged 72; a graduate of the University of Toronto, in 1864. He was a prominent figure in the social and professional life of Toronto, and in 1894 was elected a member of the Ontario Medical Council.

James W. Garden, at his home in Sandy Hook, January 26, aged 41; a graduate of the New York University, in 1889; a member of the Bridgeport (Conn.) Medical Society, Fairfield Medical Society, and Connecticut Medical Society.

Charles E. Mammeré, at Oconomowoc, Wis., February 8; a graduate of Cornell University in 1880, and of Rush Medical College some years later. He was one time lecturer on surgery at the Chicago Polyclinic Hospital.

Henry Scott Vernon, at his home in Rushford, Minn., February 1, from pneumonia; a graduate of Rush Medical College in 1900; a health officer of Lewiston, Minn., and member of the American Medical Association.

August Krehbiel, at his home in New York, February 11, aged 65. He was graduated in medicine in Germany and settled in New York in 1864. He was a member of the consulting board of the German Hospital.

David Krausgill, of pernicious anemia, at his home in Chester-town, Ind., January 23, aged 56; a graduate of the Medical College of Ohio, Cincinnati, in 1879; a member of the American Medical Association.

Charles A. Wheeler, at the Massachusetts General Hospital, February 11, aged 68. During the war he was commissioned an assistant surgeon in the Fifteenth Massachusetts Regiment, and served until 1862.

Joseph E. VanCamp, of apoplexy, while driving to see a patient at Carlisle, Pa., February 11, aged 66; a graduate of the University of Michigan in 1870 and a veteran of the Civil war.

Joseph G. Rooney, at St. Mary's Hospital, Hoboken, February 4, from gangrene, aged 37; a graduate of the medical department of the New York University in 1891.

Charles W. Dodd, at his home in Chicago, February 8. He was a prominent physician and local Swedenborgian leader. The cause of his death was apoplexy.

Henry Benson Phillips, of Benson, La., at a sanitarium in Shreveport, La., February 3, of pneumonia, aged 35; a graduate of Vanderbilt University in 1893.

Robert Hanna, of Greenock, was killed in a railroad accident near Guffey station, January 20, aged 32; a graduate of Jefferson Medical College, Philadelphia.

John Hannahan, of heart disease, at his home in Elwood, Ind., January 25, aged 45; a graduate of the Kentucky School of Medicine, Louisville, in 1893.

Thomas F. Cawley, at his home in Saylorsburg, Pa., January 28, aged 47. He was a graduate of the Bellevue Medical College in 1880.

William H. Henning, at his home in Jeffersonville, Va., January 23, aged 74; a graduate of the Jefferson Medical College in 1853.

Edward Thomas, aged 75, and formerly of New Berne, N. C., died suddenly in a cigar store in New York, February 3.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

TREATMENT OF DIPHTHERIA IN CHILDREN.

BY

EDMUND DEWITT, M.D.,
of Lawrenceville, N. J.

To the Editor of American Medicine:—I wish to present in succinct form some of the conclusions I have arrived at concerning the treatment of diphtheria, deduced during a period of experimentation with remedies since 1878. The germ of diphtheria had not been discovered at that date. Not until Klebs, in 1883, and Loeffler, in 1884, discovered the bacillus, did we have the firm ground of fact to stand upon. Learned, acute, and experienced investigators were endeavoring to ascertain the germ cause of several contagious diseases, and diphtheria was one that especially attracted their attention.

So much had been claimed in this field of investigation, that many physicians concluded that the cause of diphtheria was of germ origin, and began the use of such remedies in its treatment, as were deemed to possess germicidal ability. Unfortunately, many of us concluded that all old remedies were to be laid aside and new ones discovered. The good old trusty weapons that had carried us through many a fight were to be discarded, and something new and untried take their places. As a consequence the mortality was appalling. The manufacturing pharmacist, always on the alert, soon produced remedies galore! I found the new measures of attack of so little value that I trembled for the safety of my patient when called to a case of diphtheria. In 1883 I began the use of chlorin and of mercury, in various combinations. I found chlorin in most combinations, too irritating for continued use in treatment. Mercuric chlorid was too powerful a remedy to be left with careless nurses. Tincture of muriate of iron was a remedy I could push to extreme dosage if necessary, and the mild mercurous chlorid was just as efficient while it was safer than mercuric chlorid. I found quinin prevented, to some extent, the constitutional effect of mercury on the system, and enabled me to push the mercurial treatment. Hence I always gave it in doses sufficient to produce cinchonism. To an adult I gave two .13 gm. (2 gr.) pills of sulfate of quinin every 4 hours.

Calomel 1 mg. (½ gr.), triturated with .13 gm. (2 gr.) of pulverized saccharin dropped on the tongue, without liquid, every half hour. Tincture of muriate of iron, 30 drops, in water every 2 hours.

Small pieces of ice taken into the mouth frequently.

For children I prescribe proportionally larger doses than for adults. I use the same dose of calomel in children as in adults. In malignant cases in children I give the mercurial preparation every quarter hour.

I have used these remedies since 1878, in some 150 cases of diphtheria, and have never had injurious constitutional effect from the use of the mercurial preparation. I am not afraid of gastric irritation being produced by the iron chlorid. However if it occurs I reduce doses and it soon subsides without any bad sequel.

The result of the foregoing treatment is as follows: In from 24 to 36 hours the temperature is inside of 1° above normal and the pulse corresponds to the temperature. The germ cause is destroyed. From 6 to 10 hours after treatment is begun, no live germs can be found in the throat and there is no danger of contracting the disease from the exhaled breath. Of course inflammation is still present and the membrane to be detached and come away, after the cause of the disease is wiped out.

The only experience I have had in the employment of anti-toxin is as follows:

The patient, a girl of 6, had a malignant case of diphtheria. The mother had a number of boarders for whom the child was neglected, and the medicines were not regularly given. On my second visit I found the child asleep in a cold room, lying on the zinc under the stove-pipe. The child's voice indicated extension of the disease into the larynx. I had her sent immediately to St. Francis Hospital at Trenton. She was

operated upon and sent home 2 weeks after recovery. Just 9 days after she returned home, her little brother became sick with the disease. He was sent to the hospital for treatment, and was returned home 2 weeks after convalescing. The father was very fond of the child, and nursed and caressed him. Just 9 days after this child's return the father was taken sick with diphtheria. Both patients had been treated at the hospital by antitoxin. Unquestionably the little boy contracted the disease from his sister's breath, and likewise the father from the son's. One of the sisters in the hospital told me that both of the children had been bathed and the clothing had been disinfected and washed, and that there could have been no possibility of contagion from the clothing or from the skin.

I am convinced that in the foregoing cases, the disease was contracted from the children's breath. I believe no one claims that antitoxin destroys the diphtheria germs. But it is claimed that it so changes the toxins produced by the germs as to make them innocuous. Why not take the bull by the horns and destroy the germs and prevent the formation of toxins in the system? To proceed to destroy the influence of the toxins upon the system is taking the bull by the tail, and one would expect results consistent with such a procedure.

This immediate vicinity is somewhat subject to diphtheria, and a year does not pass without some cases. Yet I have not had a death from diphtheria in over 20 years, some 150 cases. Can many claim such a record?

THE EARLY DIAGNOSIS OF TUBERCULOSIS.¹

BY

JOHN J. GILBRIDE, M.D.,
of Philadelphia.

Assistant Demonstrator of Anatomy at the Medico-Chirurgical College; Clinical Assistant, Diseases of the Stomach and Intestines, Philadelphia Polyclinic, etc.

It is not many years since most physicians were little concerned as to the early or late diagnosis of tuberculosis, or in what stage of the disease a patient might be, for all cases were considered hopeless. Even under favorable circumstances, when the patient had sufficient means to enable him to suspend all occupation, seek a change of climate, and be free from mental care, life might be prolonged for only a short time.

However, with the discovery of the tubercle bacillus by Dr. Koch a new era opened, and since that time the progress made has been remarkable and most gratifying. When a diagnosis of tuberculosis was made without some of the more valuable and indispensable instruments of precision, and the patient recovered, we came to the conclusion that we were wrong in the diagnosis. However, a greater familiarity with the postmortem table has given ample proof of the correctness of our original diagnosis. The percentage of cases at autopsy in which healed lesions of tuberculosis are found, and in which the patients died from some other disease than tuberculosis, ranges by various observers from 5% to 50%. Several years ago a French physician stated that 72% of the bodies autopsied at the morgue showed lesions of healed tuberculosis.

Even Hippocrates held that the anemic with loss of appetite and the presence of cough should go to the mountains, live in the open air, on a diet of milk, etc. Experiments, by dieting patients suffering from tuberculosis were being conducted in the wards of some of the local hospitals about 8 years ago, and the idea was ridiculed, but this was only another step in the proper direction.

We are now getting better proof of the curability of the disease by the number of recoveries recorded. The statistics of the various sanatoriums show conclusively that if the disease is recognized in its incipency the prospect for cure in most cases, and arrest in others, is very bright; but this cannot be applied to those patients who with but few exceptions have passed the first stage of the disease, although there are patients in the third stage, with a cavity present, the walls of which are healing, and in whom the physical condition is fair, with slow pulse, and little or no fever, who have a better chance for recovery than many with consolidation in whom a breakdown of the lung tissue has not begun, and whose feeble vitality is not sufficient to tide over the process of softening.

¹ Read before the Northern Medical Society of Philadelphia, September 25, 1903.

The Loomis Sanatorium gives a report of 99 patients treated in 1899:

	Admitted.	Discharged.
Incipient cases without bacilli.....	12	25
Incipient cases with bacilli.....	23	10
Moderately advanced.....	50	45
Far advanced.....	14	14
	99	94

Another report from the same institution of 456 patients treated, with 42 remaining at the time of the report.

INCIPIENT CASES (163).

Discharged cured.....	61
Disease arrested.....	25
Improved.....	59
Unimproved.....	1
Died.....	1

Total.....147

MODERATELY ADVANCED (216).

Discharged cured.....	7
Disease arrested.....	10
Improved.....	121
Stationary.....	11
Unimproved.....	33
Died.....	3

Total.....185

FAR ADVANCED (17).

Improved.....	3
Stationary.....	3
Unimproved.....	60
Died.....	9

Total.....75

This gives 58% of the incipient cases cured, or disease arrested, 9% of the moderately advanced cured or arrested, and only 4% of the far advanced were benefited.

It appears that a higher percentage of females than males are afflicted with the disease. However, of the cures, 60% were in females, as compared with 40% in males. The reason given for this is that females are more regular in their habits and take better care of themselves.

Some writers believe that the menstrual period exerts an unfavorable influence, but there are no statistics to substantiate this belief. It is common for female patients to attribute their illness to the cessation of menstruation, while the actual cause is tuberculosis.

Squires¹ reports the case of a girl of 14, who had high fever, consolidation, bacilli, etc., and he calls attention to the fact that she had never menstruated and believed that this circumstance had much to do with her recovery; and further that in cases in which the development of pulmonary tuberculosis coincides with the establishment of menstruation the prognosis, as a rule, is bad; that is, when the tubercle appears about the age of puberty. Therefore the prognosis in any given case is much influenced by the consideration whether definite evidences of puberty have or have not appeared.

The most favorable age for recovery appears to be from 18 to 30 years; after that time, while the chances for recovery are less, still the disease does not progress so rapidly and the tissue seems to offer a greater resistance. Other factors which militate against recovery from this disease are that many patients do not seek the advice of a physician until the disease is well advanced; the long time necessary for cure; and the lack of discipline on the part of the patient. If he or she does not improve right away, all treatment is stopped.

Tuberculosis attacks the lungs as part of a general infection; it may even simulate an acute pneumonia, or a more common form, and the one most frequently met is of slow and insidious onset, the form which is at times so difficult and of such great importance to diagnose early.

From a pathologic standpoint the progress of the disease as seen in the lungs is divided into 3 stages: First, infiltration in which the tubercle is the predominant factor. The tubercle is a nonvascular body, composed of connective tissue cells, endothelial cells from the blood vessels, and leukocytes. There may be present giant cells. These latter are considered cells that have made an abortive attempt at proliferation. Infiltration does not, as a rule, show a great tendency to break down, because the tubercle still receives a blood supply from the surrounding lung tissue which has not yet become involved. Second stage: Consolidation in which

there is coalescence of the tubercles with solidification of the lung; a subsequent softening with cheesy or caseous degeneration from deficient blood supply. This produces the third stage or cavity formation. However, it is not uncommon to have the presence of all three of these pathologic conditions at the same time throughout the lung, each giving rise to certain signs and symptoms. The most common sites for the invasion of the lung are the apices, the lower lobes posteriorly, upper part of middle lobe of right lung and the thin portion of left lung that overlies the heart, but, of course, there is not any of the lung exempt.

The upper border of the middle lobe of the right lung is often diseased, and may be easily overlooked. I found this to be affected only after careful examination recently in 3 instances. This is best exposed and most satisfactorily examined by having the patient sit with the back toward you; the clothing should be removed from chest, and the patient place the hands on top of the head; this elevates and draws the scapulas forward, exposing the desired area.

It should also be remembered in examining the apices that these parts extend upward from 1 in. to 1½ in. above the clavicle, and do not extend further outward than the inner half of clavicle. Some textbooks would lead one to believe that the lung extended to the acromial end of the clavicle; also, the right lung does not extend downward as far as the left posteriorly, due to the position occupied by the liver.

Patients frequently consult their physicians because they become tired easily, have impaired digestion, loss of strength and of ambition. I remember one patient who did not lose a pound in weight, while the sputum was literally filled with tubercle bacilli. There may be a slight chilliness at times, which should be thoroughly investigated, especially where malaria abounds.

There may be sudden hemorrhage, but the symptoms mentioned are those generally most complained of. Cough is present, but expectoration at this time may be absent; anemia may be slight or marked. Some writers say there is a pretuberculous stage. The pulse² in the pretuberculous stage is not influenced by change of position, and is of feeble tension. Tachycardia³ is characterized by the greatest instability with a low blood-pressure. Bozzolo also mentions a condition of the gums, red in the early stage, blue in the advanced, and white in the scrofulous, as a diagnostic feature. I should think these signs subject to a great deal of error. Dilation of pupil either unilateral or bilateral, by involvement of the meninges, or the iris, is mentioned. Family history is of importance. Many patients complain of pain anteriorly over the entrance of the bronchus, becoming aggravated by fatigue. At this time what condition do we find when the disease has not passed infiltration of the lung? Inspection is negative, palpation may reveal slightly increased vocal fremitus, which the patient himself sometimes detects; percussion is negative, or there may be a slight impaired note. On auscultation a few moist rales may be heard, or can be brought out by having the patient take deep inspirations or cough, especially in the morning on arising. I found this in one case when at any other time of the day it was not discernible. If rales are present they frequently make their appearance earliest in the interscapular region, over the entrance of the bronchi into lung.

The right bronchus enters the lung at about the fifth dorsal vertebra and the left enters opposite the sixth dorsal vertebra, passing downward and outward, while the right enters at more of an acute angle. "Cog wheel," or jerky breathing, is an almost positive sign; also, expiration may be a little prolonged and roughened or tubular in quality. Sputum has probably not made its appearance, unless the lung condition has been preceded by a tuberculous laryngitis. There may be restriction of the diaphragm. Some time ago increased temperature was considered infallible, but at present does not play so important a part, especially in the early stage, for as high as 40% are afebrile. To detect any elevation of the temperature, the thermometer should be used every 2 hours and registration made. If elevation does exist, it may not exceed 99° or 100° F., and this is most commonly found about 4 p.m. Osler⁴ says examinations must be made daily, and sometimes it will be only after the twenty-fifth or thirtieth time that the exact seat

of the complaint can be located. The anemia, according to 60 cases by Cabot, is not caused by the tubercle bacilli, but by *Diplococcus lanceolatus*, which is associated with the tubercle bacilli; if diarrhea is present, it has a tendency to drain the body of albuminoids and produce severe chloranemia.

The lung signs become more marked as the disease advances, and are ordinarily accompanied by loss of weight and the presence of sputum. Percussion reveals impaired resonance or dulness; auscultation, moist rales and bronchial breathing.

If the sputum examination fails to reveal the presence of tubercle bacilli, repeated attempts should be made, for many times it is only after numerous efforts that they have been found. The number of bacilli in any given specimen does not appear to be of much importance, although if the case is watched and improvement continues, there will be a gradual diminution in the number. It is further believed that the bacilli are capable of multiplying in the secretion, thus explaining the presence of a greater number in the morning sputum than at other times. The tubercle bacillus is liable to be mistaken for the bacillus of leprosy, bacillus of syphilis and the smegma bacillus, but these can be differentiated by their staining properties. In examining urine for tubercle bacilli, the urine should be drawn through a catheter, and thus the possibility eliminated of the presence of the smegma bacilli.

The value of tuberculin as an aid in diagnosing tuberculosis appears to be a little doubtful at present. However, something of that character is what we want, something that will enable us to make an accurate diagnosis before many of the other signs appear, and it is too late to save many of our patients. The tuberculin test proves reliable in most cases, says E. C. Trudeau,⁵ but 30% are latent tuberculosis, and do not give any signs or symptoms. Patients may react to tuberculin, says Dr. J. D. Madison,⁶ and no evidence be found of tuberculosis at autopsy. He also reported 6 cases of completely healed tuberculosis which gave a reaction, while others of proved tuberculosis did not react to the maximum dose. Otis reports 60 cases of syphilis in which the tuberculin test was tried, and all gave a reaction. Bender⁷ reports 37 cases tested with tuberculin; all except two reacted, and these two were the most advanced. He also says that the serum reaction is greatest in the early cases.

The röntgen ray is undoubtedly a valuable adjunct for making an early diagnosis, but the requisite apparatus is possessed by so few physicians that it does not play a great part, and it is the general practitioner to whom we must look for an early recognition of the disease, for he sees the vast majority of cases. The signs and symptoms are not very pronounced in the early stages of the disease, for if they are of the classified type the case is no longer in the early stage, the disease is far advanced, and cure uncertain. Allbutt,⁸ giving the statistics of Turban, says of the patients received in the first stage, 84.4% were cured or permanently relieved. Therefore, if cases are seen and recognized early there is the greatest prospect of cure.

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ANOMALOUS CONDITION OF THE KIDNEYS.

BY

CHARLES S. CAVERLY, A.B., M.D.,

of Rutland, Vt.

President of Vermont State Board of Health; Professor of Hygiene, Medical Department, U. V. M.

A boy of 16, a prisoner in a State penal institution in this city got into a "scrap" with a fellow prisoner, and after some half dozen blows had been exchanged, he suddenly straightened up, fell backward, and, gasping 3 or 4 minutes, died. It could not be learned that he received any blows except in the face.

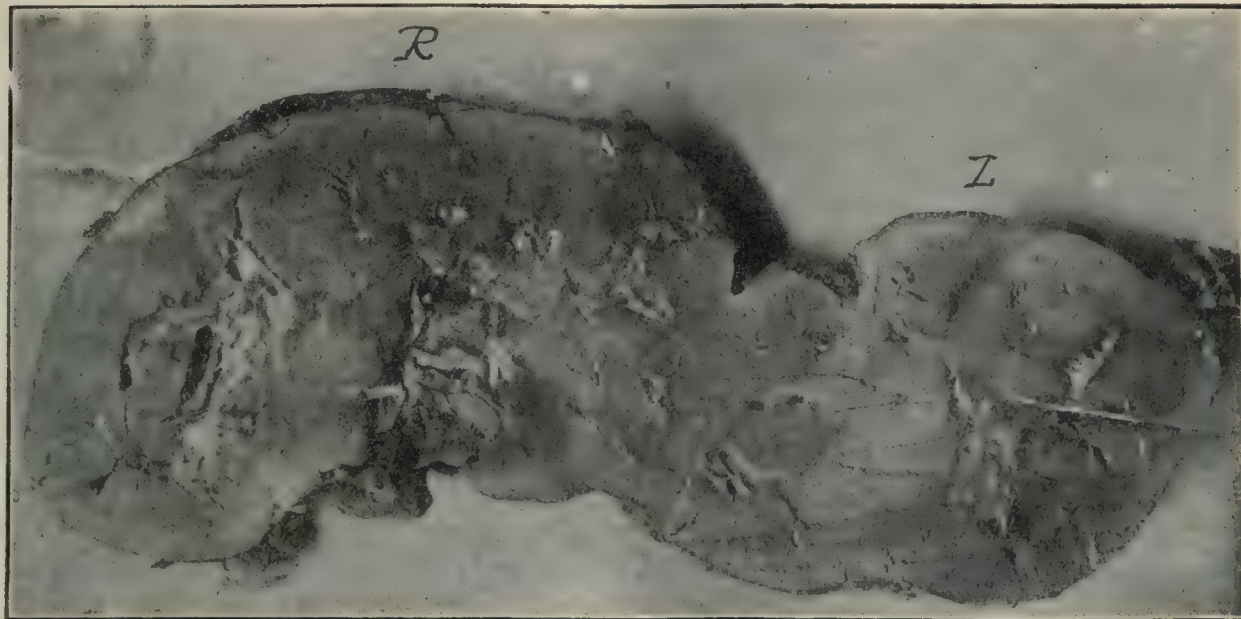
At the instance of the State's attorney, I made an autopsy the following day to determine the cause of death. This autopsy revealed an anomalous condition of the kidneys which seems worthy of record.

The left kidney was apparently wanting and there was no

suprarenal capsule. The right was found in its normal position; when attempting to remove it, the upper end was found attached to a mass which led toward the left of the body. Following this mass, another body, somewhat kidney-shaped, was located, firmly bound down to the spinal column at the level of the lower lumbar vertebrae and covered by a dense mass of connective tissue, in which were the abdominal vessels. This proved to be a somewhat small kidney. It was attached in a

A careful inquiry into the personal and family history of this boy revealed nothing extraordinary, except that he had a violent temper and was an inveterate cigaret smoker. There is an older brother and sister living and in health. He was committed to this institution for larceny. He had previously served a term at the Reform School.

The pathologic examination of these kidneys, the photograph of the whole mass and the microphotograph were made



Section of the two kidneys.

solid mass to its fellow of the right side, and was somewhat obliquely placed across the spinal column, its lower end pointing to the left. The double organ had, as it lay in the body, the appearance sometimes described as "horseshoe," but the union of the 2 organs was at their upper extremities.

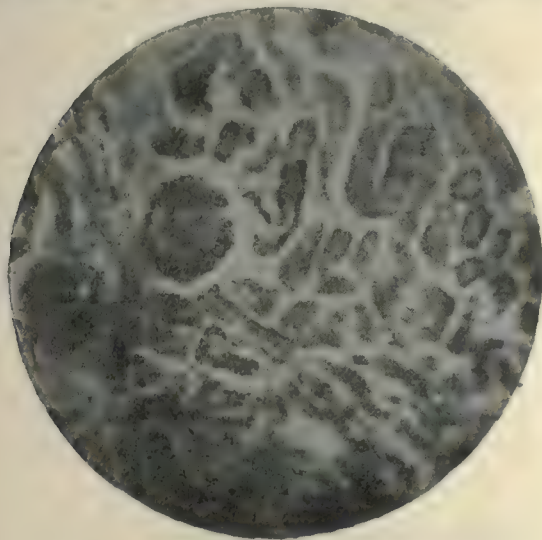
The photograph, which is made from a vertical and longitudinal section of the double organ, does not show this "horseshoe" shape, but gives an accurate idea of the extent of the

by Drs. Wiltse and Stone, of the Vermont State Laboratory. The following condition was shown: Macroscopically, the two organs are firmly adherent. On section no line of demarcation, but a perfect continuity of tissue between the two. The cortical zones of the two organs are fused into a common cortex at the point of union. This common cortex is no wider than that of the individual organs and their noncontiguous surfaces. From this common zone, tubules pass each way, forming pyramids which terminate in papillae in their respective pelves.

No macroscopic connection between these pelves is demonstrable. The pelvis of the smaller organ is rudimentary and that of the other small and irregular. The markings of both sections are very irregular, being almost obliterated in large areas. The capsule strips easily. Each organ seems to have its own blood supply, but there is a free anastomosis of the smaller vessels in the common cortex.

Microscopically, the right (large) organ shows many areas of small round-cell infiltration, cloudy swelling, and almost complete degeneration of the tubular epithelium, showing a condition of diffuse nephritis. The left (smaller) organ shows the same condition, perhaps slightly less marked. Both organs show small areas of nearly normal tissue.

The microphotograph shows a condition that was common to both kidneys.



Microphotograph of section of cortex.

fusion of the 2 organs. The right kidney had a normal suprarenal capsule, but none was found corresponding to the left.

The right ureter was normal, opening normally into the bladder. The left ureter was somewhat rudimentary and was occluded at its entrance into the bladder. The bladder was normal in size, location, and capacity. The prostate was normal.

The boy had a mitral heart disease. The pathologic examination showed a chronic diffuse nephritis, and this condition with the heart disease was given as the cause of death.

A THIGH TRUSS FOR FEMORAL HERNIA.

BY

WILLIAM H. BENNETT, M.D.,
of Philadelphia.

Every physician must have experienced the unsatisfactoriness of the spring truss as ordinarily used for the relief of femoral hernia.

Few patients will wear one any length of time, and those who do, probably receive but little benefit therefrom.

Such use of the spring truss is unscientific, and if it had not been successfully used first for inguinal hernia, no one would have devised such an appliance for the relief of femoral hernia. The action of a spring truss partially encircling the abdomen with its end resting on the thigh, is that of a spring on a door. With every lessening of the angle between the thigh and abdomen, as in walking and sitting, there must be either a greatly increased pressure at the thigh end of the spring, or a slipping

of the end out of its original position. Both generally take place.

In a case of left femoral hernia in a woman lately under my care, I failed entirely to adjust a spring truss in the way ordinarily attempted. I therefore employed a small truss encircling the thigh only. After four months' use it has proved so satisfactory that I desire to suggest the device to others, that its value may be thoroughly tested.

In this case it has been thus far efficient, comfortable, and without drawbacks. The device is so simple that it seems probable that some one else may have made use of it, and though I have not been able to learn that such is the case, I write this article rather to bring an apparently useful appliance to the notice of the profession, than to claim originality for it.

In my case the thigh measured at its upper part, 20 inches in circumference, and I used an ordinary hard-rubber spring truss, marked "20," such as is sold for infants. The combined length of its strap and spring, exclusive of its pad, was 20 inches. The spring was a half-inch broad. The pad belonging to such a truss is a little too small, and it is desirable to substitute for it, the pad of the truss next larger in size. In my case I employed a water pad, which is more comfortable and more easily kept in position.

There are two possible ways of applying such a truss. The spring may be placed in front of the thigh with the pad pointing downward, as the pad would be applied to an inguinal hernia, or by inverting the truss, the spring can be placed on the back of the thigh and the pad will then point upward.

I believe the latter is much the better way. It is at least more satisfactory to the patient in that the spring is less likely to be seen through the clothing, lying as it does, just below the gluteal fold.

In a woman it is entirely concealed.

Much of the success of such a truss depends upon careful adjustment. The strength of the spring must be just right. The truss must be held in place largely by the grip of the spring on the thigh, rather than by the pinch of the pad. The spring must be of a length to extend just far enough around the thigh to give that grip, but not far enough to make the outer end of it extend beyond the outer edge of the thigh when it is straightened out by pressure in the sitting position. The pad must fit snugly. It must point in exactly the right direction, and its plane must correspond with the plane of the portion of the thigh on which it rests. The strap should be loose when standing, and just taut when sitting. It must never constrict the thigh.

I believe in some cases a loose piece of elastic webbing would be better than the strap, but in mine the strap was entirely satisfactory, and it is certainly more durable. To prevent the possibility of the truss slipping down, it should be supported at each end of the spring by strips of elastic webbing attached to a belt or girdle worn around the waist. This webbing should be just tight in the upright position. In a woman the webbing can be comfortably attached to her ordinary girdle. I need not say that it is important to see that the large vessels are not compressed by the pad. This is true of any truss.

The only inconvenience complained of by my patient was that at first the spring would occasionally give the back of the thigh a pinch on sitting down. She learned to overcome this.

DEATH UNDER NITROUS OXID ANESTHESIA.

BY

WINFIELD S. PUGH, JR., M.D.,

of Washington, D. C.

Assistant Surgeon, United States Navy; Formerly House Surgeon, King's County Hospital, Brooklyn, N. Y.

Of all the anesthetics in use by surgeons of the present day there is none in which the mortality is so small (claimed by many to be almost nil) as it is under the influence of nitrous oxid gas. I have had a most extensive experience with this drug, using it in such major cases as double mastoid disease complicated with pneumonia, amputations of the thigh, strangulated umbilical hernia, shoulder-joint operations, etc., and in

cases of lowered vitality I am very partial to its use. In looking over the literature upon the subject I find that very few deaths under its influence are recorded, and so the following case may be of interest:

While in charge of the surgical wards of Dr. A. T. Bristow at King's County Hospital, New York, a burly negro was admitted who complained of slight pain in the left forearm. History as follows: J. S., aged 33, single; occupation, longshoreman. Previous personal and family history, negative; does not use alcohol or tobacco.

General appearance, large well-nourished man, of about 185 pounds in weight; 5 feet, 11 inches tall.

Present trouble was first noticed about a week ago, when a small splinter lodged beneath the nail of the index finger; the wound bled a little, but apparently healed without any further annoyance, until 3 days later, when he noticed that the flexor surface of the left forearm was becoming quite painful and swollen, and that flexion caused considerable pain over area and extending down to fingers.

Examination on admission revealed a small area of cellulitis, on the flexor surface of the forearm, midway between the elbow and wrist, with beginning suppuration. Physical examination of chest revealed heart and lungs apparently normal.

Urinary examination presented no abnormalities; blood-examination, considerable leukocytosis. On the following morning the patient was taken to the operating-room, anesthetized with nitrous oxid gas, and an incision made over the area in the left arm, and a small amount of pus evacuated. This procedure, including time of production of anesthesia did not last over 1½ minutes, when the patient suddenly ceased to breathe, the pulse continuing to beat fairly rapidly. Artificial respiration was at once begun, anus dilated, hypodermics of strychnin, ether, amyl nitrate, and aromatic ammonia given, followed by 1 pt. hot saline infusion in median basilic vein, without avail. It is interesting to note that the pulse-beat continued perhaps 30 seconds after respiratory movement had ceased.

Postmortem examination revealed slight visceral engorgement, a very small vegetation on one of the pulmonary leaflets of heart, and marked cerebral anemia; all other organs were apparently normal.

I am reporting this case not to condemn this means of anesthesia, for on the contrary I value it most highly, but as a caution that death may occur under its influence as well as under the more powerful drugs, chloroform, ether, ethyl bromid, etc.

THE MISFORTUNE OF A COLLEAGUE.

To the Editor of *American Medicine*.—In reading "The Misfortune of a Colleague" in the last issue, I wish to add a few words.

I have known Dr. Remick for many years, and have been a neighboring practitioner, 4 miles distant, for 4 years. All that the brother says of him is true; no more conscientious, self-sacrificing man labors in this world than he, and his great loss has been a crushing blow, but he is of the stuff that knows not defeat, and is making his long, tiresome rounds, doing all the good he may, the same as ever. I trust that the profession will assist—a little from those that can afford, in the way of books and instruments especially, together with a word or two of cheer, will be everything toward strengthening our brother's heart.

I would make a correction in Dr. Remick's address; it is Tamworth, N. H., instead of Farnworth.

Very truly yours,

LESTER W. LORD, M.D.,

West Ossipee, N. H., February 9, 1904.

[Beside the contributions acknowledged we have received and forwarded to Dr. Remick's address a second box of medical books, and a check for \$10.00 from subscribers to *American Medicine*. Other contributions have also been sent direct to Dr. Torrey.—Ed. *American Medicine*.]

Improvement in the Streets and Sewerage System to be Inaugurated in the Rebuilding of Baltimore.—It is stated on reliable authority that in the rebuilding of the devastated area of Baltimore, that the streets will be widened, and a new sewerage system instituted. To Dr. William Osler, of Johns Hopkins Hospital, will be intrusted largely the planning of this renovation. It is stated that instead of narrow, dark, foul, disease-breeding alleys, and small low-ceiled stuffy houses in certain quarters there will come wide-paved streets, and houses to which air and sunlight will be admitted. Baltimore is to be congratulated in securing the services of one so eminent in sanitary matters as is Professor Osler. It is a relief to know that at least some good, will come out of the fearful conflagration.

ORIGINAL ARTICLES

THE LIFE CYCLE OF AMOEBA COLI IN THE HUMAN BODY: A PRELIMINARY NOTE.*

BY

CHARLES F. CRAIG, M.D.,
of San Francisco, Cal.,

First Lieutenant and Assistant Surgeon, U.S. Army; Pathologist and Bacteriologist to the U. S. Army General Hospital, Presidio of San Francisco, Cal.

The life cycle of *Amoeba coli* within the human body has always been the subject of much research, but until recently little definite has been known about it. This is especially true of the manner of reproduction of this organism. Until quite recently it has been supposed that the reproduction of *Amoeba coli* occurred by simple division, although some authorities, as Grassi and Doflein¹ have described cysts containing multiple nuclei, and have regarded these as indicating segmentation. Opie,² in writing upon *Amoeba coli*, states that the exact method of reproduction has not been demonstrated, but that it is probable that simple binary division occurs, although evidence favoring this is wanting.

In a previous contribution,³ published in 1901, I described certain appearances in amoebæ, which I stated were in all probability spores. In this article, speaking of the unstained organisms, I said:

It is possible that some of the so-called vacuoles are in reality spores, the mother parasite eventually rupturing and setting them free. Reasoning from what occurs in other similar organisms, this seems the most probable method of reproduction.

In describing preparations stained with methylene-blue and fuchsin, I stated:

These fullgrown amoebæ show from 1 to 3 or more large vacuoles which are entirely unstained, but beside these there are numerous small, oval or round, very dimly stained areas scattered throughout the protoplasm, which are evidently not vacuoles, and correspond to the same areas observed in the very young forms. The vacuoles and the dimly stained areas are entirely distinct, the dimly stained areas being oval, or round, and much smaller than the vacuoles, having a dim outline, and evidently not penetrating the organisms as do the vacuoles.

In the conclusion of this article I stated:

There occur in all but the degenerate forms of amoebæ, similar round or oval unstained areas, uniform in appearance, and most numerous in the large fullgrown forms, being entirely absent in the vacuolated shells of amoebæ. These areas resemble similar areas observed in stained segmenting malarial plasmodia which are in them, due to the young spores. Reasoning from analogy, it may be that these areas in the amoebæ are also spores.

As regards the reproduction of amoebæ, Clarke⁴ and other authorities give two methods, one by simple transverse division, and the other by spore formation. The latter method of reproduction, however, was not, at the time these authorities wrote, proved for *Amoeba coli*. Since writing the article referred to, a very important contribution to this subject has been made by Schaudin,⁵ in which he gives his conclusions, arrived at after 8 years of study, as to the manner of reproduction of amoebæ and his observations regarding *Amoeba coli* confirm the opinions I expressed in my original article.

Schaudin studied the amoebæ occurring in the healthy intestine and those occurring in dysentery, and believes that the two are entirely distinct varieties. To the former he has given the name *Entamoeba coli* and to the amoeba of dysentery the name of *Entamoeba histolytica*.†

* Published with permission of the Surgeon-General, U. S. Army.

† The "law of priority" governs the name of any new species discovered throughout the civilized world. Thus, if an organism is classed as an amoeba by the original investigator and it is not afterward proved that it belongs to some other genus, this name stands. This is also true of the specific name. While amoebæ were discovered in the feces in dysentery by several authorities before Lösch, it is generally conceded that to him belongs the credit of having first adequately described them, and to them he gave the name *Amoeba coli*. Since his original article, numerous observers have tried to separate and classify varieties of amoeba and some authorities have designated

Schaudin found that nuclear division of a regular character is not observed in *Amoeba coli* (*Entamoeba histolytica*); instead a fragmentation of the chromatin takes place, the remnant of the nucleus being expelled from the parasite. After this division of the chromatin, small spheric bodies are formed, each presumably containing some of the chromatin. He showed, experimentally, that these spores were capable of causing serious intestinal symptoms and lesions. He also gives, as one of the differential characters between *Amoeba coli* and the amoeba found in the healthy intestine, the sharp differentiation of the outer protoplasmic zone from the inner, which, being of much firmer consistence, enables the dysentery amoeba to work its way into the mucous membrane. This I have not been able to confirm in all cases.

Since writing the article alluded to, I have tried many methods of staining the amoebæ in order to demonstrate, if possible, the formation of spores. It was not until very recently that I have been able to do so. The method I have succeeded with was suggested to me by Dr. H. R. Oliver, of this city, for malarial parasites, and is generally known as "Wright's method." Dr. Oliver has made some modifications in this stain which increases its value very much, and with it I have been able, I believe, to trace the evolution of the amoebæ from the young form to the fullgrown spore-bearing stage. A detailed description of the method will be given in a later and more extensive contribution.

In the examination of 748 cases of amoebic dysentery at this hospital (in which the feces contained amoebæ), in soldiers returning from the Philippine Islands, I have time and again noticed the small, oval, refractive areas described in my original paper and have always believed them to be spores. I have repeatedly seen large round amoebæ filled with these oval bodies, arranged in rows in a perfectly symmetric manner, the organism appearing to be crowded with them. If the parasite were moving it was noticed that these oval areas seemed to be contained within the protoplasm with which they moved, but they could easily be differentiated from the larger or smaller vacuoles. They were uniformly of the same size, whereas the vacuoles differed in size, and it was seldom indeed that vacuoles were present in such amoebæ. In fact, I am firmly of the belief that vacuolization is a degenerative process in *Amoeba coli*.

Amoeba coli.—In specimens stained by the modified Wright's method, the structure of *Amoeba coli* is colored as follows: The ectoplasm is stained a dark blue, or nearly purple; the endoplasm a light delicate blue; and the chromatin of the nucleus a dark red. In specimens stained in this manner the following varieties of amoebæ are observed:

1. Small amoebæ having a deeply stained ectoplasm and dimly stained endoplasm, and a large sized collection of chromatin, generally situated at one side of the parasite, within the endoplasm.

2. Slightly larger amoebæ colored in the same manner, but showing a division of the chromatin into two nearly equal portions. The chromatin in both of these forms upon careful examination is seen to consist of very delicate fibrils and dots, arranged in a more or less definite manner.

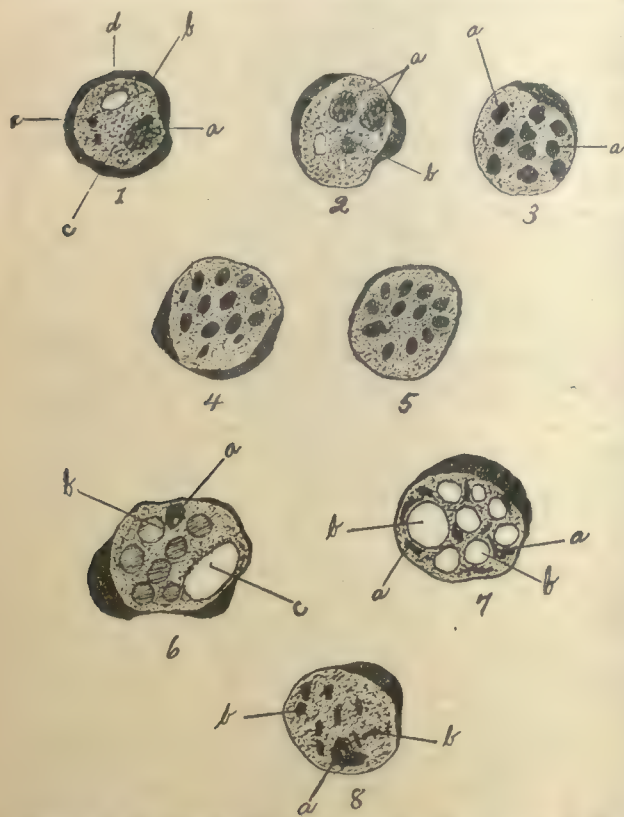
3. Larger amoebæ colored in the same manner, but showing a further division of the chromatin into numerous small clumps, varying in number from 6 to 12 or 14. These clumps are arranged irregularly throughout the protoplasm (within the endoplasm) of the amoebæ and the chromatin seems to be collected in a compact and more deeply staining mass.

the amoeba of dysentery as "*Amoeba dysenteriae*." According to the "law of priority" mentioned, the name *Amoeba coli* should stand, and those authorities who have changed it have, I believe, only further confused the classification of these organisms, and have been unjust to Lösch, the original investigator. It will therefore be understood that I have adhered to the name *Amoeba coli* as designating the amoeba of dysentery.

4. Amœbæ of the same size showing apparently the same number of chromatin collections, but the chromatin surrounded by an unstained interval in the endoplasm of the amœbæ and arranged somewhat regularly. The chromatin collections are smaller, more compact, and stain very deeply, are oval in form, and are of exactly the same size.

The last form mentioned is never as large as the amœbæ containing numerous vacuoles, and would be considered ordinarily as a medium sized organism. Measurements and the finer details of the structure will be considered in a forthcoming contribution. The figures show diagrammatically the various forms described.

The amœbæ containing these bodies do not appear to



Figs. 1 to 6.—Sporulating cycle of *Amœba coli*. Fig. 1.—Amœba, showing deeply stained ectoplasm (b); dimly stained, granular endoplasm (c); nucleus, with chromatin, deeply stained (a); vacuole (d); and engulfed bacteria (e). Fig. 2.—Showing division of chromatin mass into two portions (a); at b is seen an engulfed foreign body. Fig. 3.—Showing division of chromatin into the somewhat irregular masses which stain very deeply. Figs. 4 and 5.—Sporulating amœbæ. In Fig. 5 the process is complete, the young spores being arranged somewhat regularly and staining very deeply. Figs. 6 to 8, inclusive.—Nonsporulating forms of *Amœba coli*. Fig. 6.—Large amœba, showing vacuole (c), nuclear chromatin (a), and numerous red blood corpuscles. Fig. 7.—Large amœba, showing numerous vacuoles (b) and the nuclear chromatin (a) distributed in strands throughout the organism. Fig. 8.—An amœba, showing nuclear chromatin (a) and engulfed bacteria (b).

be encysted, as I have not been able to detect any distinct cyst wall, the border of the amœbæ appearing as it does under ordinary circumstances, save that in the last form mentioned the ectoplasm is hardly distinguishable. In interpreting these appearances, I believe there can be only one explanation, and that is, that these divisions of the chromatin, which afterward become arranged regularly throughout the organism, form a portion of the nucleus of young spores, and in several instances I have been able to differentiate a narrow zone of pale-blue protoplasm surrounding each clump of chromatin, thus demonstrating the outline of the spore. In other words, these spores consist of a clump of chromatin lying, probably, in an unstained nucleus and surrounded by a small amount of protoplasm.

The only step in the evolution of these organisms, as shown in the stained specimens, which has been missed, is the actual rupturing of the amœbæ and the setting free of the spores. While I have seen amœbæ which appeared to have ruptured and the clumps of chromatin distributed outside of the organism, I am of the opinion that this was probably accidentally due to the preparation of the smears, but I have no doubt that such a setting free of the spores occurs in the intestine.

The following forms of amœbæ also occur in the specimens and should be carefully distinguished from the sporulating bodies.

(a) Large amœbæ containing numerous vacuoles, many of them appearing to be nothing more or less than a thin shell of protoplasm entirely riddled by the vacuoles. In these amœbæ the chromatin is reduced greatly in amount, and stains very dimly. It is also distributed very unequally throughout the endoplasm, and never in the round or oval clumps seen in the sporulating bodies. These amœbæ are undoubtedly degenerating bodies, as vacuoles seldom occur in the sporulating forms.

(b) Amœbæ of various sizes showing within their protoplasm numerous very darkly stained bodies of a deep purple color and of various shapes. At first sight these bodies might be taken, in many instances, for spores, but in reality are bacteria which have been engulfed by the amœbæ.

A peculiar fact, the interpretation of which I am not sure of, is that I have never seen any red blood cells within the sporulating amœbæ. It is probable, however, that before sporulation occurs any cells which have been so enclosed are thoroughly disintegrated.

From the foregoing observations, I believe that it is demonstrated that *Amœba coli* undergoes reproduction by sporulation, and that this manner of reproduction most adequately explains the persistence of amœbic infections. If these sporulating bodies are in reality encysted this would still further explain the persistence of such infections, as encysted parasites are more resistant to injurious influences.

In closing, I would call attention to the efforts which have been made to separate amœbæ into species, some pathogenic and some nonpathogenic. It is unnecessary to give in this preliminary note the classifications which have been made by various authorities, in which they endeavor to show that the amœba of dysentery, or *Amœba coli*, is a distinct species, and that it differs widely from amœbæ occurring in the healthy intestine of man, or other animals. The chief points which have been urged as differentiating *Amœba coli* from other amœbæ, are the following:

1. *Size*.—Some authorities, especially Strong,⁶ classify amœbæ into small or large amœbæ—the large being the amœba of dysentery. These authorities state that in specimens it will be observed that most of the amœbæ are of the same size, and that in cases of amœbic dysentery the preponderance of large amœbæ is very noticeable. From personal experience, I cannot confirm this observation. Careful examination of the feces will show that amœbæ of large size are not always present in dysentery, and while it is often true that any given case will show a preponderance of amœbæ of the same size, careful examination will also show that many much smaller and larger than those most numerous are present. To classify amœbæ, because some are larger than others, into distinct species, is not possible. Amœbæ, like other parasitic organisms, have the property of growth, and we would naturally expect to find amœbæ of various sizes in any given specimen. The fact that a greater number are found approximating each other in size only tends to prove that the reproduction of the parasite occurs at a definite period of time, just as in malaria. While many cases show a preponderance of very large amœbæ, others show the same preponderance of small, and, so far as the clinical symptoms are concerned, these cases cannot be differentiated. Not infrequently a case

of amoebic dysentery will be observed in which the amoebæ present are all smaller than those usually found. In these cases, however, the clinical symptoms of the disease are the same.

2. *Phagocytic Action.*—Some authorities have endeavored to classify amoebæ by observing their power of phagocytic action, claiming that only in the amoeba of dysentery does such action become pronounced and that the property of engulfing red blood-corpuscles is peculiar to this variety. From my own experience, a classification based on so small a point is unwarranted, as it may be said that all amoebæ found in the feces possess this property. Many instances are seen in which nearly all the amoebæ in a given specimen show red corpuscles within them, while in other specimens such amoebæ cannot be demonstrated. This does not prove anything, however, as the process is in all probability a natural one in the evolution of the organism and depends upon the amount of blood in the stools and unknown factors.

3. *Occurrence of Amoeba in Health.*—The strongest reason for the classification of amoebæ into pathogenic and nonpathogenic varieties is, without doubt, the occurrence of these parasites in the healthy intestine without producing symptoms of disease. The strength of this argument is, however, only apparent. As regards the occurrence of amoebæ in the stools of an apparently healthy individual, no one who has had experience with amoebic dysentery will deny that occasionally cases are observed which show amoebæ in the stools, and in which there are no clinical symptoms. To use these cases, however, as an argument for the existence of a nonpathogenic amoeba inhabiting the human body, is absurd. One might as well argue that the cholera spirillum does not cause cholera because it has occasionally been found in the feces in healthy individuals, or that malaria is not due to infection with the malarial parasites because they may be found in the blood when symptoms of malaria are not present.

All will admit that there must be, at some time, a period in which the amoebæ will be present in the intestine, even in those cases that afterward develop severe dysentery, without any symptoms being appreciable. In other words, there must be a period of incubation, and this period of incubation may extend over a long interval so far as we know. This would coincide with our knowledge of other infections, and if we consider for a moment the long latent period after infection and before malarial fever demonstrates itself, we will, I think, be forced to believe that there must be a considerable interval of time from the infection of the intestine with amoebæ before the outbreak of dysenteric symptoms. We do not know, as yet, the interval required for the evolution of this parasite. This may cover a long period of time. It is also evident that there must be an infection with a sufficient number of the parasites, in order to produce symptoms. Taking these facts into consideration, then, is it at all to be wondered at that amoebæ are found in the stools of apparently healthy individuals, but is it not a greater source of wonder that they are not more often found.

That amoebæ are present in such cases, only proves to my mind one of three things, either that the individual harboring them is not infected with a sufficient number or for a sufficiently long time for them to cause symptoms, or that he is immune to the effects of the organism, or that the organism itself has lost some of its virulence. The loss of virulence, however, does not transform one species of parasite into another. Amoebæ occurring in the apparently healthy intestine are, so far as I have been able to observe, identical with those occurring in dysentery; and the endeavor to classify these organisms as pathogenic and nonpathogenic, in the case of infection in man, will only lead to confusion and is of little practical importance.

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MEDICAL TREATMENT OF DIABETES.¹

BY

W. H. THOMSON, M.D., LL.D.,
of New York City.

The pathology of diabetes mellitus has been the most elusive problem of modern medicine. Repeatedly during the past 40 years we have seemed to be on the verge of important discoveries relating to it, only to find that our uncertainties, instead of being dispelled, had simply taken new forms, which in turn have raised other problems to solve.

It is, of course, due to the great obscurity resting upon the physiologic mechanism for the disposal of the carbohydrates of food in the system, that the pathology of diabetes has remained so uncertain. Fifteen years ago, in a symposium like this, held at a medical gathering in New York City, I suggested that we were yet without any knowledge of a seemingly important factor in the problem, and that was the relation of the muscular tissues to the utilization of the saccharin elements of food. The facts which we did know then were that the muscular tissues were virtually the chief generators of animal heat, and that quite apart from their function of contraction and of relaxation, was their function of oxidation, so that the blood collected from the veins of a large muscle like the gluteus, though the muscle were at perfect rest, yet contained less oxygen and more carbon dioxid than the blood of the right ventricle itself, as this latter was mixed with blood from the great glandular viscera where oxidation is less active than in muscle. This shows how much burning up of blood contents occurs when the blood is coursing through muscular tissue, and as the chief material for such oxidation consists of carbohydrates, some failure in this muscular function might have much to do with the pathologic failure of sugar oxidation in diabetes.

This suggestion was received with incredulity, and most of the speakers confined their attention to the supposed relations of the nervous system and of the glycogenic functions of the liver to this disease. Not long afterward the pancreas in its relation to diabetes came to the front and has maintained its place as one important factor in the problem ever since. Lately the news comes that O. Cohnheim finds that an enzyme is produced in muscle, which if alone does not act upon sugar, but when mixed with the secretion of the pancreatic cells of Langerhans is a very energetic solvent, in the same way that trypsin becomes effective only when conjoined with the kinaise ferment in the intestine.

Until physiology becomes settled, pathology cannot be settled; and, therefore, therapeutics, while matters so stand, must remain mainly empiric. And so I confess that I regard the subject of medical treatment of diabetes, which has been assigned to me, one to which I can contribute little beyond the results of my experience, based upon written notes of the histories of patients whom I have treated in the course of years.

To the question, When does glycosuria mean diabetes? my answer is that we do not know. That glycosuria, limiting that term to dextrosuria, is an epiphenomenon, appearing in the most diverse connections, we all know. Like albuminuria, it occurs too often and too variously as a temporary accompaniment of different disorders to be rated as no more frequently than a

¹ Read before the ninety-eighth annual meeting of the Medical Society of the State of New York, held at Albany, January 26, 27, 28, 1904.

symptom. In the case, however, of albuminuria we usually can form some conception of its causation. But with glycosuria we do not know whence it cometh, nor whither it goeth; and, therefore, we can never be sure what its significance is. Hence I feel sceptical about the assurance with which some pronounce, offhand, a given case as one only of glycosuria, and another as surely diabetes, because in my experience, some patients come with both a moderate and an intermittent presence of sugar in the urine, and with no constitutional disturbance, but who in time develop into confirmed diabetics, while others may come with very saccharin urine and severe constitutional symptoms, only to improve under treatment and finally get well. Nor does the recent date of the disorder make much difference. Some begin suddenly, and soon develop grave symptoms, and then become permanently free from their trouble, while others begin just as suddenly and never get well. The only valid distinction which I admit is that the presence in the urine of diacetic acid, shown by the ferric chlorid test, is generally indicative of confirmed diabetes.

My practice, therefore, is to pronounce a glycosuria which has lasted more than a year, diabetes. Time, in other words, and not the variability either of the glycosuria, or of any other accompaniments, is my ground for diagnosis. Persistent glycosuria, in its way, is much the same as persistent albuminuria in its way, that is, each means that the patient has a serious disorder; and *pro tanto*, it does not much matter what name we choose to tack to the disorder when the question is how we are to treat it.

As it is the patient, and not his named disease, which is to be dealt with, all factors entering into his story have to be taken into account; and the first of these facts is age. The rule is, the younger the patient, the worse it is for him. Why it should be so, I do not know. The chief significance of this fact, however, is that it points to diabetes as a deeply seated constitutional disorder, and not a localized disease of any one organ, pancreas or other. In keeping with this inference, is the hereditary or family proclivity to the disease in instances too numerous to be accidental, and equally so the greater liability of certain races to it. In my experience there is no race so subject to diabetes as the Jews. The bearing of these clinical facts upon what remedies we are to expect the most from, and also what reputed remedies we are not to expect much from, we will soon note.

The next consideration to age is the state of the nutrition of the patient. I always make it a point to determine what the daily output of urea is, as well as the amount of sugar passed. If the percentage of urea is continuously high, there is real emaciation going on, even if the patient be fat. The sugar itself, indeed, may disappear, but the urea excretion remain one-half more or double what it ought to be. The patient must have medicines for that.

The patient may be obese. This condition calls for special medication on account of danger from the heart. If he has oxalates alternate with abundant uric acid crystals in his urine, all the better for him. He may be a profitable patient to us for years, though, *pace* glycosurists, he should not be allowed to forget that he has diabetes—and so on. All I wish to illustrate by this preface to my subject, announced on the card as "Medical Treatment of Diabetes," is that I would prefer to have it read, "Medical Treatment of Diabetic Patients."

As to medicines, I would begin with the statement that I but rarely prescribe opium, codein, or any other of the opium derivatives; and I beg leave to take a short time to explain why, in such a constitutional disease as diabetes, I cannot regard this drug as of real service, though it has been long and generally recommended in textbooks. Nervines, such as opium, belladonna, strychnin, aconite, etc., are agents which affect certain functions of the nervous system. They,

therefore, are only functional remedies, and they have no power whatever in therapeutic doses to affect structure or nutrition directly, however long they be prescribed. All that they ever do is temporarily to produce some functional symptoms, but they never affect the texture or the nutrition of tissues of organs, either beneficially or injuriously. Therefore, none of them can touch diabetes itself, any more than they can touch typhoid fever. However, some of them may relieve for a time some serious symptoms in both diabetes and in typhoid fever. As a veteran teacher of materia medica, I used to urge that no functional or symptom medicine, such as the nervines, could be expected to modify an organic disease in any way, either for good or evil. The only exception being in the case of colchicum,¹ which can produce organic changes. Alcohol produces organic changes only by virtue of its chemic and not by its nervine properties. One of the most powerful nervines for properties is nicotin. There is a great deal of functionally active nicotin in a cigar. Let any one who has never smoked a cigar, try it, and he will soon illustrate what nicotin can do. Now my father, my grandfather and my great-grandfather began to take nicotin, by smoking tobacco, about the same time of life that I did, namely, at 12 years of age, and continued the same to the last year of their lives, which was at the ages of 88, 87 and 92, respectively, while I am well on to my three score and ten. Can nicotin, therefore, not injure the bodily mechanism? Never, in rational doses, for like all other nervines, in such doses it can neither do permanent good nor permanent harm.

To this class of functional medicines belong opium and its derivatives; and, therefore, diabetes continues progressive, however continuously or fully opium is prescribed. A functional medicine is one whose whole action can be secured by one dose. Its hundredth dose does not do any more than the first dose does, sometimes not as much, for with many of this class, as with tobacco, the system becomes used to them. A man may for many years relieve an asthmatic attack by stramonium, but it is not his disease—asthma—which is thereby dealt with, but its symptom, bronchial spasm, and his last dose of stramonium does not do more for him than the first dose did, taken years before. More efficacious against his asthma itself would be arsenic and potassium iodid, which no more act in one dose than mercury does in syphilis, or iron in anemia. The fundamental difference between functional medicines, which influence only functions, and organic medicines, which change the nutrition of tissues or organs, would be more widely recognized but for the confusion which exists in many minds about the term "function." Because function is deranged whenever organism is deranged, therefore, it is supposed that the converse of this statement is equally true, namely, that a derangement of function must always imply a corresponding derangement of organism. A simple illustration will show the difference. The function of an oil lamp is to give light. Derange the mechanism of the lamp, by a leak in the globe, or by an injury to the wick holder, or by the loss of the wick, and the light-giving function of the lamp is correspondingly deranged. But the entire mechanism of the lamp may be perfectly intact, and yet it will give no light because the source of its function, namely, the oil, is changed by mixing it with water. So, a steam engine may be perfect in every detail of its mechanism, and yet not go, because the source of its function, namely, the coal, is lacking. So in the living mechanism, its func-

¹ Dr. Norwood of Alabama, well known for Norwood's Tincture of Veratrum Viride, narrated to me how 5 young men in his neighborhood, while on a "spree," broke into a country doctor's office, in the doctor's absence, and drank to his health out of a bottle of wine of colchicum, which they mistook for sherry. Two of them died, but Dr. Norwood saw the survivors a number of weeks afterward, when they had lost all their hair, including their eyebrows, and were as generally yellow as persons recovering from cobra snake venom. Now, recovery of healthy persons from the most dangerous degrees of poisoning by opium, belladonna, aconite, etc., is generally complete after 24 hours, with no lasting nutritional change whatever.

tions need power therefor, and that power is in the blood. Functional medicines act only on and through the blood, and not on the tissues. This being so, functional medicines can act only temporarily, they have to be renewed just as the oil in the lamp has to be renewed, though the lamp itself remains the same indefinitely. The oil can remedy no injury to the mechanism of the lamp, and likewise every functional medicine is powerless against a truly organic injurious change going on in the living mechanism.

Functional medicines we need constantly in practice to relieve symptoms, or to meet emergencies. They are indispensable for such purposes, but we should always remember that all which a functional medicine can do is to deal with a temporary derangement, not in the structure, but in the working, that is, in the function, of the body; and this it does immediately in one dose. But no specifically permanent changes should be expected from it. Opium may affect the symptom, sugar in the urine, by temporarily diminishing it, but it has no effect upon the disease which causes that symptom.

We must look elsewhere in such a constitutional disease as diabetes than to such functional medicines as opium, and I notice that of late, experience is leading many physicians to abandon its use in this malady. For a number of years I have advocated the free use of cod-liver oil in diabetes. I was specially led to do this by its remarkable effect in the case of 2 brothers whom I treated 32 years ago.

The first, an active business man, aged 35, came to me with polyuria, thirst, emaciation and progressive loss of strength, for which he had been treated unavailingly for a year, with the usual course of diet and drugs. He then took larger doses of cod-liver oil than any patient in my experience, for he said that he never measured it, but took it directly from the bottle as a drink, followed by vichy water. In another year's time he was cured, and he has remained well ever since.

His brother, 2 years younger, came to me the following year with much the same condition, so far as the great quantity of sugar in the urine was concerned, but he suffered in addition from general bronchitis. He found that he could stomach cod-liver oil as well as his brother, and with equally good results.

The younger the patient, the more persistently I urge the taking of this remedy, and I adopt every resource to make its free use possible by the patient, by the administration with it of pepsin and bismuth. So long as the stomach does not rebel, diabetic patients of this class cannot take too much cod-liver oil. Whether this oil acts as a substitute for the starchy elements, or whether it spares the proteids from disintegration, or whether it acts as a nerve food, or whether it acts by increasing the red corpuscles, I do not know; but as an empiric fact, I can testify that it both diminishes the sugar and the excess of urea eliminated whenever it is taken freely and is well borne. As in all cases, in which we aim at influencing nutrition by any measure, it must be used both systematically and perseveringly. Obesity counterindicates it, and likewise I would not give it to patients of very sedentary habits; but it is quite useful with many elderly people.

Next to cod-liver oil, I would mention iron. As before remarked, I have long suspected diabetes as largely a muscle disease, and throughout the animal kingdom muscular power is directly proportioned to the intake of oxygen. As iron can act in us only in its capacity of an oxygen carrier, I try to give diabetics all the iron which they can take, along with all the fresh air which they can get. As iron in many forms tends to cause constipation, which itself not infrequently becomes a serious trouble to diabetics, a very serviceable preparation for them is the old-fashioned Hooper's pills, the formula of which is:

Ferrous sulfate	2 gm. ($\frac{1}{2}$ dr.)
Powdered senna	} of each . 0.8 gm. (12 gr.)
Powdered jalap	
Cream of tartar	
Powdered ginger	
Extract of gentian	A sufficient quantity
Divide into 30 pills.	

The progress of medicine in our time has added a class of remedies which is coming more and more into daily use, and to which I would apply the term *medicinal*, in distinction from *surgical*, antiseptics. It includes a varied list of phenol derivatives, among which I would include quinin, for sooner or later we may look for its synthetic production from coal-tar, as well as the salicylates and the benzoates. In this class of medicinal antiseptics I would also include arsenic.

It is not improbable that one of the properties of this class of medicines is to check the activity of various enzymes, which in particular states cause derangement of metabolic processes in the body, or lead to disintegration of its tissues. We are only beginning to get some insight into the relations which certain internal secretions bear, on the one hand, to the assimilation of food, or on the other, to the neutralization of poisons in the system, or to the disintegration of the tissues themselves. One of the most striking facts in this connection is the singularly small quantity of the secretions themselves which seems to suffice to maintain the important functions which they subserve. Thus the total extirpation of the pancreas in dogs induces a fatal diabetes. This diabetes is ascribed to the removal of the scattered glandular structures in the pancreas, called the "islands of Langerhans." But if three-fourths of the pancreas be excised, so that only one-fourth remains, the small remnant of these island cells is yet enough by their secretion to prevent glycosuria. This indicates that this internal secretion is of the nature of an enzyme which can propagate its action from very small beginnings. The small bodies, called the parathyroids, have recently been proved to be essential to life, owing to their internal secretion neutralizing a virulent poison, generated most probably in the alimentary canal, and which poison causes fatal tetanic convulsions. So excision of three-fourths of the kidneys, leaving only one-fourth of kidney substance, is followed by death, preceded by great polyuria, with such excessive excretion of urea that it seems as if the proteid tissues were undergoing rapid dissolution. This remarkable result is ascribed to the kidneys having as their function not only to excrete, but also to regulate the production of urea by an internal renal secretion.

However that may be, I have for some time been much interested with cases which have come under my observation, of excessive excretion of urea which, in a way, resemble saccharin diabetes.

On December 5, I was consulted by a healthy looking young man, aged 23. He seemed to be a typical neurasthenic, for his complaints were that 2 years ago he had a sudden nervous breakdown, ever since which he could not apply his mind to anything. He has a constant sense of fatigue, is very nervous and dyspeptic, especially intolerant of starchy food, and very insomniac. His pulse was soft and weak. Examination of his urine showed that he passed no less than 51 grams of urea a day, while according to his size and on his restricted diet, he should normally pass only 22 grams. The total solids of the urine amounted to the high figure of 114.37 grams, or 1,715 grains. There was no albumin, nor casts, nor sugar, obtainable by any test in the urine, and he had no fever. His family history was decidedly unfavorable in the respect of neuroses, one brother is in an asylum, an elder sister has something like cyclic insanity, and another sister—younger than himself—is abnormally fleshy.

I put him on the same treatment that I would a diabetic, namely, a shellac-covered capsule, containing .32 gm. (.5 gr.) of sulfocarbonate of soda, and 65 mg. (1 gr.) of potassium permanganate, to be taken a half-hour after meals and at night; and 1 hour after meals 3 times a day, a powder of .6 gm. (10 gr.) of sodium salicylate and .6 gm. (10 gr.) of sodium benzoate. On December 16 he came again, remarkably improved in all his symptoms. His urea had fallen from 51 gm. to 30 gm., and the total solids had decreased 250 grains. To add now .6 gm. (10 gr.) of aspirin to each dose of the sulfocarbonate, or 2.6 gm. (40 gr.) per diem. On January 16 he reported that he was able to do more work than he had done for some years, and that he was now studying to pass a university examination.

I believe that if physicians, instead of being content in their examinations with discovering whether there were abnormal ingredients in the urine of patients, would also uniformly investigate whether the normal ingredi-

ents were present in their healthy proportion, that more cases of this kind would be found than are generally suspected. What special process led to such abnormal waste in this patient, I do not know, any more than what the real processes are which underlie the disease diabetes. The processes of the chemistry of life are altogether too complex, and too imperfectly understood as yet, for us to make more than doubtful guesses. But as an empiric fact, I am sure that I succeed better in controlling diabetes mellitus, so far as the use of drugs goes, by a persistent and free administration of antiseptics than by any other means, cod-liver oil and iron excepted. In such a disease the therapeutic tests should be sought for only in severe and prolonged cases; and I will beg leave, in illustration, to cite briefly one such history.

He was a gentleman of 42, who, after a year of severe mental strain noticed that he was passing water very often, and that his shirt when wet by the urine was stiffened by it. He was put on diet, opium and codein, by his physician; but as he was steadily losing flesh and strength and was subject to alarming attacks of syncope he finally consulted me. I first saw him after one of these attacks. He was cyanosed and extremely dyspneic. Another attack soon occurred in which he seemed to be passing into diabetic coma. For 16 years after this, I conducted the management of his case, watching him very closely as he was a most intimate friend of mine, and though I never found sugar absent from his urine, during those 16 years heabily performed the exacting duties of chief editor of one of the largest of New York's daily newspapers. He then moved to another city, to enter upon a much less exacting business. I warned him that he was by no means a well man, and that he should continue his treatment without change. I learned, however, that he became quite careless, and in 3 months he succumbed to an attack of bronchitis.

Such histories of years of active life, while keeping up treatment, soon followed by fatal decline on cessation of the same, have occurred more than once in my experience. Nature does not cure diabetes.

As remarked before, I would include arsenic in this class of antiseptics, as it comes nearer in its properties as a medicine to such agents than to any other. My usual practice is to combine it in the same prescription with them, and, therefore, I ordinarily give arsenious acid, itself, watching for the development of arsenial symptoms, just as in prescribing it for any other purpose. Some of the liquid preparations, as Fowler's solution, liquor arsenici hydrochloricus, or the bromid of arsenic have the advantage that the dose may be increased or decreased more readily, but I have failed to note any special advantage in changing the form of the drug, because it is arsenic itself in them all to which the effect is due. As to the rest, their administration should be varied from time to time, on the general principle that the too continued use of any drug tends to lessen its efficacy, or in the case of the salicylates to irritation of the kidneys. If called to a patient who is voiding so large an amount of sugar that a speedy reduction of it is imperative, I would give 1 gm. (15 gr.) of antipyrin, with the same of sodium benzoate, 4 times a day. After a time I would substitute 1 gm. (15 gr.) of aspirin with .65 gm. (10 gr.) of bismuth salicylate. In subacute cases, illustrative prescriptions would be somewhat as follows:

Benzosal	3 gm. (48 gr.)
Sodium benzoate	.16 gm. (4 dr.)
Arsenious acid	.65 mg. (1 gr.)
Sodium salicylate	.11 gm. (3 dr.)

Divide into 48 capsules. Two an hour after meals and at night.

Sodium sulfocarbolate	8 gm. (2 dr.)
Salicin	4 gm. (1 dr.)
Phenacetin	8 gm. (2 dr.)
Ammonium benzoate	.16 gm. (4 dr.)

Divide into 48 capsules. Two, a half-hour after meals. If there be much insomnia 1.3 gm. (20 gr.) of strontium bromid and 1 gm. (15 gr.) of antipyrin at night.

Of course, each physician can vary such medication according to indications. A weekly dose of blue pill is nearly always beneficial to patients after middle life. Unless the patient be much emaciated, one of the means

which works well to prevent the tendency to constipation is a powder dissolved in a tumbler of hot water and sipped slowly on rising, of 6 gm. (1½ dr.) of sodium bicarbonate, 2 gm. (½ dr.) of sodium sulfate and of magnesium sulfate each, and .65 gm. (10 gr.) of sodium salicylate.

Alkalies, in the form of mineral waters, have always held a deserved place in the treatment of diabetes. There is, however, one caution to be always borne in mind, and that is, that the free use of all saline waters tends to increase the waste of the system, and they should not be given to any one who is really losing flesh. I think that I have seen them do harm to emaciating diabetics.

Diabetes is a very serious disease on one account alone, if not on other accounts, in that it virtually compels a starvation of an essential element of food. The system must have sugar, and if it does not get the sugar which it can use in the food, it will turn to its own proteid for sugar. Along with this profound perversion, poisons begin to be generated, of which oxybutyric acid and its derivatives are doubtless only a part, and which poisoning we are practically unable to neutralize. Our function, therefore, is to put off the evil day of these terminal developments as long as possible, and to do that I am sure that merely functional medicines will afford us no help. The essentials of the chemistry of this specific toxemia are yet unknown. The formation of acetone and of diacetic acid occurs early, and the blood itself often changes its color, owing to the abundant presence in it of fatty and of proteid granules. Something, however, holds back the carbon dioxid in the tissues, for it is a mistake to ascribe the low percentage of carbonic acid in the blood to hyperacidity, because the blood of those patients when drawn will take up oxygen or carbonic acid about as freely as normal blood. The last step is the rapid disappearance of sugar from the urine. Why sugar is absent in diabetic coma, we do not know, but curiously enough the first danger signal comes from the kidneys, for before drowsiness begins the urine often deposits an enormous number of peculiar looking casts. To postpone the wellnigh inevitable death in these conditions, I rely upon the most trustworthy diuretic which we possess, namely, prolonged intestinal irrigation with hot normal saline solution, by means of the best instrument for the purpose which I know of, Kemp's rectal irrigator. Hypodermic injections of .45 gm. to .9 gm. (7 gr. to 14 gr.) of camphor in sterilized almond or olive oil, answer best to sustain the failing heart, while diluted milk holding all the sodium bicarbonate which the patient can take, is the only recourse left for food. Some of the fatal poison doubtless could be washed out, if we could bleed the patient freely and transfuse an equivalent amount of normal saline.

THE RETINAL SYMPTOMS OF VASCULAR DEGENERATION.¹

BY

L. A. W. ALLEMAN, A.M., M.D.,
of Brooklyn, N. Y.

In the routine of daily practice the efforts of the physician are chiefly directed to the relief of 2 groups of cases, one the result of the action of some pathogenic organism, the other dependent on derangement of the complicated mechanism of bodily nutrition.

While we must relieve the immediate and urgent distress of our patients, the trend of modern medicine, the goal toward which investigators all over the world are directing their efforts, is the prevention of disease, and it is not unreasonable to expect that in the near future protective inoculation will provide immunity from zymotic diseases; but for the disorders of nutrition,

¹ Read before the Brooklyn Medical Club, October, 1902.

for those degenerative changes, which sooner or later must destroy the human organism, we may hope for no specific.

It is difficult to isolate the bacillus of old age. The antitoxin supposed to flow from the fountain of youth has eluded the modern student, as it did the old explorer and alchemist.

That "a man is as old as his arteries" is one of those propositions so self-evident that it is never questioned. Perhaps, for that reason, it is given less serious consideration than it deserves. While we feast, time is writing clearly on our walls, but, like Belshazzar, we can find no interpreter to translate the warning 'til the enemy is at our gates.

It is well known that in cases of advanced vascular disease we can, by the aid of the ophthalmoscope, recognize the condition, in some instances, before any general symptoms are manifest, but unfortunately for the patient, the discovery is of little value save to give him an opportunity to put his house in order.

If, however, we can by an inspection of the fundus oculi detect those functional changes which must precede the organic and irreparable, we have added to our resources a most valuable means of diagnosis, and one which will enable us to give advice of incalculable value to our clients.

I believe in many cases such information can be

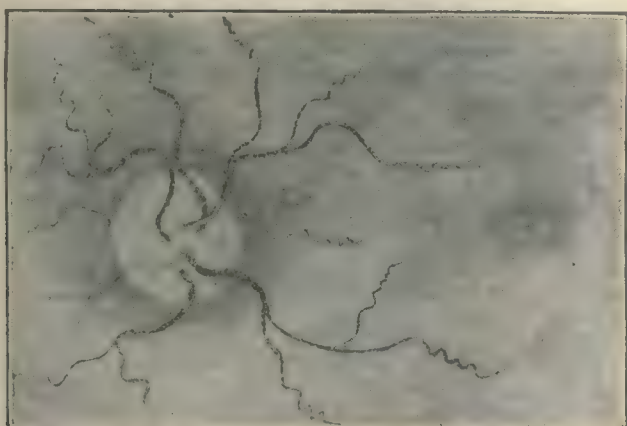


Fig. 1.

obtained by the ophthalmoscope, and I wish to discuss some clinical findings, which, I think, support this contention, and to ask aid in digesting the material I have collected and in determining its true scientific value.

My attention was first directed to a study of the minute changes in the retinal circulation by a paper read by Dr. Ole Bull, before the Ninth International Medical Congress. In this most valuable article he lays special stress on the occurrence of a spasm of the retinal vessels, which he shows to be the cause of some of the obscure ocular manifestations for which we have no other satisfactory explanation.

In endeavoring to verify his observation, I learned that such cases of vascular spasm were not uncommon, and also that localized and transient contractions took place in the retinal vessels; in the cases presenting this symptom there were other slight departures from the normal which were found in association with sufficient frequency to constitute a reasonably distinct clinical picture.

It naturally suggested itself to me to inquire closely into the physical condition of the patients presenting these symptoms, in order to ascertain whether the ophthalmoscopic findings were an index of some corresponding condition in the general economy.

The collection of sufficiently reliable data to deter-

mine this point proved to be no easy task, for there is, among the laity, a class possessed of just sufficient intelligence to acquire and use glibly certain medical phrases and to develop medical theories, yet wholly incapable of appreciating their own limitations. They are always ready with an off-hand opinion upon any case, which they deliver with a positiveness which would put to shame the most experienced practitioner. One of the dangerous half truths, which has impressed itself upon many of these people, is the belief that Bright's disease can always be detected by the ophthalmoscope, and as

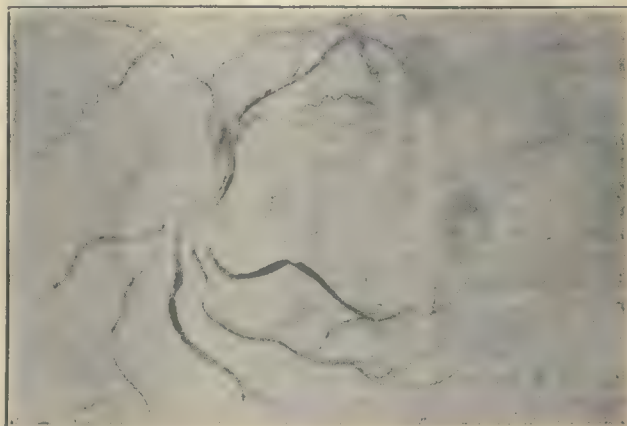


Fig. 2.

it chanced, in my practice, that interesting retinal pictures were frequently found in the eyes of these lay doctors, you can imagine the complications which arose. The suggestion of a physical examination, after an inspection of the eyeground, was taken as a death warrant, despite my solemn assurance to the contrary, and would precipitate a visit to the family practitioner, with the statement, made in wild-eyed terror, that I had said they had Bright's disease. A hasty examination in the office would enable the doctor to reassure them; the result was that if they ever returned to me, it was to

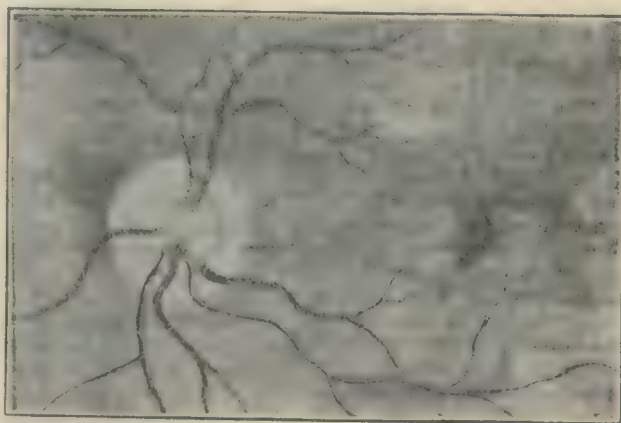


Fig. 3. (Normal.)

confront me with the statement that I was entirely mistaken in my opinion of their case, and naturally I learned absolutely nothing of value as to the patient's condition.

Such experiences are unfortunate, both for one's temper and professional reputation. I did, however, finally secure sufficient material to form a basis for some deductions, and for convenience I will divide the cases, which we will discuss into 4 groups, which in practice shade insensibly one into the other.

In the first group of cases no organic lesion is discover-

able by the ophthalmoscope, and the important finding is a tortuosity of the smaller retinal vessels, and of their terminal twigs.

This is not the sinuous curve which is seen in neuroretinitis and papillitis, and to a less degree in some cases with an uncorrected error of refraction, but a crinkling and sharp turning of the vessel upon itself, which I have endeavored to illustrate in Fig. 1; there is usually associated with this some slight retinal haze, probably due to edema.

No indentation at the point where one vessel passes over another is seen, nor is the vessel wall visible.

In the second group of cases a similar condition of the fundus is found, but in addition more or less bending of the vessels at the crossings is present. (Fig. 2.)

Under normal conditions, save possibly in the aged, one retinal vessel passing over the other gives such a picture as would be seen were the vessels flat red bands, both vessels occupying apparently the same plane (Fig. 3), but when the vessel wall becomes unduly rigid the upper vessel is seen to rise from its level and bend as it passes over the lower; in the stage which we are now considering, the upper vessel, while curved, still appears simply as a red line, and no obscuration in the lower vessel is produced by the coats of the one above.

In many of these cases a change in the caliber of the retinal vessels is observable; this is not an encroachment of the thickened vessel wall upon the lumen of the vessel, nor is it due to an opacity in the coat of the vessel. It is localized diminution in the caliber of the vessel without other change, visible by the ophthalmoscope. The condition of spasm to which I here refer is not one involving the whole central artery of the retina, or its main branches, thus producing retinal anemia and consequent visual disturbances, but is confined to small areas, which suggests that a contraction is produced by some disturbance in the local vasomotor control. While in many cases the constrictions in the vessel can always be observed, in others they are a transient symptom; they do not remain constantly at one point, but come and go, frequently changing their location during an examination. There is another retinal symptom which may be mentioned in this connection sometimes seen in this group of cases, although not directly dependent upon eliminative disturbances. The condition to which I refer is a momentary decrease in the force of the retinal circulation.

While the phenomenon is by no means uncommon, it is one not easily studied, for the change in the retinal picture is so transient that it does not permit the inspection of a vessel during its occurrence.

Ophthalmoscopically, it gives one the impression of a flash, you know something has happened, the exact nature of which you are unable to determine, but I consider this symptom of great clinical value, for I have always found it associated with deficient force in heart action, usually without organic lesion, as a rule, in anemic and neurasthenic patients; there is sometimes a functional murmur present, with some disturbance of the force and rhythm of the heart's action, and the retinal picture probably results from a momentary emptying of the retinal arteries.

The lack of force in the general circulation is demonstrable by the ease with which the retinal circulation is impeded by slight pressure with the finger upon the eyeball, and such patients are likely to develop the ocular lesions, due to deficient retinal circulations as well as so-called hysterical symptoms.

I have also noticed a rhythmic rise and fall in the force of the retinal circulation, which is of sufficient duration to be easily observed, but I have been unable to obtain a corresponding curve in the pulse tracings.

In some cases I have thought that this was shown by a diminution in the height of the up stroke of the tracing, but the variation, if present, is so slight as to make its demonstration difficult.

I have also observed during the period of low pressure a multitude of minute glistening dots in the retina, which disappear with the return of the normal arterial pressure, a phenomenon which, I think, has been previously noted.

A somewhat similar condition is sometimes seen in patients suffering from organic heart lesions, and these findings are of much importance on account of the frequency with which glaucoma and thrombosis of the retinal vessels develop in such conditions.

It is particularly in those cases which we must class as glaucomatous, but often showing no discoverable elevation of tension that the detection of the impaired heart's action, and its correction are of the utmost importance for the preservation of vision.

In the third group of cases some evidence of organic change in the vascular walls can be made out. The tortuosity to which I have referred as an index of eliminative disturbance is not always seen, but when absent it is safe to assume that it has preceded the condition now present. The curve made by the vessels at the crossings is more pronounced, and the blood-stream of the underlying vessel is somewhat obscured by the wall of the vessel above. The coat can scarcely be said to be visible, but on careful inspection a slight haze can be made out on either side of the red line of the upper vessel. Spasmodic changes in caliber are not the rule, and in well-advanced cases minute hemorrhages, and small whitish areas marking the location of previous hemorrhages which have been absorbed, are sometimes seen. (Fig. 4.)

In the fourth class we will include all cases presenting advanced vascular disease, such as hemorrhagic, albuminuric, and diabetic retinitis, and to this group we will give no extended consideration.

In most instances the diseased condition of the vessel walls is readily discoverable with the ophthalmoscope, and the loss of elasticity in the vascular tunic is shown by the deep depressions at the crossings, and by the obliteration of the blood-stream, by the wall of the superior vessel, which appears in such locations to be bounded by white lines. (Fig. 5.) In some instances the coat is entirely opaque, and the vessel appears as a white band in part of its course.

Many lesions in various combinations are found in this group, but 3 principal types may be mentioned: (1) The hemorrhagic; (2) the degenerative (the classic Bright's retina), and (3) the active type, showing a neuroretinitis or intense papillitis, and occasionally thrombosis of a retinal vessel. (Fig. 6.)

The first prerequisite for the intelligent discussion of any pathologic condition is a clear understanding of the physiologic, the normal and healthy function of the part; but I am obliged to confess at the outset that I am profoundly ignorant of just what takes place in the terminal circulation.

If we clearly understood that biochemic process which we term tissue metabolism, and the exact nature of the control exercised over it by the trophic nervous system, we would naturally be better able to comprehend the derangements of this most important function. Whether the fault is primarily in the nervous system, or whether the disturbance of nutrition is brought about by the presence in the circulating medium of abnormal and irritating elements, the result of improper assimilation, I know not, possibly the causation varies in different cases, but when an autotoxemia is once established, it is self-perpetuating, and unless arrested will sooner or later bring about organic changes in the tissues.

The physical condition which gives rise to the first evidence of disturbed nutrition, visible in the fundus oculi, is, I believe, a high peripheral tension dependent upon or associated with improper elimination, and in the first group of cases which we considered, those showing simple tortuosity of the smaller vessels, the patient's symptoms are those which we would naturally expect in such a condition.

There are no constant general symptoms characteristic of slight nutritive disturbances. In many cases the patients declare that they are in the best health, yet we can usually obtain a history of overwork or worry at some time shortly preceding the examination, or of intemperance in food, over-stimulation, or a neglect of reasonable physical exercise.

If the patient confesses any departure from normal good health, lassitude is complained of, a general lack of energy, and difficulty in mental concentration or a feeling of stress, so-called "nervousness" may be present; patients are unable to relax and rest properly, they will often tell you that they are conscious of holding themselves, even when endeavoring to go to sleep.

Sometimes headaches and vague nervous symptoms are present, such as are common in cases of intestinal indigestion, and constipation is usually found even in patients who are deceived by the normal number of evacuations.

There are as a rule no discoverable physical signs; there may be a slight acceleration of the heart's action, and in some anemic cases a blood murmur, but in most instances symptoms can neither be discovered on examination, nor elicited from the patient.

The one constant abnormality, the condition which I have always found in association with the retinal symptoms which we are considering, is some disturbance in

In practice, however, the elimination of urea will serve as a fairly reliable clinical guide. It is evident that the accuracy of the ocular findings can only be determined when the urinalysis is based upon the known quantity excreted in 24 hours.

It is scarcely necessary to lay stress upon the importance of determining, when making a urinalysis, the quantity of urine voided daily, but I find in practice that this self-evident fact has not impressed itself upon all practitioners, and it is with the greatest difficulty

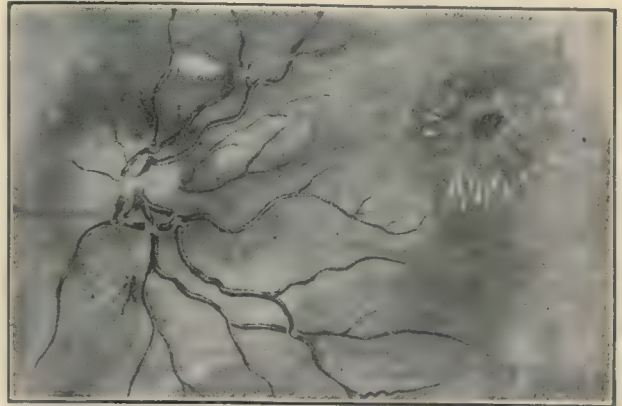


Fig. 5.

that I can assure myself that the report on any given case is based upon such an examination.

It has frequently happened, in the series of cases under consideration, that the quantity of urea per ounce equaled or exceeded the normal, but that so small a quantity of urine was voided, that the total elimination was far below normal. The statement of the patient, as to the quantity of urine passed, is utterly unreliable.

It is well to bear in mind that a single urinary examination may not reveal the true condition of the patient's excretion, for example:

Miss X., who was referred to me by Dr. B., had suffered some time from constant headache. She had been carefully

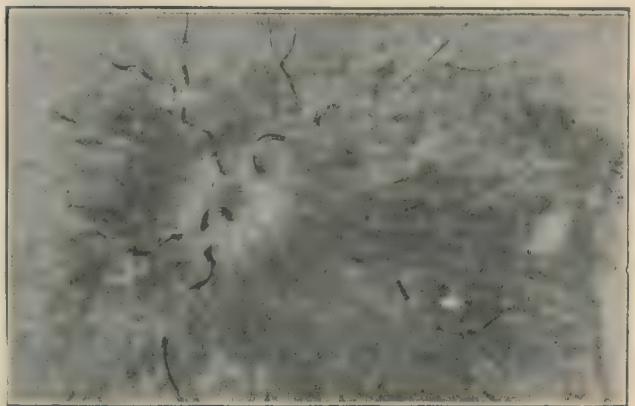


Fig. 6.

the elimination. This, in a vast majority of cases, is evidenced on urinary examination by a diminution in the elimination of urea.

As there is a wide physiologic variation in the quantity of urea eliminated by different individuals, bodily habit, occupation, and diet must be taken into consideration, but in many of the cases upon which I have based my conclusions, I have been able by subsequent examinations to determine the normal for the individual, and have thus found that the quantity was diminished at the time of the first examination.

In the very few instances, in which I have been led by the retinal examination to expect a diminution in the excretion of urea, which was not shown by the urinalysis, there has in nearly every instance been such a dislocation of the normal proportion of the urinary elements, that there could be no doubt that the eliminative function was seriously at fault.

That the decrease in the elimination of urea is an important factor in these conditions, I am by no means sure. My knowledge of the significance of the findings of a competent urinalysis leaves much to be desired, and it is possible that an abnormality of some of the less well-known elements in the urine will prove the more reliable indication, and that the diminution in the amount of urea is a coincidence.

examined, but the result was negative as to physical findings, and several careful urinary examinations failed to show any abnormal condition.

On ophthalmoscopic examination, I noted that there was much rigidity of the retinal vessels; degenerative changes in the perimacular region, and spots scattered about the fundus, which suggested previous hemorrhages.

I was convinced that the patient was not in a normal physical state, and so advised her physician, who again examined her carefully, with a perfectly negative result.

At the time I first examined the patient I was not as firmly convinced as I am at present, of the reliability of the retinal findings as an index of the condition of the general economy,

and put this case down as a black eye for my theory, and dismissed the patient.

In the following November the patient reappeared, and I found the condition of the fundus unchanged. Having in the meantime gained confidence by repeated confirmations, I asked her physician to repeat his examination, and at this time the report of the urinary examination was in entire accord with the retinal findings.

"The total 24-hour quantity was 34 ounces; sp. gr. 1020; albumin 5% to 1%; urea 133 grs. in 24 hrs. Fragments of granular casts were found, and some looking waxy, but not absolutely characteristic."

This case will, I think, justify my contention that it is imperative in cases presenting well-marked and persistent ocular indications of eliminative disturbances, that the urinary examination, if at first negative, be repeated at intervals until there can be no doubt of the condition of the patient's elimination.

A like conservatism should be exercised in giving an opinion from an ophthalmoscopic examination, in cases showing but slight evidence of high peripheral tension, for, while in the more advanced cases the retinal condition either remains reasonably constant or progresses, the first evidence of high tension may vary in degree, or at times entirely disappear, and a urinalysis unless made either shortly before or after the retinal examination may prove negative.

This statement is, however, an assumption on my part, for I have never been able to obtain a urinalysis in those cases in which the retinal symptoms have quickly disappeared.

Again, the condition of the fundus, while never entirely returning to normal, may be greatly modified by intercurrent conditions.

I remember one instance, in which I examined a patient for the first time, during her menstrual period, and found very pronounced evidences of high peripheral tension, which a week later was much less marked, the urinary examination being consistent with the later findings.

In the second group of cases the patient will in most instances admit some departure from the normal good health. Headache, mental hebetude, and that train of miseries, which go along with intestinal indigestion, are usually found.

In the cases which present the symptoms of spasmodic contraction of the retinal vessels, of which I have spoken, hemicrania and neuralgias are frequent symptoms; vascular spasm seems, in some patients, to be a habit, which continues from early maturity to middle life, and then disappears as a retinal symptom, with the general neuralgic manifestations occasioned by it.

I believe the amelioration to be due to the hardening of the vessel wall, which prevents the local contraction; and the disappearance of the periodic headache, upon which so many patients congratulate themselves, seems to be an evidence of senility.

Naturally the physical findings vary in these cases, in accordance with the duration of the condition, and in some of the more advanced cases, the heart may show some evidence of the increased load it is obliged to carry.

As a rule, however, no organic lesions are yet found, and the patient's present condition varies all the way from apparent perfect health to so-called nervous prostration, "hysteric" symptoms, and those due to localized circulatory disturbances, are often manifest in this stage.

The urinary findings differ but slightly from those in class one; the low urea is a more constant symptom, and other evidences of imperfect combustion are usually revealed by the urinalysis.

In the third group some discoverable evidences of vascular degeneration are usually present; the radials offer a little more than normal resistance, and there is frequently a discoverable cardiac hypertrophy.

I shall not attempt to catalog the symptoms which may be present in these cases of beginning vascular degeneration.

You all know, in practice, that the widest possible variations exist in these manifestations, in some instances no indications of ill-health are ever experienced by the patient.

The condition is rather one of a rapid progress toward senility, and frequently no sign is given of any departure from the normal health until the final catastrophe affects a permanent cure.

Other patients advance over the same road, perhaps more slowly, but ever hand in hand with the physician, whom they render only less miserable than themselves. Their state is one which has been described as "the habitual enjoyment of ill health," tempered with overwhelming exacerbation of misery, usually excited by the digestive tract.

The urinalysis in this group will as a rule show low urea, low specific gravity, the occasional presence of albumin, hyaline casts, and in the more advanced cases, granular casts are the usual findings.

In the fourth group of cases organic lesions will always be found, if the patients are examined with sufficient care and perseverance, and the retinal findings may be of material assistance in determining the prognosis.

In the cases of retinal hemorrhages, the gravity of the condition will depend largely on the age of the patient, the older the patient the less grave the significance of this symptom.

The type of fundus which I have described as typical of Bright's disease is more apt to be seen in those patients presenting few distressing general symptoms.

I have frequently discovered albuminuric retinitis during the routine examination of the refraction in patients apparently in perfect health, and without impairment of vision. The prognosis in such cases is always bad, the patients as a rule not surviving the appearance of the retinal condition more than 2 or 3 months.

Patients with neuroretinitis and thrombosis are more apt to suffer from cardiac dyspnea and general anasarca.

As the discussion of any of the various conditions included in this group would occupy too much space, I will not consider them further.

There is still another group of cases, which can scarcely be included in any of the foregoing divisions; clinically, they are the patients who most unexpectedly develop well advanced cases of Bright's disease from no known cause, often in early life. When seen before the development of acute symptoms, they show ophthalmoscopically degenerative changes in the vessels, with the marks of previous inflammation, but no indications of an active inflammatory process.

A case referred to me by Dr. F. is an example of this class. The patient, a female of 27, believed herself to be in perfect health; the ophthalmoscopic examination showed some rigidity of the vessels with degenerative spots (old hemorrhage?) scattered about the fundus, there was a large tessellated patch in the left macula, and much tortuosity of the larger vessels, which was apparently due to eyestrain.

Dr. F. reported to me that "the patient had previously suffered from an acute nephritis, and now has a contracted kidney. At present there is no nephritis; arteries small; slight edema under the eyes; some cardiac hypertrophy, and no other general symptoms."

Many such cases, I believe, are the result of a nephritis, following the exanthemata in childhood, and the patients are not conscious of any impairment of health until some time, later in life, from slight exposure, a pregnancy, or improper hygiene, they suddenly develop an acute Bright's disease, which surprises us by its seriousness, and the amount of damage which has apparently preceded the attack.

In the interim, such cases are discoverable by the ophthalmoscope, presenting such a picture as here described.

The majority of patients showing evidences of eliminative disturbances in the retina are between the ages

No.	Age.	Sex.	General Symptoms.	Medical report.	Urinalysis.	Retinal findings.	Remarks.
1	35	F.	Headache and lassitude; looks anemic; while under observation developed choroidal cataract, which almost disappeared under treatment.	Family physician reports 2.5% sugar at time of this examination.	Total quantity = 44 oz.; sp. gr., 1015; albumin, none; sugar, none; urea (total), 297 grs.	Caliber irregularity; terminal tortuosity; arteries and veins relatively large.	This examination made a month later, probably shows a higher urea than was present at the time of first examination, as retinal picture had greatly improved.
2	50	M.	Patient, a physician, thought he had diplopia on arising; has had some headache; symptoms were found later to be due to decentering of strong concave glasses.	.....	Total quantity = 45 oz.; sp. gr., 1019; albumin, none; sugar, none; urea (total), 495 grs.	Terminals unusually straight, but slight rigidity at crossing, not abnormal for age. In left eye slight caliber irregularity (?). Vessels rather small.	This case is given as one in which I suspected a renal lesion, to explain transient paralysis, despite normal retinal findings; urinalysis confirms retinal examination
3	45	F.	Previously treated for conjunctivitis (systemic); noted macular changes at this time. Returned later on account of blurring of vision in left eye; has morning headache; loss of memory; asthenopia; slight dyspnea.	No edema save about eyes; weak heart; radials normal.	Total quantity = 50-60 oz.; sp. gr., 1014-1024; albumin, usually present; sugar, none; urea, normal; casts, hyaline and epithelial.	O. D. Large vessels tortuous and sclerotic; slight rigidity at crossing, not abnormal for age. In left eye slight caliber irregularity (?). Vessels rather small.	
4	10	M.	Came for relief of conjunctival irritation; no symptoms; looks anemic. Mother does not think him perfectly well, but no trouble has ever been discovered.	.....	Total quantity = 30 oz.; albumin, a trace; sugar, none; urea (total), 150 grs.; casts, a few hyaline, probably due to stasis.	Disc outline blurred; choroidal congestion; granular appearance in macular region; vessels tortuous, particularly small vessels; small refractive error does not explain retinal condition.	
5	57	F.	Pain in back of head and mental confusion; has been treated for stiffness of joints.	Family physician reports a weak heart.	Total quantity = 24 oz.; sp. gr., 1020; albumin, absent; sugar, none; urea (total), 120 grs.	Diffuse haziness; arteries small; veins full and dark; light streak absent on veins and arteries; marked venous pulse; vessel walls rigid; some caliber irregularity of larger vessels; some tortuosity of medium sized vessels; fundus indicates general arterial sclerosis, with impaired heart action.	
6	34	M.	No symptoms; has never been ill; comes for asthenopia; after much evasion admits that he has been rejected by a life insurance company.	Family physician reported that pathologist found evidences of renal lesion, but did not give me full report.	No urinalysis.	Around macula and between macula and nerve there are spots which suggest albuminuric retinitis; vessels slightly sclerotic and moderately tortuous.	
7	27	F.	No symptoms; no history of acute illness.	Family physician reports that patient had a previous nephritis; no nephritis at present; has slight edema under eyes; cardiac hypertrophy.	Total quantity = 48 oz.; sp. gr., 1009; albumin, absent; sugar, none; urea (total), 235 grs.; casts, none.	A few white spots (degenerative) scattered over right fundus; larger vessels are tortuous, corkscrew tortuosity, suggests eyestrain; some sclerosis at crossings and a large tessellated patch at macula, suggests old renal lesion with eyestrain. Elimination also possibly defective.	
8	22	F.	Nearly constant headache, and general malaise; hands and feet cold.	.....	Family physician finds urea, 200 grs. a day. Was previously examined for "gross lesion and casts, with negative results."	Slight diffuse edema; arteries light in color; light streak on both veins and arteries broad; large vessels tortuous (asthenopic); terminals crinkly.	
9	20	M.	Has been an athlete, and now has stopped all training and is working hard as a college student; is not feeling well, but has no definite symptoms; heart murmur, probably hemic, present after exertion.	Family physician reported by phone that patient is perfectly sound, and 24-hour specimen is normal. Patient's brother, a physician, informed me later that some six weeks previous to my examination he had a faint turn in the classroom, and at that time he found slight cardiac hypertrophy; irregular rhythm, and soft systolic murmur at base, not organic. States that family physician did not examine 24-hour specimen.	.....	Picture clear in right eye, slight haze in left; thin choroid; large vessels tortuous; slight tortuosity of small vessels; no sclerosis; no retinal lesion; disc margin streaky; asthenopic fundus with slight eliminative disturbance.	
10	35	M.	Had an attack of "serous iritis" two years ago; no discoverable cause; no specific history; uses alcohol moderately; vague rheumatic manifestations; has noticed that urinary secretion has decreased.	.....	Total quantity = 44 oz.; sp. gr., 1019; albumin, none; sugar, none; urea (total), 191 grs.; casts, none. A few pus cells.	No pronounced lesion; slight caliber irregularity; moderate terminal tortuosity; beginning sclerosis at crossings.	
11	18	F.	Is very stout; good color, but circulation poor; some puffing of ankles at times, gets out of breath easily; complains indefinitely of not feeling well.	.....	Family physician reports by phone, low urea; promised report; never received.	Picture clear; pronounced crinkling of terminals; rigidity at crossings; no lesion. On examination a week later showed a marked improvement in retinal condition, while still suggesting high tension, indicates a much less serious condition.	First examination was made during the menstrual period.

No.	Age.	Sex.	General symptoms.	Medical report.	Urinalysis.	Retinal findings.	Remarks.
12	55	M.	No general symptoms.	.....	Total quantity = 22 oz.; sp. gr., 1026; albumin, a decided trace; sugar, none; urea (total), 220 grs. A few hyaline casts.	Large fixed vitreous opacity; spots of exudate between the macula and nerve; tortuosity of vessels.	
13	60	M.	Complaints of blurring in the right eye, which has been noticed for three or four weeks.	Physician reports patient suffering from advanced renal lesion, with cardiac involvement.	Total quantity = 54 oz.; sp. gr., 1021; albumin, some; casts, some; sugar, none.	O. D. Media clear; nerve red and hazy; vessel walls visible at crossings; numerous punctate hemorrhages surrounding the macula; superior branch of retinal artery lost, probably thrombosis. O. S. A few hemorrhages; circulation shows deficiency in force.	
14	21	M.	No symptoms noted by patient.	.....	Total quantity = 26 oz.; sp. gr., 1020; albumin, none; sugar, none; urea (total) 225 grs.	Slight tortuosity of small and medium size vessels; a few white dots in fundus, not asthenopic; slight retinal edema; nerve in left eye blurred; small point of retinitis in macular region.	
15	13	F.	Does not feel well at times; looks anemic; comes for headache, which was relieved by glasses.	Family physician said that she has sugar in urine. No evidence of renal lesion.	Total quantity = 32 oz.; sp. gr., 1014; albumin, none; sugar, none; urea (total), 220 grs.	Retinal haze; arteries small; thin choroid; marked rigidity at crossings; caliber irregularity; terminal tortuosity.	
16	50	M.	Patient states that three months ago family doctor found brain congestion and kidney disease which have now passed away. Patient now complains of pain in the back of his head, and has conjunctivitis of systemic origin.	.....	Total quantity = 56 oz.; sp. gr., 1022; albumin, none; sugar, none; Urea (total), 529.2 grs.	Veins full; terminals very tortuous; caliber irregularity; probably due to changes in vessel walls; some evidences of sclerosis; diffuse haze to fundus.	The history, symptoms, and retinal findings are in agreement, and contradict the results of the urinalysis; this was made by a competent pathologist, and is correct unless the patient was mistaken as to the quantity, no subsequent examination could be obtained.
17	60	F.	Patient reports "kidney trouble" but no convulsions in first confinement; for seven years had swelling of joints with rheumatic pain.	.....	Decreased urea and casts; no details.	Terminal tortuosity; rigidity at crossings; degenerative spots due to previous hemorrhages in both eyes.	
18	30	M.	No general symptoms; some conjunctivitis; has not felt as well as usual.	.....	Total quantity = 21½ oz.; sp. gr., 1020; albumin, none; sugar, none; urea (total), 215 grs. One granular cast.	General retinal haze; perimacular edema; nerve margin blurred; possibly slight neuroretinitis; large movable opacity in vitreous; evidences of old hemorrhages; one small hemorrhage in left eye.	
19	38	M.	About six months ago had acute Bright's disease, which made him blind. At that time albumin and casts were found.	.....	Quantity not given; sp. gr., 1024; albumin, a slight trace; casts, none.	Slight retinal haze; slight tortuosity of medium size vessels; no evidence of sclerosis; fundus suggests previous retinitis, which has made a good recovery.	
20	27	F.	Patient is suffering from hysteric amblyopia; local anesthetics, and other hysteric manifestations.	.....	Total quantity = 51 oz.; sp. gr., 1016; urea (total), 254 grs.	Fundus looks anemic; broad light streak on vessels; circulation lacks vigor; tortuosity of terminals.	
21	13	M.	Patient comes on account of paralysis of accommodation and dilation of pupil, which improved steadily while under observation.	Functional heart murmur; liver slightly enlarged; is anemic.	Total quantity = 37 oz.; sp. gr., 1023; albumin, none; sugar, none; urea (total), 81 grs. Moderate amount of granulo-flocculent material.	Fundus showed no lesion until a month after first visit, when retinal edema, crinkling of vessels, and caliber irregularity appeared.	
22	22	F.	Looks anemic; complains indefinitely of not feeling well; is nervous; hands and feet cold; some headache; has noticed decrease in urinary secretion.	.....	Total quantity = 24 oz.; sp. gr., 1024; urea (total), 240 grs.	Rigidity at crossings; much tortuosity; striations in macular region.	
23	32	M.	Patient overworked; taking no exercise; feels heavy; is growing stouter; history of moderate alcoholism.	.....	Total quantity = 27 oz.; albumin, none; sugar, none; urea (total), 250 grs.	Tortuosity of vessels; no sclerosis; general indications of faulty elimination.	
24	27	M.	Patient has been overworking; complains of feeling tired.	.....	Family physician reports albumin, but no casts.	Right eye shows a patch of exudate beneath the plane of the retinal vessels, and disturbances of retinal pigment; edematous zone surrounds the macula. The left eye, white dots surround the macula.	All retinal symptoms disappeared, leaving simply pigment disturbances at the site of former exudate; patient subsequently passed by life insurance company, showing no renal lesion.
25	60	F.	No general symptoms save indigestion and a weak heart.	.....	Total quantity = 21 oz.; sp. gr., 1023; albumin, a trace; sugar, none; urea (total) 168 grs. A few fragments of granular casts.	Arteries small in proportion to veins; light streak on larger vessels; moderate sclerosis; fine vessels tortuous; retina clear; no marked lesion.	

No.	Age.	Sex.	General symptoms.	Medical report.	Urinalysis.	Retinal findings.	Remarks.
26	20	F.	Constant headache; has been examined by family physician previous to first visit. Urinalysis negative; examined again at my request, six months later — retinal picture remaining unchanged.		Total quantity = 34 oz.; sp. gr., 1020; albumin, decided trace (½%); urea, 238 grs. Some waxy-looking casts.	Rigidity at crossing, perimacular changes; degenerative spots, probably due to old hemorrhage.	
27	51	F.	No general symptoms.		Total quantity = 34 oz.; sp. gr., 1013; albumin, decided trace; urea (total), 238 grs.	Blurred nerve margin; vessels tortuous; veins full; some rigidity at crossing; some degenerative patches in fundus, not recent.	
28		M.	Had nephritis 30 years ago; severe headaches; history of prolonged mental anxiety and overwork.		Total quantity = 60 oz.; sp. gr., 1016; albumin, a trace; sugar, none. Few hyaline casts; albumin not always present.	Vessels tortuous; marked sclerosis of vessels; granular changes in macula; numerous hemorrhages.	Patient is now in extremis with Bright's disease and endocarditis.
29	30	F.	Persistent systemic conjunctivitis; abnormal increase in weight; loss of energy; recurrence of nose and throat inflammation; periodic headaches, so severe as to cause delirium.		Total quantity = 23 oz.; sp. gr., 1033; albumin, none; casts, none; urea (total), 391 grs.	Tortuosity of vessels; caliber irregularity; some rigidity; old patch of choroiditis in left eye.	The urine was so concentrated that upon standing it deposited 8 oz. (¼ of bulk) of mixed urates, making examination impossible.
30	50	F.	No general symptoms.		Total quantity = 48 oz.; sp. gr., 1011; albumin, none; sugar, none; urea (total), 273 grs.	Moderate tortuosity; slight rigidity at crossings.	
31	39	F.	Suffering for several months from episcleritis not improved by local treatment. Indefinite history of lassitude; general depression and headache.	Physician reports cystic degeneration of the cervix uteri and considerable inflammation about the urethra and neck of bladder.	Total quantity = 18½ oz.; sp. gr., 1025; albumin, none; sugar, none; urea (total), 168.3 grs. Two hyaline casts.	Irregularity of caliber; slight visibility of coats; crinkling of terminals.	
32	35	F.	Comes on account of right eye being blurred.		Total quantity = 58 oz.; sp. gr., 1011; albumin, none; sugar, none; urea (total), 168 grs. No casts.	O. D. Thrombosis of retinal vein, hemorrhage, and exudate; no evidence of previous disease in fundus. O. S. Tortuosity of vessels; some rigidity at crossing; no pronounced evidence of disease.	This urinalysis was made after the patient had been under treatment some time; examiner unable to find record of first examination, but says it showed more deficient elimination.
33	30	M.	No general symptoms; has had "bladder trouble," is now better.		Total quantity = 34 oz.; sp. gr., 1021; albumin, none; sugar, none; urea (total), 204 grs.	Marked tortuosity of vessels; coats slightly visible; perimacular changes in left eye.	
34	20	M.	Comes on account of conjunctiva chemosis; no general symptoms; has been told that he had diabetes.		Quantity = 160 oz.; sp. gr., 1008; albumin, 25% (bulk); sugar, none; urea (total), 560 grs.	Neuroretinitis; marked arterial degeneration; numerous hemorrhages in fundus; retinal picture suggests diabetes rather than Bright's disease; probably a mixed case.	The presence of sugar is proved by yeast fungi, seen on microscopic examination; not shown by urinalysis, on account of fermentation.
35	39	F.	No general symptoms save failure of vision in left eye.	Suspicion of specific trouble, confirmed later by finding Hutchinson teeth in youngest child; also family physician says patient had syphilis. Patient died a year later.	Total quantity = 34 oz.; sp. gr., 1013; albumin, a trace; urea (total), 170 grs.	O. D. Large patch of atrophy in macular region suggests previous thrombosis and obliteration of vessels. O. S. Retinitis probably specific; previous inflammation in the right eye prevents accurate estimation of present condition; there is probably serious vascular degeneration and defective elimination.	Case seems to be one of contracted kidney without a very good prognosis.
36	54	F.	No general symptoms.		Total quantity = 48 oz.; sp. gr., 1021; albumin, a decided trace; urea (total), 384 grs. Microscopic examination negative.	Retinal hemorrhages; caliber irregularity of large vessels; retina hazy; slight tortuosity of terminals; marked sclerosis at crossings, with visibility of walls.	
37	50	F.	History of prolonged overwork; insomnia and headache; feeling of great tension; nervous dyspepsia.		Total quantity = 67 oz.; sp. gr., 1017; urea (total), 234 grs.	Moderate amount of tortuosity of vessels; few pigment spots in periphery of retina; vessels normal for age.	
38	54	M.	Has been an athlete, but subject to great business worry, and taking no exercise.	Medical report shows degeneration of vascular system; cardiac hypertrophy with dilation; well marked angula athletica.	Total quantity = 53 oz.; sp. gr., 1016; albumin, none; sugar, none; urea (total), 216 grs.	O. D. Enucleated for glaucoma in 1896; in 1897 slight cupping of disc; tortuosity of terminals; arteries small; very insufficient force in circulation.	
39	37	F.	Comes on account of persistent episcleritis. O. S.		Total quantity = 32 oz.; albumin, none; sugar, none; sp. gr., 1010; urea (total), 195 grs.	Fundus shows evidence of defective elimination; no marked lesion.	
40	62	F.	Patient presents no positive symptoms, but is frail and does not consider herself in good health.		Total quantity = 16 oz.; sp. gr., 1025; albumin, none; casts, none; urea (total), 216 grs. An enormous number of uric acid and oxalate of lime crystals.	Terminal tortuosity; rigidity at crossings; tessellate appearance to macula; numerous yellowish white dots scattered over fundus; small extravasation over disc of left eye. Condition a mixed one of senile choroiditis and vascular disease.	

of 20 and 50; but occasionally children will present this symptom, particularly those ill-nourished children in whom the lack of vigor can be assigned no discoverable cause.

The following case, in a patient of Dr. W.'s, will serve as an illustration of this class.

The patient, a boy of 10, consulted me on account of some conjunctival irritation; the child looked anemic, and the mother stated that he was not perfectly well, but no definite symptoms were present.

The ophthalmoscopic examination showed a blurred nerve margin and much tortuosity of the vessels. A urinary examination made by Dr. W. was as follows:

"The 24-hour quantity, 30 ounces; a trace of albumin was present; urea 1.5%, a few hyaline casts, probably due to stasis." Patient promptly improved under Dr. W.'s treatment.

An inspection of the retinal vessels, is of the greatest value as an aid in determining the general physical conditions, in those cases which we have included in the first and second groups.

If, as it seems to me probable, we can by the aid of the ophthalmoscope detect the first departure from a normal condition in the vascular system, it is possible by dietetic regulations or by medical treatment to prevent the advent of an early senility which is the necessary outcome of this condition.

The retinal symptoms, which are found in classes 1 and 2, I believe to be due to a high peripheral tension which interferes with proper tissue metabolism.

That an increase in the peripheral tension is the condition producing the retinal symptoms, I conclude from the fact that both the retinal picture is improved and the patient's general symptoms relieved, by hygienic regulations and the exhibition of such drugs as tend to decrease the peripheral tension.

The statements made in this paper are, I know, somewhat at variance with our accepted notions as to the possible scope of retinal examinations, and knowing how prone one is to make facts conform to a pet theory, I have honestly endeavored to subject my findings to the most rigid scrutiny. I have appended a few illustrative cases to this paper, tabulated to show my findings at the first examination, and the result of the subsequent examination by the general practitioner or pathologist, and I find that no possible coincidence would explain the agreement.

My deductions are based on some hundred or more cases in which I have obtained a report from the family physician, and in about half of these cases the examination has been made in an entirely satisfactory manner, *i.e.*, a sample from the measured 24-hour specimen has been examined chemically and microscopically by an expert in urinalysis. In this series of cases the retinal findings have been confirmed with the most gratifying exactness.

The field is a wide one, and well worthy of careful cultivation; no doubt experience will enable us to form still more accurate conclusions from a study of the retinal findings.

It seems to me but reasonable that if functional alterations precede organic changes in the circulatory system, they should be discoverable in the eye, where alone in the economy it is possible to inspect a vessel without interfering with its function.

I wish to take this opportunity to express my indebtedness to the members of this club, by whose kind assistance I have been able to obtain most of the material which is here presented.

Mortality in Chicago.—The Bulletin of Chicago's Health Department for the week ended January 30 says: "An old-fashioned winter" is not without its compensations. Notwithstanding that the mean temperature of the month has been 5° below the normal, the deathrate promises to be among the lowest on record. The average January rate since 1893 has been 16.32 per 1,000. For the month just closing it will be about 14. The lowest during the period was 13.69 in January, 1898; the highest, 20.91 in 1893. Last January, although milder than normal, the public health was affected by the "coal famine," and the deathrate was 16.07 per 1,000.

POSTERIOR GASTROENTEROSTOMY, BY A MODIFIED MAUNSELL'S METHOD, WITH AN ENTEROENTEROSTOMY BY THE HARTLEY METHOD.

BY

W. L. WALLACE, M.D.,
of Syracuse, N. Y.

Gastroenterostomy is needed when the stomach cannot empty itself easily through the pyloric opening. The best results are secured by an anastomosis between the posterior wall of the stomach and the upper portion of the jejunum; supplemented, to prevent a "vicious circle," by an anastomosis between the proximal and distal arms of the intestine, a few inches away from the gastroenterostomy. How can a posterior gastroenterostomy by suture, with an enteroenterostomy by Murphy button, be done best in the shortest time, with least danger of infection?

The following technic used in the case of J. C., at the Good Shepherd Hospital, December 10, 1903, illustrates a rapid and satisfactory method of doing this operation.

The aim is to make a posterior gastroenterostomy, working through an opening in the front wall of the stomach. The special instruments needed are 2 hatpins and a flat spring clamp, like an ordinary funis clamp, about 1½ inches by ½ inch:

Steps of Operation.—1. The abdomen was opened and the usual investigation made.

Fig. 1 shows normal relations. Posterior gastroenterostomy will necessitate pushing jejunum (J) through transverse mesocolon (T. M. C.) and uniting it to posterior wall of stomach (S).

2. The transverse colon with great omentum was pulled up and an opening torn through the transverse mesocolon, exposing posterior wall of the stomach.

3. The jejunum, about 8 or 10 inches from its beginning, was picked up, and the funis clamp was placed on its antimesenteric border (Fig. 2) with the long axis of the clamp in the long axis of the gut, pulling the bowel well through the clamp, so as to grasp about 2 inches by ½ inch. A pair of artery forceps was snapped on the funis clamp at (a) to serve as a handle in further manipulations, and to make it impossible for the funis clamp to come open.

4. The clamped bowel was pushed forward through the opening in the mesocolon and against the posterior wall of the stomach, crowding the stomach far out of the abdominal incision, where it appeared as a dome, through the double wall of which the clamp could easily be felt (Fig. 3).

5. A 2-inch vertical incision was made through the anterior wall of the stomach, and the clamped bowel was pushed through this opening, invaginating the posterior wall of the stomach before it (Fig. 4).

6. The posterior wall of the stomach was cut transversely, letting the clamp push through, and the hatpins were passed under the clamp through the posterior wall of the stomach and the intestine, holding their serous surfaces securely together, and allowing them to be drawn far out, invaginated through the opening in the anterior wall of the stomach (Fig. 5).

7. The forceps holding the funis clamp were taken off, the bowel opened by cutting under the funis clamp, and the edges of the intestine and the posterior wall of the stomach were overcast with fine silk, as in Maunsell's operation (Fig. 6).

8. The hatpins were pulled out. Half of a Murphy button was dropped into each arm of the intestine, and then the posterior wall of the stomach, with the intestine anastomosed, was allowed to drop back through the opening in the anterior wall of the stomach, and the opening in the anterior wall of the stomach was then closed.

9. The anastomosis was examined from beneath the transverse mesocolon and the halves of the Murphy button were pushed together, cutting over their cylinders (Hartley method) and the abdomen was closed without a drain (Fig. 7).

Remarks on the Steps of the Operation.—Steps 1 and 2: Same as regular operation, except that a much shorter incision is needed. In this case the stomach was distended with air and water, perhaps left when it was washed out 2 hours earlier. It was emptied instantly and satisfactorily by plunging in a needle connected with a Potain's aspirator. This would be a valuable means of emptying any distended bowel—for instance, in operating for obstruction.

Steps 3, 4 and 5: Through the cut in the anterior wall the inside conditions of the stomach can be examined. It is unnecessary to clamp any arteries, as the posterior wall and the intestine are immediately pushed forward into the opening.

Step 6: When the posterior wall is cut there is no danger of soiling the peritoneum, as all the parts have

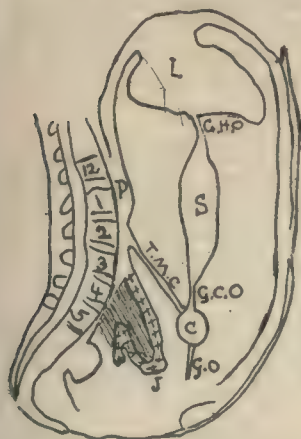


Fig. 1.

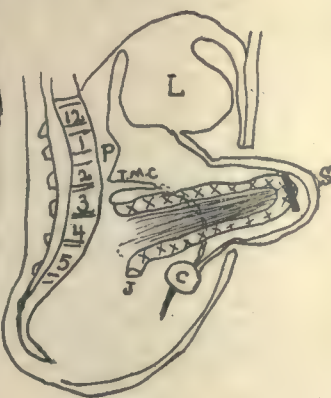


Fig. 3.

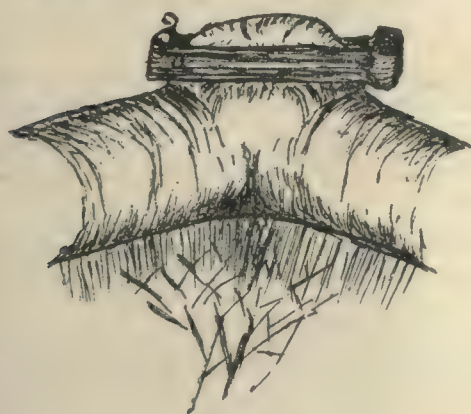


Fig. 2.



Fig. 4.

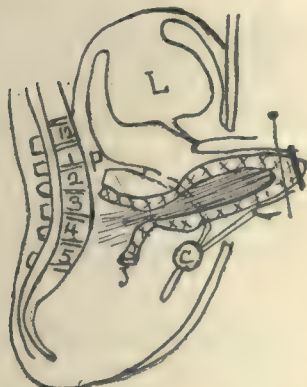


Fig. 5.



Fig. 6.

Fig. 7.

L, liver; S, stomach; P, pancreas; C, colon; J, jejunum xxxx; G. H. O., gastrohepatic omentum; G. O., great omentum; T. M. C., transverse mesocolon.

been drawn far out in front through the abdominal incision the edges of which are protected by gauze.

Step 7: If thought best, the angle stitches can be passed before the clamp is cut away and the bowel is opened. This will prevent the bowel retracting at the angles where it is not supported by the hatpins.

Steps 8 and 9: The posterior gastroenterostomy is now complete, and the opening is very large, so that no difficulty is experienced in dropping a half of the Murphy button into each arm of the bowel. This insures immediate and absolute drainage of the contents of the stomach into the bowel. In closing the anterior stomach opening I sewed the mucous membrane with a continuous fine silk suture, drawing up the 2-inch opening, making the repair about a half inch long. Over this, the other coats were closed by a continuous Lembert stitch.

Step 9: Hartley's method of using the Murphy button takes a few seconds only, and is very satisfactory.

Remarks.—This method is very rapid and safe. The bowel can be clamped and pushed through the transverse mesocolon, and passed up through both walls of the stomach quicker than the process can be described, and the parts are so securely held that to overcast the edges after the Maunsell method requires a few seconds only.

After-history of Case.—No shock followed the operation. The pulse never went above 90. Nutrient enemata were given at once. Sips of water 15 hours after operation, beef juice 40 hours after operation, and ice cream 48 hours. On December 14 (fourth day), considerable nourishment was given; bowels were open. On December 19, a visitor gave the patient an orange, and he ate it, swallowing the pulp. Six hours later intense abdominal pain began and lasted for 2 hours. Pulse and temperature were normal, and there was no distention or tenderness. On December 21, beginning of twelfth day, the Murphy button was found in the stool. On December 24 the patient left the hospital. Wound healed by first intention. There was no vomiting or abdominal distress, and he was taking plenty of food.

RÖNTGEN RAY TREATMENT OF DISEASE.¹

BY

CLARENCE E. COON, M.D.,

of Syracuse, N. Y.

Instructor in Surgery, College of Medicine, Syracuse University;
Assistant Surgeon, St. Joseph's Hospital, Syracuse, N. Y.

To attempt anything like a detailed description of the many diseases in the treatment of which the röntgen ray is used would require too much space, and therefore I will only call attention, in a brief way, to some of the conditions in which I have found it of value or otherwise.

That the röntgen ray has therapeutic value in some diseases, is admitted by those who are at all familiar with its results. The limitations of its usefulness, time, experience, and conservative work will determine.

Like all new therapeutic agents its value is not appreciated by a large majority of the medical profession, and will not be generally accepted, at least until sufficient time has elapsed to determine whether the symptomatic cures already reported compare favorably or unfavorably with other forms of treatment as regards permanence.

Like all new remedies, too, there is danger from overdoing on the part of those who are experimenting. Extraordinary and impossible claims as to its healing power are made; failure and disappointment will follow, and by indiscriminate and unskilful use of this powerful force, serious injury may result to patient and operator as well as to the progress of röntgen ray therapy.

There are, however, certain diseases in the treatment of which it has been proved that the röntgen ray properly administered possesses curative properties little short of marvelous.

The chief of these is, perhaps, epithelioma; the treat-

¹ Read before the Syracuse Academy of Medicine, October 20, 1903.

ment of this disease is already past the experimental stage, and in the great majority of cases the disease will disappear promptly. I have treated several patients, and have not yet failed to see the infiltration disappear, and the ulceration take on a healthy color and heal, leaving a small, soft, pliable scar.

I saw the first patient in the summer of 1902; the disease was on the chin, and had been present for about 2 years, beginning as a hard pimple, slowly increasing in size, and becoming nodular. For about a year there had been some ulceration, and for several months previous to röntgen ray exposures had not healed, in spite of numerous antiseptic and astringent salves, powders, etc. Seven röntgen ray exposures were given. There was marked improvement from the very first, and the disease disappeared entirely, and at the present time, 1 year and 3 months since treatment was discontinued, there has been no indication of a recurrence.

Other epitheliomas treated since have required more exposures, varying from 11 to 35, but the final result has been the same.

I do not mean to assume that every case of epithelioma is curable by use of röntgen rays, but I have been lucky enough to see cases that responded promptly. Lupus yields nicely to the röntgen ray treatment, but usually requires more time than does the same area of epithelioma; final results, however, entitle this treatment to a leading place among our therapeutic measures.

In acne, röntgen rays possess great therapeutic value.

One patient was a lady, who for 15 years had had the shiny red nose, with an area of bright erythema surrounding, many papules and pustules under eyes, over malar regions, and on lips and chin. She had had various forms of treatment, diet, etc. The condition would improve for a time, but never disappear or remain quiet for any length of time. She was given 17 exposures during March, April, and May, 1903; improvement was noticed from the first, and continued until the only sign of trouble left was a slight redness of the tip of the nose. During röntgen ray exposures the patient had no other form of treatment, and there was no restriction of diet. There is not the slightest evidence of recurrence as yet.

In tuberculous inflammation of the lymphatic glands, previous to caseation and suppuration, results have exceeded my expectation.

One patient, who was treated in May and June this year, was a girl of 9, who had undergone a radical operation for cervical adenitis about a year previous. At beginning of röntgen ray treatment there were several palpable glands, two just in front and below the angle of the jaw, the larger one about $\frac{3}{4}$ in. in diameter, the smaller about half that size. Along the posterior margin of the sternocleidomastoid was a chain of glands which felt like a string of beads; several scattering small glands could be felt. There were 17 exposures given. The glands disappeared entirely, so far as could be determined by palpation. There is no evidence as yet of returning trouble.

Old sinuses with pouting granulations, which sometimes occur after an operation for some tuberculous disease, or more often when a suppurating gland has been opened, and which show little or no evidence of healing, will often respond very promptly to röntgen ray stimulation.

Tuberculous disease of the joints improves very slowly. A child aged $4\frac{1}{2}$ has been treated nearly every day since June for extensive involvement of the knee. The patient has improved, but is still under treatment.

There are other diseases including eczema and psoriasis, in which many cures are reported by other observers, but about which I cannot speak from experience.

With the deepseated carcinomas results have not been so encouraging. In this class of cases the only benefit to the patient that one can feel reasonably sure of obtaining is the relief from pain, or control of hemorrhage when present. All observers agree that the röntgen ray is analgesic.

This is very strikingly illustrated in the following cases:

The entire right breast and axilla was one mass of carcinoma, and for several months the patient had had a great amount of pain, and for 6 weeks previous to beginning röntgen ray treatment, it had been necessary to take an opiate as often

as every 2 hours to relieve the excruciating pain. She was given an exposure of 15 minutes. When she appeared for another treatment on the second day she said she had slept well for 2 nights and had been free from pain. She remained free from pain during the 3 months she was under observation.

I have noticed also that most patients who are exposed to the röntgen ray seem to improve in their general condition, they appear brighter, more cheerful and less nervous.

A lady of 68 had carcinoma of the breast. Previous to operation she received 11 exposures. Following operation, healing was unusually prompt and raying was resumed, 20 exposures being given. During the time from the first to the final exposure, and this includes the time for operation and recovery, she was a very cheerful patient. About 2 weeks after this she began to be very nervous and irritable and quite despondent, and not at all like the cheerful, hopeful patient she had been.

Of course this may have been due to other causes in this particular case, but with a majority of patients after receiving a few rayings, it is a common occurrence for them to say that they feel better than they have for a long time.

In the treatment of sarcoma my observation has been limited to 2 cases—one an osteosarcoma of the femur; the other of the jaw. In neither case was there any diminution of the size of the tumor. There are cures reported.

If the value of the röntgen ray should be limited to what has already been proved, its effect upon skin lesions, it would occupy a very important place therapeutically; but the fact that some of the deepseated malignant growths disappear, as reported by other men, leads us to hope in the future more can be successfully treated.

That radiotherapy will supplant surgery in the treatment of malignant disease, does not seem at all probable, rather will it help the surgeon to prevent some of the recurrences following an operation.

In those cases in which the disease is too far advanced for operative interference, this treatment should certainly be given: for its action in relief of pain, as a hemostatic, as a tonic to the patient, and with a little hope for cure of the primary disease.

In the treatment of epitheliomas it gives a method which has advantages over excision or use of caustics. 1. The resulting scar is small, soft, and pliable, and the best possible cosmetic effect is thereby produced. 2. It is painless. 3. It allows the patient to continue at his usual occupation during treatment. The chief disadvantage of this treatment is the length of time necessary to complete the cure.

In the treatment of lupus, eczema, psoriasis, and other chronic nonmalignant skin affections, it offers hope of relief in cases which resist all other forms of treatment. In tuberculous disease, including pulmonary tuberculosis, good results have been attained, and further study and experience will determine just how much value is to be given this form of treatment. If we accept the reports of the many röntgen ray therapists, we must believe that radiotherapy is indicated and advisable in epitheliomas, all inoperable malignant growths, as an after-treatment in operations for removal of malignant disease, in the earlier stages of tuberculous adenitis, and in all forms of chronic skin disease which do not yield readily to ordinary treatment.

In the use of the röntgen ray as a therapeutic measure, there are some things to be considered other than the control and running of the apparatus. The power of this light is not yet fully understood. Enough is known, however, to recognize some of its dangers. Each individual patient must be studied to determine the length and frequency of exposure necessary to obtain the best results without producing serious burns. There is also danger for the operator in too frequent or prolonged use of the fluoroscope or too frequently placing some part of the body, usually the hands and forearms, in the area of light.

In considering the mass of evidence which is rapidly accumulating, one cannot help but believe that in the röntgen ray we have an extremely valuable therapeutic agent, and when the limitations of its usefulness shall have been determined, it will take its place as a remedy par excellence in some diseases.

HOUR-GLASS CONTRACTION OF THE UTERUS.

BY

CHARLES F. BEESON, PH.G., M.D.,

of Roswell, N. M.

Ex-House Physician, Cincinnati Hospital; Late Surgeon Colorado Fuel and Iron Company.

An interesting case which occurred in my practice has convinced me that the pregnant uterus can and does, under certain circumstances, contract in such a manner as to defeat the very object which nature intends uterine contractions to accomplish. In nearly all other physiologic phenomena of the body, perversions of action do take place, then why not in the action of the pregnant uterus at term, which is the greatest physiologic phenomenon of all. We see all grades of uterine inertia and dystocias from many causes, and their limitation is in all probability due to the fact that the etiology of such irregular actions has been suspected, and such causes avoided by our best teachers.

The following case came under my observation in a Mexican hut some months ago while employed by the Colorado Fuel and Iron Company:

CASE.—Mexican, aged 16, primipara. The patient, who was of large build and well nourished, had been in labor 27 hours, according to the Mexican midwife whom I found in attendance. The first thing that attracted my attention was the peculiar shape of the abdominal tumor (Fig. 1). The uterus was in a state of tonic contraction with clonic exacerbations occurring about every 15 minutes. The pains were not strong and were apparently accomplishing nothing. Fetal heart 144, was heard best in the left lower quadrant. Vaginal examination revealed the os dilated to the size of a silver quarter, cervix thin and tense, membranes intact, head presenting, L. O. A. position. The bladder and rectum were empty, pelvic measurements practically normal. Woman in good condition.

I left her with instructions that if the baby was not born in 8 hours to let me know. In due time I was called again, and found the condition practically unchanged, except that the woman was becoming exhausted. Temperature normal, pulse 120. Pains were a little stronger if anything; between pains the presenting part was movable above the brim and receded considerably after each pain as though a short cord was interfering with the progress.

I decided to put the woman under chloroform and introduce my hand into the uterine cavity to find out, if possible, what the trouble was, as the pains seemed sufficiently strong, and yet the head would not engage. I thought forceps were counterindicated, at least until a thorough investigation had been made. I inserted my hand into the os which I dilated, then rupturing the membranes, passed my hand over the head of the child and onto its neck, and to my surprise found an obstruction between which and the child's chest I could not insinuate my fingers try hard as I could. I passed my hand around to the right and found a constriction extending completely around the inside of the uterus and striking the child at the shoulders. The body of the child was too large to pass forward through the constriction and the head was too large to be pushed back through it. I could easily turn the child on its long axis and push its head up against the constriction; dilation of the constriction by the hand seemed impossible. Version could not be performed, and forceps were certainly counterindicated. I requested the anesthetist to push the chloroform to the third stage, and I then applied the forceps; a 7-pound child was very easily delivered, the constriction had disappeared completely, the uterus assumed its normal condition, and the placenta came away normally in due time; a slight postpartum hemorrhage followed, but by persistent kneading of the uterus and hypodermic injections of ergotol uterine contractions were maintained until sufficient clotting of the uterine sinuses prevented a fatal issue. The child had to be resuscitated, but soon revived and was in a short time in good condition. Mother and child did well from that time on. By measurement upon my hand the contraction ring was about 5 inches from the rim of the external os (Fig. 2).

In attempting to review the literature upon this subject I soon found that I had here a very rare condition; reports of cases in which a contraction ring had grasped

the child in such a manner as to prevent its escape were very scarce and all of ancient origin, some modern textbooks not even alluding to it.

Cases in which the placenta became encysted in the uterine cavity by a contraction ring have been reported recently. Older writers seem to have known of a condition similar to the one I have here reported, but no case of recent origin has been reported to my knowledge.

Wm. H. Taylor* has furnished me with the following translation from Veit in the *Monatsschrift für Geburtshilfe und Gynäkologie*, 1900:

All observation must admit the possibility of the contraction of Bandl's ring, but it is not proved that the condition develops without simultaneous contraction of the body of the uterus. From my own experience I am not able to speak of cases in which the head lies in the lower uterine segment and extraction by the forceps is prevented by the contraction ring. Of cases in which the uterus is spasmodically contracted, retaining the child in the cavity of the uterus, I know nothing. . . . There may be mistaken for this, cases in which with insufficient uterine action the membranes rupture early and the internal os does not dilate, consequently the upper part of the uterus remains soft, but the internal os may be rigid and prevent the entrance of the hand. In such a case it is the internal os and not the contraction ring with which we have to do.

He quotes Williams, of Johns Hopkins Hospital, who says:

French observers believe that, while the portions above and below it remain flaccid, Bandl's ring can undergo isolated contractions and thereby so strongly compress the neck or some other portion of the child as to interfere seriously with its delivery. It is probable the condition is really due to more or less rigidity of the internal os while the cervical canal below it has undergone satisfactory dilation.

Then again, Veit, who says:

For years I have specially observed every separation of the placenta and every exploration of the uterus and I have never felt an isolated contraction of the contraction ring.

Playfair says:

An important cause of postpartum hemorrhage is partial and irregular contractions of the uterus. Part of the muscular tissue is firmly contracted while another portion is relaxed. One peculiar variety which has been dwelt upon by writers is the so-called hour-glass contraction. This in reality seems to depend upon spasmodic contraction of the internal os, by means of which the placenta becomes enclosed in the upper portion of the uterus which is relaxed. On introducing the hand, it first passes through the lax cervical canal until it comes to the closed internal os which has generally been supposed to be a circular contraction of a portion of the body of the uterus. These irregular contractions are not so common as older writers supposed. When they do occur, I believe them almost invariably to depend on defective management of the third stage of labor.

Hirst thinks it a contraction ring due to obstruction to labor from a rigid cervix. He admits the possibility of the so-called hour-glass contraction as it is usually interpreted, but says he has always been sceptical as to its probability.

Hasmer² has drawn attention to a form of dystocia which he calls antepartum hour-glass contraction and which he believes to depend on a contraction of the uterus at the internal os.

Blundell refers to it in his work (1840) under title of "Circular Contraction of the Middle of the Womb."

Harris doubts its limitation to the internal os and

* Obstetrician to the Cincinnati Hospital.



Fig. 1.—(Diagrammatic.)

terms it "falciform contraction of the uterus." (Text-book 1897.)

Lusk refers to hour-glass contraction of the uterus as occurring in the third stage. He thought it due to administration of ergot.

S. S. Turner³ reports a case of hour-glass contraction of the uterus in the third stage of labor interfering with the delivery of the placenta, but he does not give any idea as to where the contraction took place.

Contri⁴ gives a similar case to Turner's, but without alluding to the probable site of the constriction. It is readily seen from the literature obtainable that there

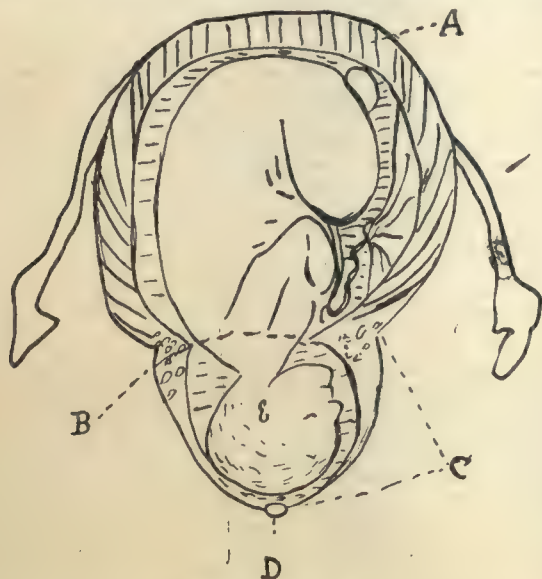


Fig. 2.—A, uterine wall; B, contraction ring at internal os; C, distended cervical canal; D, external os. (Diagrammatic).

is considerable doubt among our best observers that an isolated contraction above the internal os, interfering with labor, ever takes place.

As Taylor says, it is not a question as to whether a contraction does take place, but where does it occur?

Whatever its site in the cases recorded by the older writers, difficulties of the most formidable kinds arose from this cause. The pelvis were properly shaped, and the presentation normal, yet out of 7 labors 4 ended fatally, 2 before delivery. The contraction seems to have grasped the fetus with such force as to have rendered extraction either by forceps or turning impossible.⁵

In looking over the anatomy of the pregnant uterus late in gestation we find that 3 layers of muscle fibers having different actions are distinguished: External (longitudinal), middle (oblique), and internal (circular).

The external layer is continuous with the muscle fibers of the round ligaments and tubes and is mainly longitudinal in arrangement. By their action the diameters of the upper uterine segment are shortened, thereby pressing the uterine contents toward the lower uterine segment.

The middle layer is composed of bundles which pass from their peritoneal attachment obliquely downward and inward to be attached to the submucous tissue, the oblique arrangement being less marked above Bandl's ring, but below this point they are more pronounced, in fact, they constitute the bulk of the uterine wall between Bandl's ring and the internal os. When acting, these fibers aid in dilating the lower uterine segment, and assist the action of the longitudinal fibers, pulling the lower uterine segment up over the presenting part.

The internal layer is thin and poorly developed, except around the orifices of the uterus. Its arrangement is chiefly circular, and is most strongly developed at the openings of the tubes and at the internal os. By

its action, it retains the smaller caliber of the lower uterine segment, checks the action of the oblique fibers, and thereby aids in preventing a precipitate labor and consequent rupture of the lower uterine segment. (Fig. 3.)

By actual observation we know that after prolonged action muscle fibers become exhausted, and when antagonizing another set of fibers their exhaustion will allow of apparent overaction of the antagonist; as is seen in obstructed labors when the lower uterine segment becomes thinned and its fibers exhausted a rupture may take place; so if after prolonged action the oblique fibers should become exhausted before the circular fibers are paralyzed, I believe we would have overaction of the circular fibers, or at least they would have no strong antagonist and would consequently contract, forming a ring such as we have in the case cited.

The exact location, therefore, of this contraction ring would be where the circular and oblique fibers meet, which is in the region of the internal os.

The fact that the oblique arrangement of the middle coat is more pronounced below Bandl's ring (Fig. 3) and that its origin is in the peritoneum at and above that ring, with its insertion in the lower uterine segment, readily shows the cause of Bandl's contraction ring when these fibers are pulling against an obstruction below, causing a recession at their origin. In the case cited Bandl's ring was not present as is seen in obstructed labors, but instead the uterus was apparently standing on end, caused by a contraction ring more pronounced and situated much lower in the pelvis than Bandl's contraction ring is usually situated. This would seem to make it plain that Bandl's ring had ceased to exist when the oblique fibers became exhausted. That would certainly occur were this theory correct.

That the condition described, maintained in my case is almost certain, and that a similar condition was present in the cases of the older writers and in those cases of encysted placenta is probable. That a recession at the origin of the oblique fibers, constituting Bandl's ring, could interfere seriously with the delivery of the child does not seem probable from an anatomic standpoint (Fig. 4), although it is certainly possible.

The causes of this condition are probably many, different ones acting in different cases; mismanagement, as we see it now, is the prime factor.

Of predisposing causes we might mention primiparous rigid cervix, uterine inertia, and any condition interfering with the serous infiltration of muscular structure of the lower uterine segment, which might be brought about by undue manipulations in the early stage, tight bands, etc.

Of the exciting causes we might quote Playfair, who says: "The most frequent cause of the so-called hour-glass contraction is over-anxiety to remove the placenta;

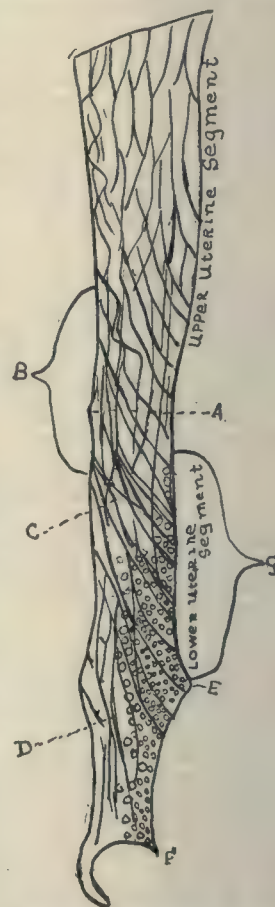


Fig. 3.—Section of wall of pregnant uterus. (Holmeir and Hirst's textbook). A, Bandl's retraction ring; B, origin of oblique fibers; C, oblique fibers; D, circular fibers; E, internal os; F, external os; G, insertion oblique fibers.

the cord is frequently pulled upon, while no attempt is made to excite the fundus to proper action."

Johnstone says: "Ergot given before the expulsion of the placenta."

In the case reported in this paper I have no knowledge of what was done before I saw the patient, and the condition was probably present when I was first called, at least the peculiar shape of the abdomen first attracted my attention. The Mexican midwife had given nothing, and I have found that they know nothing of ergot or any drug that has positive action on the uterine muscle. The only thing that I have ever known them to do is to tie a tight band around the body above the fundus uteri and put the woman on her knees, slipping the band downward as the tumor descends into the pelvis, just as a housewife would squeeze the pudding out of a bag. This is always done by them in difficult labors, and why it should cause the condition in this case and not in others I am not prepared to say, possibly a rigid cervix and the band together brought about an exhaustion of the oblique fibers before the circular fibers were completely conquered, the latter being able to stretch over a small head without becoming paralyzed.

The jamming of the uterus into the pelvic cavity by the band may have interfered with the serous infiltra-

made by inserting the hand into the uterus and feeling the constriction.

The prognosis is not encouraging. If the forceps were applied, a pull upon the head of the child would certainly result seriously. As to whether the constriction would disappear after a time I am not prepared to say, but in the case cited it was present about 8 hours, and how long before I saw the patient I do not know, but giving 17 hours for a normal labor, we could add 10 hours to the 8, making 18 hours for the constriction.

Of 7 cases reported by old writers, 4 proved fatal. It seems to me that with modern treatment, a fair show for both mother and child may be expected.

The treatment will depend upon a correct diagnosis. Management of labor cases as laid down by our modern obstetricians will lessen the liability to such an accident.

Ergot should not be given until the placenta comes away. Undue manipulation, tight bands, etc. in the first stage should not be used.

To treat the condition, chloral may be tried; atropin injected at the site of the constriction, has been recommended. Manual dilation should be attempted. Chloroform given to profound narcosis caused the contraction ring to disappear in my case.

Version might be accomplished, and finally cesarean section, as reported in a case by Dr. T. A. Foster, of Portland, Maine, if other means fail.

I desire to thank Dr. Wm. H. Taylor, of Cincinnati, Ohio, and Dr. Barton Cooke Hirst, of Philadelphia, for valuable suggestions.

BIBLIOGRAPHY.

- ¹Obstetrics, p. 567.
- ²Boston Med. and Surg. Jour., March and May, 1878.
- ³Med. Summary, March, 1903.
- ⁴Louisville Monthly Jour., February, 1902.
- ⁵Playfair Textbook, 1897.

The Biggest Heart in the World.—An exchange says the biggest heart in the world is soon to be subjected to dissection. It is owned by Professor Burt G. Wilder, of the department of physiology of Cornell University, and once thumped inside of Jumbo, the famous elephant that was killed by a locomotive. It is now preserved in a barrel at Cornell. Jumbo's heart is 98 times as large as the average human organ. It now weighs 364 pounds after having soaked several years in alcohol. A human heart, which weighs a little more than a pound, soaked in alcohol for the same length of time, weighs 10 ounces. The human heart is less than 6 inches long. Jumbo's is 28 inches long and 24 inches wide. The ordinary heart could be contained in the main artery of Jumbo's heart. The walls of the artery are five-eighths inch thick, while the walls of the ventricle are 3 inches thick.

Increase of Crimes During 1903.—The Chicago Tribune, having collected data from various sources during the year 1903, gives its compilation as follows: "There were 8,976 crimes resulting in death by various forms of violence in 1903, a small increase over 1902, when there were 8,834. One of the most significant features of this record is the fact that 406 of these murders were committed by thugs and hold-up men, being nearly twice as many as were committed last year, and showing proportionately the increase of lawlessness. There were 8,597 cases of suicide in 1903. The following figures show the steady increase of self-murder: In 1899, 5,340; in 1900, 6,755; in 1901, 7,245; in 1902, 8,291; in 1903, 8,597. As has been the case during the last 3 or 4 years, poisoning and shooting have been the principal methods, the two numbering 7,677 out of 8,597. The ease with which poison may be obtained accounts for 4,050 of these cases. The total number of legal executions in 1903 shows a falling off compared with last year, being 123, as against 144 in 1902, 188 in 1901, and 110 in 1900. There were 77 hanged in the South and 46 in the North, and of these 63 were white and 60 colored. The largest number of hangings was 11 each in Missouri, New York, and Alabama; 10 in Virginia, 9 in Georgia, and 8 in Pennsylvania. Lynchings numbered 104, as compared with 96 in 1902. Notwithstanding this comparatively slight increase, an examination of the reports for several years back shows that there were many less lynchings in the decade just closed than in the preceding decade. The total for 1903 includes 92 in the South and 12 in the North; 86 negroes, 17 whites, and 1 Chinaman; 102 men, and 2 women. The 2 principal alleged crimes were murder, 47 cases; and criminal assault, 20. Arkansas, Georgia, Louisiana, and Mississippi led the list, with 11, 12, 14, and 18, respectively. Alabama had only 2 cases, and there were 2 Southern States, Maryland and Virginia, which had none."

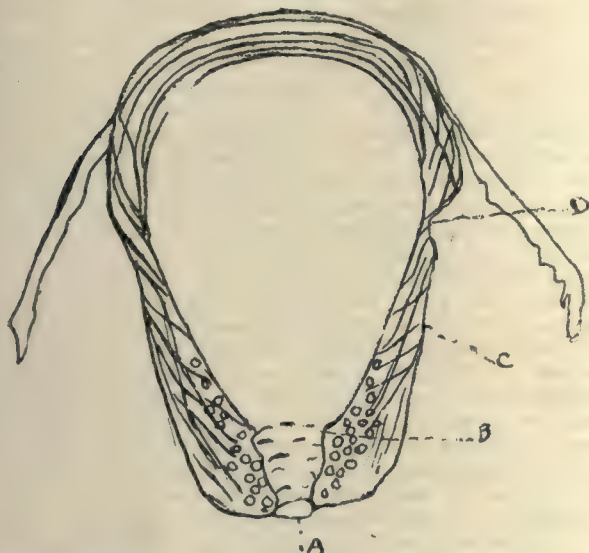


Fig. 4.—A, external os; B, internal os; C, oblique fibers; D, Bandl's retraction ring. (Diagrammatic).

tion of the lymph spaces of the lower uterine segment which would in all probability cause an abnormal action in these parts.

The cervix had undergone sufficient dilation to admit the small head of the child, the internal os had evidently been drawn backward over the presenting part, lengthening the cervix to about 5 inches, and then at the last moment we might say the oblique fibers failed in their duty, allowing the circular fibers to close down upon the child's neck.

Why the condition is not reported oftener in these mismanaged cases may be that while it does occur, it is not recognized, and the oblique fibers, after a season of rest, take on renewed energy and complete the labor as in other forms of uterine inertia.

The symptoms of this condition would be those of uterine inertia, plus the peculiar shape of the abdomen and an unusual recession of the presenting part after each pain.

The condition should be suspected by the peculiar prominence of the abdominal tumor, the depression just back of the symphysis pubis, and by the absence of other causes of dystocia. The diagnosis could be positively

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

February 13, 1904. [Vol. XLII, No. 7.]

1. The Influence of Trauma in the Production of Movable Kidney. M. L. HARRIS.
2. The Nervous Phenomena Associated with Movable Kidney. WHARTON SINKLER.
3. A Consideration of the Neuroses of Status Lymphaticus. A. P. OHLMACHER.
4. Methods of Controlling Hemorrhage of the Oral Cavity. H. E. BELDEN.
5. The Influence of Resection of the Cervical Sympathetic Ganglia in Glaucoma. WILLIAM H. WILDER. (Concluded.)
6. New Aspects of Yellow Fever Etiology Arising from the Experimental Findings of the Last Three Years. CARLOS J. FINLAY.
7. The Present Status of the Uric Acid Question. WALTER BAUMGARTEN.
8. Tuberculous Joints and their Treatment. DAVID C. PEYTON.
9. Diphtheria of the Nose. W. SCHEPPGREGELL.
10. Acute, Subacute and Chronic Infectious Osteomyelitis: Its Pathology and Treatment. EDWARD H. NICHOLS.

1.—Influence of Trauma in Production of Movable Kidney.—M. L. Harris, from a careful study of the subject, reaches the following conclusions: Movable kidney occurs in women with a particular body form (distinct relative contraction in the capacity of the middle zone), and practically all women with this body form have movable kidney of greater or less degree. Movable kidney is not produced immediately, but requires time for its development. While it is possible to injure, crush or suddenly displace by violence a normally fixed kidney, such displacement is always accompanied by laceration of the perirenal tissues, which is manifested by distinct local and general symptoms. Severe injuries involving the kidney or perirenal tissues are seldom or never followed by movable kidneys, and the latter is never the result of a single trauma. [H.M.]

2,3.—See *American Medicine*, Vol. V, No. 24, p. 945.

5.—Influence of Resection of the Cervical Sympathetic Ganglions in Glaucoma.—W. H. Wilder presents a detailed report of 7 cases of sympathectomy still under observation in his own practice. In all of the specimens there was increased pigmentation of the ganglion cells. In 2, mast cells were seen. In 3, the cells were not round but irregular. In 1, cells slightly vacuolated were seen. In 2, they showed eccentric nuclei and marked vascularity was present. He also gives abbreviated records of 68 operations done on 54 cases by others. Of 38 operations for simple glaucoma 14 gave no improvement whatsoever, 5 improved for 15 days to 8 months, but had recurrent attacks necessitating iridectomy or caused loss of the eye; 15 improved from 2 months to 2 years. Of these, 3 were stationary, 1 died, 6 remained unimproved after iridectomy, but improved after sympathectomy. Of the 16 operations for chronic inflammatory glaucoma 6 showed no improvement, 3 improved for 2 or 3 months, 4 improved as long as under observation, one 5 months, one 18 months, one 1 year, one 3 years. Of the 4 operations for subacute glaucoma one was cured at the end of 2½ years, 2 remained well after 15 months, 1 remained improved after observation of 4 months. Of the 3 operations for acute glaucoma 1 recovered, 1 improved, 1 was preventive. Of 4 operations for absolute glaucoma, 1 improved as to pain, in 3 there was no improvement or change. Of 2 operations for hemorrhagic glaucoma 1 improved as to pain and 1 as to vision. One operation for buphthalmos had no effect. After these 68 operations miosis is mentioned 40 times, ptosis 36, conjunctival congestion 19, congestion of the face on the side operated on 6 times, neuralgia and hyperesthesia 6, anesthesia 2, hoarseness or aphonia 8 times, dysphonia once, dysphagia 5 times, and in 1 case the patient had mild hallucinations. [H.M.]

6.—New Aspects of Yellow Fever Etiology.—C. J. Finlay, by analogy with the life cycle of the malarial parasite, suggests the probable character of the evolutions which the yellow fever germ undergoes in the body of the host. If penetration into the body of the nonimmune is intended for the accomplishment of sexual reproduction, and if the analogy between it and the malarial parasite holds good, with the difference only that the latter accomplishes this act in the anopheles mosquito while the yellow fever germ does so in the human host, the following important inferences may be drawn: The minimum number

of days (estimated at 10 or 12) which must elapse after the stegomyia has bitten a yellow fever patient before the infected insect is able to inoculate the disease through its bites, must represent a series of transformations in the body of the contaminated mosquito, including the introduction of young sporozoites sucked up with the blood of the patient, the growth of these to adult age, formation of schizonts and merozoites and gametes. While in the body of the nonimmune, counting from the moment of his inoculation by the infected stegomyia, the following stages are likely to take place during the period of incubation: Localization of gametes in appropriate sites, fecundation of the macrogametes by the microgametes, formation of the oocyst in appropriate cells (endothelial), discharge of free sporozoites of yellow fever into the circulating blood, development of the toxemic symptoms characteristic of the invasion of yellow fever. [H.M.]

7.—Present Status of the Uric Acid Question.—W. Baumgarten summarizes our present knowledge as follows: The source of uric acid in mammals lies in the nucleins and their decomposition products, the purin bases. The uric acid eliminated in the urine arises partly from the breaking down of cell nuclei (the endogenous uric acid), and partly from the food (exogenous). The amount of endogenous acid is the minimum which the individual normally excretes; it does not change in quantity, though it varies with individuals; it is influenced by the mode of life, but in no way by the quantity or character of the constituents of the food, which do not belong to the group of nucleins and purin bases. The exogenous acid depends in amount on the quantity of certain purin bases in the food. Of the free purin bases only the oxypurins, hypoxanthin, and xanthin, increase the uric acid elimination; of the bound bases both oxypurins and aminopurins increase the uric acid; the methylated purin bases do not affect the uric acid elimination but increase the purin bases in the urine. Of the oxypurins, both bound and free, half is excreted in man as uric acid; of the bound aminopurins some appear half, some a fourth as uric acid. [H.M.]

8.—Tuberculous Joints.—D. C. Peyton advises the use of tuberculin in doubtful cases, and radical treatment so soon as the diagnosis is made. It may be safe to rely on rest, fixation and fresh air for 10 days or 2 weeks, provided early diagnosis has been made, but the writer has had eminently satisfactory results from early and free opening and drainage, and thorough irrigation of the joint with a hot, normal saline solution, repeating this for a week or 10 days. This is especially commended in patients under 18, for by more radical operations we may destroy the epiphyses, with consequent arrest of development. In advanced states of the disease in either adult or child, arthrectomy or excision is imperatively demanded. [H.M.]

9.—Diphtheria of the Nose.—W. Scheppgregell finds the constitutional disturbances frequently so mild they attract little attention, the physician being appealed to on account of obstruction or epistaxis. The early symptoms resemble those of coryza. The mucous membrane is covered with a light-gray pseudomembrane. This sometimes is followed by cicatricial tissue or synechiæ. The affection is ordinarily so mild ordinary methods of isolation are difficult to enforce. One negative bacteriologic examination is not decisive. The prognosis is good. The writer's treatment is simply syringing with 25% peroxid of hydrogen, followed by free douching with normal saline solution. From those cases which have come under his observation, no second case has developed. [H.M.]

10.—See *American Medicine*, Vol. V, No. 21, p. 819.

Medical Record.

February 13, 1904. [Vol. 65, No. 7.]

1. Some Personal Observations and Experience of the Schott Treatment of Heart Diseases. WILLIAM W. BALDWIN.
2. Contribution to the Study of Spondyloze Rhizomelique, with Report of Three Cases. ALFRED GORDON.
3. The Antiseptic Treatment of Pneumonia in Infants and Children. S. HENRY DESSAU.
4. Hernia in Young Children. W. B. DE GARMO.
5. Radiotherapy, with Report of Cases. D. C. DENNETT.

1.—The Schott Treatment.—W. W. Baldwin thinks this method might be employed successfully by every general

practitioner. Its curative effects are greater and more permanent than those from drugs and rest. The immediate effects of the baths are not so brilliant as those following the exercises, but last longer. The physician should be present at both bath and exercises when not acquainted with the patient's limitations. Contraindications to the baths are advanced arteriosclerosis, advanced nephritis with high tension, aneurysm, grave cases of organic heart disease too advanced to react, great anemia, and emaciation. Bronchial asthma and bronchitis demand caution to prevent chilling. Thorne has used the baths with advantage even when pulmonary tuberculosis complicates the heart disease. The author describes the 5 kinds of baths used. While the artificial baths give excellent results, he prefers an additional course at Nauheim when possible. Digestive disturbances should receive appropriate treatment early. He discusses the technic of the baths and exercises, and reports several cases. [H.M.]

2.—Spondyloze Rhizomélique.—A. Gordon presents several cases with illustrations. There are multiple conditions producing limitation of movement of the spinal column including tabes, syringomyelia, spinal muscular atrophy, interstitial hypertrophic neuritis, myositis, hypertrophic cervical pachymeningitis, chronic deformant rheumatism and gout. These may give more or less a picture of both Bechterew's and Marie-Strümpell's types. It is doubtful if the disease is a pathologic entity. It should not be considered an expression of rheumatism because the patient gives a history of this disease earlier in life. A great many cases present symptoms of cord involvement. Spondylosis is only a symptom of a more complicated disease, the etiologic factor of which is not at all elucidated. [H.M.]

3.—Antiseptic Treatment of Pneumonia in Infants and Children.—S. H. Dessau recommends carbolic acid in both lobar and bronchopneumonia, 1 dr. of a 2% solution being given every 2 hours with creasote and eucalyptus evaporations in the room. The carbolic acid promotes sweating and the crisis is converted into a more gradual termination. Albuminuria is not a contraindication. It aids in maintaining normal digestion. [H.M.]

4.—Hernia in Young Children.—W. B. De Garmo states that the principal predisposing cause of hernia in young children is defective development. Often the pouch of peritoneum which descends with the testicle is not cut off from the abdominal cavity, a patent canal remains which invites the occurrence of hernia. The second most common cause of this condition in early life, he believes, is constipation; gastrointestinal disturbance producing distention of the intestines by gas is also given as a cause; again, whoopingcough, bronchitis, crying, and tight abdominal bands predispose. The forms of hernia met with in young children are inguinal, umbilical, ventral, and femoral in the order named. The popular belief that infants outgrow hernia is erroneous and often leads to neglect fraught with danger. A truss should be applied so soon as a hernia is discovered, and if this is continued surgery will seldom be needed in early infancy. In an operative experience of 1,064 cases of hernia by the author only 4 were upon infants under a year old, and these were cases of strangulation, but 179 were in children under 14 years of age, and among these there was no death. He employs the Bassini method, though using kangaroo tendon instead of silk. He gives the following indications for operating upon hernia in early life: 1. Strangulated hernia—immediate operation. 2. All cases not controlled by truss. 3. Occasional protrusion with threatened strangulation. 4. When truss-wearing causes pain. 5. On children that cannot be brought regularly for attention. 6. In all cases of femoral hernias. 7. On all children over 7 years of age. [A.B.C.]

5.—Radiotherapy.—D. C. Dennett states that radiotherapy is no longer confined to the treatment of disease by the röntgen rays alone, but is likewise applied to treatment by means of radium, Becquerel rays, etc. He reports a series of 12 cases selected from those whom he has treated by means of the röntgen rays; among these were 6 cases of eczema, all of which were entirely cured; 1 case of psoriasis, one each of epithelioma of the lip, of the arm, and of the face; one of rodent ulcer. All were cured. A case of cancer of the stomach was apparently in no way benefited by this method of treatment. The author

states that trachoma yields readily to treatment by means of röntgen rays. Following the report of his cases is a discussion upon the best means of applying the rays for curative purposes, together with the mechanism of the apparatus used. [A.B.C.]

New York Medical Journal.

February 6, 1904. [Vol. LXXIX, No. 6.]

1. A Brief Review of the Etiology of Yellow Fever. JAMES CARROLL.
2. Observations on the Quantity of Day and Night Urine. CHARLES W. EDMUNDS.
3. Infantile Bronchitis. E. M. SILL.
4. The Sanitary Needs of Panama. M. L. MADURO.
5. A Suggestion for the Rapid Calculation of Percentage Milk Mixtures: With Description of a Mechanical Device for the Instantaneous Calculation of Such Formulas. THOMPSON S. WESTCOTT.

2.—Day and Night Urine.—C. W. Edmunds reviews the literature of the subject and discusses the relative proportion of urine secreted during the day and the night in health, and in certain pathologic conditions. Tables are given showing the results of research in 56 cases, including miscellaneous, acute, and renal and cardiac diseases. He confirms earlier writings as to the nocturnal polyuria occurring in renal and cardiac disease, and points out the value of this fact as a diagnostic sign, especially in cardiac disease. He adds the possibility of tracing the course of a nephritis or of a cardiac disease by observing the changes in the relative amounts of day and night urine for short periods of time. When drugs which cause diuresis are administered during the day, they tend to restore the normal ratio. [C.A.O.]

3.—Infantile Bronchitis.—The different forms of this disease and their physical signs and symptoms are taken up by E. M. Sill. If seen in the first stage, when nothing can be heard but harsh breathing and a cough, the following should be administered every hour in teaspoonful doses: Tinct. aconiti, m. iv; spirit ether nitrosi, 3j; aqua, q. s. ad., 3j. The chest should be thoroughly rubbed with camphor oil 3 times daily. The bowels should be thoroughly moved with calomel, followed by castor-oil, and for the distention of the abdomen by gas, enemas, carminatives, and castor-oil should be given. If the attack is not aborted by these means, a mustard paste (1 part of mustard to 6 of flour) should be applied to the chest every 3 hours for half an hour. If the soreness is not then relieved, inhalations of plain steam, or steam from lime water; or, what is better still, a tablespoonful of compound tincture of benzoin or a few drops of creasote to the pint of water can be put into the croup-kettle and the steam inhaled. This can best be done by the use of the "bronchitis tent." During the first stage, before secretion has been established, the following will act as a sedative to the inflamed mucous surfaces: Syrup ipecac, 3j; potass. citrat., 3iv; aquae, q. s., 3vj. One dram every 3 hours. During the second stage remedies should be used to stimulate the bronchial tubes and increase the volume of liquid poured out, such as: Ammon. chloridi, 3ij; ext. glycyrrh. fl. 3ij; aqua, q. s., 3ilj. One teaspoonful every 4 hours. [C.A.O.]

4.—The sanitary needs of Panama are noted by M. L. Maduro. He calls attention to the fact that as an interoceanic ship canal is to be built through the Isthmus of Panama, it is essential that the sanitary needs of the towns through which the ditch will be dug should be given first thought. Panama possesses no aqueduct, but depends on the heavy rains for its water-supply. Well-ventilated sewers should be built, and a system of up-to-date plumbing installed. The rookeries occupied by the very poor should be replaced by well-ventilated dwellings, of however cheap construction, and an efficient street cleaning department should be organized. The blind and narrow streets should be opened to the sunlight. Strict quarantine regulations must be enforced. A systematically equipped Board of Health is essential, the duties of which in the broadest sense should be to teach cleanliness as it affects air, water, and food. [C.A.O.]

Medical News.

February 13, 1904. [Vol. 84, No. 7.]

1. Abdominal Pain of Intestinal Origin. FREDERICK HOLME WIGGIN.
2. The Dietetic Treatment of Arteriosclerosis. THOMAS L. COLEY.
3. Enlargement of the Phalanges in Rickets: A Report of Two Cases. JACOB SOBEL.

4. Treatment of Pneumonia. DELANCEY ROCHESTER.
 5. The Sanitary Aspect of Food Preservatives. R. G. ECCLES.

1.—Abdominal Pain of Intestinal Origin.—Frederick H. Wiggin says the importance of a correct interpretation of abdominal pain of intestinal origin can hardly be overestimated. Abdominal pain, if sharp, and persistent, indicates involvement of the peritoneum, but if dull and aching it points to connective-tissue involvement only. Tenesmus indicates limitation of disease to the lower third of the intestinal tract, whereas colicky pain, occurring several times a year in a person not habitually constipated, suggests enterostenosis. The author deals with the various pathologic affections which are likely to involve the intestine, and sums up by stating in part that the chief value of abdominal pain as a diagnostic symptom in intestinal conditions is not only to indicate that the patient is suffering, but it enables the surgeon to locate the seat of trouble. Many lives will be saved, and thousands of others made more comfortable when physicians generally come to recognize that in all cases of persistent abdominal pain of obscure origin, exploratory operations should be performed, for it has been the writer's experience that a cause always does exist when such a pain is present, and that it is usually found with ease when looked for; in other words, when in doubt, operate. [A.B.C.]

2.—Dietetic Treatment of Arteriosclerosis.—T. L. Coley discusses the etiology of arteriosclerosis, which may affect the circulatory system in any or all of its parts. The damage done cannot be repaired. The physician can endeavor simply to arrest the process and prevent complications. Muscular work should be kept at the point of merely maintaining the cardiac hypertrophy and muscular nutrition. Persons with great responsibilities should have frequent vacations. Obese patients accustomed to overfeeding generally exercise little, are flabby and constipated. The autointoxication resulting and the overstimulation of the splanchnic nerves both increase arterial tension. We should aim at loss of weight and increased muscular tone. Some patients use foods too rich in nitrogenous elements and extractives. Theoretically, foods rich in limesalts are contraindicated, but it is doubtful whether the amount ingested can increase the amount assimilated. It is always imperative to reduce the amount of fluids whether alcoholic or nonalcoholic, these causing overdilatation of the bloodvessels and irritating the splanchnic nerves. If the alcohol habit cannot be broken, spirits or wines, but not malt liquors, should be used. We must restrict uric acid producing meats and avoid liver, kidney, and sweetbreads. [H.M.]

3.—Enlargement of the Phalanges in Rickets.—J. Sobel finds very little mention of this deformity in literature, and reports 2 cases with illustrations. The enlargement is in the diaphysis. Syphilitic lesions are at the junction of diaphysis and epiphysis. He believes the condition is frequently overlooked. He would designate the lesion as rachitic dactylitis. Radiography has demonstrated that the enlargement is periosteal. [H.M.]

4.—Treatment of Pneumonia.—D. Rochester briefly reviews the clinical course of a favorable case. Treatment in pneumonia must be directed to relieve the toxemia, prevent heart failure, and meet complications as they arise. As the kidneys are involved, they should not be stimulated to greater activity. The sweat at the crisis and occasional critical diarrhea point to the skin and bowel as preferable avenues of elimination. Catharsis is best produced by calomel and salts. Sweating is most easily induced by the mustard foot-bath scientifically given. The patient lies with flexed knees between blankets, the long axis of the tub in the line of his body and legs; another blanket passes from under the tub up over the end and over the knees; 2 to 5 blankets with a rubber sheet are placed over the patient, and the foot of the bed and tucked in. The tub at first is filled half full of hot water with a heaping tablespoonful of mustard; more water is added from time to time, and the bath kept up from 30 to 45 minutes, while ice cloths are placed on the patient's head. To prevent further bacterial invasion, the mouth should be frequently cleansed with a mild antiseptic solution. The diet should be fluid, with plenty of water to flush the excretory organs. Leeches or cups

should be applied over each congested area as it develops. With evidence of overdilatation of the right heart 8 to 12 ounces of blood should be taken from the arm. When heart failure is, in spite of this, imminent, subcutaneous injection of salt solution is sometimes valuable. [H.M.]

5.—Food Preservatives.—R. G. Eccles believes that vinegar, salt, alcohol, and smoke, possess no antiseptic properties superior to those articles which biased people wish suppressed by law. He notes the relation of salt to scurvy and its poor bactericidal properties. No death from salicylic acid is reported. In the quantities used as preservatives experience demonstrates their harmlessness. Statistics show a much lower deathrate in cities where preserved foods are most largely eaten than in the rural districts in the matter of gastrointestinal disease. Beer drinkers are shown to be freer from these diseases than the more abstemious classes of the community notwithstanding the common use of salicylic acid therein. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Typhoid Fever.—Following the usual custom of issuing a special number in each volume, the editor of the *Practitioner* has devoted the entire January number to articles dealing with some phase of typhoid fever. Sir William Broadbent contributes introductory remarks in which he states that typhoid fever in an especial manner affords scope for watchful care, well-informed judgment, and prompt intervention. The great service rendered by the thermometer has led in everyday practice to much laxity of observation in other respects and too frequently the temperature, instead of the disease, has been treated, this being even worse than treating the disease only and not the patient. The prevalence of typhoid fever abroad is discussed by Drs. F. M. Sandwith, A. Duncan and J. Cantlie in articles on that disease in Egypt, India and China, respectively. While Egyptians, especially the rural inhabitants, enjoy a comparative immunity to typhoid, it is being recognized that cases of the disease are not extremely uncommon. Winter, instead of autumn months are most productive of cases. Though it was formerly stated that typhoid did not occur among the natives of India, the contrary can now be positively asserted. The symptoms vary considerably from the classic picture, Duncan having seen a typical temperature chart in but one instance. Among the English population of India the disease is constantly increasing. Cantlie says it may be safely affirmed that Chinese adults are rarely attacked by typhoid and there is insufficient evidence to confirm the belief that children early acquire the disease and thus become immune. "Reflections on Typhoid Fever in Camps" is presented by Dr. H. H. Tooth. "The Etiology and Prevention of Typhoid" is considered by Drs. G. Newman and H. E. L. Canney. The former cites numerous concrete cases to show that spread of the disease is not at all infrequently due to infection by contact with previous cases. A second common means of infection is that of contaminated food, particularly shellfish. The writer concludes that in London, of which he writes, water-borne infection is not the chief channel, and that the two methods previously mentioned are the principal factors in spreading the disease. In connection with the above reference to the importance of shellfish in the propagation of typhoid fever, we wish to call attention to an article by Dr. Nash,¹ Medical Officer of Health for Southend-on-Sea. During the years 1902 and 1903 there were reported 798 cases of infectious diseases. Of these, 88 patients admitted having recently eaten or handled oysters, cockles or mussels, and of these 88 shellfish consumers no less than 94% were cases of typhoid fever. Following this article in the same

¹ Public Health, November, 1903.

journal is one by Major Caldwell on the "Causation of Enteric Fever Apart from Water Supply." From facts personally observed in Egypt and South Africa, given in detail, he reaches the conclusion that the only plausible explanation is that the colon bacillus underwent transformation into *B. typhosus* in the soil of various camps that had been long occupied. The water supply appeared to have little or no influence in the outbreaks. We mention these points to emphasize the fact that, though water is undoubtedly a source of infection, the occurrence of extensive epidemics, as the recent outbreak at Butler, Pa., is apt to magnify in the minds of the profession the part played by water supply in the continuous production of sporadic cases of typhoid fever. We should by all means exercise eternal vigilance regarding the water supply, but other possible sources of infection need to be just as actively investigated and removed. The contribution of Dr. Charles Bolton to the symposium in the *Practitioner* is upon "Rigors in Typhoid Fever apart from any Recognizable Complication." He reports a case, in a female of 24, in which 21 well-marked rigors occurred. The case is believed to lend support to the view that some irritation of the intestinal mucous membrane is the etiologic factor in a large number of the cases of this kind. Rigors are not usually of serious prognostic import. An article on "Antityphoid Inoculation," by Dr. A. E. Wright, is to be concluded. The treatment of typhoid is discussed by Drs. J. W. Moore, H. P. Hawkins, H. Mackenzie and Thomas McCrae (Baltimore). Each presents a plain, concise article that is well worthy of much more extended comment than our space allows collectively. The first writer lays particular stress on the value of sanitary housing in the treatment of typhoid fever and on the necessity of extreme caution in the primary cleansing of the intestinal tract that strong purgation may be avoided. A drug considered far superior to salol as an intestinal antiseptic is salicylate of quinin. Young physicians are warned against the error of adopting a routine treatment of cases. In speaking of the early diagnosis of perforation, Mackenzie says that abdominal pain is by far the most important of the early symptoms. Confirmatory general signs are change in the temperature, pulse or facies. Confirmatory local signs are abdominal tenderness or rigidity, obliteration of liver dullness, shifting dullness in the flanks, and diminished respiratory movement of the abdominal wall. Leukocytosis is considered of negative rather than positive value. In summing up the treatment of typhoid in Dr. Osler's wards, McCrae states that one of the slogans is "more water." A minimum of 3 liters (quarts) of fluid per day is the rule. Many patients take 6 liters or 7 liters daily. Too little food rather than too much is the rule. The bath treatment is employed in nearly all cases. A state of constipation is preferred. Laparotomy for typhoid perforation should almost always be done under cocaine. A summary of our present knowledge regarding paratyphoid fever, by Dr. R. T. Hewlett, and several pages of editorial comment on the subject of typhoid fever, close this very valuable series of additions to our literature on a world-wide disease.

REVIEW OF LITERATURE

Absence of Casts in Urine of Nephritics.—A. Treutheim,¹ after observing a case of nephritis with albuminuric retinitis, but without casts, performed some experiments to determine the cause of this phenomenon. He formulates his conclusions as follows: 1. There are cases of typical nephritis with albuminuria and albuminuric retinitis, in which no casts can be demonstrated in the urinary sediment. 2. This condition, which must be considered as a cylindrololysis, is not due to the pepsin excreted by the kidneys. 3. The leukocytes of an existing cystitis, which have ascended to the pelvis and the uriniferous tubules, are not capable of dissolving casts. 4. Pus

cells from kidney abscesses cannot do it. 5. It is probably due to bacterial action (bacterium coli). This may take place in the bladder, or with greater probability through ascension of the colon bacilli already in the pelvis or renal ducts. 6. The ferments of the bacterium coli do not have the power alone of dissolving casts. [E.L.]

Forms of Relapse in Typhoid Fever.—M. Coste¹ describes the different forms of relapse in typhoid fever. First there is the regular form, in which the relapse repeats the primary attack, usually with less severity and less pronounced symptoms. The rash reappears on the second to fifth day, and the relapse lasts 3 to 4 weeks. Then there is the febrile relapse without any typhoid symptoms or complications to account for the fever; the rash may not reappear in this form. There is an irregular form in which the temperature rises and falls, sometimes below normal, for 2 to 3 weeks; the rash is also irregular in its appearance. Another form of relapse is characterized by an abnormally large, daily oscillation of the temperature; the typhoid symptoms may not be well marked, but the attack may last from 3 to 4 weeks. There is an abortive type, in which the fever lasts only from 7 to 9 days, and the rash may appear toward the end, or even after the temperature falls to normal. [B.K.]

Lime Absorption of Animal Tissue and the Causation of Rickets.—M. Pfandl's² experiments show that if animal cartilage or bone in either living or dead matter is brought in contact with neutral solutions of calcium chlorid the lime gradually disappears from the solution, the chlorids remaining intact. Gelatin solution and inorganic lime plates possess the same properties. With other experiments he proves that newly-formed osteoid tissue does not have a special affinity for the inorganic components of the bone masses formed later, but that this affinity appears during transformation of the osteoid tissue, and that for this calcification a special form of heteroplasia is necessary. The cause of rickets can from this be deduced to be a change in the osteoid tissue which prevents it from taking up lime, and not, as has been claimed, a lack of lime in the diet. Bones deprived of their lime artificially will take up calcium. The process in rickets is a prevention of normal, biochemical tissue changes. [E.L.]

Treatment of Diabetes.—R. Hutchinson³ defines diabetes as permanent glycosuria. By getting rid of the sugar we are not masking symptoms, but curing the condition, as the sugar in the blood impairs still further the power of dealing with carbohydrates. Thirst, pruritus and eczema, suppurations, cataract, retinitis, perforating ulcer, neuritis, etc., are directly due to the sugar in the blood. Carbohydrates should be withdrawn gradually to prevent coma. Fat is the only true and safe substitute, though most diabetics seem inherently unable to digest it. This is, perhaps, one reason why they become diabetic. Those fats most easily digested are cream, butter, bacon, and salad oil. Gluten bread is too light, and contains starch. Casein preparations are the best. The writer recommends "Casoid Meal Bread." He has had a milk without lactose prepared. Alcohol yields heat and helps fat digestion. Malt liquors are contraindicated. In mild cases never allow patients to take carbohydrates up to the limit of their assimilating function. In the severer cases, carbohydrates may be prohibited so long as weight and appetite are maintained. When sugar persists, formed from the proteid of the food and tissues, and β -oxybutyric acid is present it is well to allow a moderate amount of carbohydrate food as a fat carrier, but from time to time these patients should be put to bed on strict diet. [H.M.]

Pathologic and Antitoxic Treatment of Tetanus.—E. v. Behring⁴ gives much valuable information about tetanus in this short paper. The greater part of the tetanus poison injected into an animal enters the lymph-vessels and from there the blood circulation. The smaller part is absorbed by the terminal nerve filaments, reaches the axis cylinder and travels centrally along intact axis cylinders to the motor ganglion cells of the spinal cord. The poison absorbed by the blood also reaches the central nervous system and produces generalized

¹ La Semaine Médicale, December 9, 1903.

² Münch. med. Woch., Vol. I, No. 37, 1903.

³ Edinburgh Medical Journal, October, 1903.

⁴ Deutsche medizinische Wochenschrift, 1903, xxix, No. 35.

¹ Münch. med. Woch., Vol. I, No. 35, 1903.

tetanus. It is absorbed by a portion of the protoplasm of the ganglion cells, and not only is it absorbed by the protoplasm of motor ganglia, but also sensory and sympathetic ganglia. The antibody acting against the tetanus poison is not an antibacterial, but an antitoxic; it may be used as a medium for the growth of tetanus bacilli. The neutralization of the poison is brought about by a destruction of the poison by the ferment action of the antitoxin, and not by combination between toxin and antitoxin in certain proportions. The fermentative action produces a third substance, which the author calls a conductor. Behring announces that every flask of his antitoxin is tested regarding its experimental antitoxic value, its curative and protective value; 100 units are its curative dose, 20 units should be injected in all cases where a wound has been received which may terminate in tetanus; as it disappears fairly quick, this must be repeated, new tetanic toxin is produced at the infected focus. It is prepared as a fluid for injection and as a powder for dry application to wounds. The sooner the antitoxin is used after the development of the disease, the greater the chances of the patient's recovery. In spite of the fact that in most cases it has not been used until very late, the mortality figures of tetanus have been reduced by antitoxin from 88% to 45%, and he concludes, that were it employed very early in all cases, this mortality would disappear, as the diphtheria mortality has disappeared. [E.L.]

A New Inhalation Method of Treating Tuberculosis.—L. Danelius and Thomas Sommerfeld¹ refer to the large number of preparations offered for the treatment of pulmonary tuberculosis, nearly all of which have failed to give the results claimed for them. While traveling in Australia, R. Schneider was impressed with the benefit derived by the natives in treating tuberculosis by means of a decoction of eucalyptus leaves. He prepared a powder from that plant and called it "Sanosin." This powder is administered by means of inhalations; it is allowed to burn in a vessel over an alcohol lamp for 15 minutes. The fumes which arise are inhaled during the entire night, and for several hours during the day. The windows and doors of the room should be tightly closed, so that the vapor will not escape. Relief after these inhalations is first noticed by the decrease in the cough and in the amount of expectoration. Insomnia disappeared, and in the authors' cases no sedatives were required during the treatment. After a few weeks the night sweats ceased, the appetite and body-weight increased, and the bacilli disappeared from the sputum. The authors give the case histories of 13 patients, all of whom were considerably relieved by the above method. [W.E.R.]

Two Cases of Stokes-Adams' Disease.—Rochemont's² first case showed a diminution in pulse-rate, not because of deficient cardiac contraction but because every second contraction was so weak as not to produce a pulse wave in either the carotid or radial artery. The cause of the disease in this case could not be determined absolutely. Against cardiogenic origin spoke the length of time the condition had existed (5 years), the regular irregularity of rhythm and intensity, the normality of the second pulmonic sound, and the fact that exertion did not influence the patient's state. The lesion most likely is situated near the vagus center, as there was always a simultaneous participation of all the pneumogastric terminations (oppression, gastric pain, respiratory disturbance, and dizziness). In the second patient an insufficiency of the left ventricle was suspected, as the pulse and heart tracing differed. In addition to marked irregularity, which was the same on both tracings, the pulse tracing shows the absence of some ventricular contractions, which are seen on the heart tracing, and in no case are the radial contractions as well marked as the cardiac. [E.L.]

Symptomatology of Thrombosis of the Renal Veins.—H. Reese³ reports a case of thrombosis of one of the renal veins, and reviews the literature. He draws the clinical picture as follows: Pains in the region of the kidney, marked albuminuria, usually hematuria; enlargement of the affected kidney; transient diminution in the amount of urine and increase in its specific gravity; usually a rise in temperature. If

recovery occurs the symptoms gradually disappear. The healthy kidney may take over the function of the other, and the symptoms may disappear. If the thrombus forms slowly, collateral circulation may develop. In the case reported, chlorosis was the cause of the thrombosis, and recovery occurred. [B.K.]

Sugar Combustion after Removal of the Entire Pancreas.—To determine why the gravity of the diabetic state varies in different animals after pancreas extirpation, and whether other organs beside the pancreas help in using up sugar, H. Luethe¹ removed the pancreas of several dogs, and placed them on absolute starvation after the operation. After no sugar was found in the urine there was still sugar in the blood, thus proving that in this case sugar was burnt up by the organism. The dog was given nitrogenous food and the sugar at once reappeared. As a histologic examination of the duodenum showed well-preserved microscopic remnants of pancreas, the combustion of the sugar may have been carried on by it. In his next experiment he removed the pancreatic segment of the duodenum as well, with the same results in regard to sugar combustion. Animals, therefore, whose urine after pancreatectomy has been made sugarless through starvation, are still burning up sugar, as proved by the presence of sugar in the blood. Which organ does it? The fact that sugar disappeared from the urine only after the dogs were placed upon diet absolutely free of nitrogen, shows the dependence of a diabetic state upon the nutrition of the patient. [E.L.]

Empyema in Infants.—E. Guglielmetti² considers latent or insidious empyema occurring at the base of the lung in children or infants. There the lesion may escape detection. But the health of the child deteriorates. Considerable space is given to symptoms and attention drawn to the danger of carelessness leading to the confusion with marasmus in the event of neglect of physical signs. Tuberculous infection is discussed. Upon such a child the effects may be both indirect and toxic, as well as direct and microorganismal. Prognosis is unfavorable; early diagnosis difficult, and treatment being only of moderate success. [T.H.E.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

Radium and Röntgen Rays in the Treatment of Inoperable Carcinoma.—The sensational reports which have appeared in the daily papers of late are of the kind that usually appear when any new thing is introduced in the treatment of disease; they always do harm by arousing the expectations of credulous people, only to disappoint them in a large measure. That much has really been accomplished in the treatment of inoperable malignant growths by the use of the röntgen rays no fair minded person can doubt, and reports which are beginning to come to us seem to indicate that the radium rays may also be of some value. An interesting review of the more important work which has been done all over the world is given in a recent paper by Dr. Truman Abbe.³ He discusses the physiologic action of radium rays and tells us that the activity of a specimen is estimated by the time required for the salt of chlorid of barium and radium, which is commonly used, to discharge a gold-leaf electroscope. The time required for the discharge of such an electroscope by metallic uranium is taken as the standard and if the specimen of radium discharges the instrument in a thousandth of the time required by the uranium the strength is taken as 1,000. Specimens of high strength are usually employed; anywhere from 1,000 to 300,000. The rays differ considerably from the röntgen rays; the photographs made by them are blurred in outline so that the rays are not likely to supersede the röntgen ray for this

¹ Berliner klinische Wochenschrift, June 8 and 15, 1903.

² Münchener medizinische Wochenschrift, 1903, 1, No. 37.

³ Deut. Archiv f. klin. Med., Bd. lxxviii, p. 588.

¹ Münchener medizinische Wochenschrift, 1903, 1, No. 38.

² Il Policlinico, Rome, September 19, 1903.

³ Washington Medical Annals, 1904, Volume II, page 363.

purpose. Like the röntgen ray, they inhibit the growth of certain bacteria, but this is of doubtful practical value. Brief summaries are given by Abbe of 32 cases of inoperable carcinoma, which have been treated by surgeons in different parts of the world by the use of the röntgen rays. Many of these were apparently much improved, at least temporarily, and two or three were apparently cured. A number who have experimented with the radium rays report better results than with the röntgen ray, though, of course, they have not been used for a long enough time to give sufficient material as a basis for fair comparison. Dr. Robert Abbe, of New York, treated a case of epithelioma with the röntgen ray and radium rays, covering half the growth with lead while using the röntgen ray, then reversing the lead covering, and treating the other half with radium. During the first week the radium had the advantage, then for some reason the röntgen ray took the lead and at that point, to hasten the results the entire area was put under the röntgen ray treatment, and was completely cured with a good, cosmetic effect. It can hardly be expected that one in ten of the cases treated will be cured, though this is the proportion in the cases thus far reported, but we confidently expect that there will be a large enough percentage of cures to justify the use of this treatment. Members of the medical profession should certainly make use of these and other means of treatment of inoperable carcinoma which are at hand, for if patients are given no encouragement whatever, they are almost certain to fall into the hands of quacks and irregulars, who fleece them, and usually add to their sufferings without in any way improving their condition. No one can question that certain cases of inoperable carcinoma are apparently cured, in a small proportion of cases, by the use of the röntgen ray, Adamkiewicz serum, and the use of certain caustics. All of these means are very uncertain, and should never be used in cases suitable for operation, but in inoperable cases they can be used, and the patient given assurance that a number of cures have resulted from their use. From the small amount of experience which has thus far accumulated, we judge that radium will prove a valuable addition to the list of therapeutic measures which we already have for use in such cases.

REVIEW OF LITERATURE

Evacuation of Gallstones by Flushing of the Biliary Passages.—F. Kuhn¹ employs these flushings during the operation and through existing fistulas under a pressure of from 200 mm. to 1,000 mm. of water. Normal salt and other solutions come in use. The purpose is a three-fold one—diagnostic, medicinal and mechanical. He has found that if a stream of 25 cc. under a pressure of 50 c. does not enter freely an impediment exists, between 50 cc. and 100 cc. indicate very wide passages. Small calculi may be removed through this flushing and often are; large ones are not. At times it may be necessary to use high pressure with simultaneous injections of morphin and atropin to remove foreign bodies from the passages. In 1 case he removed all the stones he could find during operation, and during this rinsing he was able to bring away about 40 more, which had come down from the upper passages. By using this means we simply produce an artificial gallstone colic, arranging our pressure however, as we wish to and continuing the process only as long as we want to. Gallstone colic, it must be remembered, is only an expression for an increased pressure along the biliary passages, produced through an impediment to the free flow of the biliary secretion. [E.L.]

Gunshot Wound of the Stomach.—E. Forgue and E. Jeanbrau² conclude a paper begun in the September issue. They consider in order the following points: The area of gastric vulnerability, the principal lesions that may result from a projectile penetrating this area, the frequency and variety of the visceral lesions that may accompany perforation of the

stomach and mask the symptoms, aggravate the prognosis, and increase the difficulties of intervention; the proportion of cures following operation, according to the presence or absence of accompanying lesions and the time of intervention. They present a table of 152 collected cases, which are grouped into those treated by laparotomy and those treated by expectation. The summary shows that the mortality from gunshot wounds of the stomach, without accompanying visceral lesions, treated by expectation, was 46%; treated by operation, 42%. In the cases with accompanying visceral lesions treated by expectation, the mortality was 93%; treated by operation, 68%. The general, though not absolute rule, for treatment is that when a person receives a bullet wound in the left hypochondrium or the epigastrium, laparotomy should be immediately performed. Death is not certain if the abdomen is not opened as spontaneous cure has occurred, but it is not possible to say what case will have this fortunate termination. The article closes with a discussion of operative technic. [A.G.E.]

New Method of Hip-joint Amputation for Sarcoma.—Cornelius A. Griffiths¹ reports the case. The patient was a girl of 16 suffering from a large sarcoma of the right thigh; the patient refused operation until in a condition of great emaciation and systemic depression, though recovery followed. The interesting feature in the case consists in the method of amputation. The vertical rim of a racquet-shaped incision was commenced 5 cm. (2 in.) above the trochanter, and into this incision at its upper end was inserted the smooth blade of a pair of long forceps; this was pushed inward parallel to Poupart's ligament for its whole length and immediately in front of the hip-joint and the femoral vessels, the other blade being outside the skin, the forceps were then closed, thus clamping the vessels in what would become the anterior flap. Another pair of forceps was used, the deep blade passing beyond the neck of the femur; these controlled the circulation of the posterior flap. The oval part of the incision was now marked out and cut, muscles divided, the joint opened in front and limb removed as is usual. The vessels which could now be seen were ligated without difficulty, and the wound closed in the usual manner. The author believes that his is a distinct improvement in technic for preventing hemorrhage in amputation at the hip-joint. [A.B.O.]

Massage in the Treatment of Recent Fractures.—Jordan² practises stroking massage from the very onset of a fracture, and as soon as possible adds passive movements to it. He reports his results in 73 patients, 40 of whom suffered with fracture of the radius. Of the 73 patients, 27 had passed the fortieth year. Full return of power was noted in 67; the other 6 were more or less incapacitated. He sums up his experiences as follows: All fractures of the upper extremities are suited to massage and passive movements; if it is a fracture into a joint or the shaft is but slightly dislocated, fixation must follow each treatment; if there is considerable dislocation of fragments, massage must be associated with permanent fixation until sufficient callus has formed. In fractures of the lower extremities, massage must be limited to joint fractures, and be combined with dressings suitable for walking. The pain disappears quickly, and the muscles are not permitted to atrophy. Cures are much more rapid and perfect with this method. [E.L.]

Diagnosis of the Site of Occlusion in Ileus.—E. Tavel³ concludes a lengthy article, begun in the August number, in which he first discusses the causes, symptoms and general diagnosis of ileus and finally the location of the site of the lesion. He believes that many questions regarding the diagnosis of obstruction, its location, and the propriety or not of surgical interference can be settled only by each surgeon reporting detailed studies of his individual cases. He practises his teaching by reporting from among his own cases 24 that illustrate certain points in diagnosis which are emphasized in the text. These cases include instances of obstruction of all of the principal parts of the intestine and are given in order, beginning with the pylorus and ending with congenital atresia of the anus. This valuable contribution, of which even the salient points cannot be enumerated in a brief abstract, closes with a

¹ Münchener medizinische Wochenschrift, 1903, I, No. 39.

² Revue de Chirurgie, December 10, 1903.

¹ British Medical Journal, December 10, 1903.

² Münchener medizinische Wochenschrift, July 7, 1903, No. 27.

³ Revue de Chirurgie, December 10, 1903.

review of the symptoms of occlusion classified under (1) general symptoms; (2) symptoms furnished by the intestine and peritoneum; (3) symptoms furnished by local examination; (4) symptoms of occlusion of different points in the intestinal canal. Under the latter are included 10 different sites. [A.G.E.]

Traumatic Hernia of the Lungs without Penetrating Wound.—A. Bickel¹ reports the case of a man who received a blow on the left side of the chest, which fractured several ribs. No external wound was produced, but the development of bloody expectoration and subcutaneous emphysema showed that the pleura and lungs had been wounded. The immediate results of the contusion disappeared, but examination of the patient more than a year later showed a hernia of the lung had developed. The hernial opening consisted of a widening of the fourth left intercostal space just below the nipple. On forced expiration a swelling appeared in this region, which evidently contained pulmonary tissue. [B.K.]

Hard or Soft Paraffin for Subcutaneous Injections.—E. Stein² is a firm defender of soft paraffin; its melting point should never be more than 41° C. (105.4° F.). Harder paraffin should only be employed in cases where large cavities with firm walls require obliteration. In all other cases it is contraindicated, as it increases the danger of embolism. The material should never be injected in fluid state, but always while in a pasty condition. He never injects more than 3 cm. at a sitting. The mass, as proved by animal experiments, is not absorbed, but encapsulated, and separated into compartments by connective-tissue trabeculas; this shows that the result in each case is a permanent one. Immediately after injection slight edema appears; this disappears regularly within a few days. By injecting too much at a time, cutaneous gangrene may be produced. [E.L.]

Chylous Cyst of the Ascending Mesocolon.—Meriel³ says that notwithstanding progress in the science of diagnosis there are certain abdominal cases in which the knife is the only means of diagnosis; in still other cases the origin of the tumor cannot be determined even after the abdomen has been opened. The case which he reports belongs to the latter class. The patient was a robust woman of 45, who had had an abdominal tumor during 10 months which had been diagnosed as ovarian cyst. On her entrance to the hospital the tumor, which was the size of an adult's head, occupied the right flank and iliac region. It was regular in outline, movable transversely, but not vertically, and followed the movement of the diaphragm. It was dull, except for a vertical band corresponding to the ascending colon. Vaginal and rectal examinations revealed no connection with the pelvic organs, and although doubt was felt the diagnosis of ovarian cyst was made. When the abdomen was opened in the median line, and the ascending mesocolon incised the tumor was easily exposed. The cyst was then punctured with a trocar, and 2 liters of a thick creamy fluid evacuated. The superior limit of the sac could not be located, but it was determined that the kidney was not involved. The anterior part of the sac was extirpated, and the posterior fastened to the abdominal wall. Abundant suppuration followed, but recovery was finally perfect. The histology of the cyst wall in connection with the other facts leads Meriel to decide that the condition was one of chylous cyst of the ascending mesocolon which had been immobilized by inflammatory processes in a situation where extirpation was impossible. The diagnosis of these conditions lies between that of chylous cyst and perirenal cyst. [A.G.E.]

Treatment of Prostatic Hypertrophy.—L. Casper⁴ reviews the results of treating 131 cases of prostatic enlargement. Out of 61 cases not operated on, 4 were cured, 38 improved, 8 not improved, 4 became worse, and 7 died. He divides his cases into 2 groups: One division includes those patients who are able entirely or almost entirely to empty the bladder, and the second division those who are unable to do so. Many patients do well when constantly catheterized, but in catheterizing it is important that the bladder be emptied slowly and not entirely at each catheterization; this is particu-

larly important in the absence of cystitis. The variation in tension of the bladder wall is one of the most potent factors in the development of cystitis. In the absence of the latter, catheterization should not be resorted to, unless there is as much as 300 cc. to 400 cc. of residual urine. Casper has not obtained very good results by vasectomy and castration. Bottini's operation does not always cure, but in 50% of his cases improvement followed this procedure. Electrolysis by way of the rectum was once recommended by him, but he now no longer practises it; nor does he have much confidence in puncture of the bladder or suprapubic cystotomy. In case of a small bladder, a permanent catheter should be used, and left in place for months. The end of the catheter should have a stopper, which may be removed when desired. The bladder should be irrigated twice daily, once with a silver solution of 1 to 1,000 or 1 to 4,000, and the other time with a solution of mercury in the strength of 1 to 5,000. Cases of prostatismus are difficult to treat. Instead of using a catheter in such cases, he resorts to hot sitz baths, thermophore compresses, soothing or narcotic remedies. Casper considers the operation of prostatectomy through a *sectio alta* too severe for any but young men with vigorous constitutions. [W.E.R.]

Lipoma of the Intestine.—S. B. Ward¹ reports 3 cases, two occurring in the service of Dr. McDonald. Ward's case occurred in a man of 37, who for some months had suffered from paroxysmal pain resembling biliary colic. He finally passed spontaneously from the bowel an egg-shaped mass, 11 c. by 4 c.; (4½ in. by 1½ in.) in size, that was found to consist entirely of fat in a connective-tissue framework. Complete relief from symptoms followed. Dr. McDonald's cases were in females of 29 and 50, respectively, the diagnosis being verified by operation in each. In one the tumor was in the jejunum, and had caused invagination of the intestine; in the other it was a sessile tumor in the cecum. Ward tabulates 37 reported cases of lipoma of the intestinal tract, and gives a brief review of each. The site of the tumors was: Esophagus, 1; stomach, 1; duodenum, 4; jejunum, 4; ileum, 5; small intestine (part not specified), 2; colon, 5; sigmoid flexure, 2; rectum, 2; retrorectal, 2; unknown, 9. The sex was, male, 16; female, 10; unmentioned, 11. Spontaneous expulsion occurred in 9 cases, invagination in 12. Death followed operation for the relief of the obstruction in 5, and in 1 case death was due solely to the obstruction. Nine cases were incidentally found during autopsy. [A.G.E.]

GYNECOLOGY AND OBSTETRICS

WILHELM KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

Vaginal Drainage.—Goldspohn² thinks that abscesses occurring in the areolar tissue about the cervix over the vaginal vault, will usually make themselves known by some encroachment upon the vaginal cavity, and should be opened from the direction in which they point—into the vagina. Hematoceles, and sometimes circumscribed peritoneal exudates, when they become infected, will form abscesses that are readily accessible from the posterior culdesac and should certainly be evacuated into the vagina, and obliterated by means of suitable drainage into it. If there are inflamed appendages or nonpurulent exudates higher up, they are thereby given a better chance for spontaneous improvement or recovery; and in case a secondary celiotomy is required later it will be with less extirpation of adnexas and less mortality than would have obtained in a primary radical operation. More questionable is the proposition to drain tubal sacs which occur in distinctly organized lumina, lined with mucous membrane, or to drain ovarian abscesses because of their multilocular or honeycombed structure. But large unilocular tubal sacs can be emptied and packed; also ovarian abscesses whose honeycomb structure can be broken down by a finger into one cavity, may be drained and solidly packed. The gauze packing in these cases should remain in situ at least a week—first for drainage, and then its continued presence is needed to hold the walls of the sacs or

¹ Deut. Archiv f. klin. Med., Bd. lxxviii, p. 550.

² Deut. med. Woch., 1903, Vol. xxix, Nos. 36 and 37.

³ Revue de Chirurgie, December 10, 1903.

⁴ Berliner klinische Wochenschrift, June 15, 1903.

¹ Albany Medical Annals, January, 1904.

² American Jour. Obstet., November, 1903.

cavities widely expanded and to arouse a layer of granulation tissue upon by its irritation as a foreign body. In Goldspohn's experience most of the cases requiring a secondary radical operation after vaginal drainage, have been those in which the infection came from the vermiform appendix. A secondary operation was required in only 10% of the cases in which the infection came by way of the genital tract. [W.K.]

Relationship of Colon to Abdominal Tumors.—J. F. Baldwin¹ claims that the position of the colon in relation to an abdominal tumor is often an efficient aid in determining its origin. Tumors originating in either ovaries or uterus will be in the central region. The colon will be found in front of the tumor or toward its inner side. Tumors of the adrenals, or in the perirenal tissues, or from the Wolffian body, will produce an anterior or inward displacement of the colon. A tumor developing in a movable kidney usually appears outside the colon, though it may eventually enter the central area. The spleen must necessarily be on the outside of the colon, or, if greatly enlarged, will override it entirely. Bearing this fact in mind, there should be no difficulty in the differential diagnosis between tumor of spleen, kidney and ovaries. Enlargement of the liver crowds the colon down, also that of the gallbladder. Tumors of the stomach will, of course, crowd the transverse colon downward. Tumors of the pancreas are mistaken in the female for those of the ovary. But this mistake should be obviated by the fact that in 95% of these cases the tumor appears above the colon. [W.K.]

Creolin: A Note of Warning.—S. Rideal² says that the term creolin was invented many years ago as a fancy name for an emulsion of cresols and neutral tar oils in a soap solution and that different manufacturers have from time to time modified the nature and proportions of the various constituents without warning to the public. The carbolic acid coefficient of samples of creolin purchased in Brussels, Hamburg, and London was determined and the disinfectant value found to range from 1½ to 16 times that of pure carbolic acid. Chemic examination showed the samples to differ widely in their percentages of tar acids and neutral oils. These figures are not proportional to the bactericidal efficiencies, however, and a valuation based on their content of tar acids alone would be entirely erroneous. Their bromin equivalents are likewise of no value for this purpose. The Germans have made some efforts to distinguish between different grades, but have not entirely succeeded. Rideal thinks that if the term creolin is to remain in the literature of the subject, a statement of the germicidal value of the disinfectant in terms of some standard should be insisted on in all cases. [A.G.E.]

Treatment of Hematocele.—Paul Zweifel³ asserts that the rupture of the tube is not by any means always delayed until the third or fourth month, citing a case in which the hemorrhage occurred only 8 days after the first omission of the menses. Thus the ovum could not have ruptured the tube by distention, and as it had reached the serosa and grown through it into the abdominal cavity, it must have done so by an active process. Several cases have been recorded in the Leipzig clinic in which the placenta had undoubtedly grown through the wall of the tube, and even through the peritoneum. The true explanation that in tubal gestation the ovum almost invariably eats its way into the tubal musculosa has been established as a fact by the researches of Fuetth, Aschoff, Kuehne, and many others. Whether the hemorrhage that follows is moderate and the blood soon encapsulated by clotting, or whether it pours into the peritoneal cavity to such an extent as to endanger life, is a mere chance. Moreover, the capsule of the ovum may give way first in the tube, blood may pour through the abdominal ostium, and a tumor be formed in the Douglas' pouch, yet the ovum may continue to grow and afterward eat through the tube wall in another place. When a pregnant woman is attacked with symptoms of peritonitis—that is to say, with great pain in the hypogastrium, swooning, collapse, vomiting, decreasing volume of pulse, if there be no fever, an erosion of a gravid tube must be at once suspected, and immediate operation accepted as absolutely necessary. [W.K.]

Fifty Cases of Artificially Interrupted Pregnancy.—These cases are reported by R. Karb.¹ The indications for artificial interruption of pregnancy fall into 2 groups. The first includes those conditions threatening the life of the mother; and the second group comprises the contracted pelvis in which an attempt is made to save the life of the fetus. The first group included nephritis of pregnancy, 10 cases; nephritis and eclampsia, 2 cases; heart disease, 5 cases; tuberculosis of the lungs, 10 cases; purulent bronchitis, 1 case; pernicious vomiting, 3 cases; hydramnios, 1 case; grave hysteria, 2 cases; movable kidney and cholelithiasis, 1 case. The group of contracted pelvis included 15 cases. Seven of the cases of nephritis were greatly benefited by the interruption of pregnancy, as were also 4 cases of heart disease and 7 cases of tuberculosis. The maternal mortality in this first group of cases was only 8.57%, in spite of the serious diseases involved. The fetal mortality was 70.9%. Of the second group, 6 patients had flat pelvis, and 9 were generally contracted. All the mothers recovered, while the fetal mortality here was 53.4%, which the author considers very unsatisfactory. [B.K.]

Shortening the Round Ligament.—H. W. Longyear² describes the technic of shortening the round ligament by the blunt hook operation, and believes that this offers the patient the most for the least risk. The operation is applicable only in cases of mobile uteri without diseased appendages—in which cases it is an ideal procedure—or in cases in which adhesions may have been broken up previously by an abdominal operation. A tabulated record of 58 cases is given, only 4 of which were partial or complete failures. The interior of the uterus should be examined with the curet in all cases that have not been curetted at a recent date. Occasionally a curet is not necessary, but usually the uterus which has been in retroversion some time will be found to contain more or less degenerated mucosa. [W.K.]

Selection of Methods in Abdominal Hysterectomy.—H. A. Kelly³ urges conservatism in some of the worst pelvic abscesses. In relative value to a woman the tubes are least, the uterus next, and the ovaries the most important. With removal of the tubes only conception goes, but menstruation, ovulation, and internal secretion are retained. If the ovaries must go it is better to remove uterus and tubes also. In hysterectomy the round ligaments should always be tied to prevent slow hemorrhage. [H.M.]

Lacerations of the Cervix and Their Consequences.—J. W. Taylor, of Birmingham,⁴ says that in most of the septic cases to which he has been summoned he finds serious laceration of the cervix, of the vagina, and of the peritoneum as the wounds from which the septic and generally fatal process has started. The greater number of minor lacerations of cervix heal without consequences; but those of a major degree may cause sepsis, subinvolution, serious menorrhagia, uterine descent and flexion, cervicitis, abortion, sterility, atrophy of the uterine wall at the highest limit of the tear and finally epithelioma. The troubles due to uterine lesion, only, can all be completely cured by repair of the laceration, combined with a preliminary curetment. A wedge-shaped excision of the cervix is often needed before the lacerated parts can be brought together, and the angle of the tear needs complete excision. When the injury extends into the vaginal roof and broad ligament, something more than repair of the uterus is needed, as the faulty position of the uterus, the cicatrix in the broad ligament and consequent dragging are still sources of pain and discomfort. In such cases, he has sometimes tried to reattach the broad ligament to the cervix at its proper level, but with only partial success, and in the worst of these the only thorough relief to be obtained is by removal of the uterus. [W.K.]

Vaginal Cesarean Section.—Duehrssen's operation, on account of delayed labor and premature amniotic breaking, is reported by Proubasta.⁵ The patient, long neurasthenic, had suffered an unusual series of accidents, and the irregular progress of the case is curious. Following extraction of the fetus,

¹ *Zelt. für Heilkunde*, Bd. xxiv, 1903, Heft 12: Abth. f. Chirurg., Heft 4, p. 289.

² *Amer. Jour. of Obstet.*, November, 1903.

³ *Glasgow Medical Journal*, October, 1903.

⁴ *British Gynecological Journal*, November 8, 1903.

⁵ *La Escuela de Medicina*, Mexico, Octubre 15, 1903.

¹ *American Jour. of Obstet.*, November, 1903.

² *Public Health*, December, 1903.

³ *Brit. Gyn. Jour.*, November, 1903.

which lived, there seems to have occurred maternal infection, for cultures developed staphylococci and streptococci. Then the mother acquired a panophthalmitis with ocular complications of extreme gravity, succeeding its cure. After some months complete health was attained. [T.H.E.]

Causes of Death following Pelvic and Abdominal Operations.—J. Price¹ thinks that many deaths are due to incomplete operations done by incompetent and untrained operators. This is especially true in many small hospitals throughout the country; and he advises his pupils and friends not to undertake complicated and unpromising operations, but to allow more experienced operators to do them. Vaginal incisions and perforations favor a high mortality in later operations made for the clean removal of the remaining pelvic pathology. The choice of method and material is of paramount importance to good work, and the suprapubic procedures, when complete and done early, drainage used when necessary, should give a mortality close to nil. In suppurative forms of tubal and ovarian disease, Price does not consider the vaginal route as complete surgery; the adherent omental and bowel adhesions and the diseased appendix are wholly neglected. The anesthesia is important though he has little choice between ether and chloroform, but a good anesthetist is important. He emphasizes also the importance of good after-care. His nurses keep his mortality down and we should pay even more attention to this specialty. In regard to material Price considers the medical supply carpet bagger a dangerous man. The preparations of material by anyone in hospitals and used by clean well-schooled hands is safe and rarely gives mortality, but pure silk and silkwormgut are the safest and strongest of all materials. Gauze is a drainage dressing that takes the best care of the wound of all materials ever tried. Cleanliness and everlasting vigilance in cleanliness from the very inception of an operation, in patient, nurse, operator and environs, distances infection. [W.K.]

Reduction of Inverted Uterus.—R. Matas² gives in detail the technic by which an inverted puerperal uterus of 6 weeks' standing was reduced in one night by means of the colpeurynter. When the patient was seen the uterus was edematous and the mucosa presented a red, angry, strangulated appearance, bleeding at the least touch. It was decided to first check bleeding. The uterus was irrigated with hot 2% lysol and swabbed freely with hydrogen peroxid. With the patient in the knee-chest posture a 1 to 2,000 adrenalin solution was then applied to the uterine mucosa. A bag of iodoform gauze loosely filled with compound alum powder was then adjusted to the fundus and the vagina packed with gauze. When this pack was removed, 24 hours later, the uterus was much reduced in size, and all bleeding had ceased. After a hot douche followed by another application of adrenalin and peroxid, the patient was again placed in the knee-chest posture, a layer of iodoform gauze placed over the uterus and a large oval colpeurynter introduced into the vagina and inflated until the vaginal walls were fully distended. When the bag was removed, on the following morning, it was found that the inversion had been completely reduced. [A.G.E.]

The Gilliam Operation.—Since Gilliam suggested his operation 3 years ago, E. J. Ill¹ has performed 126 operations for retrouterine displacements, of which 86 were done by the Gilliam method. There were no deaths. A personal report has recently been received from 61 of these cases, and 51 report themselves as entirely well, 6 as markedly improved, and 4 as no better. Five were pregnant, and 2 had given birth normally. Only 1 case is reported as a recurrence of the displacement. In this case in opening the abdomen to ascertain the cause, it was found that that part of the round ligament beyond the suture was atrophied, while the near end retained its normal thickness. The atrophy was probably due to the fact that the ligature was drawn tight, strangulating the central artery. The writer modified the Gilliam operation by separating the rectus abdominis from its anterior sheath and then repiercing the rectus muscle, the inner sheath of the rectus, and the peritoneum. The ligament is then drawn out, as Gilliam taught, but

fastened to the posterior surface of the anterior sheath of the rectus with chromicized catgut, thus leaving the strong fascia intact. This was to prevent hernia. [W.K.]

Vaginal Cesarean Section.—M. Stamm¹ states there are over 60 cases of vaginal cesarean section reported, the majority of which were undertaken for cancer of the uterus, but the number performed for puerperal convulsions is increasing rapidly, and it seems that this trouble will furnish the chief indication for such operation in the future. Most authorities seem to agree that rapid delivery is the most important measure to reduce the mortality in eclampsia. He thinks that in vaginal cesarean section the incision is more under control and the wound gives more promise of healing by primary intention than the lacerations made by the use of Bossi's dilators or similar instruments. A longitudinal incision of 5 cm. to 7 cm. (2 in. to 3 in.) is made in the anterior wall of vagina, the bladder pushed back, a sagittal incision made through the anterior of the os, and through the lower segment of the uterus. Repeat this until, without opening the peritoneum, an incision of 8 cm. to 12 cm. (3 in. to 5 in.) is made. This is generally large enough to extract a mature child. If not, then make a similar incision in the posterior portion. In a majority of cases it is best to wait for the natural expulsion of the placenta, or if it does not follow soon, some pressure upon the uterus can be used. An illustrative case is reported. [W.K.]

Intestinal Obstruction Due to Ovarian Cyst and Pregnancy.—P. I. Kusmin² reports the case of a woman who suffered from an ovarian cyst, and who became pregnant. During the eighth month of her pregnancy, symptoms of intestinal obstruction suddenly supervened. Laparotomy was performed and the cyst found to be $3\frac{1}{2}$ times twisted on its axis. The tumor, the size of a man's head, was removed, and the patient recovered and went on to full term, being normally delivered of a heavy child. The site of obstruction was found in the sigmoid flexure, which had been tightly pressed against the pelvis by the tumor. The author adduces similar reports from literature, and concludes that pregnancy in a woman suffering from an ovarian cyst is an indication for immediate ovariectomy. If successfully performed, the operation has no deleterious effects on the further course of pregnancy and on labor, while without an operation the life of mother and child is in constant danger. The presence of an ovarian tumor may and often does escape the notice of the pregnant woman until complications arise. [L.J.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Hyoscin in the Treatment of Paralysis Agitans.—A. Rose³ reports that a woman of 69, who had suffered 5 years from paralysis agitans, came under his observation. She was constantly growing worse. He instituted treatment which consisted in the internal administration of hyoscin hydrobromate, commencing with a dose of .4 mg. ($\frac{1}{100}$ gr.) in aqueous solution twice a day. From the very first the drug appeared to have a marked effect; after 4 doses the tremor lessened in violence and after 4 days was hardly noticeable. The neuralgic pains gradually subsided, the dropsy and dyspnea disappeared and her gait became natural, though the characteristic posture remained the same. He has continued this treatment, as indicated, for the past 15 months, and the patient has very much improved during that time. At no time has he given a dose greater than .6 mg. ($\frac{1}{100}$ gr.). He believes the drug is almost a specific in this affection. [A.B.C.] [This is an old and very useful, but not a specific treatment. S.S.C.]

Application of Cold Compresses to the Chest.—C. Fernet⁴ has employed cold compresses for 15 years in various pulmonary congestions. He has found this method of treatment very useful in the pulmonary congestions of typhoid fever and of

¹ Amer. Jour. Obstet., November, 1903.

² New Orleans Medical and Surgical Journal, November, 1903.

³ Amer. Jour. of Obstet., November, 1901.

⁴ Medizinskoje Obosrenie, ix, No. 12.

⁵ British Medical Journal, December 19, 1903.

⁶ La Semaine Médicale, December 23, 1903.

influenza; also in bronchopneumonia, whether primary or secondary, when the pneumonic areas are surrounded by congested zones; also in the peripneumonic congestion of croupous pneumonia, especially in alcoholics. He has also used cold in the treatment of acute edema of the lungs, hemoptysis of incipient tuberculosis, and in the tachycardia of infectious diseases, organic heart disease, or exophthalmic goiter. The mode of application consists in wringing a folded cloth out of cold water, laying it on the desired region for a half minute, and then replacing it by another similar compress for another half minute. Should it be desired to prolong the action of the cold, it is necessary to change the points of application, as it is the sudden impression of the cold which accomplishes the desired results. The applications may be repeated every 1 to 2 hours. [B.K.]

A New Method of Employing Adrenalin.—Mignon¹ uses an ointment of adrenalin with vaselin for local application in place of the ordinary solutions of this drug. The following formula is used:

Adrenalin 0.03 gm. ($\frac{1}{2}$ gr.)
Liquid vaselin 3 gm. (45 gr.)

To this is added:

White vaselin 12 gm. (3 dr.)
Spirit of geranium 3 drops
Lanolin 15 gm. (4 dr.)

This preparation has been successfully used in the treatment of hemorrhoids and in rhinology. Its action is a little less rapid than after the employment of a 1 to 1,000 solution, but it is more prolonged. The ointment is preferred to the solution when persistent ischemia is desired, as in acute rhinitis, recurrent congestive rhinitis with or without hydrops. In cauterization of the nasal mucous membrane, it prevents secondary congestion. In operations which may be followed by secondary hemorrhage, it is well to apply first a 1 to 1,000 solution of the drug and follow this by an application of the ointment. By its use it is sometimes possible to avoid tamponing in cases of hemorrhage. [L.F.A.]

Exercise as Related to Function.—Luther Halsey Gulick² insists that the body as a whole, and each of its parts is best exercised in accordance with its natural function. The far-reaching character of this principle is not easily seen at first glance. The upper extremity is obviously adapted for the handling of objects. The great range of movements allowed by the shoulder-joint as contrasted with the hip-joint, the structure of the forearm as compared with the leg, allowing not only flexion and extension, but pronation and supination in the arm, the more delicate structure of the hand, the independence of the phalanges, the more differentiated nerve supply to the muscular tissue—all point to a difference in function in these two organs: the lower extremity as a whole being adapted for power, the upper extremity for varied action, delicacy, quickness of movement, and the like. It is true that the upper extremity may be trained so that the weight of the body shall be handled by it alone for considerable periods. This is done by performers on the horizontal bar, the German horse, rings, and the trapeze; but it is a departure from the normal function of the arms, and results in limitation of the movements at the shoulder-joint, the stiffening of the ligaments of the hand, and general perversion of function. On the other hand, it is possible to train the legs to exercises of great skill and delicacy; jugglers who learn to handle objects with their feet while lying on their backs accomplish this. In neither case are the results worth the labor expended. They are not in line with the natural functions of the organs, and the best development of each part of the organism is related to its natural function. The physician's aim is not to see what each part can be trained to do, but to get each part into its normal condition. The body can be trained to do and to endure many things that are not only useless, but harmful. Because a man can learn to walk on his hands is not sufficient argument for men to adopt that mode of locomotion; because the shoulder-joint can be made to resemble somewhat the hip-joint is no reason why it should be

made to do so; so that, excepting conditions dependent upon pathologic states, it may be safely said as a general proposition that the exercise of the body as a whole, and of its parts in particular should be related to the natural functions.

Influence of Alcohol upon Muscular Force.—M. L. Schnyder¹ has studied the action of alcohol upon muscular energy and contraction by means of the ergograph of Dubois. The alcohol was given in the form of Bordeaux wine, which represents 16.7% of absolute alcohol. Of this, 5 ounces were given upon an empty stomach 15 minutes before work. The following conclusions are drawn: 1. Alcohol exercises a favorable action on muscular force when it is given in small quantity on an empty stomach, but only when as a result of previous physiologic conditions of the organism the reserve force of this organism is somewhat lessened. 2. This favorable action, however, remains below that of a food of the same dynamic coefficient. Furthermore, it is counteracted by the paralyzing action of alcohol on the nervous system, an action which according to the physiology of the individual is more or less pronounced, and which may be the cause of apparently contradictory results. 3. If the organism, as a result of the ingestion of other food substances, disposes of sufficient reserve force, alcohol has no longer any value as a producer of force; on the contrary, its paralyzing properties become predominant and cause a progressive diminution of the power to work. [L.F.A.]

Diuretic Action of Theophyllin.—H. Kramer³ calls attention to the diuretic action of theophyllin, which is a synthetic compound of the dimethylxanthin group. Experiments upon animals and clinical experiences have shown that its diuretic action is more powerful than that of theobromin. This action is very marked in the treatment of acute ascites. The diuretic effect is manifested soon after ingestion, and is increased for 6 hours after its absorption. If its administration is stopped, the diuresis quickly diminishes. Theophyllin does not influence the pulse-rate, arterial tension of the nervous system, but secondary nausea and vomiting are frequent. The drug is usually given in powder or in aqueous solution in the dose of from .32 gm. to 1 gm. (5 gr. to 15 gr.). [L.F.A.] [Its action clinically is marked at first, but is followed by reactionary suppression of urine. It must, therefore, be substituted by an alkaline diuretic after 2 days. S.S.C.]

Preventive Treatment of Hepatic Colic.—M. Chafford⁴ recommends sodium salicylate and sodium benzoate to prevent attacks of hepatic colic. If the kidneys are healthy he administers daily 1 gm. to 2 gm. (15 gr. to 30 gr.) of sodium salicylate with an equal quantity of sodium benzoate according to the gravity of the case and the tolerance of the patient. To this he sometimes adds 1 gm. to 2 gm. (15 gr. to 30 gr.) of Carlsbad salt. These substances are usually given in cachets at meal time. This treatment is continued for from 10 to 20 days in each month, according to the gravity, the number of crises and the duration of the remissions obtained; these remissions last, in some cases, a month, and in others over a year. Cessation of the attacks is obtained only after perseverance in this treatment. [L.F.A.]

Tincture of Iodin in the Treatment of Pulmonary Tuberculosis.—Delearde⁵ directs that patients suffering from pulmonary tuberculosis shall take a dessertspoonful of the following solution 2 times a day, immediately before the chief meals:

Tincture of iodine 20 gm. (5 dr.)
Potassium iodid 2 gm. (30 gr.)
Glycerin 40 gm. (10 dr.)
Syrup of bitter orange peel 50 gm. (12 dr.)
Water enough to make 1 liter (1 quart)

When so employed, iodine acts as a general tonic; appetite is improved, digestion facilitated, and vomiting due to coughing after meals is avoided. It also stimulates assimilation and nutrition. [L.F.A.] [Iodin is useful in cases of unmixed tuberculous infection; but not efficient when mixed infection is present. S.S.C.]

¹ Journal des Praticiens, Vol. xvii, No. 33, 1903, p. 627.

² Physical Education by Muscular Exercise, Blakiston, 1904.

³ Arch. f. die ges. Physiologie, Bd. xciii, p. 74, 1903.

⁴ Nouveaux Remèdes, Vol. xix, No. 24, 1903, p. 553.

⁵ Bulletin General de Thérapeutique, Vol. cxlvi, No. 18, 1903, p. 714.

⁶ Bulletin General de Thérapeutique, Vol. cxlvi, No. 19, 1903, p. 752.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 12, 1904:

SMALLPOX—UNITED STATES.			Cases	Deaths
California:	San Francisco.....	Jan. 24-31.....	8	
Illinois:	Danville.....	Jan. 30-Feb. 6.....	1	
Louisiana:	New Orleans.....	Jan. 30-Feb. 6.....	5	
Maine:	Calais.....	Feb. 7.....	5	
	Madison.....	Jan. 28.....	1	
Maryland:	Baltimore.....	Jan. 30-Feb. 6.....	1	
Michigan:	88 places.....	Jan. 24-30.....		
	Detroit.....	Jan. 30-Feb. 6.....	3	
	Flint.....	Jan. 30-Feb. 6.....	1	
New Hampshire:	Manchester.....	Jan. 30-Feb. 6.....	9	
New Jersey:	Newark.....	Jan. 30-Feb. 6.....	1	
	Trenton.....	Jan. 30-Feb. 6.....	3	1
New York:	New York.....	Jan. 30-Feb. 6.....	5	
	Niagara Falls.....	Jan. 30-Feb. 6.....	1	
Ohio:	Bucyrus.....	Jan. 30-Feb. 6.....	9	
	Cincinnati.....	Jan. 22-Feb. 5.....	6	
	Dayton.....	Jan. 30-Feb. 6.....	12	
Pennsylvania:	Allentown.....	Jan. 30-Feb. 6.....	2	
	Butler.....	Jan. 30-Feb. 6.....	1	
	Johnstown.....	Jan. 30-Feb. 6.....	5	
	McKeesport.....	Jan. 30-Feb. 6.....	2	
	Philadelphia.....	Jan. 30-Feb. 6.....	54	16
	Pittsburg.....	Jan. 30-Feb. 6.....	5	1
	Warren.....	Jan. 1-Feb. 1.....	10	2
Tennessee:	Nashville.....	Jan. 30-Feb. 6.....	8	
Utah:	Ogden.....	Jan. 1-31.....	1	
	Salt Lake City.....	Jan. 30-Feb. 6.....	2	
SMALLPOX—INSULAR.				
Philippine Islands:	Manila.....	Dec. 12-Jan. 2.....	2	2
SMALLPOX—FOREIGN.				
Austria:	Prague.....	Jan. 9-16.....	5	
Belgium:	Liege.....	Jan. 9-16.....	1	1
Brazil:	Rio de Janeiro.....	Jan. 3-10.....	34	22
Canada:	Ontario.....	Dec. 1-31.....	18	
Chile:	Antofagasta.....	Dec. 1-31.....	3	
China:	Shanghai.....	Dec. 19-26.....	6	
Colombia:	Barranquilla.....	Jan. 12-18.....	1	
France:	Paris.....	Jan. 16-23.....	17	9
Great Britain:	Glasgow.....	Jan. 22-29.....	71	2
	Hull.....	Jan. 16-23.....	1	
	Liverpool.....	Jan. 16-23.....	1	
	London.....	Jan. 16-23.....	3	
	Manchester.....	Jan. 16-23.....	2	
	Newcastle-on-Tyne.....	Jan. 16-23.....	3	
	Nottingham.....	Jan. 9-16.....	5	1
	Sheffield.....	Jan. 9-16.....	1	
India:	Bombay.....	Jan. 5-12.....	6	
	Karachi.....	Jan. 3-10.....	2	
Mexico:	Tampico.....	Jan. 24-31.....	1	1
Netherlands:	Rotterdam.....	Jan. 16-23.....	1	
Russia:	Moscow.....	Jan. 2-9.....	2	2
	Odesa.....	Jan. 9-16.....	1	
	St. Petersburg.....	Jan. 9-16.....	18	3
Spain:	Barcelona.....	Jan. 10-20.....	5	
	Santander.....	Jan. 18-25.....	4	2
Turkey:	Smyrna.....	Jan. 3-18.....	9	
YELLOW FEVER.				
Brazil:	Rio de Janeiro.....	Jan. 2-9.....	1	
Mexico:	Merida.....	Jan. 17-30.....	1	1
	Tehuantepec.....	Jan. 17-30.....	2	2
	Vera Cruz.....	Jan. 23-30.....	1	1
CHOLERA—INSULAR.				
Philippine Islands:	Manila.....	Dec. 12-Jan. 2.....	9	8
	Provinces.....	Dec. 12-Jan. 2.....	44	33
CHOLERA—FOREIGN.				
India:	Calcutta.....	Dec. 26-Jan. 9.....	30	
Turkey in Asia:	Dindiehl.....	Dec. 12-19.....	2	
	Kerbela.....	Dec. 11-22.....	422	
	Messieb.....	Dec. 18-20.....	52	
PLAGUE—INSULAR.				
Philippine Islands:	Manila.....	Dec. 12-Jan. 2.....	1	1
PLAGUE—INSULAR.				
Australia:	Queensland Cairns.....	Dec. 5.....	2	
Brazil:	Rio de Janeiro.....	Jan. 3-10.....	10	5
India:	Bombay.....	Jan. 5-12.....	186	
	Calcutta.....	Dec. 26-Jan. 9.....	33	
	Karachi.....	Jan. 3-10.....	8	5
Mauritius:	.....	Dec. 31-Jan. 7.....	55	37
South Africa:	Natal.....	Dec. 5-12.....	2	

Changes in the Medical Corps of the U. S. Army for the week ended February 13, 1904:

PATTERSON, EDWIN W., contract surgeon, will proceed from Washington, D. C., to San Francisco, Cal., and report for transportation to the Philippine Islands.

BAILEY, HOWARD H., contract surgeon, leave granted November 5 is extended two months.

JORDAN, EDWARD H., contract surgeon, is granted leave for one month from January 27.

MACDONALD, CHARLES E., contract surgeon, now at Jeffersonville, N. Y., will proceed to Fort Bliss in time to arrive at that post not later than February 20, and report to the commanding officer of the Third Battalion of the Twelfth Infantry for duty with that regiment en route to the Philippine Islands.

NEWTON, RALPH W., contract surgeon, now at Barre, Vt., will proceed to Price, Utah, in time to arrive at the latter place not later than February 20, and report to the commanding officer of the companies of the Twelfth Infantry to arrive from Fort Duchesne for duty with that regiment en route to the Philippine Islands.

MILLER, WILLIAM G., contract surgeon, now at Newcastle, Pa., will proceed to Holbrook, A. T., in time to arrive at the latter place not later than February 20, and report to the commanding officer of Company F, Twelfth Infantry, for duty with that regiment en route to the Philippine Islands.

FEENEY, JOHN M., contract surgeon, is granted leave for three months, with permission to visit the United States.

CHAMBERS, WILLIAM H., contract dental surgeon, is relieved from further duty in the Department of the East and from temporary duty at Jackson Barracks, and will proceed to Atlanta, Ga., and report to the commanding general, Department of the Gulf, for assignment to duty.

CLAYTON, GEORGE R., contract surgeon, is relieved from further duty in the Philippines Division, and upon the expiration of his present leave will proceed from Kelley, Iowa, to Columbus Barracks for duty.

GRAVES, LEONARD K., contract surgeon, will proceed from New York city to Fort Douglas and report not later than February 19 to the commanding officer of the Twelfth Infantry for duty with that regiment en route to the Philippine Islands.

Changes in the Medical Corps of the U. S. Navy for the week ended February 13, 1904:

STUART, A., assistant surgeon, detached from the Naval Home, Philadelphia, Pa., and ordered to the Marietta—February 6.

BRISTER, J. M., assistant surgeon, ordered to the naval hospital, Naval Home, Philadelphia, Pa.—February 6.

WHEELER, W. M., surgeon, detached from the Nipic and ordered to the Philadelphia.

Changes in the Public Health and Marine-Hospital Service for the week ended February 11, 1904:

BROOKS, S. D., surgeon, granted leave of absence for four months from April 1, 1904, with permission to go beyond the seas.—February 6, 1904.

MAGRUDER, G. M., surgeon, granted leave of absence for two days from February 13, 1904.—February 11, 1904.

GREENE, J. B., passed assistant surgeon, granted fifteen days' extension of sick leave from February 10—February 10, 1904.

CLARK, TALIAFERRO, passed assistant surgeon, to proceed to San Juan, P. R., and assume temporary charge during the absence of the chief quarantine officer—February 9, 1904.

RICHARDSON, T. F., assistant surgeon, to report on March 9, 1904, to the chairman of the examining board at Washington, D. C., for examination to determine his fitness for promotion to the grade of passed assistant surgeon—February 9, 1904.

KING, W. W., assistant surgeon, to report on March 9, 1904, to chairman of examining board at Washington, D. C., to determine his fitness for promotion to the grade of passed assistant surgeon—February 8, 1904.

RAMUS, CARL, assistant surgeon, to report on March 9, 1904, to chairman of examining board at San Francisco, Cal., for examination to determine his fitness for promotion to the grade of passed assistant surgeon—February 9, 1904.

MOORE, DUNLOP, assistant surgeon, to report on July 25, 1904, to recorder of the examining board at Manila, P. I., for examination to determine his fitness for promotion to the grade of passed assistant surgeon—February 9, 1904.

FOX, CARROLL, assistant surgeon, to report on July 25, 1904, to the recorder of examining board at Manila, P. I., for examination to determine his fitness for promotion to the grade of passed assistant surgeon—February 9, 1904.

GOLDBERGER, JOSEPH, assistant surgeon, granted leave of absence for one month from February 10—February 10, 1904.

HOLT, J. M., assistant surgeon, to report on July 25, 1904, to recorder of examining board at Manila, P. I., for examination to determine his fitness for promotion to the grade of passed assistant surgeon—February 9, 1904.

VOGEL, C. W., assistant surgeon, to report on July 25, 1904, to recorder of examining board at Manila, P. I., for examination to determine his fitness for promotion to the grade of passed assistant surgeon—February 9, 1904.

Boards Convened.

Board convened to meet at San Francisco, Cal., for the examination of an officer of the Revenue Cutter Service, February 13, 1904. Detail for the Board: Passed Assistant Surgeon W. G. Stimpson, chairman; Assistant Surgeon Carl Ramus, recorder.

Board convened to meet at the Marine Hospital, Port Townsend, Washington, February 15, 1904, for the examination of an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon J. H. Oakley, chairman; Passed Assistant Surgeon M. H. Foster, recorder.

Board convened to meet at the Marine Hospital, San Francisco, Cal., March 9, 1904, for the purpose of examining Assistant Surgeon Carl Ramus to determine his fitness for promotion to the grade of passed assistant surgeon. Detail for the Board: Passed Assistant Surgeon W. G. Stimpson, chairman; Passed Assistant Surgeon Rupert Blue; Passed Assistant Surgeon H. S. Cumming, recorder.

Board convened to meet at Washington, D. C., March 9, 1904, for the purpose of examining certain assistant surgeons to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the Board: Assistant Surgeon-General A. H. Glennan, Chairman; Assistant Surgeon-General G. T. Vaughan; Assistant Surgeon-General H. D. Geddings, recorder.

Board convened for the purpose of examining certain assistant surgeons to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General W. J. Pettus; Passed Assistant Surgeon V. G. Heiser, Recorder.

American Medicine ³²⁹

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The adulterations of chemicals are divided by the U. S. Bureau of Chemistry into four classes: 1. The conventional, in which the changes are known, and because the public prefers them frequently for the sake of appearance. 2. The accidental. 3. The arbitrary, or such as are made in order that the product shall conform to some arbitrary standard. 4. The intentional. The second and the fourth classes are the most interesting. The greatest criticism applies to those chemicals which are allowed to be labeled as "C. P.," or "chemically pure." In strictness there is no such a substance in existence. The old-time homeopathist based his drug-giving on the two fundamental principles of the single drug, and in a high dilution or "potency," and then gave it in ordinary water, which contains 20 or 30 distinct chemicals, and in the very highest "potencies." In scientific therapeutics and chemistry the slight additions existing in all "C. P." chemicals are of little direct importance, because neither science nor chemistry admits the Hahnemannian theory of high potencies. The indirect results, however, of allowing impure drugs to be labeled "C. P." are many. The fact that there are no "C. P." drugs, absolutely speaking, makes carelessness and intentional fraud more easy. The arbitrary standard prescribing maximum and minimum limits brings about even more curious results. Opium, for instance, must not contain more than 15% of morphin. Yet it is not uncommon to find samples of powdered opium made in the ordinary way which contain more than that proportion. Dealers have to dilute it to bring it within the requirement, although this dilution itself is prohibited by most of the State laws.

Physicians as Patients' Confidants.—That physicians should be accorded the confidence of their clients—perhaps in a larger measure even than clergymen—has always been pretty generally recognized. This confidence is, indeed, freely bestowed in a good many directions, sometimes, in fact, to an entirely unnecessary extent. The physician is frequently made acquainted with internal family matters which have absolutely no bearing upon the case for the treatment of which he had been called in, and which are therefore not of a nature to exercise the slightest influence upon such treatment. In this way the physician is sometimes drawn into the position of general family father confessor. He will be

made the confidant of the husband in regard to things which should be kept a secret from the wife; the wife reveals to him things of which the husband is to know or suspect nothing; the daughter pours the little secrets of her heart into his more or less unwilling ear on the understanding that he must not under any circumstances divulge them to her parents; and the young son appeals in the strictest confidence to the doctor with regard to his sexual experience, or rather lack of experience. The picture is complete enough without the special mention of the cook and the butler. And as the medical father confessor no more than the clerical one can betray the confidence reposed in him, he is in the unenviable position of having something to conceal practically from every member of the household with regard to every other member.

"Familiarity Breeds Contempt."—While this general confidence, and consequent familiarity, lies to a certain extent in the very nature of things, it cannot by any means be likened to a bed of roses, except, perhaps, for the stings of the thorns. There can be no question that the doctor who has attained to the position of the family confidant "via medical practice," is destined to experience a gradual but unmistakable decline in the power he wields and in the reverence and recognition which his counsel once inspired. He is not spared the truth of the proverb that "familiarity breeds contempt," and he may be sure that in the event of a serious sickness the family will insist upon calling in a second, consulting physician, and *sic transit gloria mundi!* It is, however, not only the ethical part of the question that resolves itself to the disadvantage of the medical confidant, but also its consequences from a monetary point of view. The more familiar the relations become between family and physician, the less will the latter be compensated for the time and knowledge he extends, and many an overfamiliar physician has experienced, to his detriment and dismay, that the familiarity he enjoyed was the only compensation for his services that he ever received.

Presents versus Fees.—If a patient sends for a doctor because he requires his professional services, the matter amounts to a simple business transaction, and if the mutual relations do not ripen into friendship or

intimacy, the matter ends with the treatment of the case and the payment of the bill—the latter, at least, presumably. With some patients, however, it is practically impossible to confine matters to this business-like proceeding. They will abound in amiable phrases and conduct; they will probably send a small token of affection on the occasion of an addition to the physician's family; a feeling of reciprocal friendly relations will develop and strengthen by the occurrence of social family events, be they mirthful or somber; and if one of this class of patients sends at Christmas time a nice vase, an ornament, a picture or maybe a dictionary of the doctor's liking, how does the doctor stand with regard to the sending of his new year's bill? How is he to treat this patient from a business or monetary point of view? There may not have been a case of serious sickness in the family, but only say a dozen calls at the office. If he looks upon the matter from the strict business point of view and sends his bill, he runs the risk of losing his client, and if he does not send it, he loses his fees for his professional services which the client may have been perfectly willing and expecting to pay. People whose complimentary contributions to the doctor's art collection are of greater value than the expected amount of the yearly bill form a small enough minority not to require special consideration under this head.

The Disadvantages of Too Limited Confidence.

—It should not be assumed, however, that a full acquaintance with the internal family matters is in all cases harmful to the interests of the physician or superfluous for the treatment of the patient. There are many connubial relations, for instance, which both in themselves and their possible consequences upon husband or wife, or even children, may have as far reaching a psychic influence as many other more palpable causes, and the physician who is in ignorance of the real causative factors of a disease, is liable to grope in the dark and attribute certain disturbances to derangements of the body instead of the mind, in the absence of explanations to which the physician, as healer and adviser, is entitled. It is unfortunate that just such patients who are laboring under a severe mental strain will not permit the physician the slightest glimmer into their family troubles, thinking that they have done enough in describing their bodily symptoms. It is under these conditions that more confidence toward the physician should prevail, and where the physician is fully justified in endeavoring to lift the veil of the mystery. Otherwise the consequence will probably be that the physician will exhaust his knowledge as to the proper medicaments, dietary, and remedial agents, with the result that in the end the patient is no better off than at the beginning of the treatment.

The misfortune to the Johns Hopkins Hospital and Medical School by the recent Baltimore fire is a serious matter not only to those directly concerned, but to the American medical profession. We learn incidentally that the annual income of the hospital has been diminished by about \$60,000 because of the loss of the rental from 64 buildings which were destroyed. The

hospital managers are thus brought face to face with crippling economies, and a curtailment of both the practical and scientific work will be necessary unless some outside help in the emergency can be found. Baltimore is so badly stricken that she cannot help in tiding over this time of misfortune. It must be the conviction of all interested that no step backward should be taken in the great work wherein the hospital has been so able a leader. Every alumnus of the school and every friend of higher medical education should do his utmost to secure from some source the funds required to prevent the threatened calamity.

A National Government Board for the Protection of Children and Animals has been planned by the introduction of Bill No. 3,573 in the House of Representatives, and deserves the hearty support of all physicians. The protection of children and animals should be combined, because, except in rich and populous communities, if kept separate, neither would be sufficiently supported. The nature of the work is similar, and experience has shown that the work for each helps the other. Separate organizations and employes would only duplicate expense. In 8 of the 23 States and Territories west of the Mississippi, there are practically no laws for the protection of children and animals. With few exceptions, the laws in the other States are feeble and insufficient. With two exceptions, whatever effort is made to enforce such laws as do exist, is by volunteer societies. The unfortunate condition of children and animals in communities in which there is no law nor enforcement of law for their protection, must be judged from the numbers and needs of those who are relieved where law exists and is enforced. The creation of the State Board for child and animal protection in Montana is too recent for statistics of its work to be available. In Colorado, experience has shown that the protection of children and animals is quite within the power of the Board, and no child or animal is subjected to any unusual degree of abuse or neglect for more than a short time without being relieved by an officer of the Board. The Colorado State Board has one unpaid volunteer officer for every 900 of the population. This is true of the remote neighborhoods, as well as of the towns and cities. The cost of the work under this system is insignificant, being about \$5,000 per year, for an area nearly twice the size of New England, 104,000 square miles of prairie and mountain. In other States, the work of volunteer associations is almost entirely confined to the cities and towns where they exist. The activities and revenues of volunteer organizations in rich and densely populated communities may be sufficient for their needs, but in the sparsely settled States and Territories, there will long be but little law and less enforcement for the protection of children and animals, without State or National aid. The proposed law does not contemplate the enforcement of law by its own efforts, or those of its officers. It expressly forbids any supervision of or any interference with local or State organizations, which are engaged or may engage in this same kind of work. It is designed to promote and extend the formation of local organizations which will have charge in their respective fields.

Government Protection of Children.—Physicians have every day experiences which show how disease is caused, continued, or multiplied by the lack of proper care of children. This medical fact, however, needs to be kept before the minds of the community, legislators, and administrators by every means in our power. Sociologically the child's right to protection in all ways at the hands of society, the justice of his claims, the duty of recognizing this, the sentiment involved that is humanizing and uplifting, are phases of the question with which the world is daily growing more impressed. To quote Mr. Jacob Riis: "The problem of the children is the problem of the State." Abused, neglected, and defective, or delinquent children become physically, mentally, and morally defective men and women. Such men and women become criminals, paupers, lunatics, and vagabonds. They must be controlled and supported by the public. The police system, the criminal courts, the jails, reformatories, insane, and public hospitals constitute the most expensive machinery of local governments. The pauper, the tramp, the prostitute, and the gambler belong to the parasitic classes. They contribute nothing good to the community, but are a constant drain upon it. Many of them, had they been properly handled when children, might have become self-supporting and useful citizens. Only those actively engaged in this work of rescue have any conception of the number of abused and neglected children. The facts can be learned from the records of police courts, asylums, reformatories, and societies for the prevention of cruelty to children, and from the United States census reports on child labor and illiteracy. It is a subject which the general government cannot afford to neglect. The most effective ways and means of controlling these conditions will be afforded by the wise labors of a government Board for the prevention of cruelty, and for the protection of children and animals, whose "duty shall be to obtain and record information concerning the condition of dependent, neglected, and abused or viciously reared children and dumb animals throughout the United States and its possessions; to study the cause of abuse in such cases, to record the conclusions reached, to suggest and urge remedies in all such cases, to promote uniform and efficient legislation in the State, and territories, and island possessions of the United States for the protection of children and dumb animals; to secure the enforcement of law for the protection of children and dumb animals, to urge humane education of children in the public schools, to educate public sentiment concerning the rights and proper treatment of children and dumb animals, to encourage and aid the creation of State and Territorial Boards for their protection, and to whatever else will best carry out the purpose of creating this Board."

The Law as to Bakers a Health Measure.—The law limiting the hours of employment of bakers to an average of ten a day, has recently been sustained by a decision of the New York Court of Appeals. The statute was sustained as a protection of public health, and not as a labor measure. The opinion of Judge Parker was, in part, as follows:

It is reasonable to assume from the statute as a whole that the Legislature had in mind that the health and the cleanliness of health workers were of the utmost importance; that a man is more likely to be careful and cleanly when well and not overworked than when exhausted by fatigue, which makes for uncleanness and slovenly habits, and tends to dirt and disease. If there is opportunity—and who can doubt it?—for this view, then the Legislature had the power to enact as it did, and the courts are bound to sustain its action as justified by the police power. Medical authorities without number classify workers and bakers in confectioners' establishments with porters, stone cutters, and file-grinders and other workers whose occupation necessitates the inhalation of dust particles, and hence predisposes its members to tuberculosis. Medical opinion and statistics bearing upon that subject, standing alone, fully justify the section under review as one to protect the health of employees in such establishments, and it is the duty of this Court to assume that the section was framed not only in the light of, but with a full appreciation of the force of the medical authority bearing upon this subject—authority which reasonably challenges the attention of the philanthropist.

The comparative mortality in diphtheria, before and after the introduction of the antitoxin treatment, for Chicago, is given in the latest report of the commissioner:

TOTAL DIPHTHERIA DEATHS BEFORE AND DURING ANTITOXIN TREATMENT.

Before, 11,488.

During, 6,088.

Reduction in actual number of deaths, 5,400—or 47%.

AVERAGE ANNUAL POPULATION.

Before, 1,100,931.

During, 1,672,042.

DEATHS PER 10,000 OF POPULATION.

Before, 12.45.

During, 4.55.

Increase of population, 52%.

Decrease of diphtheria deaths, 63.4%.

Between October 5, 1895—the date of the first case treated—and December 31, 1903, the Antitoxin Administrators of the Department treated 7,435 cases of bacterially-verified diphtheria, of which number 479 died—a mortality rate of 6.44%. The average mortality without antitoxin still remains about 35%.

That the value of antitoxin depends upon its early administration is shown by the following:

Of the total 7,435 cases, 586 were treated on the first day of the disease, with 2 deaths—mortality rate, 0.34%.

Of 1,913 treated on the second day, 28 died—mortality rate, 1.46%.

Of 2,624 treated on the third day, 85 died—mortality rate, 3.24%.

Of 1,374 treated on the fourth day, 148 died—mortality rate, 10.8%.

Of 936 first treated later than the fourth day, 216 died—mortality rate, 23.1%.

There were included in the total 7,435 cases, 608 intubated laryngeal cases, of whom 508 recovered; mortality rate of intubated cases, 16.45%. The former mortality of this class of cases—intubated and tracheotomized—was about 85%.

There were 7,051 exposed and immunized with 500

units each; of these 46 were subsequently attacked, but all recovered. Percent of immunized subsequently attacked, 0.65.

Filth and Fraud in the Advertisements of Some Supposed Respectable Newspapers.—The ordinary sense of decency and the dictates of good commercial policy have in the vast majority of American newspaper offices proved of no use to check the shamelessness of the "medical" advertiser. The columns of the most popular papers, both of the city and country, are reeking horrors, although they are said to be "family" journals, appearing at the breakfast table for the instruction, not only of the men, but of mother, daughter, and child. And they are allowed the benefits of the United States Mail Service, although fraud and deception are rampant in them and crime is encouraged. Why will any decent person, for example, buy or allow the *New York Sun* of Sunday, February 21, to come into his house? Prominent in its columns is a most nauseating picture advertisement headed: "UNHAPPY HOMES CAUSED BY WEAKNESS IN MEN." Even in a medical journal we hesitate to repeat the disgusting parts of the advertisement about the "shrunk organs," etc., and copy only the last paragraph, which runs as follows:

The lucky discoverer simply desires to get in touch with all men who can make use of such a treatment. They should address him in confidence, Dr. H. C. Raynor, 339 Luck Building, Detroit, Mich., and immediately on receipt of your name and address it is his agreement with this paper to send you a free receipt or formula of this modern treatment by which you can cure yourself at home.

Note the words, "his agreement with this paper."

EDITORIAL ECHOES

Coffee vs. Slush.—A certain concern in this country has for some time been endeavoring, and apparently with more or less success, to create a demand for a concoction of theirs as a substitute for coffee by falsely representing in their advertisements that most of the ills of life are due to coffee. This is trash of the rankest kind. It is a species of humbuggery designed to work upon credulous minds and thereby enrich the promoters of the scheme. It is true that coffee does not agree with all persons; neither do strawberries; but that is no reason for their sweeping condemnation. To a great majority of people coffee is wholesome, invigorating, exhilarating without reaction, and indeed is almost indispensable at the breakfast table. Those who cannot use it without ill-effects should let it alone; if strawberries make you ill, shun them; if lobsters produce urticaria, don't eat them. Common sense and experience are good guides in most instances, but the course pursued by the concern alluded to, ignores experience and insults common sense—all for a cash consideration.—[*N. H. Sanitary Bulletin*, October, 1903.]

Perils of Hand Shaking.—A Belgian savant has just published a treatise on shaking hands, which he states is most dangerous, a mutual pressure of the hand being nothing more than an exchange of undesirable microbes, 80,000 of which inhabit every half-inch of the hand. The most dangerous people to shake hands with, it appears, are doctors, surgeons, nurses, hairdressers, butchers, sausage-makers, tripe merchants, tanners and leather-dressers, while the least dangerous person seems to be a worker in metal, because the metal sets up an oxidation which acts as an antiseptic. The safe course is to salute only with our heads and our hats, or always wear gloves.

AMERICAN NEWS AND NOTES.

GENERAL.

Hospital Ship Offered to Japan.—Japanese Consul-General Uchida announced recently that he had received an offer of a steamship, fully equipped as a hospital ship, from the Swedish residents of Brooklyn, the vessel to be used in caring for the sick and wounded sailors of the Japanese fleet. Mr. Uchida has taken the offer under consideration, and should it seem likely that the vessel could reach the Far East in time to be of service, she will probably be accepted.

Examination for Assistant Surgeon of the Public Health and Marine-Hospital Service.—It is announced that a board of officers will be convened to meet at the Bureau of Public Health and Marine-Hospital Service, 3 B street, S. E., Washington, D. C., Monday, April 4, 1904, at 10 o'clock a.m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine-Hospital Service. Candidates must be between 22 and 30 years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For further information, or for invitation to appear before the Board of Examiners, address Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C.

Another Victim of Eddyite Treatment.—According to the St. Louis *Post-Dispatch* of January 20, when Mrs. W. H. Davis died at the City Hospital in St. Louis recently from blood-poisoning after an illness of 6 weeks, investigation showed that when Mrs. Davis' child was born 6 weeks ago some complication arose and a woman Eddyite healer assumed charge of the case. In the meantime the condition of the patient had become alarming and a physician was called, who refused to treat the case while the Eddyite remained in charge. The faith-healer has been arrested, and she now declares that it was not the Eddyite treatment administered by her, but the hostile attitude of the patient's husband toward the treatment which is responsible for the death. She says: "He was greatly opposed to the treatment, and the hostile mind waves had the effect of thwarting everything I did toward the cure of Mrs. Davis."

Fatality of Whoopingcough.—Eliza H. Root calls attention to the fact that this disease is too little dreaded by the medical profession and that it is by no means the simple affair that many seem to suppose. From the United States census of 1900 we find that 663 died in New York from whoopingcough and 549 from scarlet fever. In Chicago 141 died from whoopingcough and 373 from scarlet fever. Philadelphia, 179 from whoopingcough, 182 from scarlet fever, and so in the different cities. Death from whoopingcough occurs most frequently from pneumonia as a complication, that induces heart failure, or a bronchitis may occur that ends in suffocation. Asphyxia, or marasmus, due to the continued ejecting of the food or loss of appetite, may cause death. Cerebral apoplexy, external hemorrhage and emphysema of the subcutaneous tissues after rupture of the larynx is occasionally given as the cause of death. Even when death does not occur, severe disturbances of the nervous system may remain, as weakness of the intellect and memory, imbecility, hemiplegia, with consequent chorea, epilepsy, etc. Visual defects, strabismus, blindness and deafness, partial or complete, and even deafmutism may remain. Whoopingcough, it is evident, should be under the control of health authorities, subject to quarantine and other preventive measures as much as scarlet fever.—[*Woman's Medical Journal*.]

Miscellaneous.—NEW YORK: A dinner will be given at Delmonico's, Tuesday evening, March 1, 1904, at 7 o'clock, to Dr. D. B. St. John Roosa, which is to commemorate the twenty-first anniversary since the inauguration of postgraduate medical instruction in this country. Dr. William Osler, of Baltimore, will preside.—PHILADELPHIA: The new medical laboratories of the University of Pennsylvania will be dedicated next June, and the medical department will move into its new quarters during the summer.—SOUTH SHAFESBURY, VT.: According to newspaper accounts, the oldest person in Vermont, and possibly the oldest in New England, Mrs. Honora McCarthy, of this town, is preparing to celebrate her 114th birthday.—BOSTON: Dr. Fritz Walter Gay, of Malden, was appointed pathologist at the Malden Hospital by the executive committee at a meeting held recently.—WASHINGTON: Dr. Anita Newcomb McGee, prominently identified with the American hospital service during the Spanish war, will take to Japan a corps of trained nurses for hospital service with the Japanese Army.—FOREIGN: Dr. Lilius Hamilton, one of the first English women to take her medical degree, afterward became famous by her appointment as medical adviser to the Ameer of Afghanistan, to whose court she went, principally to teach the ladies how to wear European dress. Dr. Hamilton has now given up medicine for the time being and has emigrated to South Africa, where she intends to rear mules on a large scale.

Sanitary Problems in Connection with the Isthmian Canal.—A commission of the United States will employ one of the most distinguished sanitary engineers in the United States, and, probably in conjunction with the Marine-Hospital and Public Health Service, will institute a comprehensive system of keeping the Panama region free from pestilence. It is pointed out that with a low-class laboring population summoned from other tropical countries, conditions would be ripe for such an intermixture of infections as would be extremely dangerous. With all the ships plying between those ports during the construction period and our own coast cities it is felt that the danger of transmitting tropical diseases would be very great, and therefore on our own account quite as much as out of consideration for the health of the Isthmus, the most radical measures of sanitation will be adopted and enforced.

Will Abolish the Office of Coroner.—The Philadelphia *Ledger*, commenting on the proposition to abolish the office of coroner in New York, says: A bill has been prepared, under the auspices of the leading medical societies of New York, abolishing the time-honored coroner's office, and substituting an official examination by physicians, who will determine the cause of sudden or suspicious deaths from the medical point of view alone. The medical board will not undertake to fix the criminal responsibility for the death. That investigation will be conducted by the District Attorney. The coroner's jury will be abolished with the coroner's office. The new system will go into operation on January 1, 1905. Massachusetts has a similar system. Inasmuch as the States are disposed to adopt legislation that has proved to be satisfactory in practical operation, it is probable that the coroner's office will be abolished eventually throughout the country. It is confidently predicted that the New York bill will be passed. The old system is antiquated, burdensome, and enormously expensive in New York City.

Proof Conclusive in Favor of Vaccination.—A New York exchange says C. E. A. Winslow, in an admirable survey of the statistical data in favor of the efficacy of vaccination, points out that a single vaccination greatly reduces the probability of an attack of smallpox, postpones it to a later period of life, and renders it less dangerous if it does ensue. To insure absolute protection, revaccination is required. During the smallpox epidemic of 1871, of 738 nurses and attendants in the Metropolitan Asylum Board Hospital, 79 were survivors from smallpox attack, and escaped infection; 645 were revaccinated on entrance, and all escaped; 10 were not revaccinated and all took smallpox. Mr. Winslow says if statistics ever proved anything, those quoted prove the protective influence of vaccination. If any fact in science is certain, it is that a successful vaccination absolutely prevents smallpox for a period of from 7 to 10 years, that after that period it renders the disease less fatal, and that its complete protective effect may be renewed by revaccination.

EASTERN STATES.

Crippled and Deformed Children in Massachusetts.—There was recently received the report of the State Board of Charity, in accordance with the resolve passed by the last Legislature requiring the board to ascertain the number of crippled and deformed children in the State, who, because of their physical condition, could not attend the public schools. The board reports that of 353 towns and cities, 36 made no reply to the inquiry; 251 had no children of the class mentioned, and 65 reported 208. The board deduces that including the cities and towns making no report, the number would reach 250. The board is of the opinion that if a rigid investigation were made the number would be largely increased.

NEW YORK.

No Saliva on Transfer Slips.—Transfer agents and conductors of the New York City Street Railway Company are worrying over orders issued recently to the effect that when they issue transfer slips to a passenger they must not wet the slips with the thumb or finger. The slips are of thin paper and bound so closely that to hurry the process of issuing transfers the conductors used to wet their thumbs with their tongues in order to remove the slips quickly.

Watertown's Typhoid Epidemic Shows no Abatement.—Information under date of February 19 says: A preliminary report on the typhoid fever epidemic at Watertown, where there have been 300 cases of the disease since January 1, has been made to the State Health Department by Professor O. H. Landreth, who is making an investigation of the situation. The epidemic, according to advices received by the department, is still raging with unabated vigor, 5 or 6 new cases being reported daily.

Medical Legislation in New York State.—The licensed medical practitioners of the State are understood to be behind bills which have been introduced in the Legislature to prevent opticians from prescribing glasses for defective eyes, and to prevent any newspaper, periodical, except a surgical magazine or periodical from printing any picture of a man, woman or child, or any part or parts of the human body in connection with the advertisement of patent medicines. The latter bill

makes a violation of its provision punishable by a fine of \$25 for each offense.

Scope of Eye and Ear Infirmary to be Curtailed.—Action was taken recently by the board of directors of the New York Ear and Eye Infirmary whereby the scope of that institution will be narrowed after March 1, and may be even further curtailed after May 1, in the event that funds for the hospital's maintenance are not forthcoming. This decision was reached after a long session. The institution has an endowment, but not sufficient for the needs of its work. The interest on the total assets amounts to about \$17,000 per annum, and as the voluntary contributions were declared yesterday to be not more than \$1,200 a year, the expense of operating the pavilions is far in excess of the income.

Polluted Water Causes Watertown's Typhoid Epidemic.—Professor O. H. Landreth, of the State Department of Health, has made his preliminary report relative to Watertown's typhoid epidemic, in which he says that the city's water supply is the most probable cause. The water is obtained from the Black river, into which numerous villages drain. In this territory above the city there were a number of cases of typhoid some months ago, and Professor Landreth believes that there was an accumulation of polluting material on the watershed, which was washed down the stream during the thaw in the latter part of December. Watertown is constructing a sand filtration plant, but it will be some months before it is completed. Meantime, the State Department of Health has warned the people of the city to boil all the water they use.

Physicians Undergoing Examination.—Information from Albany, under date of February 13, says: The subjection of 5 candidates for appointment to the post of superintendent of the new State Hospital for the treatment of the tuberculous to an actual test of their ability to deal with tuberculosis, is a phase of a State civil examination which is in progress in this city. Five patients were subjected to an examination, each of the candidates being required to diagnose the condition of each patient. To test the ability of the candidates, one man, suffering from another disease, but of the general appearance of tuberculosis was included as a subject in the examination. Of course the result of the test is not divulged, as the examination is still in progress. The hospital, which will be ready for occupancy soon, is located at Raybrook, in the Adirondacks.

Child Labor in New York State.—Child labor is rapidly declining in New York State. Not only has there been a large decrease in the total number of children receiving permits to work, but there has been, also, almost a total elimination of the perjury resorted to by parents, under the old law, to get children into factories and stores. The establishment of systematic cooperation between the authorities who enforce the law and the authorities who investigate, and if necessary, relieve the poverty conditions so often alleged as the cause of child labor is reported by the Child Labor Committee just issued. The new law has been in operation since October 1. During October, November, and December, certificates were issued in this city to 2,922 children, or 67% of all who applied, whereas during the same months of the preceding year certificates were issued to 4,353 children, or 80% of all who applied. The stricter requirements which have caused this change are a minimum age, a minimum amount of schooling and proof that the child has been observing the Compulsory School law.

Report from Juvenile Court in New York.—The first annual report of the Juvenile Court in New York City has been issued. One of the interesting features is the comparatively small number of girl offenders. Out of 4,790 children under 16 years convicted by the magistrates, 4,360 were boys, while only 430 were girls. Against this showing for the girls is their tendency, according to the report, to commit suicide at fancied grievances. Six girls were arraigned on this charge. Each of them asserted that her parents had failed to care for her. No boys were brought to court on this charge. The report shows that the children arrested numbered 7,647. The number of girls acquitted was 1,564, and only 243 boys were acquitted. A comparison of the ages of the children with the number of arrests shows that the greatest number of arrests were made among children between 14 and 16 years of age. Only 148 of the total of 1,117 paroled were committed for violation of the parole. This shows more than 87% of the total of parole cases successful.

PHILADELPHIA, PENNSYLVANIA, ETC.

Bogus Death Certificates.—Two arrests have been made as the result of an investigation instituted by Coroner Dugan into an alleged conspiracy to furnish fraudulent death certificates.

Medical Examiners Resign.—Drs. J. H. Musser and J. Chalmers Da Costa who, at Mayor Weaver's request, served as the Medical Civil Service Examining Board in connection with the examination of candidates for the medical inspectorships in the Department of Health, sent their resignations to the mayor recently. Lack of time to attend to these duties was the cause assigned in each case.

Medical Inspectors Appointed.—Forty medical inspectors have been recently appointed by the Health Department of Philadelphia, pursuant to a recent act passed by the City Council. These medical inspectors are to give their entire time to the city, and each is placed in charge of a certain district. It is his duty to report all cases of infectious diseases, to trace the source of epidemics, to report any unhygienic conditions, to inspect public schools, etc. Each inspector is to receive a salary of \$1,200 per annum.

The Fight against Tuberculosis.—The Pennsylvania Society for the Prevention of Tuberculosis has determined to begin an active campaign for the prevention of the spread of tuberculosis, as well as other infectious diseases. The measures proposed include the cleaning of the streets only between midnight and 5 or 6 o'clock in the morning; the thorough wetting of the streets before such cleaning, the heating of all trolley cars in cold weather, the withdrawal of all trolley cars with upholstered seats, the better cleaning of street cars and the enforcement of the antisputting street car ordinance.

WESTERN STATES.

Diphtheria and Typhoid Reported in Minneapolis.—According to newspaper accounts, if the epidemics of diphtheria and typhoid continue, the State university will close for the balance of the year. For the third time President Northrop publicly warned the student body against city water. A serious epidemic is feared.

Chicago Hospitals Overcrowded.—According to newspaper reports, nearly every hospital in the city has one or more cases of pneumonia, while the less serious diseases are even more prevalent. Added to these are the far greater number of cases treated at homes, making the list of sufferers a long one. The situation is complicated by the fact that nearly every one of Chicago's big hospitals is filled, and unable to take any more patients. At the County Hospital there are 949 patients, leaving but one vacant bed. Conditions are similar in the other large hospitals. Of the 661 deaths reported last week by the Health department report, 175 were from pneumonia, while 37 were from cases of bronchitis and influenza.

Would Stop Overcrowding of Cars in Cleveland.—Information from Cleveland, Ohio, under date of February 5, says: The overcrowding of street cars has become such an annoyance in Cleveland that the Board of Health at its next meeting in March will take vigorous steps to put an end to it. At that meeting a resolution will be adopted making it a violation of the law to overcrowd the cars. The limit will be the number that can be seated and a reasonable number standing, but no crowding will be permitted. The Board of Health claims the conditions that prevail in Cleveland cars at certain periods of the day are a menace to health, and Mayor Johnson and the city Law Department declare that the Board has power to regulate the condition of the cars, just the same as it can regulate the sanitation of public buildings.

Deaths and Disease in Indiana in January.—The January Bulletin of the State Board of Health says: There were reported 3,177 deaths in Indiana in January, a rate of 14.8. In the corresponding month last year there were 2,910 deaths, rate 13.2. Cities and country: The city rate was 18.8, and the country 12.8. Seventeen percent of city deaths were under 1 year of age, and 15.9% in the country. For old people, however, the rates were country, 34.3%; and cities 26.5%. Tonsillitis was the most prevalent disease, and measles the next most prevalent. Pneumonia was bad, and it stands fourth, and caused 540 deaths. The dreaded cerebrospinal meningitis was the least prevalent. The reports show more typhoid fever than is usual in January. A complete sum-up makes plain the fact that the public health this January was not so good as the same month last year.

Inspection of School Children in Chicago.—It is proposed in Chicago to thoroughly inspect the school children in each of the city schools. Teachers and principals must report for medical examination any pupils they believe physically defective, deformed, or afflicted with a functional disorder. The rules provide that the examinations shall be made by a school medical inspector in the office of the principal and under the latter's supervision. These examinations are limited to the following subjects: Eyes—Diseases of the conjunctiva and lacrimal apparatus, muscles of the eyeball, visual acuity, hypermetropia, myopia, astigmatism. Ears—External ear, auditory meatus, drum membrane, hearing, acute or chronic diseases of middle ear. Mouth and Pharynx—Defects of tongue, lips, palate, condition of teeth, hypertrophy of tonsils, pharyngitis, adenoids, granulations, etc. Nose—Acute or chronic rhinitis, nasal hypertrophies, polypus, deflection of septum, etc. Chest—Abnormal development, round shoulders, spinal deflection, diseases of the heart and lungs. Skin—Acute or chronic affections, scabies, pediculosis, favus, etc. General Nutritional and Structural Disorders—Anemia, chronic headaches, glandular enlargement, tuberculosis, deficiency of muscular development, nervousness, chorea, or any pathologic condition which may retard the pupil's growth or influence his progress in

school work. It is provided that no examinations will be made which require the pupils to undress, except in special cases, for which the inspecting physician must secure the written consent of the parent or guardian.

FOREIGN NEWS AND NOTES

GENERAL.

The New German Child Labor Law.—The provisions of the law, which went into effect at the beginning of the year, are so arranged as to absolutely prohibit the labor of children in many heavy vocations, such as building operations, brick yards, etc., and to admit of their employment in factories under 14 years, certain restrictions and safeguards being observed. Owing to the prevalence of diverse home industries, conducted outside of factories, the great majority of German child laborers, more than a half million in all, are engaged in the homes, only 27,000 under 14 being employed in factory plants. It is owing to this fact that the German law draws distinction between nonrelated and related children, the protection extended to the former being considerably greater than to the latter.—[*Boston Transcript*.]

Leprosy in Colombia, South America.—Minister Beaupré reports from Bogota, November 5, as follows: One of the gravest questions now confronting Colombia is the terrible one of leprosy. This awful disease has invaded the country to an alarming extent, and extraordinary measures have become necessary to check its spread. He incloses a copy and translation of a law enacted by Congress, under which lazarettes are to be established in each Department of the Republic, in which all the lepers are to be confined. Various other provisions are made, but the central idea is to isolate all those who are suffering from the malady. For the Department of Antioquia a lazaretto is already operated at an expense of more than 3,000,000 pesos, and much other good work has been done in various sections by private efforts and subscriptions. The stipulations and appropriations of this new law will encourage further efforts on the part of societies and individuals.

Medical School Inspection Abroad.—An exchange says: The foreign custom, universal in France and Germany, of insisting upon each child entering school, and at regular intervals thereafter, submitting to a medical examination, is an example worthy of emulation in vaunted up-to-date communities. The question of vaccination and the control of contagious epidemic are the only occasions when medical intervention is usual in the schools in this country. Abroad it is customary to appoint school physicians, whose duty it is to examine twice a year all the pupils with reference to the senses, the spinal column, the development of the limbs, and to make recommendations for their special instruction on account of stuttering, etc. Not their least important work is the quarterly or in some cities semimonthly sanitary inspection of school rooms and buildings. It is one of the duties of teachers to call the attention of the school physician to any pupils whose state of health during the interval since the previous visit creates suspicion. The physician can, however, in case of sick pupils, only notify the parents formally of the child's condition, their treatment being left entirely in the hands of the family physician. It is proposed by the French medical fraternity to have the school physician's duties extended to an inspection of the condition of the dwellings of sick school children, and also to give advice concerning the architecture of schools and the division of school hours.

Arsenic in Food.—A recent epidemic of arsenic poisoning occurred in Manchester, England, which was thought to be due to contaminated beer. A government commission was appointed to investigate the condition. After showing that the arsenic got into the beer from the impure sulfuric acid used in the manufacture of brewing sugar or glucose, the commission, under the chairmanship of Lord Kelvin, continued their inquiries, which had convinced them that poisoning by arsenic contained in matters of common use was by no means confined to this one case. Says the *Hospital*, in a note of this report: "The magnitude of the whole question is shown by the statement that what was called the Manchester epidemic was known to have affected 6,000 persons, and was believed to have affected many more; while the ascertained deaths were over 100, leaving an indefinite number registered as from various causes, but as to which the influence of arsenic could be reasonably suspected. Perhaps the most remarkable result of the inquiry was the discovery that, although the bulk of cases in the Manchester epidemic was clearly due to contaminated sugar, yet illness of a similar kind had prevailed extensively in various localities in which contaminated sugar had not been used by brewers, and that when its arsenical character was no longer in doubt, it was without much difficulty traced to the contamination of malt by the use of arsenical gas coke in the drying kilns. Certain samples of such malt contained as much as $\frac{1}{10}$ gr. of arsenic to the pound, and beer brewed from malt prepared in a similar manner was found to contain $\frac{1}{10}$ gr. of arsenic to the gallon. After fully discussing the questions

hence arising, the report goes on to enumerate other methods by which arsenic may be introduced into common forms of food, and the list of foods liable to be affected includes beer, golden syrup and treacle, foods containing glucose, vinegar, Demarara sugar, various extracts of malt, manufactured either for sale to invalids or for use by bakers, 'prepared' and 'infant' foods under a variety of names, yeast cakes, and foods to which certain coloring matters or preservatives have been added."

OBITUARIES.

William F. Buchanan, at his home in Philadelphia, February 16. A graduate of the University of Pennsylvania. He was U. S. Army surgeon during the Civil war. He was attached to the 68th Illinois Volunteers until 1864, when he was appointed assistant surgeon and later made assistant medical director in the department of the South. Later he was stationed successively at Fort Leavenworth, Denver, Lexington, Mo., and Fort Harker, Kansas. He was with General Hancock in his Indian expedition in the West.

Evan W. Warfield, at his home in Longwood, Md., February 17, aged 79. Dr. Warfield was one of the oldest and best known physicians in his part of the State; a descendant of Revolutionary stock. He had practised in Howard and surrounding counties for over 50 years, being a graduate of the University of Maryland at the age of 19.

John Eggleston Byers, at his home in Butler, Pa., February 8, of cerebral hemorrhage, at the age of 49; a graduate of the New York University in 1879; surgeon to the Pennsylvania railroad; a member of various societies, including the National Association of Railway Surgeons.

Gustavus Liebmann, at his residence in Brookline, February 21. He was born in Wurtemberg 71 years ago, and received his physician's degree at the University of Tübingen, coming to America when he was about 25 years old. For 20 years he practised medicine in Baltimore.

K. C. C. Hill, at Monterey, Mex., February 13, aged 76. He joined the U. S. Army in the War with Mexico, being at that time only 14 years of age; he was captured and later adopted by Santa Ana by whom he was educated and made a member of his official family.

Henry L. Smith, at his home in Hudson, N. Y., February 11, aged 60; a graduate of the College of Physicians and Surgeons of New York in 1864; member of the New York State Medical Association and of the New York State and Columbia County Societies.

Virgil O. Haddon, at his home in Atlanta, from pneumonia, February 7, aged 54; a graduate of Bellevue Medical College, N. Y., in 1874; professor of obstetrics and diseases of women and children of the Atlanta College of Physicians and Surgeons.

R. C. Downey, at his home in Middleton, Conn., February 15, of erysipelas, aged 35; a graduate of the University of Vermont and of Bellevue Medical College; a member of the State Medical Society and the Central Medical Association.

Henry Martin Dearborn, at his home in New York, February 16, from pneumonia. He was an expert dermatologist and connected with numerous hospitals and societies; a graduate of Bowdoin Medical College, in 1879.

M. Luther Goodlet, at his home in Tupelo, Miss., February 5, aged 69; a graduate of the Medical College of the State of South Carolina, Charleston, in 1861; surgeon in the Southern army during the Civil war.

Robert Lantenbach, at his home in Baltimore, February 16, aged 69; a graduate of the Medical Department of the University of Maryland and an army surgeon during the Civil war.

Edward Howard Moore, at the Lawrence Hospital, Columbus, Ohio, February 6, of meningitis, aged 28; a graduate of the Starling Medical College, Columbus, in 1903.

Richard McDermott, at his home in Thompson, Mich., February 4, aged 53; a graduate of the Starling Medical College, Columbus, in 1882.

Charles H. St. John, at his home in Salina, Kan., February 5; a graduate of the Homeopathic Medical College, Kansas City, Mo., in 1896.

Edward C. Runge, at his home in St. Louis, February 10, of pneumonia, aged 50; graduate of the Washington University, St. Louis, in 1891.

Alvan R. Davis, a native of Dover, Del., February 16, at Rawlins, Wyo. He was a graduate of Jefferson Medical College, Philadelphia.

John E. Hickson, at his home in Blissville, Long Island City, February 6, aged 48; a graduate of Bellevue Medical College in 1889.

Charles F. Alsentzer, at his home in Philadelphia, February 16, aged 38. A graduate of the University of Pennsylvania in 1883.

Theodore F. Stark, at his home in Minneapolis, Minn., January 30; a graduate of Jefferson Medical College, Philadelphia, in 1877.

Nicholas M. Edward, at his home in Slater, Mo., February 8, aged 66; a graduate of the University of Pennsylvania in 1890.

John W. Jones, at his home in Tarboro, N. C., January 28, aged 72; a graduate of the University of Pennsylvania in 1857.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

AN APPEAL TO GENERAL PRACTITIONERS AND TO OBSTETRICIANS.

BY

CHARLES SEDGWICK MINOT, M.D.,

of Boston, Mass.

Harvard Embryological Laboratory.

To the Editor of American Medicine:—The opportunity which you afford me of calling attention to the needs of the Harvard embryologic collection is welcome and timely. This collection, planned 10 years ago with the utmost systematic care, is now, in many parts, approaching completion. It was proposed to illustrate, by graded series of sections, the development of typical vertebrates from fishes to man inclusive. Seven hundred embryos have already been placed in the cabinets. The technical skill acquired in preparing this large number of specimens is such that an embryo is ordinarily cut into several hundred sections without the loss of a single one, and these are arranged on the slides with the precision of set type. Every one of the sections is so numbered as to permit ready reference.

The fishes chosen, and well represented, comprise the trout from State hatcheries, ganoids from the West, and torpedoes from Italy. The amphibians include both the large western and small eastern salamanders, and frogs. The reptiles are European lizards. Very complete series of rabbits, cats, and pigs have furnished mammalian material. Scientists working in the laboratory with the cooperation of those in distant places, have collected these specimens at great expense of time and effort. It is obvious, however, that human embryos cannot be gathered by embryologists. For such specimens, so desirable from the zoological standpoint, and indispensable for a medical school, all must depend upon practitioners.

The embryos desired are those of the first 3 months, including all which are less than 3 inches in length. To be of value they should be placed as soon as possible, and without handling, in a 10% solution of formalin. This is made by adding 10 parts of formalin to 90 parts of water, and may be obtained of any apothecary. Since one can never foretell when such a rare treasure as a normal young human embryo is to be at his disposal, a tightly closed jar of this preservative should be kept always at hand. The laboratory is ready to pay the expense of preserving and forwarding specimens, and will duly acknowledge the receipt of embryos. The lack of human specimens is keenly felt, and this appeal for them is urgent.

Finally, it should be said that the Harvard embryologic collection is for the use of investigators, whether they are stationed at this medical school or not. It has already been used by scientists visiting Boston for this purpose; and it is open to the inspection of any physician who may be interested in its development.

DESCRIPTION OF METHOD OF PREPARING BRAINS USED IN CLASS DEMONSTRATION.¹

BY

ADDINELL HEWSON, A.M., M.D.,

of Philadelphia.

Assistant Professor and Demonstrator of Anatomy, Jefferson Medical College; Professor of Anatomy, Philadelphia Polyclinic College for Graduates in Medicine.

In presenting a paper of this sort it is necessary to explain the character of material at my disposal. This material comes from all parts of Pennsylvania, and preservation of the body is made therefore in various stages of decomposition, varying with the season of the year. The bodies are received not less than 2 days after death, and in many instances 6, 7, and even 10 days after death.

¹ Read before the Association of American Anatomists, at Philadelphia, December 29, 1903.

The origin of this solution was reached after experimentation by me with Wickersheimer's solution and the results obtained by the Kaiserling solution. The objection to both of these being that to prepare the body in bulk, either 2 injections were required as in the former or 2 immersions of isolated parts or organs in the latter. The object I had in view was to obtain results which combined the good points of each. The flexibility of bodies injected by Wickersheimer's solution and the nonstability of color obtained in Kaiserling, except when kept in the dark, were 2 points I endeavored to obtain as a permanency, together with the maintenance of the nervous system in a condition to allow the frequent handling for class demonstration:

Sodium arseniate	2 kilos.
Potassium nitrate.....	1 kilo.
Glycerin	2,000 cc.
Water.....	7,700 cc.
Formaldehyd (40% solution).....	150 cc.
Carbolic acid (No. 1 delq. crystals).....	150 cc.

This solution is made by boiling the potassium nitrate, sodium arseniate, carbolic acid and water until the salts are completely dissolved and when cold the addition of the glycerin and formaldehyd and a small quantity of thymol, sufficient to saturate; as this latter is not very soluble in water (1-2,000) only a small quantity is necessary; a piece about the size of the end of the thumb is sufficient for a carboy of solution.

The bodies are injected either from the carotid or from the femoral by pressure of 8 to 10 pounds or by elevation of a tank containing the fluid, 10 to 12 feet. The best injections are made by washing out the vascular system with 2 quarts of normal salt solution immediately preceding the preservative fluid, care being taken either to open the deep jugular or femoral vein. This washes out the fluid retained in the venous system, but has the effect of slightly blanching the color of the muscles; it also permits the distending venous injection to flow more freely.

The quantity of preserving fluid must vary with the weight and size of the individual subject, rarely less in the adult than 2 gallons and often as much as 3½ to 4 gallons in larger subjects being required.

The effect of this injection on an adult body is to preserve the cuticle intact, giving the skin firmness with pliability; the fatty subcutaneous tissue appears in its normal condition, the fibrous tissues of the body are not hardened and the muscles appear with their normal colorings, the arteries when atheromatous are made slightly more elastic and the nerves a little denser and very easily distinguished. The viscera keep their normal position and shape, this is instanced by the spleen retaining its 3 surfaces with the complete arrest of decomposition at the time of injection. This is so complete that I have no hesitation in using the injection in bodies infested with maggots. This solution does not affect the flexibility of the joints or of the body in any way as the joints and muscles are not in any instance rendered rigid.

In regard to the effect of injection upon the preparation of bones I have found that if the part is boiled, a darker condition of the bone is found, but that if the bone is allowed to macerate in water at a temperature of about 100° F., it assumes a slightly yellowish tinge.

The arterial distending injection is used 24 to 36 hours after the preservative injection made of starch, colored with light English vermilion. The venous injection is made with the same starch, colored with ultramarine blue.

I have found in making röntgen ray pictures that it is possible with this arterial solution to get perfect views of the anastomosis about the larger joints, and if the venous injection is also desired by substituting 2 oz. of bismuth subnitrate for the ultramarine blue to the same starch solution, the veins can also be distinguished on the röntgen ray plate. The presence of the arsenic in the tissues interferes somewhat with the penetration of the röntgen rays, and an increased exposure is necessary about the denser parts of the bodies (shoulder-joint, hip-joint).

In the brains here presented, the bodies after being subjected to the foregoing process, were placed in cold storage and allowed to remain six or eight months until the requirements of the class demanded their use. One of these brains was not

taken out until the close of the 6 weeks' period devoted to dissection, and was found in very good condition. As a rule, however, I prefer to remove the brain as soon as the superficies of the head have been dissected; the calvaria is removed; the dura severed in the same incision, and the brain removed from the skull with the pia and arachnoid in place. It is then placed in the solution minus the glycerin, with the addition of 5% formaldehyd. It is allowed to remain in this solution from 24, 36 to 48 hours, according to the softness of the brain; at the end of this time 5% more of formaldehyd is added, and the whole is stored away in individual jars (pressed glass meat jars, Pittsburg Glass Manufacturing Co.) in the dark.

The object obtained by placing the brain in the modified solution with 5% formaldehyd added is to harden the central portion as well as the superficial parts, the membranes being in situ, the addition of 5% more, making the solution plus 10% of formaldehyd, hardens the brain and with the pia and arachnoid still in contact fixes the structures in their normal position. If, however, the pia and arachnoid are removed it is best to store the brain only in the original solution minus the glycerin but plus 2.5% formaldehyd. The effect produced by these solutions is as follows:

The complete arrest of decomposition, shown in several brains where 1 part has been entirely disintegrated at the time of the original injection of the body. The elastic condition of the brain permitting handling which could not be undertaken otherwise. The darkening of the gray matter and all of the ganglions, thereby permitting an exhibition which is difficult to find in the ordinary brain injected by other solutions. The specific gravity of the original solution is 1,260. It is acid in reaction. The specific gravity of storing solution is 1,252, which floats the brain without the addition of cotton to support it.

I have used this injection in fetal subjects and find that if the body is merely injected it does not harden, but after the body is injected and is immersed in a similar injection it is very apt to become hard and somewhat stiff. I would therefore advise that for fetal subjects not more than .5% of formaldehyd be used in the preparation of fetal brains after they are removed and in the original injection.

NEGLECTED TEETH A CAUSE OF DISEASES OF THE STOMACH.

BY

ERWIN H. TAYLOR, M.D.,
of Pittsfield, Mass.

As a result of our modern manner of living with its many luxuries, and owing to our negligence, we are paying the penalty of the violation of the laws of nature by our decaying teeth, indigestion, and the thousand and one disturbances of body and mind which follow impaired digestion and nutrition. Indigestion has become so frequent in America that some of our friends across the water have gone so far as to call it americanitis.

When we stop to consider the way in which we Americans live, it is not surprising. The American is a hustler at the expense of his stomach. Let us take the average American business man as an example. He arises in the morning and hastily eats a hearty breakfast composed of such articles as hot pancakes, fried potatoes, hard boiled eggs or sausage. Instead of masticating the food until it is well ground up and lubricated with the saliva, he washes the large masses of half masticated food down with several cups of strong coffee in order that he may save time. Then, instead of cleansing his teeth as he should, he hurries away to his place of business chewing a tooth-pick. At noon he rushes up to a quick-lunch counter and utilizes 2 or 3 cups of tea to wash down a few sandwiches and a piece of mince pie. Is it any wonder that the teeth decay, and that the stomach rebels?

There are many factors which enter into the causation of diseases of the stomach, but in this brief article I wish to call attention to the importance of the preservation and care of the teeth as an essential feature in the maintenance of good digestion.

The more I learn concerning the complex changes that take place in the process of digestion, the more am I impressed with the supreme importance of having the food properly prepared in the mouth for its reception by the gastrointestinal tract.

Comparatively few people reach the age of 25 without a few and often many defects in their teeth. Quite often, even at this early age, the individual may have lost all his natural teeth. Many people never think of a dentist till nature gives them a gentle reminder in the form of a toothache. Then they blame nature for giving them such poor teeth, and insist on having the offending member extracted by way of revenge, totally ignoring its value to the preservation of health if it were properly repaired. When this policy is pursued, one tooth after another is sacrificed until there are not enough left to chew the food. Now the only way that the patient can better his condition and have the mouth look presentable is by artificial teeth, which can rarely prove as satisfactory as well-preserved natural teeth.

Good teeth give beauty and expression to the face and are important aids in the production of speech as well as in mastication. Patients should be instructed concerning the value of these important structures and how to take better care of them. When the mouth is neglected, food accumulates on and between the teeth, thus furnishing the most favorable conditions for the growth and development of microorganisms, since we have heat, moisture, and plenty of pabulum. Microorganisms are always present in the mouth, a fact which is not difficult to believe if one will take the trouble to place a drop of saliva under the microscope. The saliva, taken from the neglected mouth with decayed teeth, will be literally swarming with microorganisms, while the saliva from a mouth well taken care of, with sound teeth, will be found to contain comparatively few germs.

When the food is allowed to accumulate and remain between the teeth, these microorganisms multiply rapidly and give rise to fermentation and putrefaction. As a result of the action of these germs and their products, we have various pathologic changes produced in the mouth and teeth, among which is dental caries.

According to Miller, the fermentation is the result of the action of these microorganisms on the sugar taken into the mouth, either as such or as starch, this latter being converted into sugar by the ptyalin of the saliva. The germs act on the sugar and change it into acids, chief among which is lactic acid. This acid now coming in contact with the tooth, dissolves the inorganic salts, exposing the organic elements of the tooth, which are decomposed by the peptonizing bacteria that are present. Over 22 kinds of germs have been found to take a more or less active part in the production of dental caries.

Many bacteria have the power of multiplying very rapidly. Under the most favorable conditions a single bacterium may divide as often as once in 20 minutes. At this rate a single bacterium, at the end of 12 hours, may have more than 16,000,000 descendants, or in 24 hours more than 280,000,000,000. Although bacteria do not ordinarily multiply as rapidly as this, it gives us some idea of their possibilities when the conditions are favorable.

Patients with dental caries are seldom perfectly healthy. During the process of putrefaction of nitrogenous matter, poisonous decomposition products are produced. These germs and their poisonous products produce irritation and inflammation of the mucous membrane of the mouth. Pyorrhea alveolaris and inflammation of the pulp may also be caused by these microorganisms. The saliva containing these microorganisms and their poisonous products is swallowed and the germs go on developing and continue to elaborate their poisons which produce irritation and hyperemia of the mucous membrane of the stomach. If this process is long continued there is more or less thickening of the mucous membrane of the stomach and derangement of the gastric secretion. Instead of the normal secretion of gastric juice, there is a heavy, ropy, tenacious mucus which completely covers the mucous membrane and obstructs the mouths of the glands. This prevents the gastric juice from penetrating and mixing with the food as well as normally. The food remains longer in the stomach and

the normal digestive process yields to one of fermentation and putrefaction, the products of which produce not only local disturbance, but are absorbed from the stomach and bowels and cause constitutional changes and symptoms more or less severe.

Patients with neglected teeth and caries are also generally negligent about properly masticating their food. They are not satisfied to chew the food until it is well ground up and sufficiently well lubricated with the saliva to render the act of swallowing easy as nature intended, but seek for a quicker way by washing large masses of poorly masticated food down into the stomach with various beverages. It is difficult for the gastric juice to penetrate and digest these large morsels of food and they remain in the stomach longer and predispose to fermentation and putrefaction. The food passes on into the bowel in a semiprepared condition, thus throwing an extra amount of work on the intestinal digestion.

Turck has very ably demonstrated the intimate relationship in many cases of diseases of the mouth and nasopharynx with chronic inflammation of the stomach and intestines. He shows that often the microorganisms producing the fermentation and putrefaction in the stomach are identical with the ones found in cultures taken from the mouth and nasopharynx of the same patient.

Stark maintains that there is a frequent relationship between caries of the teeth and enlargement of the cervical lymphatic glands, and it is well known that otitis media sometimes results from this source.

From what has been said, it is evident that there is a close relationship between caries of the teeth and diseases of the stomach. If we are to have good health, we must have good food properly prepared, thoroughly masticated, well digested and absorbed. It should be a routine practice to examine carefully the mouth of every patient, and if the teeth are not in good order, the patient should be advised to see a dentist, and have them properly treated. The nose and nasopharynx should also be examined, and if diseased should receive appropriate treatment. It is only by careful attention to these and other details that we can hope to achieve the best results in the treatment of gastrointestinal diseases. A large number of these cases require the most skilful attention on the part of both physician and dentist.

The loss of teeth means imperfect articulation, absorption of the alveolar process, falling of the muscles, injury to the nerves, undue pressure on the remaining teeth, impaired beauty and symmetry of the face as well as imperfect mastication of the food.

Patients should be urged never to have a tooth extracted that can be repaired unless so advised by a competent dentist. More attention should be given to the teeth in childhood. Care should be taken to prevent decay around the temporary teeth, so that the germs of the permanent teeth may be kept in a healthy condition. It is the duty of every parent or other person entrusted with the care of children to teach them to brush their teeth after each meal. The child should be taken to the dentist every 6 months or year and have the teeth thoroughly inspected and all defects promptly corrected. Irregular teeth interfering with the articulation should receive appropriate treatment. Rough surfaces should be made smooth and cavities well filled, since food does not tend to collect so much on teeth with smooth surfaces in a healthy mouth. There is nothing that will pay better interest on the small amount invested or result in more satisfaction to the patient in after years than the possession of good teeth and good digestion.

The welfare of every individual cell in the human organism is dependent on digestion and nutrition. Poor teeth and improper digestion predispose the patient to many of the constitutional diseases. On the other hand, many constitutional diseases influence the teeth and the digestion, such as anemia, syphilis, etc.

Looking at the subject purely from an esthetic standpoint, what is more disgusting than a man or woman with half of the front teeth missing and the remaining ones all covered with tartar and food in all stages of decomposition, and whose breath reminds one of the odor of a cesspool?

When patients have plates in their mouths, they should

remove and cleanse them after each meal. If the plate is not frequently removed, the food accumulates beneath the plate and furnishes favorable conditions for fermentation and putrefaction, with quite as serious results as occur with carious teeth.

In acute fevers great care should be given to keeping the mouth and teeth well cleansed, because the salivary secretion is diminished in quantity and is not capable of even approximately neutralizing the acids which are formed. During pregnancy women should take extra care of the teeth, for it is a common saying with obstetricians that for every child the woman will lose a tooth. This can generally be prevented, with proper care.

Among the predisposing causes of caries are too rapid development of the teeth, deficiency of lime salts in the body, rachitis, tuberculosis, syphilis, defective structure, imperfections in the dentine and enamel, irregular teeth, favoring the retention of food between the teeth, and finally, certain diseases that produce an acid reaction of the mouth.

By what has been said I do not wish to convey the idea that I consider pathologic conditions of the mouth the only cause of digestive diseases, but that the neglected mouth with carious teeth is one of the important factors, and one that has received altogether too little attention by the general practitioner.

A LARGE SPLINTER DRIVEN THROUGH THE GREAT SCIATIC NOTCH.

BY

LOUIS SPITZ, M.D.,

of Philadelphia.

About August 12, I was called to see a young married woman who, about 7 months previous had fallen through a skylight, landing upon her buttocks on a rickety chair; one of the rungs broke and penetrated (as she explained) the rectum. The broken fragment of wood was removed by her husband and a physician sent for. The wound was dressed and redressed, ointments and powders of every description applied, but the so-called scratch persisted, together with a sanguinopurulent discharge. The patient stated that while the pain was not of an excruciating character, it was sufficient to prevent her assuming the regular sitting position, she was obliged to either stand, lie down or rest on a chair with legs crossed under her, tailor fashion. She complained of no other symptoms than those of the offensive discharge and the accompanying discomfort. Her bowels were regular, but at times the stools were bloodstained. Before examination I concluded that I had to deal with a fistula in ano, but an examination revealed a more complicated matter. With the patient in the kneechest posture, I passed a probe about 10 cm. through the external wound, and with the index finger of the left hand in the rectum I could not feel the distal end of the instrument. Realizing at once that this was either an anal fistula with the internal opening exceedingly high up, and therefore in imminent danger of entering the pelvic cavity, or a canal of considerable depth which was blind internally, I advised early operation, but consent to operate was not obtained until nearly 2 weeks later, when some alarming symptoms arose. At this time, August 14, the wound had bled quite freely and the patient complained of pain in the region of the pelvis. On palpating the lower abdomen no tenderness was found, but there was considerable soreness around the site of the fistula. A thorough examination of the heart, lungs, etc., revealed nothing abnormal; the blood and the urine were examined with negative results. On August 16, operation was performed, with the patient in the lithotomy position. The external wound was enlarged sufficiently to admit a finger, and as the tract was lined with necrotic tissue, I cut away all the visible dead tissue. Passing a probe through the opening, I discovered that the sinus led in the opposite direction from the rectum, and as the probe went in fully 12 cm., I was apprehensive as to what might yet be disclosed.

Confident of not entering the rectum, unless perhaps I was obliged to face an unfortunate anomalous condition, I scraped the canal as clean as possible with a sharp curet, flushing it out at the same time with normal salt solution. Again the probe was passed and this time something hard was felt at the end of the instrument, and a small, irregular resisting body could be outlined. After considerable effort a piece of wood about 6 cm. in length was extracted. This was the largest of about 10 fragments which had become lodged and partially encapsulated. The wound was thoroughly curetted and irrigated and packed with iodoform gauze. From the beginning the field of operation was entirely concealed from view and I had to depend

entirely on my fingers. The great danger lay in the close proximity of the pelvic cavity and for this reason I was most careful in introducing sharp instruments. No difficulty was experienced in dissecting through the superficial anal muscles, but the ischial tuberosity formed a barrier whereby the continuity of the canal was prevented. The bent probe overcame this obstacle and the instrument passed on through the fat in the ischio-rectal fossa and through the superficial and deep triangular ligaments with the intervening levator ani between whose fibers some of the smaller fragments were found; the larger piece perforated the sheath of the muscle, and lay just beneath the rectovesical fascia.

On the ninth day succeeding the operation the wound was entirely healed and the patient wholly free from pain or discomfort. She menstruated the third day after the operation, but manifested no untoward symptoms during the progress of this function and went on to an uninterrupted recovery. About 2 months later I saw her again and found that she was completely cured.

POTASSIUM IODID IN HEMIPLEGIA.

BY

M. J. PAYNE, M.D.,

of Staunton, Va.

To the Editor of American Medicine:—Having had occasion to push the administration of potassium iodid in a case of hemiplegia and associated aphasia, with the purpose of producing the full therapeutic effect, and being unable to bring about iodism, even when the dose far exceeded what is stated to be the maximum dose, I have decided to ask the readers of *American Medicine* what, in their experience, has been: (1) The maximum dose given; (2) has iodism invariably been observed; (3) what was the method, and the frequency of administration?

The patient in question took at 1 dose 13.61 gm. (210 gr.), this dose being given 3 times in 1 day. The c.p. potassium iodid was used, and iodism was not observed. The method of increase was 1-gr. increase at each dose, and given 3 times a day.

This case would tax the so-called therapeutic test for specific infection beyond a reasonable limit and I think would place a question of interest before the profession. In other words, would this case, as cited, be classed as an exception to the therapeutic test, or as proof of it. The extreme tolerance has an explanation, and I would be pleased to have it from any one offering the solution.

HERNIOPLASTY.

BY

HERMAN B. GESSNER, M.D.,

of New Orleans, La.

To the Editor of American Medicine:—I write to suggest the use of the word "hernioplasty" to replace the expression "radical cure operation for hernia." The reasons for the substitution are, I believe, obvious.

Ventilation of Glass Pavilions for Tuberculous Patients.—One of the notable features of the glass pavilions for tuberculous patients at the Philadelphia Hospital is the treatment of the ventilation problem. Warm air forced into the rooms a little above the heads of the patients finds an outlet, as it cools, at about a foot from the floor. There is a continuous circulation. If Philadelphia, or any American city, should be suddenly covered up by some catastrophe and then explored, say 100 or 200 years hence, as the archaeologists have uncovered the ruins of Pompeii, the most surprising thing to the people of the future would be the lack of ventilation in the American house. Farm journals devote much space nowadays to ingenious plans for ventilating chicken houses; the cows in a modern dairy are provided with an abundance of good fresh air; but the architect has neglected the human occupant of the house. The ordinary house of an American city is a barbarous survival in civilization. It may be a model of convenience; the plumbing may be perfect; the ornamentation is perhaps artistic and pleasing; but in the great essential of furnishing the tenant with fresh air it is an anomaly—almost a crime.—[*Public Ledger.*]

ORIGINAL ARTICLES

DIAGNOSIS AND TREATMENT OF THORACIC ANEURYSM.

BY

STEPHEN SMITH BURT, A.M. (Yale), M.D. (Columbia),
of New York City.Professor of Medicine, New York Post-Graduate Medical School and
Hospital.

The evidences of an aneurysm of the thoracic aorta differ somewhat with the position of the dilation. Indeed, small sacculated aneurysms may occur, especially at the beginning of the aorta, with nothing to suggest their presence until the final rupture and hemorrhage. But, ordinarily, these tumors are marked by physical signs or pressure symptoms or both combined in varying proportions. I propose to review these evidences and to cite a number of instances in illustration. Aneurysms are more liable to develop in men than in women because of the greater arterial strain to which men are commonly subjected, and because of their greater proneness to alcoholic and venereal incontinence and their resulting vascular degeneration. Almost as many aneurysms occur before 40 as afterward. The thoracic aorta is most frequently affected in the ascending portion of the arch, which is in the direct line of the greatest intravascular pressure. Next in frequency is the transverse, then the ascending and transverse arch conjointly. Next in order are the sinuses of Valsalva, then the descending portion of the arch, then the section of the thoracic aorta below the arch, then the whole arch, and, finally, the transverse and descending subdivision. Broadly speaking, whenever upon the surface of the thorax there is a pulsating tumor which is not the heart, but which is beating with coequal force and rhythm, whether or not there is a murmur, in all probability it is a thoracic aneurysm. However, the difficulties of diagnosis are not when the conditions are so clearly obvious as implied by this general statement. Aneurysmal tumors of the sinuses of Valsalva may exist without any manifestation. A growth of this kind in the ascending portion of the arch commonly extends to the right of the sternum above the level of the fourth rib, or, less often, to the surface directly forward. Now and then it appears at the left of the sternum. Aneurysms of the transverse arch press backward toward the spine or forward under the sternum, and may be appreciable in the suprasternal region. When the sac involves the ascending and transverse portion, it passes to the right and upward. In aneurysm of the descending portion of the arch, it extends to the left and backward. A tumor situated at the junction of the transverse and descending portions grows from behind the sternum to the left and upward. Aneurysms below the arch are generally located just above the diaphragm. By physical examination we find on inspection, if the tumor projects through the chest wall, a heaving, expansile pulsation. If it arises from the first portion of the arch the tumor usually points in the vicinity of the second intercostal space to the right of the sternum. If from the second, it comes through the upper part of that bone. When from the third division, it appears to the left of the sternum above the third rib, or to the left of the spine about on the same level behind. Aneurysms of the descending thoracic aorta pulsate to the left of the spine a little lower posteriorly. When the tumors do not stand out on the surface, there may be simply varying degrees down to entire absence of pulsation in these several localities. Sometimes the movement is so slight that it can be seen only under a strong light and by looking sidewise. A large aneurysm when filled with fibrinous laminae may exist without the slightest visible pulsation.

When the heart is laid bare by retraction of the lung, or by some spinal deformity, cardiac impulse at either

side of the sternum must not be mistaken for that of an aortic dilation. An enormously enlarged or scolloped bovine heart may crowd the aorta toward the right until the displaced vessel simulates an aneurysm. As increased size of the heart, in the absence of valvular disease, is not a concomitant of these affections, any dislocation of the apex ordinarily is caused by pressure rather than by enlargement. When venous congestion and swelling of the right arm are present, the tumor is probably in the ascending portion of the arch and is pressing upon the subclavian vein; there is engorgement of the head and upper extremities when the pressure includes the vena cava superior. Should the tumor involve the inferior vena cava there would be swelling of the lower extremities. Pressure upon the venous system is said to occur more commonly when the growth is nonaneurysmal. It was well marked, however, in a case of mine, in which the aneurysm, though springing from the third division of the arch, extended widely in all directions. If, on looking into the larynx, there is paralysis of the right vocal cord, it may be due to pressure in the ascending arch upon the recurrent laryngeal nerve. If the right pupil is abnormally dilated or contracted, there may be varying degrees of pressure in the ascending arch upon the sympathetic; simple irritation results in dilation, destruction of the nerve in contraction. Deep-seated pressure, however, is much more apt to occur in the transverse portion of the arch than in the ascending. Another explanation of the alteration of the iris is based upon changes which take place in the tension of the bloodvessels of the eye, as a result of the disturbance of the general circulation. If the left vocal cord is paralyzed, the sac is in the transverse portion of the arch, and is pressing on the left recurrent laryngeal nerve. With the tumor similarly situated, also there may be either left pupillary dilation or contraction. The trachea may be pushed backward by an aneurysm in this region or otherwise displaced. Exophthalmos on one or both sides may be due to aneurysm. Likewise a collar-like swelling around the base of the neck. Such a condition recently came under my observation. Clubbing of the finger-ends is rare in this disease. It has been seen upon one side alone. In large aneurysms of the transverse or the descending portion of the arch, there may be displacement of the dorsal vertebrae instead of pulsation in this neighborhood. In a case to be recounted, there was kyphosis in the upper dorsal region, involving the second, third, and fourth vertebrae, with no pulsation. In my opinion, aneurysms that are too small to be detected by the ordinary methods are too small to be seen in the hazy shadows thrown upon a screen by the röntgen rays. But the outlines of a large dilation of the aorta as depicted by these rays are valuable evidence and corroboratory. By palpation a projecting aneurysmal tumor is found to have a peculiar heaving, expansile pulsation that differs in character from the simple uplifting movement of a growth of another nature, wherein the pulsation is not inherent but transmitted. When the aneurysm has not perforated the chest wall, there are all degrees of pulsation down to a mere throb, which last is appreciated best with one hand on the spine and the other over the sternum. A diastolic shock is frequently felt over an aneurysm as well as a systolic impulse, but nevertheless, when the sac is filled with fibrin these may not be palpable. If there happens to be a systolic thrill, it is usually over a fusiform dilation, or else it is the result of an aortic valvular complication.

If a large sac involves the left carotid and left subclavian, the left carotid and radial pulses may be retarded, thus rendering the two sides unequal. An extreme dilation of the aorta which includes the innominate artery, or which comprehends the greater part of the arch, may absorb, so to speak, the arterial wave and leave nothing but a continuous stream for the distal arteries. Here there will be no beating pulse but still a circulation. Sir William Gairdner alludes to this loss of

elasticity in the larger dilations, and its consequences. Such a phenomenon has been observed also by William Osler in the abdominal aorta and the effluent arteries of the lower extremities. In this instance the continuous arterial flow was probably caused by a large over-distended sac below the left subclavian artery in the descending thoracic aorta, as the tumor was pulsating behind to the left of the spine in that vicinity. When the sac is filled with solid coagulum through which a good-sized channel is left intact, such as occurred in my experience, ventricular systole will be transmitted without interruption to the distal arteries, and the beating of the two sides will remain simultaneous. In aneurysms, especially of the transverse portion of the arch, a heaving impulse may be felt in the suprasternal notch, but examiners must be wary of this occurrence for it is not infrequently a normal manifestation. When an aneurysm is deep-seated and not rendered motionless by an organized internal clot its beating may be communicated



The aneurysm is to the right of the photograph, the sac torn in the removal, the clot exposed and a glass tube inserted in the channel. It was much larger in position than it appears in the photograph. Above and to the left are the three eroded vertebrae, with a glass tube projecting from the erosion into the spinal canal. Photographed by John W. E. G. Miller, M.D., instructor in medicine, New York Post-Graduate Medical School.

to the trachea. This is known as tracheal tugging, or Oliver's symptom, and since it is unusual with other growths of the mediastinum its diagnostic value is considerable. The test is applied in the following manner: Place the patient in an erect position and direct him to close his mouth and elevate his chin to almost the full extent; then grasp the cricoid cartilage between the finger and thumb, and use steady and gentle upward pressure on it, when, if dilation or aneurysm exists, the pulsation of the aorta will be distinctly felt transmitted through the trachea to the hand. When the aneurysmal sac impinges upon the wall of the chest, there will be abnormal dullness or absolute flatness on percussion over the area implicated. Should there be an external projection of the tumor, anything but the gentlest stroke would be dangerous, in fact percussion under these conditions is generally unnecessary, and forcible strokes over whatever degree of dilation are always inadmissible. Aneurysms of the ascending arch produce flatness to the right of the sternum above the fourth rib, and in

a somewhat higher position behind; those of the transverse arch give flatness over the manubrium and to the left in front, and at least marked dullness at about the same level posteriorly. The flatness of an aneurysm of the descending arch may extend from the sternum to the left above the third rib, and behind, from the level of the third or fourth dorsal vertebra to the left and upward. Very large aneurysms of the arch of the aorta irrespective of their exact points of departure may develop widespread flatness or dullness at the upper part of the chest behind as well as anteriorly. Upon auscultation there may be a systolic murmur over an aneurysm, though it is not essential to a diagnosis. If there is also a diastolic murmur it is probably due to aortic valvular insufficiency. There is commonly accentuation of the second sound over the tumor with a diastolic shock to the stethoscope. When the sac is well filled with fibrinous deposit, there may be neither shock, murmur, nor accentuation. Pulsations may be detected now and then by means of the stethoscope that are otherwise unappreciable. Sometimes a rhythmic murmur is audible through the mouth of the patient, especially when it is closed over the objective end of an adjusted stethoscope. The breathing in the vicinity of the tumor may be entirely absent or else diminished; but usually there are evidences of pressure short of occlusion of the trachea or the bronchi in the nature of widely diffused sonorous respiration. The point of greatest intensity of these breathing sounds can oftentimes be traced to the left bronchus or lower end of the trachea. Pressure and finally closing of the lower end of the trachea while in progress were recently under my observation; likewise in another instance, closure of the left bronchus through which the aneurysm eventually ruptured with fatal consequences.

Among the symptoms, sudden violent pain, which may extend down the left arm, is prominent. The distress due to erosion may be a constant dull aching, or it may be intermittent, of a severe tearing character. Dyspnea is usually present. When there is partial obstruction of the trachea, cough and a peculiar wheezing are heard. When the cough is metallic in character and paroxysmal, with loss of voice, there is generally pressure upon the left recurrent laryngeal nerve. Loss of blood in varying amounts is frequently associated with aneurysm. There may be simply blood-tinged sputa or an extensive hemorrhage. Moderate bleeding is not necessarily serious, but a profuse outpouring from the sac either internally or externally is likely to cause sudden death. The esophagus is more apt to be pushed aside than invaded by an aneurysm, and hence there is seldom difficult deglutition, whereas the opposite holds with growths that are malignant.

Transmitted pulsation by the heart to a pleural effusion, which is usually widely diffused, should not be confounded with the impulse of an aneurysm which is generally circumscribed. Physical evidences of free fluid in the pleural cavity are quite distinct from those of fluid in a sac that can be traced to the aorta by its various signs and pressure symptoms. Differential diagnosis between aneurysmal and other mediastinal tumors is sometimes a problem that requires for its solution the most serious consideration. 1. Aneurysms are more likely to be encountered than malignant growths in this neighborhood. 2. A patient with aneurysm is generally otherwise in excellent physical condition, while there is commonly decided cachexia when tumors are malignant. Hence, if the tumor has existed for a year or more, this fact strongly points to aneurysm, should the nutrition and complexion of the sufferer meanwhile remain undisturbed. Mediastinal abscess is likely to be associated with hectic fever symptoms, and moreover, a collection of pus always should be revealed in the blood by a leukocytosis. Pressure effects are quite as likely to occur from solid tumors as from aneurysms. Indeed, as before remarked, these effects are more often found with

the former in the venous and digestive systems. These tumors may also develop murmurs, but ordinarily they do not, like aneurysms, cause diastolic shock, tugging at the trachea, or inequality in the pulses of the arterial circulation. And when they project through the surface of the chest and pulsate by conduction, unlike aneurysms so situated, the motion is neither forcible, heaving nor expansile. Malignant tumors of the mediastinum are usually associated with glandular enlargement of the neck and upper extremities which is not the case with aneurysms. The peculiar paroxysmal pain radiating from a deep-seated aneurysm, especially down the left arm, is not common to other tumors of the mediastinum. Malignant growths are more likely to cause dislocation of the heart than are aneurysms. Although a recent case of aneurysm of the descending arch of the aorta, under my care, was associated with pleurisy, this complication is more characteristic of tumors that are nonaneurysmal. When a large sac is filled by laminated fibrin it becomes practically a solid tumor, and the difficulties encountered under these circumstances will be shown in two of the following examples wherein after deliberation the true condition was diagnosed.

The treatment of aneurysm chiefly consists in absolute rest, mental as well as physical, restriction in the amount of food, and especially of fluids, together with potassium iodid for medication. All these expedients are constituted to favor the deposition of fibrin in the sac which is thereby strengthened, and recovery practically accomplished. Sacculated aneurysms with relatively small openings are likely to receive the most benefit from treatment. The introduction of foreign bodies into the sac or the use of electrolysis to favor firm coagulation is not on the whole satisfactory. Nor are any of the numerous drugs not excepting ergot, aside from potassium iodid, that have been from time to time recommended, of value otherwise than as palliatives. Morphine, chloroform, applications of ice and of belladonna, and venesection, are most useful temporary expedients. Potassium iodid, irrespective of specific disease, certainly lessens pain and discomfort, and it may possibly cause the sac to shrink and the blood to clot with greater firmness. In my opinion, however, its supposed favorable influence on the deposition of fibrin is problematic. Not only small, but also large tumors continually are found, as far as possible cured by being lined or else obliterated by solid fibrin when neither potassium iodid nor other drugs had been administered. On the other hand, a prolonged course of potassium iodid not infrequently has been known to end fatally in rupture of the sac without any fibrinous deposition. In one of the cases cited, the tumor had been thickly lined, and in another filled, by fibrin before the beginning of treatment, though they were both large-sized aneurysms. In one case there was room for the sac in the direction of its growth, which was from the ascending branch of the aorta into the right side of the chest, and the patient not being vitally injured thereby, recovered; in the other, the aneurysm invaded the spine by erosion, and eventually closed the trachea by pressing forward, and caused death by suffocation. In a third case, the patient, though put on light diet, confined to his bed, and treated with potassium iodid, suddenly died by rupture of the unhealed sac into the left bronchus, the rupture causing a profuse external hemorrhage.

CASE I.—T. L., aged 45, married, occupation carpenter, was admitted to my service December 23, 1902.

Family history is negative.

Previous History.—When 19 he had a sore on the prepuce, but there was no inguinal adenitis and no skin eruption. Other facts are unimportant.

Present History.—Three months ago he fell from a ladder, striking the back of the right chest, which resulted in a severe local pain that disappeared next day, and he resumed work. He was able to continue for awhile with but slight discomfort, until an acute pain appeared over the sternum and to the right

of the manubrium. This pain radiated backward and upward posteriorly. Shortness of breath on exertion slowly developed. In using the plane or the saw the pain became so severe that finally he was obliged to abandon his occupation. Lately he has had slight pain when lying still and severe pain on exertion.

Physical Examination.—He has a healthy color, and is well nourished. His pulse, temperature and respiration are normal. There are no objective pressure signs. Heart is normal, apex not displaced. Inspection is negative. Palpation discovers absence of vocal fremitus to the right of the sternum above the fourth rib. No pulsation. On percussion there is dullness over the right chest down to the fourth rib in front, and flatness in the region of the second intercostal space extending 2½ inches to the right of the sternum. Abnormal dullness on this side behind over the upper third of the scapula. On auscultation, a faint systolic murmur in the third interspace close to the sternum is discovered. No accentuation of the aortic second sound. No tracheal tugging. Lungs are normal elsewhere. My diagnosis was sacculated aneurysm of the ascending branch of the aorta with sac obliterated. After 2 weeks in bed, upon restricted diet and .6 cc. (10 m.) of a saturated solution of potassium iodid 3 times a day, the pain, which had continued over the area of flatness, disappeared. Subsequently the roentgen ray was employed, and an opaque mass was seen extending about 2½ inches to the right of the sternum, from the second to the fourth rib, and in connection with the aorta. Thus my diagnosis was corroborated. Examination of the urine was negative. There were no tubercle bacilli in the expectoration. The patient, practically cured, was up and about the ward, and was discharged on February 18.

CASE II.—T. D., aged 34, single, occupation clerk, came under my care December 1, 1899.

Previous History.—He had rheumatism when 16, and pain in the chest a year ago.

Present History.—About 10 weeks ago he was taken with pain in his chest under his left shoulder blade; the pain was most severe upon inspiration. He complains also of pain which extends into the left shoulder and down the left arm. No history of hemoptysis. Examination of the urine was negative. There were no tubercle bacilli in the sputum. Patient was well nourished.

Physical Examination.—The apex beat of the heart, which was forcible, was below and to the left of the normal position. Respiratory action of the left side was restricted. There was pulsation in the same rhythm, though not of the same strength as that of the heart, on the left anterior part of the chest above the third rib. Vocal fremitus was absent over the entire left side of the chest. In the pulsating surface there was no thrill. The left side was not increased in measurement. On percussion, there was flatness over the lower two-thirds of the left chest; dullness on the same side at the upper part behind; a triangular area of exaggerated resonance, with base in the upper left axillary region, and apex extending forward, located between the flatness below and the pulsating area above, previously mentioned; flatness from near the right edge of the sternum across to the left above the level of the third rib. Auscultation revealed an absence of any kind of breathing over the entire left side of the thorax. There was a loud, rough, systolic murmur, with point of greatest intensity at the second right cartilage, extending across the chest to the left in the track of the pulsation. The second aortic sound was accentuated, but not widely transmitted. My diagnosis was aneurysm of the descending arch of the aorta, with occlusion of the left bronchus, complicated by aortic valvular obstruction and left pleuritic effusion. In this case, pain was the subjective pressure symptom, and closure of the left bronchus the objective. The pain was in the left chest and down the arm of that side. The area of flatness, wherein there were pulsation and systolic murmurs, was distinct from the region of flatness below; an interval of hyper-resonance intervening.

Treatment consisted of rest in bed, restricted diet, and .65 gm. (10 gr.), gradually increased to 1.3 gm. (20 gr.), of potassium iodid 3 times a day. The patient died suddenly, December 20, of a profuse arterial hemorrhage, with no previous history of bleeding, from rupture of the sac into the left bronchus and trachea. No necropsy was performed. Granting that the aneurysm projected to the left and forward from the descending arch of the aorta, it must have originated below the left subclavian artery, because there was nothing to indicate pressure above this location. The entire absence of all breathing sounds in the left lung, even above the pleuritic effusion, was evidence of the closure of the left bronchus.

CASE III.—E. T., aged 37, colored, married, occupation porter, was admitted to the hospital December 6, 1899.

Previous History.—He never had syphilis; there is no history of alcoholism.

Present History.—One year ago he was taken with a sharp pain in the left side, of a week's duration. Since then he has had repeated attacks of pain in the chest, back, and shoulders. He was obliged to give up work. At night he has a feeling of oppression in the chest, and for the past week he has had a choking sensation. Examination of the urine is negative, excepting for a small trace of albumin. Pulse, respiration, and temperature were normal on admission. The patient had a vigorous frame and was well nourished. His extremities were neither edematous nor paralyzed. Although there was no

aphonia there was hoarseness with a cough that was harsh, but not metallic. He made no complaint of dysphagia.

Physical Examination.—The vocal cords were seen to be normal through the laryngoscope; the apical impulse of the heart was not displaced; no visible pulsation in the chest elsewhere. The superficial veins of the neck and both arms were distended. Around the base of the neck there was a spongy elastic swelling, and in the upper dorsal region an angular curvature of the spine with convexity backward. The spinous process of the third dorsal vertebra was especially prominent. Neither inequality of the pupils nor unilateral sweating was present. Pressure upon the second, third, and fourth dorsal vertebrae was decidedly painful. The apex beat of the heart was normal in force and position. The beating of the radial arteries was equal in strength and rhythm; there was no shock, pulsation, or tracheal tugging palpable. On percussion, flatness with striking resistance was found extending from 1 inch to the right of the sternum, across and for 3 inches to the left of that bone, and from the level of the insertion of the third ribs in this region upward; also abnormal dullness behind, from above down to a horizontal line intersecting the third dorsal spine on both sides of the thorax. Marked vesiculotympanic resonance was noted at the back over the lungs, from thence downward. Auscultation showed sonorous breathing over the entire chest, with the point of greatest intensity at the lower end of the trachea and the left bronchus; that vesicular respiration was masked by the sonorous breathing; no cardiac murmurs; no thrill or murmur over the area of flatness. The heart sounds were not intensified, and there was neither systolic nor diastolic shock over the tumor or the trachea. Upon a subsequent examination, a slight fleeting pulsation was detected chiefly by means of the stethoscope over the region of flatness on the left side anteriorly.

My diagnosis, after a thorough study of the case was aneurysm of the descending portion of the arch of the aorta, pressing upon the vertebrae behind, and in front, on the lower end of the trachea as well as the left bronchus. The location of the seat of the tumor was based on the positive evidences of pressure upon the vertebrae, the trachea, and the left bronchus, and on the negative evidences, namely, the absence of signs of pressure upon the left recurrent laryngeal nerve, or the sympathetic, or the left subclavian artery. The nature of the tumor primarily was decided by the vigorous frame and well-nourished condition of the patient, which, despite the duration of the malady, had been maintained, together with the absence of any trace of malignant growths elsewhere, or of glandular enlargement. These, in connection with the history, age, sex, occupation of the patient, and the results of medication, led me irresistibly to my conclusions.

Treatment consisted chiefly of rest in bed, a light diet, and 1 gm. (15 gr.) of potassium iodid 3 times a day, with now and then as required, morphin hypodermically. All tenderness of the vertebrae entirely disappeared under potassium iodid. The daily notes showed that the temperature remained about normal; the pulse varied between 80 and 100, the respirations between 20 and 30 per minute. He never complained of difficulty in swallowing. The bowels were constipated. Hemorrhage did not take place. There was no paraplegia. He had dyspnea, with a hoarse cough, which was not metallic in quality, and a slight mucous expectoration. Although less uncomfortable when in the dorsal decubitus, there was always great restlessness. He complained of a feeling in the chest of fullness and of oppression. There were frequent paroxysms of pain and dyspnea, but above all, toward the end, distressing dyspnea, which ended in death by asphyxia, December 29.

From the records of the necropsy, which took place January 3, 1900, the following relevant features are abstracted: "E. T., colored, general condition, well nourished. Marked kyphosis in the upper dorsal region. There was a large sacculated aneurysm in the descending portion of the arch of the aorta, beginning about $\frac{3}{4}$ inch beyond the origin of the left subclavian artery, and situated behind the trachea, and filling the upper quarter of the left thoracic cavity, together with the posterior mediastinum, and extending about 3 inches into the upper part of the right thoracic cavity. The tumor pressed forward against the lower part of the trachea and the left bronchus, but was not adherent. It likewise compressed the vena cava superior and the vena innominatae. The walls of the aneurysm were adherent on the posterior aspect to the spinal column, and on the right side somewhat anteriorly to the esophagus. The latter, with canal still patent, seemed to have been carried forward and outward on the right side of the tumor, to which it was closely attached for about 4 inches; the aneurysm was filled with a dense laminated fibrous clot, through which was a free channel about equal to the aorta in dimensions, and it was of an irregular ovoid shape, and from 6 inches to 8 inches in its long diameter. The bodies of the second, third, and fourth vertebrae were extensively eroded, and the erosion of the third vertebra opened into the canal of the spinal column. The interarticular discs were practically unaffected. The borders of the second, third, and fourth ribs near the spine were roughened and slightly eroded."

Physician Wanted.—A correspondent writes, under date of February 1, from Fort Jennings, Ohio, that a physician is needed in that place. Young doctors seeking for places of location might do well to investigate.

RETROPERITONEAL INFECTION A RESULT OF APPENDICITIS.

BY

I. S. STONE, M.D.,

of Washington, D. C.

Surgeon to Columbia Hospital, etc.

The controversy between the advocates of the intra-peritoneal and extraperitoneal origin of perityphlitis, or suppuration near the cecum, which raged for a time, diminished in violence only to be renewed when Sir Frederick Treves operated upon King Edward. The disputants were alike mistaken, for each declared his position the only correct one. The "intras" said all the trouble came from appendiceal rupture into the peritoneal cavity, while the "extras" with equal vigor asserted that appendicitis was a nightmare, and that it was all "para" or "peri" typhlitis.

It is beyond question, however, that the older pathologists and surgeons knew what was meant by retroperitoneal infection, and we find that in 1834 Dr. James Copland, in his Dictionary of Medicine, clearly discriminated between inflammation of the cecum, the vermiform appendix, and the pericecal tissue¹ (quoted by Fitz).

A little before this date, Goldbeck² wrote a thesis upon perityphlitis,* and Dance and Husson³ inspired by Dupuytren,⁴ wrote an account of the suppurative diseases about the cecum.†

In 1836, Addison,⁵ of London, published a work on typhlitis, and also lectured upon this subject prior to that date. Melier⁶ and Burne,⁶ in 1837, Hancock, 1848, and Willard Parker,⁷ 1867, (see reference, W. Parker) were pioneers in the study of the subject at the operating table, and in the dead house.

Samuel Wilks,⁸ of London, in 1859, wrote upon the various inflammations around the cecum, and demonstrated their origin, in both the appendix and cecum. It is only fair to observe that the earlier writers failed to understand the real nature of "typhlitis," and it is perhaps true that Burne was among the first, if not the first, to discover a relation between appendiceal disease (ruptured?) and the resulting abscess in the right side, "typhlitis" or "perityphlitis."

A little later, Dr. James H. Pooley,⁹ of New York, reported 46 cases of retroperitoneal abscess; all the patients recovered after operation, save 5. Of these 5 fatal cases, "3 patients had peritonitis, 1 had abscess of the lung, and 1 died of asthenia."

Since the work of these men we have a better idea of the role of infection, as we have also a better knowledge of surgical anatomy and of how the morbid process extends from the bowel by way of the appendix, not to the peritoneum alone, but under certain circumstances to the connective tissue, lymphatics, and vessels outside of that membrane.

Frequency.—In 100 observations Wier¹⁰ found 85 cases of peritonitis, 5 of extraperitoneal suppuration, and 9 of both (mixed) intraperitoneal and extraperitoneal suppurations; 14.9% of extraperitoneal infection, and 4.6% without associated peritonitis.

Maurin, quoted by Fowler,¹¹ found in 94 fatal cases 5 extraperitoneal, and 9 mixed, or intraperitoneal and extraperitoneal infections. There were 4.6% of purely extraperitoneal infections and resulting suppurations, without peritonitis.

Ferguson¹² says that in 77 of 200 cases in 35% "the appendix was so placed and covered by peritoneum that its perforation would have opened into subperitoneal tissue and a diffuse cellulitis would have resulted."

* It is claimed by Willard Parker that a German, named Purchett, was the first to use the word perityphlitis. Virchow was the first to suggest the name paratyphlitis.

† It is said by Vladoff that Mestliver in 1759 was the first to describe the suppurative diseases of the appendix and cecum, and that Albers, of Bonn, first used the name typhlitis.

Hawkins,¹³ who has written a most admirable work upon the diseases of the appendix, assumes that the appendix is always intraperitoneal,* yet says: "Iliac abscess may form as a result of perforation of an appendix already adherent on the posterior peritoneal surface." (Hawkins, op. cit., p. 92.)

R. H. Fitz¹⁴ found 11 posterior infections in 257 cases of appendicitis.

J. B. Deaver¹⁵ found 174 cases of posterior infection in 413 patients treated in 1 year (1901). Of these, 41 cases were retrocecal.

Langhelt, of Berlin, in 112 autopsies (*vide* Loison¹⁶) found 4 cases of thrombophlebitis, 2 of hepatic abscess, 2 of hepatitis, and 2 of perihepatitis.

Einhorn (*vide* Loison), of Munich, found in 100 autopsies 6 cases of infectious embolism of the vena porta, and liver abscess.

G. R. Fowler (op. cit.) appears to confirm the opinion of Fergusen and others that in a large proportion of cases the appendix is not entirely within the peritoneal cavity, or, in other words, is not entirely enveloped by that membrane, and "the uncovered portion is in direct contact with the subperitoneal connective tissue."

Beside the authorities above named, a large number of writers have not only recorded their observations, but have, in addition, reported cases in support of their views. From among the very large number of cases of postperitoneal infection, we have selected for consideration those reports in which the patient had infection immediately behind the peritoneum rather than those

finally, lumbar abscess, incision. The other patient had decided septicemia with acute symptoms, chills, and sweats. First operation, appendicectomy, July 26; second (postperitoneal abscess) August 28. Both patients recovered.

Among other operators who have recorded their cases are: M. L. Harris,¹⁸ Graham,¹⁹ Brault,²⁰ Stepp,²¹ Mynter,²² Gittings,²³ Nash,²⁴ VanderVeer,²⁵ H. C. Deaver,²⁶ LaPlace.²⁷

How Infection Reaches the Retroperitoneal Space.—Having reached the conclusion that a large number of fatal cases of appendicial disease is directly due to retroperitoneal infection, we have to consider how and by which route infection spreads to the deepseated tissues and organs in question.

1. It may proceed directly through the peritoneum to the cellular tissue behind, from an intraperitoneal abscess (necrosis).

2. It may reach the cellular tissue from a rupture (perforation) in a congenitally displaced appendix,* (retrocecal,) or rupture into the mesoappendix, and this may be accomplished without intraperitoneal infection.

3. Infection by way of blood or lymph channels.

We know that communication between the appendicular and the portal veins by way of the ileocolic and splenic veins, is direct, and accounts for many of those dangerous infections of the liver and other organs† (pylephlebitis).

The Position of the Appendix and its Relation to Retroperitoneal Infection.

—From our own observations we believe that in at least 2%, and possibly 5%, of all bodies, the appendix lies in some part of its length outside the peritoneum, or behind the cecum, or in contact with its muscular wall. Maucilaire²⁷ gives us an excellent idea of the retroadherent appendix‡ and we reproduce one of his illustrations.

The direction of the diseased appendix has much to do with the results of its infection and possible perforation. Those cases in which the organ is to the left of the cecum, or east, to southeast, are most dangerous on account of the proximity of the mesenteric vessels and lymphatics. Thrombosis will result from an infection of these vessels and a train of complications follow, whose end may not easily be foreseen.

In a review of 572 cases by Monks and Blake,²⁸ they report the appendix down and inward in 179 cases; down, 29; in, 62; up, 52; up and in, 39; up and out, 29; out, 9; down and out, 5; unclassified, 14; behind the cecum, 104, or 18.2%.

Fergusen in 200 cases found the appendix toward the posterior surface of the cecum in 75; toward the right side in 19; within, 18; downward, 11; 77 times under the peritoneum. Vladoff and Clodo say the appendix is most frequently found pointing downward or toward the bladder and rectum (41.5%); upward along the side of

* If in 26% of all bodies the appendix lies more or less behind the peritoneum, this fact may be taken into account.

† The coincidence of appendicial and tubal or ovarian disease may be explained in a similar manner.

‡ Other writers also have described this situation of the appendix. (See Deaver.)

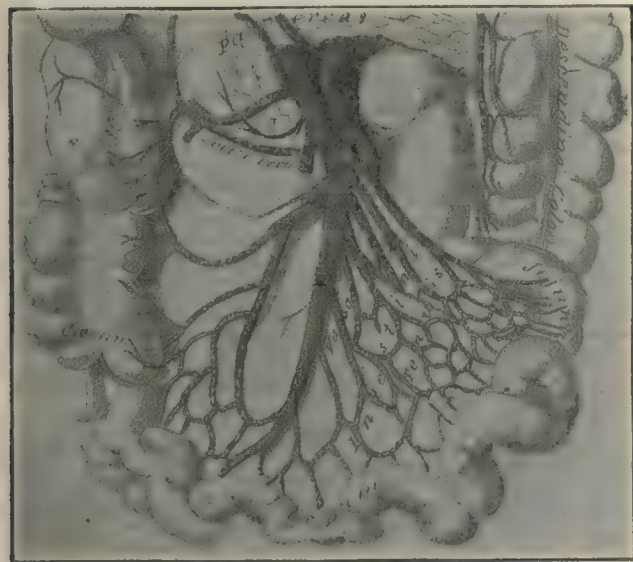


Fig. 1.—Shows the branches of the ileocolic vein which may transmit infection from the vicinity of the appendix to the mesenteric and splenic veins. Infection of and occlusion of the vessels in this region caused the fatal result in our fifth and sixth cases. (Adapted from Gray's Anatomy.)

telling of remote infections, such as pulmonary, splenic, or hepatic suppurations. In many instances our efforts should be directed behind as well as inside the peritoneum, if not while the abdomen is open, then as a *dernier ressort*, immediately afterward, or as soon as required for urgent symptoms which may not have yielded to the customary intraperitoneal technic.

J. F. Baldwin¹⁷ has collected 43 cases of deep infections (including subphrenic abscesses). His own 2 detailed cases were due to retroperitoneal suppuration. One patient had persistent elevation of temperature and pulse after an appendicectomy, which continued for 44 days (June 6 to July 20) "yet without chills or sweats;"

* Troves, Kelyneck and Hawkins declare the appendix to be "always intraperitoneal."



Fig. 2.—Shows a posterior view of the cecum and a small portion of the ileum. The appendix is shown in its retrocecal position. The perforation marked (B) caused the death of the patient. (From Maucilaire, *Bul. de la Soc. Anat.*, Paris, 1897, p. 110-112.)

the colon in 13 (13%); in 9.5% of cases partly or entirely placed outside the peritoneum.

As before stated our observations lead us to the conclusion that* an adherent appendix pointing anywhere east or south, is located over most important territory, and deepseated infections resulting in septic complications occur most frequently in this manner. The inflamed appendix, when pointing toward the right side, or when adherent to the abdominal wall or on the right of the ascending colon, is favorably situated. Its rupture and resulting abscess, when in this position, may be readily handled by way of an anterior or posterior abdominal incision.

Those appendiceal abscesses reaching far up outside the colon may be drained by posterior incision above the iliac junction, in addition to the anterior incision. Such posterior location of the appendix in our experience has not produced systemic infection, nor have these suppurations been difficult to reach and drain. (Note subphrenic abscess.) On the other hand the infections resulting from perforation of the adherent appendix when east to south, have occasionally produced suppuration leading to pylephlebitis and remote abscesses. If the connective tissue below the pelvic brim is infected, gravity will favor extension of the infection toward the deep pelvis, bladder, or femoral ring along the iliac or psoas muscle. Per contra, infection above this point may ascend toward the diaphragm and penetrate to the pleura or mediastinum. In this outline of our subject we can only mention possibilities, and frankly admit how difficult it is to discover at the time of operation in what way the infection has entered the retroperitoneal tissues, whether by way of direct transperitoneal or extraperitoneal route. Our aim in this paper has been to establish the fact that retroperitoneal infection is a serious and not infrequent complication of appendicitis, and that the position of the appendix in relation to the peritoneum may furnish an explanation of these results.

Symptoms.—The symptoms of retroperitoneal infection are mainly those of septicemia in addition to those of appendicitis. But there are some important and characteristic points of difference which require a detailed description. As seen in the statistics, quoted from several authors, retroperitoneal infection can occur without associated appendicitis. It would be quite as well, or perhaps better, to say that perforation and retroperitoneal infection and suppuration can and do occur without peritonitis. In such cases we have the symptoms due to infection of the lymphatics, vessels, or connective tissue, with immediate systemic manifestations.

In this form of sepsis we have frequently observed rigors or chills and sweats, although occasionally these symptoms are absent. When present we may anticipate pylephlebitis with streptococcic infection of the organs in the upper abdomen or chest.

Persistent high temperature and quick pulse after appendicectomy should always lead us to suspect "posterior" complications. In the "delayed cases," in which 1 or 2 weeks have elapsed before operation, such symptoms are very significant. In these patients with appendicitis as a preliminary stage, we occasionally find improvement for 1, 2, or possibly 3 days after appendicectomy. Then a rise of temperature and pulse, with increased pain and malaise, will indicate a deeper infection. If such a rise occurs and is maintained, an explanation must be found. Such complications do not pass with some slight cleansing of the wound, or by attention to the patient's bowels. Under such circumstances, if one is absolutely sure of a clean peritoneum, he must not fail to remember the possibility of retroperitoneal infection. We have occasionally seen such symptoms after an ideal operation, and have seen them disappear, even after manifestations of general sepsis with

icterus. But such favorable termination is not the rule, but an exception. If these symptoms of sepsis have appeared prior to appendicectomy, it is absolutely necessary that we should, at the time of operation, attempt to check what may become systemic infection.

ILLUSTRATIVE CASES.

CASE I.—Retroperitoneal infection found at time of operation. Recovery.

Miss L., aged 16. Previously healthy without history of previous attack. Present attack began 4 days before consultation. The patient was seen with Dr. Appleby, her family physician, January 12, 1898. Her symptoms indicated a mild attack of appendicitis without peritonitis. A mass could be felt behind or under the cecum, and we expected to find an abscess. There were no signs of general sepsis, nor was the pulse very quick. Highest temperature 102°. At the operation the appendix was found adherent to the peritoneum below the mesentery of the colon pointing "south." It was necrotic and surrounded by pus with fecal odor. Indications of retroperitoneal infection necessitated incision of the peritoneum, and we found a second abscess containing about an ounce of pus. Careful drainage was instituted by the transperitoneal route. Our drainage-tube was expelled from behind the peritoneum on the tenth day. Some days after this, a discharge of creamy pus escaped suddenly from the wound, and evidently came from the space we had drained behind the peritoneum. After this time there were no further accidents, and a complete recovery ensued.

CASE II.—Appendicitis developing during convalescence after abortion. Prolonged fever and finally iliac abscess. Operation. Recovery.

Mrs. K., aged 27, had a miscarriage of a 6 weeks' fetus in February, 1898. As she was a member of a prominent family, several physicians were in attendance, and she was most carefully watched and every precaution taken to insure absolute asepsis. I saw the patient 3 weeks after her illness began, and consequently all evidence of miscarriage had disappeared. The patient had fever and sepsis, which had refused to yield to treatment. Her history gave but little evidence of the real nature of her illness. The fever was thought due to the miscarriage, and as no cultures were made, the interior of the uterus was "suspected" and appropriate treatment instituted, with the hope of checking the disease.

Careful examination showed no abnormality in or about the uterus or broad ligaments, but an induration extending from the cecal point to and filling the right iliac fossa was easily located. The location of this pus was quite characteristic. It was not precisely in the line of the psoas muscle, being rather more to the right. At the time it was thought that its origin might be tuberculous. It was evidently not in tube, ovary, or broad ligament, consequently an incision was made above the crest of the ilium, downward and forward outside the peritoneum, and the abscess was reached without entering the peritoneal cavity. The odor of the pus was characteristic of fecal contamination, and we easily located its origin at the cecum. The patient made a rapid and satisfactory recovery.

CASE III.—The patient had symptoms of rheumatism. Then a retroperitoneal abscess was discovered, which explained the symptoms. Recovery.

H. F., aged 16, with a history of one attack of appendicitis, had a second attack July, 1899. The usual signs of appendicitis without rupture or peritonitis, with hard mass under cecum, indicated an abscess already formed.

The patient had what is usually called a "mild attack;" there appeared to be no necessity for immediate surgical relief. The attack simulated rheumatism, which refused to yield to the usual treatment. The muscles and joints of both legs were involved, but the symptoms were not characteristic, and finally, in his search for an explanation, the physician, Dr. Sprigg, found the abscess under the cecum. Operation was performed on the sixth day at the patient's home, with the assistance of Dr. Sprigg. The abscess was evacuated, the appendix removed, and a second abscess found behind the peritoneum. The appendix was "south" in this case, and the conditions found were almost precisely as in the first case mentioned. The treatment was by transperitoneal drainage, and was continued for 5 weeks before a cure was effected.

In these cases we had to deal with a mild form of infection, and there were no dangerous symptoms at any time during the convalescence.

It is well, however, to reflect upon what would have happened had we not found the retroperitoneal infection at the time of operation. It is evident that such cases frequently occur, and in this manner is explained the long and tedious recoveries after "easy operations," and occasional burrowing of pus toward Poupart's ligament, or upward toward the diaphragm.

CASE IV.—Appendicitis associated with sepsis. Appendicectomy affords no relief. Thrombophlebitis and gangrene of cecum and ileum. Death.

*The method of Deaver and others who describe the location of the appendix and its general direction by using the points of the compass is an excellent one and we find it very satisfactory.

Mr. L., a medical student, aged 20, had one attack previous to July 5, 1901, when first seen by me with his family physician, Dr. Klipstein, in a neighboring city.

The patient had the usual symptoms of appendicitis, such as pain at the cecal point, with digestive disturbances, and added to these had typical sepsis, with rigors and sweats.

Our fears as to the patient's condition were not relieved by the operation. We found a gangrenous appendix, with enteroliths deeply buried in an abscess either in or under the mesentery of the cecum. The peritoneum was congested and thickened around the field of operation, but there was no diffuse peritonitis. There was, however, what we afterward found to be retroperitoneal infection. The mesentery of the cecum was thick and inelastic. It was with much difficulty that we raised the cecum sufficiently to reach the base of the appendix, in order to remove it and close the bowel. The indications were clear to open into the infected area, and perhaps make drainage through the loin or over the iliac crest. We erred here irretrievably, and lost our only opportunity to save the patient. Although our drainage was carefully placed by way of our incision over the cecum, nothing was accomplished by our operation. We should have opened up the retroperitoneal space through an incision over and in front of the crest of the ilium, and should have made careful search for the infected area. Not having done this, our patient went from bad to worse, without the least benefit from the intraperitoneal work. We feared to incise the peritoneum when we had the abdomen open. We were absolutely certain that we had a streptococcal and possibly a mixed infection to deal with, and this was finally demonstrated by bacteriologic examination. On the fifth day a fecal fistula was formed, and immediately after this came gangrene of the cecum and lower ileum, due to ileocolic phlebitis. The patient died of septicemia on the seventh day after operation, having had repeated chills and every symptom of profound toxemia.

The autopsy disclosed extensive postperitoneal cellulitis, with entire obliteration of the vessels supplying the region of the appendix (ileocolic arteries and veins). We were not allowed to extend our incision, or examine the liver or spleen. Cultures made from the retroperitoneal pus showed streptococcal mixed infection.

CASE V.—Septic appendicitis. Retroperitoneal infection. Primary and secondary operation. Death from sepsis.

B., a boy, aged 14, had his second attack of appendicitis in June, 1901. The attack was typical of appendicitis, with the addition of a chill and septic indications. The first consultation with the family physician, Dr. O. Leech, was held June 25, 1901. The boy was vigorous and previously healthy, and gave every evidence of being well able to bear operation, although he now appeared ill, and we saw unmistakable signs of systemic infection, which indicated, as in the preceding case, a very unfavorable prognosis. Operation was performed on the fifth day after his first symptoms. Repeated chills, high temperature, sweats and general malaise indicated extension of the infection to the lymph channels or retroperitoneal cellular tissue, and our operation gave no relief whatever. There were no signs of peritonitis. A small amount of pus was found when we removed a very soft and necrosed appendix. Indications pointed to retroperitoneal infection, and we resolved to make additional incisions if relief did not follow appendicectomy.

We made a second incision on the third day after operation, thinking we might discover pus in or under the mesentery of the ascending colon, and opened up the retroperitoneal space by pushing the peritoneum well forward until we were successful in evacuating a small abscess, located behind the mesentery of the cecum and adjoining ileum. Here we again hesitated to explore deeply, fearing to carry infection into healthy territory.

It was possible to raise the peritoneum from its bed or posterior attachments, and we could easily have extended our incision so as to reach the entire area between the vertebral column and the iliac fossa. We probably lost our only opportunity here. We did not succeed in reducing the high temperature or in affording any substantial relief to the patient who survived the second operation only 4 days. The autopsy was very imperfectly performed, being limited to an examination of the wound area through the incisions already made. We found the peritoneum dark, and, indeed, almost necrotic, on the mesenteric and posterior surfaces. A general or diffuse infection had spread rapidly from the mesentery of the cecum behind the peritoneum, causing all the bad symptoms presented by the patient. Here was a repetition of nearly every symptom shown in the preceding case, and while we were ready to go to the limit of our patient's strength, if necessary, in our next operation, still we were unsuccessful, as will be seen.

CASE VI.—The patient, who was sick 12 days, was subjected to operation for appendicitis. Abscess was discovered in the mesentery. General septicemia. Gangrene of intestines. Death in 3 weeks of thrombophlebitis and infection of retroperitoneal space.

Mr. D., aged 17, a fairly healthy lad with a history of one previous light attack of appendicitis, was taken ill in May, 1903, while in a distant city. His primary symptoms were clearly those of appendicitis, and an operation was proposed, but declined, as the patient seemed to improve. His pulse was but slightly accelerated, and his temperature not above 101° plus, at any time previous to his return home on May 30, 1903.

When seen by his family physician, a week after the first symptom, there were no signs of peritonitis, yet a small mass could be felt, which appeared to be an enlarged and adherent appendix. His temperature would drop down to normal on alternate days, and he was consequently subjected to antimalarial medication. He was seen in consultation with his physician, Dr. H. T. Harding, on the eleventh day of his illness, and operation set for the day following. We had no reason to fear the outcome of this operation. The patient had no serious symptoms of sepsis. His condition was most excellent, and not until the time of operation did we suspect infection of the mesentery.

Operation was performed on the twelfth day after the initial symptoms. The peritoneum everywhere appeared healthy. The appendix was covered over by the caput coli and ileum, which were firmly adherent. The base of the appendix was first discovered, and afterward the whole organ was located and removed, although it was so necrotic, and its appearance so much changed that it could scarcely be recognized. A small amount of pus was found around the appendix, and after a careful search another abscess of small size was found, which was carefully cleansed and sterilized. This abscess was situated in the mesentery immediately under the location of the appendix, which was northeast, or between the cecum and vertebral column. In close proximity to the abscess cavity, we found in the mesentery some rather interesting features, although not necessarily related to the present illness. Immediately under the location of the appendix, which was northeast and to the left of the cecum, and between its mesentery and the vertebral column, we found several greatly enlarged and calcified glands, which were in the mesentery of the lower ileum, and which gave to the finger the sensation of large enteroliths* which might have escaped from the bowel through the ruptured appendix.

An abscess was discovered behind the mesentery immediately upon the psoas muscle, and we made extraordinary efforts to deal carefully and thoroughly with the conditions found. Rather less than an ounce of pus was evacuated, after which a rubber drainage-tube was placed and secured in position with catgut sutures. This tube was placed in the cavity of the abscess, and it would have provided all necessary drainage if no other infections had started. The infected area about the cecum was packed with gauze, and we confidently expected to save our patient after our most careful and complete operation. Although the patient had been sick for 12 days, he was in good condition, and left the operating room with a good, although somewhat accelerated pulse (120 per minute).

The immediate effect of the operation was only fairly satisfactory. There were no symptoms of bowel obstruction or peritonitis at any time. A fecal fistula developed and then sloughing of the bowel began, shown by the discharge of large pieces of necrosed ileum. The patient's condition was one of severe sepsis, and we were obliged to content ourselves with the hope that his strength would continue until the force of the infection expended itself. Certainly no surgical relief appeared possible, and even with the lesson of this case with the autopsy, and the experience gained in treating the others mentioned, we fail to see how the fatal result could have been averted, unless extraordinary measures had been tried at the time of operation.

The autopsy was made soon after death, and revealed general extraperitoneal suppuration extending in every direction from the site of the abscess found at the time of the operation 3 weeks previous.

Fully 12 inches of ileum had sloughed, and of this, several inches had been discharged. Owing to the long-continued fecal discharge from the sloughing bowel, the peritoneum in the region of the wound, and below this point in the right side of the pelvis, was dark and almost gangrenous in appearance. By far the most interest, however, lies in the extent of the infection in the cellular tissue behind the peritoneum. The infection had reached to the right kidney, and indeed a considerable quantity of pus was found here. It appeared to have extended along the psoas muscle in the direction of the diaphragm, and we also noted the involvement of a considerable area over and to the left side of the vertebral column. The tissues removed for examination consisted of portions of the cecum and ileum, with the mesentery adjoining. Owing to careless methods, the specimen was not so carefully preserved and examined as we had hoped. Enough was seen, however, not only to disclose the cause of death, but to throw some light upon the extensive tissue changes found. The probable course of events was as follows: First, a tuberculous glandular disease, occurring in childhood, which was confined to the lymphatic glands within the mesentery. The calcareous condition had succeeded the "caseous stage." A cure was completed as the calcification was completed. Then, after one or more very slight attacks of appendicitis, the organ adhered in an upward direction, pointing "northeast," between the mesocolon and vertebral column, immediately over the calcified glands. Finally, a severe infection within the appendix caused a rupture at the distal extremity, and an abscess formed, with the resulting retroperitoneal infection. The gangrene of the gut

* These calcified glands were afterward examined and found to be of mesenteric origin, and their condition a result of former tuberculosis.

was due to infectious phlebitis, and probably arteritis, for we found sloughing of all that portion supplied by the ileocolic artery and veins.

CONCLUSIONS.

In our first 3 cases, the infection was probably due to one of the less active or destructive bacteria, as the clinical history was not marked by chills, sweats, etc., and without extension to distant organs or tissues. A streptococcal infection, for instance, would have caused far more serious results, such as pyelophlebitis, etc. The next two were due to streptococci, associated with other microorganisms, constituting a mixed infection, as shown by cultures made at the time. The last case was due to the colon bacillus, likewise mixed with other germs. Our patient had persistent fever with sweats, but without chills or rigors. Moreover, he continued his brave, although unsuccessful effort, against infection for 3 weeks after operation, while the streptococcal mixed cases succumbed in far less time.

Given the opportunity at the time of operation, we may, as in our first, second, and fourth cases, make provision for the inevitable retroperitoneal infection and suppuration. The question, then, is one of radical methods and abundant drainage. In our fatal cases there was need for postperitoneal drainage applied above or in front of the sacroiliac junction. The question arises, shall we in the future always provide such drainage at the time of operation, even at the cost of severe traumatism and prolonged operation? There is but one answer to this question. Sound surgical principles demand completed operation, and we do not believe an operation complete in all cases when the appendix is removed. It was impossible to drain successfully in all of our cases through the peritoneum. Drainage was fairly satisfactory while the tubes remained in position, but it is impossible to drain safely the retroperitoneal space by the transperitoneal route, and it is obviously better to attempt such drainage from behind. The anatomic formation of the retroperitoneal space renders successful drainage rather difficult and occasionally impossible. It is, however, of the utmost importance to expose fully any infected region behind the peritoneum if the symptoms preceding the operation, and the pathologic changes found at the time of operation, plainly indicate retroperitoneal infection. The retroperitoneal space at this point is one of greatest interest and importance, for here we not only have mesenteric vessels, but lymphatics, and the thoracic duct is not far distant.

When we suspect retrocecal or retroperitoneal infection as a complication of appendicitis, we should, as a rule, make a careful search for the infected area, and provide drainage by the posterior route, whenever practicable. When postcecal, the incision must be ileolumbar and the peritoneum pressed forward, much as when one exposes the ureter. In all cases in which we have to deal with infection of the mesentery of the cecum, we will find it possible to reach this area through the incision named, especially when suppuration has begun. When the abscess lies under an appendix, "east" or "south" of the cecum, we may have greater difficulty in reaching the seat of infection, but this entire region is to be searched for induration or commencing suppuration, before we are justified in abandoning a patient to the perils of septicemia. If suppuration has begun, it will invariably be much easier to locate the pus, even if very near the vertebral column, in which case we would be compelled to expose the mesenteric vessels supplying the cecum. In our cases we found it far easier to open this space than we had expected, and we purpose to continue our search in future for retroperitoneal infection along these lines. We may yet learn to discover retroperitoneal infection at the time we usually operate for appendicitis. Indeed, this is our

earnest wish, that we may be able to check this form of infection before its ravages have extended beyond our reach. It appears a plain duty in certain septic cases to investigate the retroperitoneal space with the same care as the cavity of the peritoneum.

1. We should consider every "delayed case" with anxiety, lest there should be retroperitoneal infection.

2. We should be careful to give a guarded prognosis in every case of appendicitis ushered in by, or complicated by chills or any symptoms of sepsis.

3. If operating in such cases, we should consider retroperitoneal infection as already started and act accordingly. The discovery and proper treatment of such infection is quite as important as the usual intraperitoneal technic.

In view of the possibilities of retroperitoneal infection, we assume a great responsibility by advising non-intervention in appendicitis, and while we often advise delay when we believe the lesions strictly intraperitoneal, yet it would appear that such a course is very unsafe and it should be condemned when we have reason to fear the complications described.

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* By posterior drainage, we have reference to retroperitoneal drainage, and do not refer to lumbar incision, commonly employed in intraperitoneal cases.

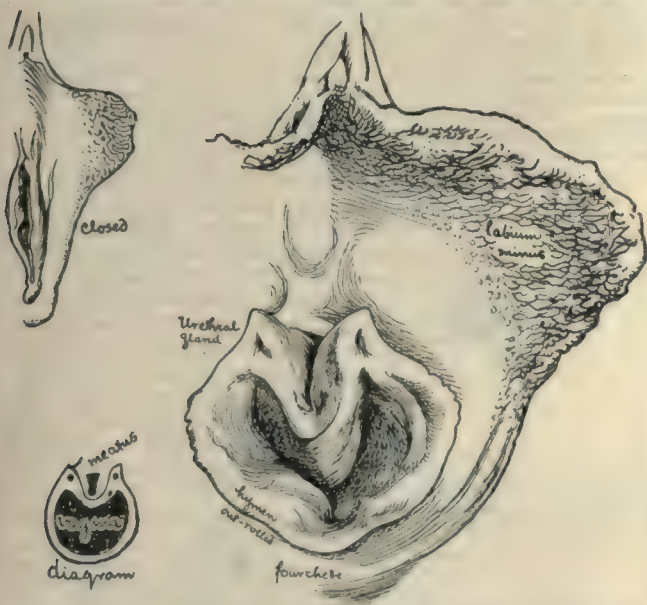
"URETHRAL LABIA," OR "URETHRAL HYMEN" PATHOLOGIC STRUCTURES, DUE TO REPEATED TRACTION.

BY

ROBERT L. DICKINSON, M.D.,
of New York City.

In *American Medicine* of September 12 and 19, Dr. Howard A. Kelly describes and depicts in his graphic manner those tiny projections about the meatus first fully published and pictured by me, in *American Gynecology* for September, 1902. Kelly believes that their function is "undoubtedly protective, serving to keep the delicate urethral mucosa with its glands from a constant exposure to leukorrheal discharges and the bacterial flora of the vaginal outlet." "These labia," he goes on to say, "also form an important part of the sexual apparatus, as they are impinged upon and in cases of disease are more liable to insult than any other part of the genital tract. This observation applies with special force in cases in which the levator ani is unimpaired and in which the soft subpubic tissues form a barrier which has to be overcome."

Whatever causes the introitus to gape throws the meatus wide open and exposes to view and to contact, to friction and to "insult," the prominent openings of the urethral glands (the glands of Skene) which end on the inner surfaces of these thickened lips of the meatus.

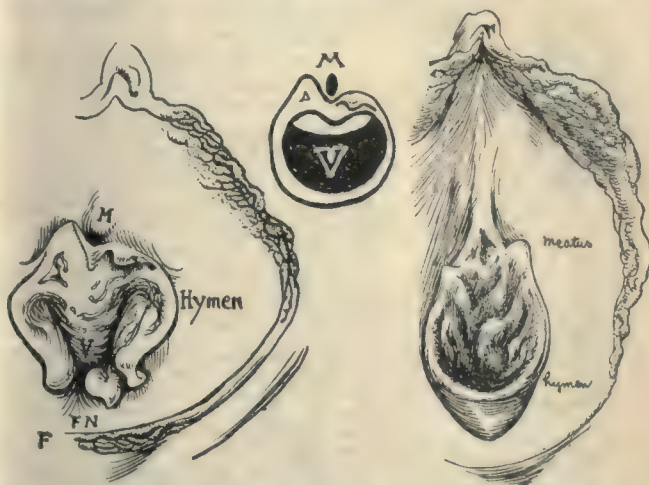


Figs. 2, 3 and 4.—The extreme form of development of urethral labia, flanking dilated urethra. This meatus admits the finger-tip; on each side the opening of the urethral gland is at the summit of a prominence which is seen to be continuous with the hymen; the latter admits the smallest Sims' speculum. When closed, this hymen looks normal. The vestibular V shows faintly. The diagram exhibits the shape of the hymen, and the location of openings of Skene's glands.

Therefore, these outspread wings are crushed against the sharp lower edge of the subpubic ligament, to and fro, with no little force, either in coitus or manipulation. Indeed, the meatus is largely endowed with special

sensibility. When a vulva of moderate size is distended by a Sim's speculum, large or small, the urethral lips open widely.

Far from being natural barriers, these prominences are entirely artificial and pathologic. *Hypertrophy about the meatus occurs only when there are hypertrophies of the labia minora, the clear-cut evidences of traction, pressure, or friction.* They are to be detected in 20% of such cases, and are to be distinguished from swellings caused by inflammation or infection. The drag on the meatus, or its pressure backward and forward across the subpubic arch and the face of the pubes, produces this elongation of the lips of the meatus. The V-shaped ridges



Figs. 5 and 6.—Hymen of a parous woman, torn near fossa navicularis (FN). Its anterior sweep is seen to pass beneath (dorsal to) the meatus (M), and one ear is turned forward. No glands are to be found. The diagram shows the form of this hymen. Fig. 7.—A very thick hymen, just admitting one finger, the meatus on its anterior edge. Here the urethral labia are evidently forward prolongations of the hymen.

of the vestibule running up from the meatus to end beneath the clitoris furnish further evidence of such traction. This vestibular V is found in about half the cases with urethral lips.

Prolonged congestions and repeated slight edemas

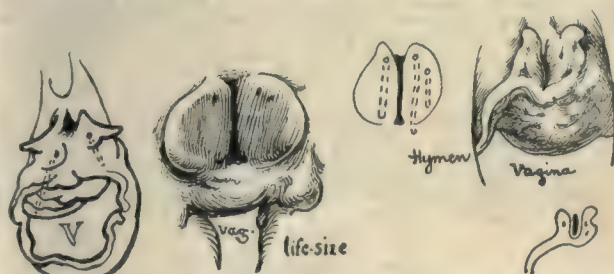


Fig. 8.—The glands run into the anterior columns of the vagina when enlarged. Figs. 9 and 10.—Extreme form of enlargement, life size. Solid projections with large glands. The meatus admits the finger freely. Incontinence, urethral friction. Fig. 11.—The sole remnant of hymen this multipara possesses is fast to the urethral labia.

will explain the cases which exhibit thickening without much elongation, as shown in Fig. 9. Such is likewise the explanation of thickening of the labia minora—thickening, as distinguished from elongation and wrinkling. To the touch the two prominences are often conspicuous, firm, rounded, protruding.

As a further argument that the lateral tabs are no successful barriers against infection, attention is drawn to the frequency of pus discharge from the big and deep urethral glands which I have shown to belong with the hypertrophied lips of the meatus.

As to their anatomic geography, these urethral labia seem to me to be the hypertrophied anterior part of the hymen. When the hymen is thickened and pouting

(whether tiny in opening or wide), the anterior folds of it can be seen to be continuous with the lips of the meatus. Herein the cuts illustrating Kelly's article are carelessly drawn and untrue. (Compare them with my Fig. 18, in *American Gynecology*, September, 1902.) They are also defective as complete observations in the instances in which the labia minora have been hastily sketched in (Figs. 1, 5, and 7), but Kelly's Figs. 2, 3, and 9, rightly show enlarged corrugated labia (or the relaxed atrophy of subsiding enlargement). Yet in November, 1901, at Johns Hopkins, I showed Dr. Kelly,

Mr. Brödel, and Mr. Becker the flaps of the meatus and stated to them the cause of this peculiar little alteration.

It will often appear that these tabs are hypertrophied outer ends of the urethral glands. The pockets often open at the very apex of the ear-like flaps, but also may be found at their base. Exceptionally, no urethral gland can be detected in large flaps, even with the filiform bougie.

In my paper referred to in the foregoing, the following statements are made:

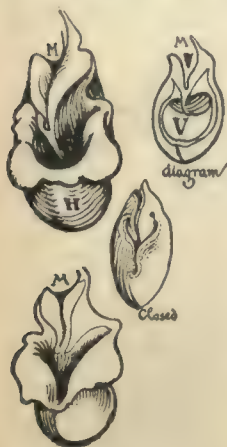
The meatus is usually triangular in shape, the sides of the triangle curving inward, the apex toward the clitoris. The posterior side frequently bears a notch or dip at its center. On this rear side near each outer angle the openings of the urethral glands are usually found, though their location varies considerably. At these lower outer angles, in our cases of hypertrophy, a curious pair of flaps or tabs was noted in about 20% of the list.* At times pyramidal and broad of base, merging into the anterior fold of the hymen on the rear or vaginal side; at times thick or crescentic, and again pointed or earlike, these protrusions lie

against the sides of the meatus, or point toward the clitoris, and it is only by drawing the hymen open, or the meatus well apart, that their shape is developed, often projecting 2 mm. to 5 mm. I have seen protrusions 7 mm. thick at the base, 20 mm. in height, looking almost like tiny nymphs. Just within (at times without) the apex of each flap the opening of a urethral or Skene's gland is found. A filiform bougie or fine silver probe develops the fact that the gland is much longer than normal, often running downward and backward into the anterior

puration in the urethral glands is not infrequent. The openings may gape, reddened and tender. In advanced cases of the vaginal habit the meatus will admit the tip of the little finger for a short distance and without discomfort. In others, the opening gapes, the orifice of the Skene glands marking the outer angles. In the worst instances, the flaps stand out on each side of a gaping slit. In all a complete lack of sensitiveness within the meatus for at least half an inch is notable. The Kelly cystoscope No. 14 goes in through the lower half with ease. In 2 cases incontinence was present. In both these instances the vulva and vagina had evidently been exhausted as locations for producing sensation. The urethra then was the only new surface remaining.

The hypertrophies which I here picture seem to be clearly explained by Pozzi's view of the origin of the hymen, which is opposed to the commonly accepted theory advanced, especially by Henle and Budin (Pozzi "Traité de Gynécologie," Second Edition, page 1088):

The development of the hymen is of late occurrence in the embryo. Not until the nineteenth week do we see appear a sort of fold about the uterovaginal conduit at the anterior orifice of



Figs. 12 to 15.—Four sketches of a virgin hymen that protrudes like that of a newborn child; the urethral opening in the upper half of the hymen nearly as large as the vaginal opening in the rear half of this hymen. Diagram of relations: M, meatus; H, hymen; V, vagina.



Figs. 23, 24, 25 and 26.—The enlargement produced by inflammation and infection alone, without traction, (23) in which one side is affected; (24) in which both glands are swollen; (25) in which three openings are exuding pus; (26) thickening from chronic inflammation of both glands. Fig. 27.—Abscess of one Skene gland, displacing the urethral labium of the left side outward. Here the labia form a complete circle about the meatus. Virgin of 17.

the vaginal canal, which is formed above by the fusion of Müller's ducts and below by the vestibular canal, the latter the vestige of the urogenital sinus. At first there are two linear elevations, which advance toward the median line until they meet. For the time being the hymen is a double organ and the little ribbon (bandelette) which it forms on each side of the urogenital fissure is continued beyond the opening of the urethra up toward the base of the clitoris. When the vulvar and urethral orifices are formed, it incloses (frames) both of these openings, forming about the first-named the collarette of the hymen and about the latter an annular ridge, very conspicuous in children, continuous below with the hymen, and above with a median prominence, which is analogous to the frenum of masculine hypospadias. Thus constituted, the hymeneal apparatus is composed of three portions: 1. Hymen. 2. The annular prominence which surrounds the urinary meatus (bourrelet du méat), sometimes so pronounced as to merit the name *urethral hymen*. 3. The masculine bridle (or frenum) of the vestibule. Anomalies of development may affect these three segments, and their solidarity, hitherto unsuspected, enables us to explain readily a number of facts.

Dr. Kelly elaborates seven methods of treatment—

emptying, massage, injections, incisions, dissection, and the cautery. A protest should be registered by a pupil and associate of Dr. Skene against wasting time on any other method than the swift and efficient one used by the man whose name is coupled with these tiny, but troublesome structures: The mouth of the gland and the vestibule and anterior vaginal wall below it are cocainized; a probe is passed from above into the gland to its deepest point, and the point of the probe swung toward the operator, so that the tissues show tense and thin over

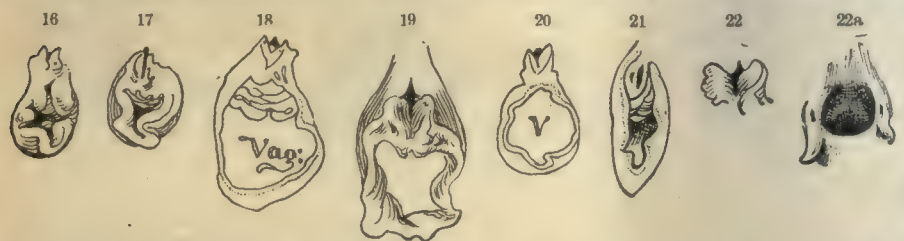


Fig. 16.—Hymen and its anterior tabs in a girl. Fig. 17.—Another form of the same. The urethra may be above the lips or between them. Fig. 18.—Hymen with urethral labia in a married woman. Fig. 19.—Hymen with urethral labia in a parous woman. Fig. 20.—Hymen with urethral labia in a nullipara. Fig. 21.—The meatus within the sweep of the forward part of the hymen. One gland, the right, is swollen and pouting. Virgin. Fig. 22.—A frequent form of projection; in this case, with no openings. Fig. 22a.—Pendulous urethral tab on each side of a dilated urethra. This is atrophy, a later stage than Fig. 22.

column of the vagina. Several gland openings may be seen. This anterior end of the hymen may be the only part of that structure which has undergone alteration; its folds are thick and a prominent ridge connects directly with the meatus flaps, as shown in the diagram. Two diverging ridges sometimes run forward from the meatus.

Three forms of alteration at the meatus have been noted, namely, dilatation, dilation with and dilation without hypertrophy. Varicosity, prolapse of the mucous lining of the urethra or caruncle may be present. Inflammation, catarrh, or sup-

the probe. Against this stretched white line the hot electric cautery needle or knife is laid. A second suffices. The wound granulates with no further care. This is surely better than 28 injections, or even than 8 injections by which Kelly reports patients cured. The less manipulation of this peculiarly sensitive region, the better. If any injection is to be used, argyrol in 20% solution is painless and powerful, and carbolic acid in full strength hurts but a moment. Dr. Kelly's combination of tubing and needle is simple and efficient. The paquelin cautery knives are not delicate enough for this work.

* Waldeyer, *Das Becken*, 1899, p. 560, says these ledges and lapels hang out of the urethra with the folds of the urethral mucous membrane.

Summary.—The urethral labia are hypertrophies produced by oft-repeated traction, and are only found in company with hypertrophied nymphas. They are enlargements of the anterior portion of the hymen.

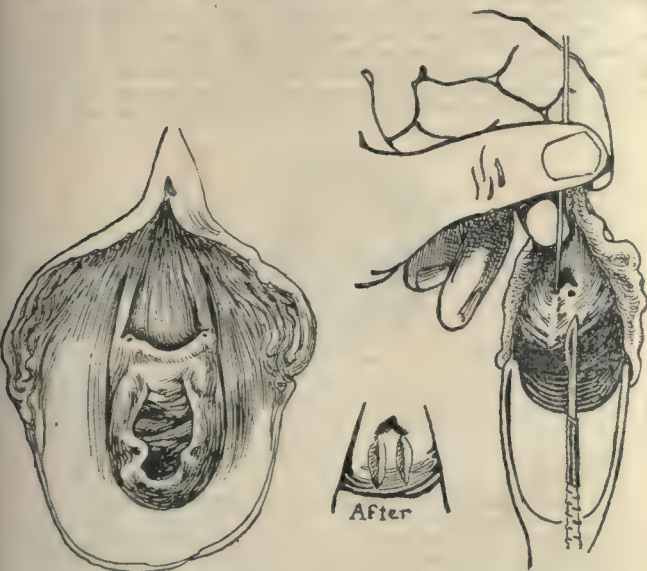


Fig. 28.—Dilation of the urethra without enlargement of the glands and without urethral labia. The openings of the glands are plainly visible. Nullipara. Fig. 29.—Operation for obliteration of diseased gland. The probe renders the tissues tense, the cautery knife severs them.

Long urethral glands ordinarily course through these flaps. They have no protective function, but are connected with special sense. The only certain method of cure is section with the cautery wire.

A NEW TECHNIC IN OPERATIONS FOR APPENDICITIS.

BY

W. EASTERLY ASHTON, M.D.,

of Philadelphia.

Professor of Gynecology in the Medico-Chirurgical College of Philadelphia.

In performing an appendicectomy there is always danger of infecting the parts surrounding the seat of operation when the appendix is amputated and the opening in the gut is sutured. The reason for this is evident, and is due to the operator's fingers and the

this cause. It could hardly be otherwise when we consider the usual methods employed in the technic of the operation, as there is constant danger of touching the septic mucous membrane with the fingers or the instruments when the head of the colon is held between

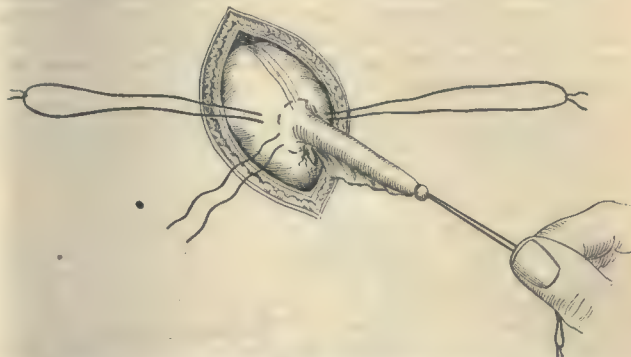


Fig. 2.—The pursestring suture and the control ligatures are in position beyond the base of the appendix, which is held taut by the assistant.

the thumb and the index finger of the left hand during the introduction of the sutures to close the opening in the bowel. Again, the head of the colon may slip from the grasp of the operator's fingers during the process of



Fig. 3.—All the control ligatures are held taut, and the head of the colon is within the abdominal wound.

suturing, and before it can be brought into position again, the surrounding intestines may come in contact with the opening in the bowel and become infected.

The practical importance of an operative technic which reduces to a minimum the danger of direct infection during the necessary manipulations of an appendi-

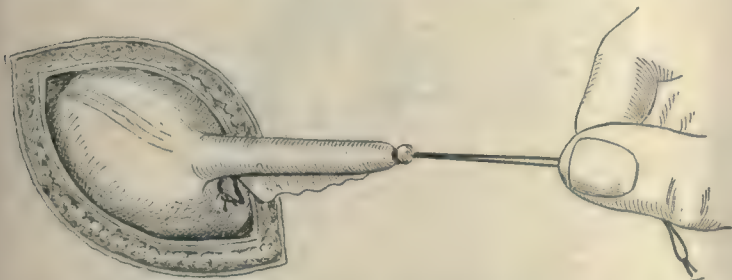


Fig. 1.—The head of the colon is within the abdominal wound and the mesoappendix is ligated and severed. The control ligature is tied around the tip of the appendix and held taut by the assistant.

instruments coming in contact with the exposed intestinal mucous membrane at the seat of amputation.

Many of the unexpected deaths which follow operative interference in uncomplicated cases of appendicitis, as well as the chronic sinuses and the delayed recoveries which result, are undoubtedly due to an infection from



Fig. 4.—The gauze packing is being placed around the head of the colon.

ectomy cannot be overestimated, and with this object in view I have devised the following method, which I have employed for several years.

The technic which I shall now describe deals entirely

with the amputation of the appendix and the subsequent closure of the opening in the colon; the other steps of the operation being similar to those generally employed. My method gives the surgeon complete mechanical control of the colon, and prevents his fingers or the intestines from becoming infected, as the appendix can be amputated and the opening in the bowel sutured without the operator touching the seat of operation. The method may be conveniently described under the following steps:

First Step.—After the appendix has been located and freed from adhesions, the head of the colon is brought within the

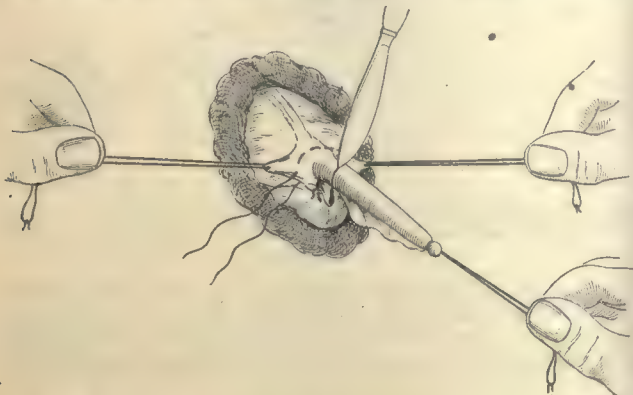


Fig. 5.—The gauze packing is completed and the circular incision is being made through the serous coat of the appendix.

abdominal incision. A No. 7 braided silk ligature is then tied around the tip of the appendix, the free ends knotted and the loop, which should be about 6 inches long, is held taut by the assistant.

Second Step.—A ligature of the same material is now passed through all the coats of the colon, except the mucous, about three-quarters of an inch beyond each side of the base of the appendix. The free ends of the ligatures are then tied, leaving 2 loops, each 6 inches long, which are used to control the head of the bowel. A pursestring suture is now passed through all the coats of the bowel, except the mucous, about a half inch from the base of the appendix.

Third Step.—The appendix and head of the colon are now completely under the control of the operator, who keeps the appendix taut by traction upon the ligature, which is tied

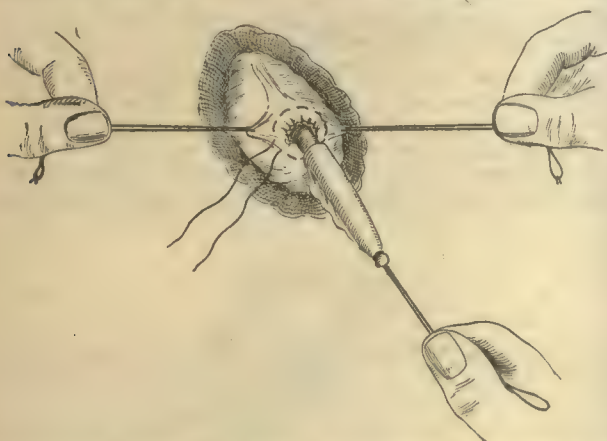


Fig. 6.—The serous coat is stripped back beyond the base of the appendix.

around its tip. At the same time the assistant grasps the loop on each side of the base of the appendix, and by making traction upon them holds the head of the colon well within the abdominal incision.

Fourth Step.—The seat of operation is now shut off from the surrounding parts by packing a strip of plain gauze around the head of the colon.

Fifth Step.—The mesoappendix having been previously ligated and severed, a circular incision is made through the serous coat of the appendix about a half inch above its base.

Sixth Step.—The peritoneum is then stripped back beyond the base of the appendix with the scalpel.

Seventh Step.—The appendix is now amputated below its base with scissors curved on the flat.

Eighth Step.—The opening in the bowel is now closed by inverting its edges with forceps as the pursestring suture is tied, and subsequently introducing a mattress suture to guard against leakage.

Ninth Step.—The operator now douches the seat of the operation with warm normal salt solution, and dries the parts with a gauze sponge. The gauze packing is then removed; the control ligatures cut and withdrawn from the bowel; and the head of the colon allowed to sink into the abdominal cavity.

Special Directions.—The control ligatures which pass



Fig. 7.—The appendix is being amputated beyond its base.

through the walls of the colon on either side of the base of the appendix must penetrate only the submucous or fibrous coat, because if they enter the lumen of the gut, infection may result from capillary attraction.

From the time the appendix is amputated until the opening in the colon is sutured and the field of operation douched and dried, the assistant must keep the control ligatures taut to

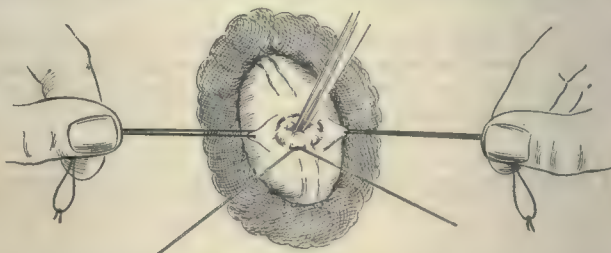


Fig. 8.—The pursestring suture is being drawn taut while the edges of the wound are inverted with forceps.

prevent the bowel from becoming displaced and infecting the surrounding intestines.

The serous coat of the appendix must be stripped off well below its base so that when it is amputated a portion of the wall of the colon is also removed. This not only thoroughly eradicates all the diseased structures, but it also leaves no redundant tissue to interfere with the close approximation of the edges of

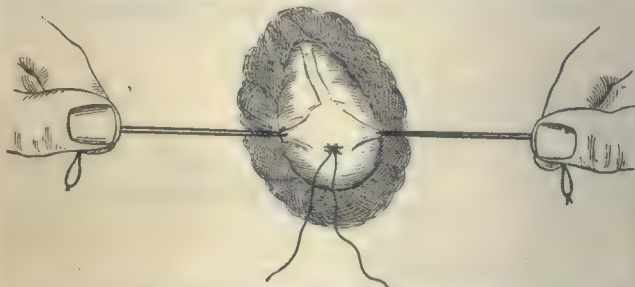


Fig. 9.—The cecal wound is completely closed by the pursestring suture. The mattress suture, which is introduced to reinforce the approximation of the edges of the wound, is not shown in the illustration.

the wound. As a matter of fact, under these circumstances, the serous coat usually retracts and partially closes the opening before the pursestring suture is drawn taut. The antiseptic precautions employed during the operation must be thoroughly carried out, as we are necessarily dealing with an open wound of the intestine. Therefore all instruments which come in contact with the seat of operation must be thrown aside at once, and not used again. Thus the knife which is employed to make the circular incision through the serous coat, and

the scissors used to amputate the appendix, naturally become infected, and must be discarded at once. A serious mistake is often made from an antiseptic standpoint in operations of this character by using the same sponge several times on the seat of operation. This habit undoubtedly spreads infection, and often causes postoperative complications which can easily be avoided. A sponge which has been pressed once against the tissues should be discarded and not used again. If this is not done the pathogenic germs which adhere to the sponge will be scattered over the uninfected areas surrounding the field of operation. In an aseptic field, this precaution is, of course, unnecessary, but when as in an appendectomy the

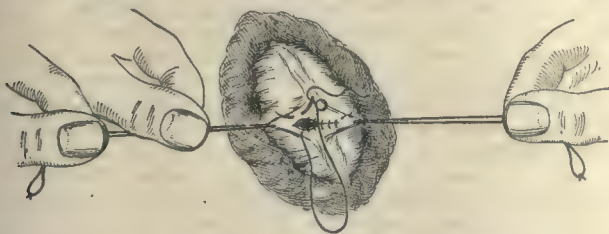


Fig. 10.—Cushing's suture is being introduced. The assistant is making traction on the head of the colon while the surgeon steadies the field of operation with the upper control ligature.

sponge comes in contact with the contents of the intestinal canal, it is obviously a dangerous practice, and one which must result in jeopardy to the life of the patient.

Variation in the Technic.—If for any reason a pursestring suture cannot be used to close the opening in the colon, a Lembert or a Cushing suture may be substituted. The first 6 steps of the operation are the same as described above, and after amputating the appendix, the surgeon then grasps the upper control ligature about an inch from the bowel with the fingers of his left hand to steady the field of operation while the wound is being closed. The sutures are introduced with a small, full curved intestinal needle, which must be held in the grasp of a needle-holder or a hemostatic forceps.

THE PATHOLOGY OF LEUKEMIA.

BY

EDWARD T. WILLIAMS, M.D.,

of Boston, Mass.

The disease inaccurately designated by Virchow as leukemia, more accurately but not more rationally by Bennett as leukocythemia, may be clinically regarded as an organic leukocytosis. But the leukocytosis is merely a symptom, not the disease itself. The true disease is a leukosis, or white-cell hyperplasia, of one or more of the organs or tissues which make the white blood cells, namely, the bone marrow, lymph-glands, and spleen.

In another publication¹ I have attempted to divide the white blood cells or leukocytes into 2 classes, myelocytes and lymphocytes.

The myelocytes are all formed in the bone marrow, though differing widely in appearance according to their age and stage of growth. The youngest form is a large, nongranular cell, with a slightly acid (basophile) protoplasm, and a single oval or bean-shaped, faintly staining nucleus, usually excentrically placed. As they grow older, the protoplasm loses its acidity and acquires a partiality for neutral dyes. It also becomes finely granular. At the same time the nucleus becomes more and more divided, passing through various transitional stages till it finally assumes the shape of a multiform (polymorphus) nucleus. These changes may take place either in the marrow or the blood into which these cells are perpetually passing. Such is the origin of the multinuclear leukocyte.

These cells are also liable to another change, which may be classed either as a necrosis or a necrobiosis. The process always begins with a dissolution of the nucleus (karyolysis), which gradually loses its chromatin, becomes paler, acquires a hazy outline, and discharges the products of its decomposition, the nuclein bases, in a

liquid state into the surrounding cytoplasm, where they are precipitated (as observed by Tettenhamer) in the form of alkaline drops, the so-called eosinophile granules. Such, in all probability, is the origin of the eosinophile leukocytes.

I contend that all these variations are simply different stages in the growth, development, and decay of one species of cell, the myelocyte.

The lymphocytes, on the other hand, are small cells with a single nucleus, surrounded by a narrow rim of strongly acid (basophile) protoplasm. They originate mainly in the lymph-glands, whence their name, though also found in smaller numbers in the spleen and marrow.

Now, as there are 2 distinct forms of leukocytes, originating respectively in the marrow and lymph-glands, pathology shows us that there are also 2 distinct forms of leukemia, according as the primary disease (leukosis) is seated in the marrow or glands.

In medullary leukemia, the commoner of the 2 forms, the primary disease is in the marrow. The red marrow loses its color and becomes whitish, or, as the Germans say, pus-like (pyoid). Under the microscope we find a marked hyperplasia of marrow cells of all types. The eosinophiles particularly are present in large numbers. Among these are numerous spermin crystals, the common products of decomposing nuclein. The red corpuscles are diminished in number, with an unusual preponderance of erythroblasts, as in organic (pernicious) anemia. Secondary deposits of the same character are commonly found in the spleen and lymph-glands, and often in the liver, kidneys, lungs, and other organs. The blood is always surcharged with the same elements.

Lymphatic leukemia is a rarer disease, and differs essentially from that just described. The primary affection is in the lymph-glands. We find these glands enlarged, whitish or greyish-white on section, and overloaded with lymphocytes. Many of these are decidedly larger than usual, but are all of the same type. We never find any form of marrow cells or eosinophiles in pure lymphatic leukemia. Secondary deposits of a similar character are regularly found in the spleen and marrow, and sometimes in other organs. The blood is surcharged with lymphocytes, great and small.

These facts seem absolutely incompatible with any other theory than that of the duality of the leukocytes. The dual character of the disease corresponds precisely with the dual division of the cells into the medullary and lymphatic types. The connection is complete and points unmistakably to the true nature of the processes involved. Thus pathology confirms the teachings of physiology, and physiology simplifies and rationalizes pathology.

THE TREATMENT OF CERVICAL ADENITIS.

BY

F. S. BULKELEY, M.D.,

of Ayer, Mass.

In all the literature to which I have had access, the treatment of cervical adenitis has been, in my opinion, incompletely covered in at least one detail—treatment with avoidance of scar, or to obtain the minimum of scar. Suppuration having arisen, the question of surgical interference confronts us, and the only method I have seen mentioned to avoid a bad scar is to plan the incision to take advantage of the natural skin creases. While this certainly should be done, it may be possible, in some cases, to go even further.

For the purpose of treatment, I will divide cases of adenitis as follows:

A. Cases in which the severity or the location of the infection and the symptoms resulting therefrom may seem a menace to life, or in which some complication calling for active interference has arisen. B. Tuberculous glands. C. Cases in which immediate radical inter-

¹ Williams: Studies on the Leukocytes, Boston, 1903.

vention is not demanded, and in which the avoidance or minimizing of scar may be of great importance to the patient.

(a) The first class has, in my experience at least, proved relatively infrequent. Examples of it are found in some cases of adenitis involving glands under the deep cervical fascia and in close proximity to the great vessels of the neck, in cases causing brawny induration of the whole side of the neck, or in cases with active hemorrhage into the abscess cavity. In such cases the question of resulting scar becomes of secondary importance, and the more radical surgical measures must be adopted. In fact, some of the expedients I shall speak of would subject the patients to considerable risk. I wish to omit this class from further discussion.

(b) In cases of tuberculous glands, early treatment is of greatest importance. The various general measures of use in tuberculous affections are too well known to demand detailing. Hygienic measures should be taken. All the areas drained by the affected glands should be inspected and treated as may be indicated, particular attention being paid to the nose, mouth, and throat. The tonsils should be carefully investigated, and any abnormal condition present in the nasopharynx should be remedied. A careful regulation, or rather supervision, of diet may be called for in some cases. Perhaps the majority of such cases occur in children with weak digestion, and great care should be taken not to upset a digestive tract already weak. Iodid of iron and cod-liver oil are perhaps the most useful of the internal remedies, but care must be exercised in giving them. In my experience it has proved the better plan to begin with small doses and to increase them gradually to the point of tolerance, continuing their use at a dose slightly under that. Many other drugs may be useful, other forms of iron, potassium iodid, arsenic, etc. Medical indications are to correct any other abnormality present, as anemia, and to build up the system. Local treatment should be the same as in any case of inflammatory adenitis. In the early stages hot fomentations may prevent suppuration. Kellogg recommends the use of alternate hot and cold compresses for a short time several times daily.¹ As a general rule, before pus has formed, applications should be hot or decidedly cold. A poultice that is simply warm will favor hyperemia and the formation of pus, while one that is distinctly hot will cause contraction of vessels and may check a developing inflammation;² cold may prove useful, and the ice-bag, judiciously used, is perhaps one of the best means at our disposal. Pus having formed, cold applications may be used, particularly if the skin is reddened; or if we wish to hasten pointing we may use a warm poultice. A large number of drugs are used as local applications, among which may be mentioned iodine and ichthyol. Both have been credited with specific powers in causing absorption, but it is doubtful if they possess them to any great extent;³ their main value is as counterirritants; in my hands neither has had decided effects. Antiphlogistin, in some cases, works well, but probably does so because it is applied hot. Iodine as a vasogen preparation has the advantage of not staining the skin. Injection of a few drops of dilute carbolic acid into the substance of the gland is recommended, but is said to carry the danger of the formation of a slough. I have had no experience with it.

Radical operative interference in cases of tuberculous glands has been advocated and disapproved. In many cases of tuberculous adenitis no further trouble arises—the swelling subsides, and no other manifestation of tubercle bacilli is seen. But in other cases the adenitis proves to be simply the first of a train of tuberculous lesions. The claim has been made that tuberculosis of the lymph-glands has a protective influence against tubercle bacilli in later life, but I do not think the facts bear out this statement. Of course we see

many perfectly healthy adults who suffered from adenitis, apparently tuberculous in origin, in childhood, but this would seem only to prove them persons of high resisting power; for in many, tuberculous adenitis simply proves the first of a train of tuberculous lesions. Such cases are too frequent to seem simply a coincidence, and it seems very probable that the infection spreads from the glands first involved. However, it is not always possible to say that the trouble in the glands was the first tuberculous lesion, but in many cases it is the first clinical manifestation. Osler says that in three-fourths of the cases of acute tuberculosis the infection spreads from an infected gland.⁴ Infection of glands in the mediastinum may result, the caseation and rupture of which might prove very serious. The safer course to take seems to be that of radical treatment, and in cases not yielding to medical measures it should be resorted to. As to the choice of operative procedures, curetting and excision are the methods most highly recommended. The advantages of curetting are the ease with which it may be done, the small amount of resulting shock, and the comparatively small scar left, while against it are the facts that the operator cannot be as certain of removing all tuberculous tissue, and failing in this a sinus may result. The risk of dissemination of tubercle bacilli is considerable. If many glands are involved, scraping may fail to reach them all, and in deeply seated glands it is not safe. In many cases curetting is not applicable.⁵ Excision is the more difficult operation to perform, of greater severity, and leaves a larger scar. There is some danger of injuring important structures. Excision is applicable to nearly every case, is much more thorough, and attended with very little risk of dissemination of tubercle bacilli. In certain cases, in which the glands are too thoroughly broken down to make it seem feasible to attempt to dissect them out, curetting may be resorted to, but we should not allow the glands to reach this condition. Other things being equal, excision, done reasonably early, is the method of choice in cases not yielding to medical measures. It must be done with great care, and avoidance of haste is imperative. Sutcliffe calls our attention to some of the results of nerve injury⁶ and it should be made the rule to suture the ends of any important nerves divided; or, rather, the rule should be to take such care that none will need to be sutured. The question of ligature of the jugular in any case is one that must be decided when the peculiar conditions of the case are seen at operation, but it should be avoided if possible.

The avoidance of scar in group C is what I wish to emphasize particularly. A detail of primary importance in treatment is, of course, the removal of any source of irritation in the area drained by the glands. Treatment of the tonsils is very important. Goodale reports excellent results in cases of chronic cervical adenitis from the injection of iodine into the tonsillar crypts. Rogers reports a series of cases in which enlarged tonsils were removed to remedy a chronic adenitis with good results;⁷ he also says that tonsils with a normal appearance may contain a source of infection. I have had no experience with this plan of treatment; however, in my opinion, removal of the tonsils should not be first tried, but Goodale's suggestion of the injection of iodine or burning out the crypts with the electrocautery should be tried. Attention should be paid to the general health of the patient, and any measures indicated for its improvement should be taken. Very much the same drugs as in the case of tuberculous glands may be used. Local treatment should be the same, but even more care should be taken of the condition of the skin, in view of procedures that may be called for later. Very careful observation should be made of the gland or glands from day to day, for if fluctuation arises the plan of treatment must be changed somewhat, and the

question of how to avoid or minimize a possible scar confronts the attendant. The more radical surgical measures leave a scar that is very noticeable, or, it may be, disfiguring, and in some patients a bad scar may be the most disagreeable element in the trouble. There are several methods that may help to avoid a bad scar, all of which may be used singly or one after the other: Aspiration of the pus through a hypodermic needle of large caliber with or without subsequent injection of antiseptics, or the use of a seton. In bringing these measures forward, I do not uphold them as a means of certain avoidance of scar, but offer them as a resource that may be found valuable. Both failing we can resort to incision, with a plastic operation on the scar left after healing has taken place—thus obtaining a linear scar that certainly would be smaller than that following extirpation of the glands.

The technic of aspiration and the use of a seton are too simple to call for much description. In the former a hypodermic syringe with a needle of large caliber is sterilized, and after cleansing the skin, the needle is plunged into the point of greatest fluctuation. As much pus as can be obtained is withdrawn, and the syringe unscrewed, leaving the needle *in situ*. If the attendant desires to inject an antiseptic it can be done before withdrawing the needle. In the cases of which I have knowledge, both plans have been used, with the better results in the cases in which an antiseptic was used. In my hands the best results have followed the use of hydrogen dioxid. In 1 case both iodine and hydrogen dioxid were used separately, and the results with the dioxid were much better. The amount injected must vary with the size of the cavity, and must be decreased as the cavity grows smaller. Moderate distention is the result desired. In every case, after injecting the antiseptic, as much as possible is withdrawn; in spite of repeated trials some will remain in, but this proves of benefit. Both iodine and hydrogen dioxid act well. I have used a 10% to 30% mixture of the U. S. P. tincture of iodine in sterile water, and hydrogen dioxid in 50% strength. Aspiration may have to be repeated many times, and a new spot should be chosen for the puncture each time. The appearance of the fluid withdrawn, the size of the swelling, and the amount of fluid apparently present are the points upon which the necessity of aspiration is decided. It should be continued at suitable intervals until the fluid withdrawn is clearly nonpurulent, and it may be well to use the microscope to decide.

In some cases the pain caused by introducing the needle is considerable, but the use of an ethyl chlorid spray will make it bearable. Injection of an antiseptic will cause some discomfort, the amount depending upon the strength used. Hydrogen dioxid causes much less pain than iodine, and the amount of pain with either seems to depend partly on the degree to which the cavity is distended. The most obvious objections to this plan of treatment are the facts that the pus may be too thick to aspirate to any great extent, and that we may have multiple abscess cavities to deal with. In the first instance, it will be found that the injection of an antiseptic will disintegrate the pus so that it can be obtained at a later trial. If there are multiple abscess cavities they may be treated by multiple punctures, and it has seemed to me that the withdrawal of pus from one cavity followed by the injection of an antiseptic has had a favorable influence on adjoining cavities. For a local application while the foregoing treatment is being carried out I prefer a cold compress. This treatment failing or proving too painful for the patient, we may resort to the use of a seton. The gland is transfixed with a full curved needle carrying a coarse thread, either silk or cotton, which is drawn through and tied loosely. Other material may be used as a seton, but these two have proved themselves most acceptable to me. I should prefer to aspirate at least once before putting in a seton, to make sure that the pus is thin enough to drain easily,

although the seton has been used with good results as the first method adopted. The thread should be moved several times daily to prevent granulation tissue growing into its meshes. If the pus drains freely a warm poultice may be used to hasten the process, but if drainage is not free I should prefer not to use it. If drainage is not spontaneous the pus may be forced out by pressure on the gland. Of course, this method would leave two tiny scars, but they are barely perceptible as a rule, and the scars following the treatment by aspiration can be found only by looking closely, if indeed, any marks can be found. The length of time the seton is left in must vary in different cases, the clinical aspects of the case deciding it. In some cases it may seem as if abscess cavities were present that the seton did not drain. If this is the case, we may aspirate the cavity or we may put in a new seton, and it will be found possible in some cases to utilize one of the holes occupied by the old seton in introducing a new one. These methods may prove very tedious to the patient and the attendant may be forced to abandon them, but if this is the case treatment by incision is still possible. In the majority of cases even a short trial of aspiration or the use of a seton will reduce the size of the gland considerably, and incision after their use would not leave as large a scar as it would if done earlier in the course of the trouble. A very simple plastic operation after healing has taken place would produce a minute linear scar as an end-result.

SUMMARY.

1. Many cases of cervical adenitis will be seen in which the avoidance or minimizing of scar is of great importance, and in which radical operative measures are not demanded. In such cases aspiration, or the use of a seton, or both, while not infallible, may prove successful.
2. While such measures might be successful in cases of tuberculous glands they are attended with possible dangers, and when the tuberculous glands do not subside under medical treatment, excision, done with extreme care and reasonably early, is the method of choice.
3. Neither aspiration nor the use of a seton should be resorted to in cases involving the deep cervical glands.

In conclusion I wish to thank Dr. B. H. Hartwell, of Ayer, Mass., and Dr. Walter C. Howe, of Boston, Mass. Many of the foregoing suggestions are the result of their help and courtesy.

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- 3 Cushny: Pharmacology and Therapeutics, 1899.
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- 7 Rogers: Medical Record, November 28, 1903.

Effects of the Use of Alcohol.—The committee of 50 scientists which has for 10 years been studying the liquor question, has issued its fourth preliminary report in 2 volumes. The following are the main conclusions drawn: Effects of moderate or occasional use of alcoholic drinks differ with individuals, age, occupation, and climate. With the majority of occasional and moderate drinkers no special effect upon health seems to be observed by themselves or their physicians. In some such cases drinking is harmful; in a few it is thought to be beneficial. Eighty percent of the leading brain workers of the United States use alcoholic drinks occasionally or regularly or in moderation. The use of such drinks to stimulate mental effort gives, on the whole, bad results. Even occasional or moderate use is likely to be harmful to young persons, mainly because of the danger of its leading to excess. Among diseased or infirm persons over 50 years of age, alcoholic beverages, while sometimes useful, should be taken, if at all, with the last meal of the day. "Fine old whiskies" and "fine old brandies" are nearly as likely to produce injurious effects as are the cheaper sorts, if taken in the same quantities. In moderate quantities, beer, wine, and diluted whisky have a certain food value, but they are seldom used for food purposes—rather for their effects on the brain. In large quantities, and for some persons even in moderate quantities, they are poison. Alcoholic drinks in moderate quantities may be useful as restoratives in fatigue after work is done, but they often produce depression and harmful results when used just before and during labor, physical or mental.—[*Harper's Weekly*.]

SPECIAL ARTICLES

A REPORT ON HEMORRHAGIC SEPTICEMIA IN ANIMALS IN THE PHILIPPINE ISLANDS.

BY

PAUL G. WOOLLEY, M.D.,
of Manila, P. I.

Pathologist, Biologic Laboratory.

AND

J. W. JOBLING, M.D.,
Director of the Serum Laboratory.

The appearance of hemorrhagic septicemia in the Philippine Islands was a serious complication of the local cattle problem. Rinderpest, which had destroyed thousands of carabaos, and which had brought agriculture nearly to a standstill, was just beginning to be controlled by vigorous work with protective serums, and cattle were being immunized in China for importation into these Islands. This work had been progressing very satisfactorily, when suddenly, and without warning, hemorrhagic septicemia appeared in a herd of cattle arriving in Manila from Shanghai. At about the same time that the disease was recognized here, reports were received from Hongkong giving accounts of a virulent disease prevalent there, which very much resembled bubonic plague in human beings, and which was called "cattle plague." * Thus far these reports have been so meager that we are unable to state whether or not the disease is endemic at that port, as it seems to be in other parts of the world, and whether or not it corresponds with the disease studied here.

That hemorrhagic septicemia existed in the Philippine Islands previous to the present epidemic cannot be stated with any degree of definiteness. Since our preliminary report† of the present outbreak, some native doctors have stated that they had previously seen animals dying in the same manner as those lately affected, but whether or not these cases were identical with ours cannot be determined. Carabaos are sometimes affected with a condition similar to heat-stroke, and if one of these animals should die in such an attack, the clinical features presented by it might remarkably resemble those of the acute form of hemorrhagic septicemia. One of us had recently seen such a case, in which a carabao, lately landed from a vessel, had been driven through the town and was suffering for lack of water. It suddenly staggered and fell by the roadside, frothing slightly at the mouth, and was unable to rise for at least an hour, and not until it had been drenched frequently with water. If the animal had died in this attack, acute hemorrhagic septicemia might have been suspected, and a correct diagnosis could have been made only after an autopsy. But the foregoing statements of the previous occurrence of hemorrhagic septicemia must be taken *cum grano salis*, for there is a proneness among many physicians and the laity here to recognize any symptom-complex as the disease under discussion at the time. This tendency is well shown by the fact that pseudofarcy is taken for surra by men well acquainted with horses. It is, however, possible that hemorrhagic septicemia has been seen here before, and that the disease has thus far evaded the detection of laboratory men, even though these have a wide experience with cattle diseases.

The disease is a widespread one, and has been noted in almost every quarter of the globe. The first cases were in Germany, and were cited by Bollinger. Later reports of epidemics in Germany have come from Kitt, Jakoby, Buch, and others; from France, Nocard and Leclainche have reported

cases, as have also Galtier and others. Bosso, Oreste, and Armanni, and others have detailed descriptions of epidemics in Italy. Poels reports cases from Holland; Jensen, from Denmark; Piot, from Egypt; Van Eecke, Fischer and Hubenet, from Java; Reischig, Sequens, and V. Ratz, from Hungary; Janson, from Japan; Sanfelice, Loi, and Malato, from Sardinia; Pease, from British India; Carrougeau and Blin and Carré, from Indo-China; Lignières from South America; and Smith, Wilson, and Brimhall, Reynolds, Fennimore, and Nocard, from the United States. It is easy to see how the spread may have included the Philippine Islands, if the disease is a contagious one and not endemic in that archipelago. There is a possibility that China is not to blame for the cases recently discovered here; it may be that the disease is endemic in the Philippine Islands, and that by food or water the organisms gained access to these animals through wounds of the gastrointestinal tract (or even without such wounds), or through wounds on the surface of the body, or possibly by way of the respiratory tract.

It is now settled beyond doubt that organisms resembling those of hemorrhagic septicemia are found in waters and soils. It has also been shown that similar ones are present on the mucous membranes of healthy animals. Moore, of the Department of Animal Industry at Washington, for instance, has demonstrated that organisms resembling those of hemorrhagic septicemia and capable of producing the disease, occurred in 80% of the cattle, 48% of the hogs, 50% of the sheep, 16% of the horses, 30% of the dogs, and 90% of the cats examined by him. Davaine, Pasteur, Gaffky, Gamaleia, S. Mayr and Kitt have found organisms in waters, soils, sputum and bronchial secretions, which, injected into the circulation of animals, caused septicemia which agreed with the usual disease in all its details.

Since this disease so closely resembles bubonic plague, it might be supposed that it corresponds with it also in the sources and means of infection, but these points are awaiting explanation. Since the organisms occur so commonly in healthy animals, it is probable that a lowering of resistance to disease, whether brought about by trauma or by abnormal conditions of environment, relatively increases the virulence of the organisms and brings about conditions from which infection and disease result. This is certainly true in the sporadic pneumonias of cattle, described by Theobald Smith, who believes that the organisms, present in such conditions, are secondary invaders.

The history of the present epidemic of hemorrhagic septicemia in the Philippine Islands is as follows:

A shipment of cattle arrived in Manila Bay from Shanghai on May 28, 1903, and was kept on board until June 1, when the animals were sent to the Perez estate in Paco. On the following day, two of the animals were noticeably ill, and were sent to the Serum Laboratory for observation.

CASE I.—The first animal to die was very weak when first observed, but in fair physical condition otherwise. The conjunctivas were somewhat congested, respiration was rapid and the feces normal. Temperature 30.2° C. When taken off the truck at the laboratory it staggered a few steps and fell on its side. There were numerous bruises on the body, probably the result of a rough voyage across the China Sea. It ate food when placed near it and also drank, although it did not, apparently, suffer from thirst. It had no cough. During the next few days it became a little brighter and somewhat stronger. On June 6 it was again weak and could not stand up, the hind legs seemed to be especially feeble. It gradually became weaker and diarrhea developed, but with no traces of blood or mucus. Death occurred on the ninth day after landing.

The postmortem examination showed a few patches of subcutaneous edema on the sides. There were a few small pericardial hemorrhages about the base of the heart. The lungs showed a number of subpleural nodules, which on section exposed granular areas, similar to those seen in bronchopneumonia in the stages of red and gray hepatization and suppuration. The suppurating areas were filled with a thick, granular, greenish-yellow, sticky material.

Cultures were made from the lung abscesses on agar and blood-serum. After 24 hours at 37° C., the agar tubes showed a growth of small, transparent, grayish, round colonies. The blood-serum showed a very scanty growth of small colonies. Transfers were made from these tubes to various other media, and plates were also made. After a careful study of its morphologic and cultural characteristics, it appeared that the organism under consideration was a short bacillus with rounded ends, and nonmotile. Its measurements varied between 1.0 microns

* Since the foregoing notes were written, the report of the Government Bacteriologist at Hongkong has been received. In this there is a brief summary of the morphologic and cultural characteristics of the organisms found in the animals that died in the epidemic there. This germ grew readily on the "ordinary culture media." It was a bacillus that stained more deeply at the poles, and which did not stain by Gram's method, and which was nonmotile. Its appearance on culture media was similar to that of *B. coli*. All inoculated animals died after 24 to 48 hours, with symptoms of septicemia. From his facts Hunter concludes that he is dealing with a form of hemorrhagic septicemia. But whatever the disease may be, it is not the same one that we are studying, judging from the description of the organism.

† Read at a meeting of the Manila Medical Society, July, 1903

and 2.0 microns in length and 0.3 microns and 0.5 microns in thickness. The largest forms were seen in glucose media, the smallest on potato. From the animal body it showed well-marked polar staining, although this was not so distinct in organisms grown on artificial media. It was stained easily with the usual watery anilin stains, but was not stained by Gram's or Weigert's methods. The rods, as a rule, occurred singly, often in pairs, occasionally in chains of 5 or 6 individuals. The appearance of the growths on the usual culture media was in no way characteristic. The colonies on agar were small, grayish, transparent, and well circumscribed, with little or no tendency to spread. On all the solid media approximately the same appearance was noticed. In gelatin no liquefaction was caused. In bouillon a granular deposit was formed on the sides and bottom of the tube; during the first few hours of growth the whole medium was faintly clouded, but as the sediment was deposited the liquid became clear. After a few days the sediment became viscid, as could be shown by shaking the tube, when the precipitate rose, not in flocules, but in threads. In Dunham's peptone solution the same general characteristics were observed as in broth, but the growth was not so abundant. Indol (cholera-red) was produced rapidly, so that at the end of 24 or 36 hours, the addition of pure sulfuric acid (free from nitrites) produced a wellmarked pink color. No phenol could be appreciated. No gas was produced in solid media containing sugars nor was the reaction changed. Milk remained unaffected, even after 10 days; no acid was produced, no coagulation occurred, and there was no reduction of litmus. Stab

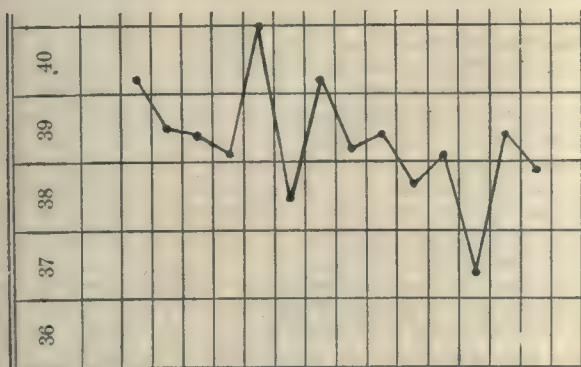


Fig. 1.—Case I.

cultures in solid media showed nothing remarkable. The growth followed the line of inoculation closely, with no tendency to spread, and extended to the bottom of the tube as a finely granular growth, composed of small colonies. The surface growth was small, just surrounding the point of entrance of the needle.

CASE II.—The second carabao was also taken to the serum laboratory on a truck, and on arriving there was unable to walk more than 30 feet. Its eyes were clear, the respiration quickened, and the body covered with numerous bruises. On June 4 it was able to walk and graze, and seemed to be in good condition. On June 14, it was again dull and weak, but still able to walk, the greatest weakness being in the hindquarters. Nevertheless, in spite of a good appetite, and in the absence of other symptoms, the animal gradually became greatly emaciated. On June 21, a swelling was noticed on the inner and outer sides of the left ankle. At this time the animal was hardly able to stand, although the appetite was still fair. The swelling on the ankle was incised by Dr. Slee, and the contents evacuated. The abscess cavity was a loculated one, and the incised tissue was quite edematous. On June 25, diarrhea developed, and 2 days later, when just about to die, the animal was killed and an autopsy done immediately.

The findings were as follows: Beside the incision over the left ankle, there were dried scars on both sides of the body and a small opening discharging a greenish-yellow pus in the left flank over the quarter. Dissection of the left ankle showed that the abscess cavity extended around the joint without involving it, but reaching far up the leg. An opening into the abscess of the flank led into a mass of suppurating glands, which looked much like the broken-down ones of bubonic plague, save that the contents were more granular. The tissues about these suppurating areas were infiltrated, with a gelatinous exudate of a distinct yellow color. In the intermuscular and surrounding tissues there were more or less wellmarked hemorrhages. On skinning the animal, a widespread subcutaneous gelatinous edema was discovered, with large and small hemorrhages. In the stomach walls and beneath the pericardium and the pleura, hemorrhages were present, some of which were well circumscribed and others irregular in outline. There was a very large

extravasation of blood into the mediastinal portion of the parietal pleura, and another similar one along the descending aorta.

The lymph-glands were generally enlarged, pale and edematous, but some were smaller and hemorrhagic. There were petechias in some of the edematous glands. The lungs were, for the most part, crepitant, although there were areas in the left one which resembled the stage of red hepatization of bronchopneumonia. The spleen was of about normal size, with no hemorrhages into its substance, but with many subcapsular ones. The liver showed nothing remarkable. The kidneys were of fair size and the perirenal tissues were edematous; their pelvises were filled with a gelatinous material. There were no hemorrhages into mesentery.

In the abscesses from the left ankle and from the hind quarters small polar-staining bacilli were found in almost pure culture. Smears from the lymph-glands showed similar organisms, but the heart's blood was apparently free from them.

Cultures showed an organism that corresponded with that from Case I.

CASE III.—This animal, a full grown carabao, was apparently perfectly well until one morning, when it looked stupid, its gait was clumsier than usual, and its eyes appeared to be sunken. It did not care to use the mud-bath but wandered about aimlessly. (The native overseer said that it was insane). On the third day weakness across the loins and in the forelegs was evident. Its appetite was still fair. On the morning of the fourth day it fell over and was unable to rise again, and died in the afternoon.

Smears showed a few organisms that were polar-staining. Culture on placenta fluid showed organisms that resembled diplococci. Culture lost in moving.

CASE IV.—This animal was stupid and weak when first noticed and as nearly as could be determined had been sick for about 3 hours. It kept on its feet and moved from place to place for several hours, eating occasionally. Death took place suddenly.

Smears from organs showed a few polar-staining organisms. Cultures not made.

CASE V.—This carabao lived about 3 days after the appearance of the first symptoms, the principal one of which was weakness, especially in the forelegs. At autopsy the base of the heart was edematous and there were scattered areas of subcutaneous edema with a few hemorrhages.

CASE VI.—Death was very sudden, occurring 24 hours after the beginning of the illness. Autopsy revealed edema and bloodstained infiltrations about the inguinal and prescapular glands. The latter were much swollen and showed areas of necrosis and a few small hemorrhages in their substance. Hemorrhages, varying in size, were present in the inner and outer surfaces of the intestines, under the visceral and parietal pleura, under the parietal and visceral pericardium and under the endocardium. Petechias were present on the surface of the liver and were especially well marked on the inner surfaces of the branches of the portal vein. A few small hemorrhages were found under the capsule of the spleen and under the surface of the diaphragm.

Smears from lymph-glands, liver, spleen and lungs showed polar-staining bacilli.

CASE VII.—The duration of the illness was 2½ days, during which the animal could scarcely stand, although the appetite remained good. The almost characteristic edemas were well marked in this case and polar-staining bacilli were found in smears.

CASE VIII.—This animal, one of the finest in the herd, was alive and well on the morning of June 7; the following morning it was found dead. The postmortem examination showed hemorrhagic edema under the skin along the spine, about the prescapular glands and around the base of the heart. There were ecchymoses on the surface of the heart, under the capsule of the spleen, in the inguinal and prescapular glands, in the pancreas, in the gallbladder, and under the serous and mucous surfaces of the intestines.

Smears from heart and spleen showed polar-staining bacilli, some of which showed evidences of having been a capsule or pseudocapsule. In this case blood-serum had no agglutinative reaction on the bacilli previously obtained from other cases.

CASES IX and X were calves. The clinical histories and the details of the autopsies are wanting. All that is known is that in neither case was the spleen enlarged, that there were subcutaneous gelatinous edemas, and that the usual edema was about the base of the heart in each.

CASE XI.—In this case also, the clinical history is wanting, but the same pathologic changes that were observed in the two previous cases were present. Smears from the blood showed a number of polar-staining bacilli occurring singly or in chains of 3 or 4 individuals. Cultures were made from the heart's blood on agar and an organism was obtained in pure culture, which corresponded to that isolated from Case I.

CASE XII.—This animal died within 24 hours after the appearance of the first symptoms. It was large and well nourished, and when examined was lying on the ground, the legs stiff and the head drawn back. The agonal stool was bloody. There were hemorrhages along the spine into the subcutaneous tissues, as well as on the surfaces (inner and outer) of the small intestine. The prescapular glands showed areas of hemorrhage and necrosis.

CASE XIII.—This was a fairly well-nourished carabao, which had arrived from Shanghai 3 days previous to the appearance of illness. It was well on the evening of July 22. On the following morning it was found dead. In this case the lesions were confined to the heart and lungs; the subcutaneous gelatinous edema seen in the other cases was absent. The lungs were not collapsed and contained air in only a few patches. The costal pleura was intensely inflamed and showed numerous ecchymoses and was covered with a thick stratum of fibrinopurulent exudate. The visceral pleura was in a similar condition. The mediastinum was filled with a mass of yellow gelatinous material composed of serum and fibrin. On section the lung tissue was red, in places very dark, and divided into large and small lobules by white fibrous and fibrinous bands intersecting in all directions. These bands varied from an eighth to a half-inch in width and were studded with loculi, containing a serofibrinous and fibrinopurulent material. In the pericardial cavity was a large amount of serous fluid, containing

BUREAU OF GOVERNMENT LABORATORIES.

ANIMAL RECORD.

Carabao No 68 (w/ltg 217) II
 June 7 1903
 Weight 900 Age 15 Sex (Male) Color (Black) Inoculation Rinderpest
 History from Shanghai

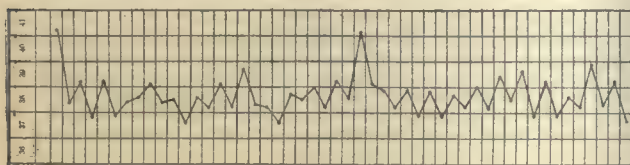


Fig. 2.—Case II.

floccules; both layers of the pericardium were covered with fibrinous shreds. The serous membrane under this exudate was inflamed and dotted with ecchymoses. The auricular appendages were thickly mottled with hemorrhages.

Smears from the heart's blood, lungs, liver, and lymph-glands showed a considerable number of polar-staining bacilli, and cultures showed a similar organism in uncontaminated growths.

This case followed closely the description of sporadic pneumonia as given by Theobald Smith.

Beside the cases of hemorrhagic septicemia seen in carabaos, a native horse was found to be suffering from a malady which was caused by the same organism. In this case the chief lesions were found in the lungs, and these corresponded perfectly with those of Case I. There was also a wellmarked gelatinous edema about the base of the heart. The organism was recognized in smears and cultures and identified with that from Case I.

In summarizing the chief clinical features of these cases, we can say that there have been 3 fairly well-differentiated types: One, intensely acute, in which the animals died within a few hours after the onset of symptoms; one less acute, in which the animals suffered chiefly from weakness in the limbs, and more especially in the hind ones; during the course of this form of the disease the appetite was little or not at all affected; lastly, one in which the course was prolonged, accompanied by great weakness and emaciation, and occasionally by suppuration. These are not distinctly defined types, for rarely does the disease affect the animals in the same way, except in the acute form, in which the course is so rapid that there is little time to observe symptoms.

The pathologic types are as indefinitely defined as the clinical types. In a general way, however, there is a pulmonary type in which the lesions resemble those of bronchopneumonia, sometimes with abscess formation, and with or without pleuritis. Combined with these changes there may be marked changes in the interlobular tissues, with the formation of fibrous bands, and with emphysema. Another type is the rapidly fatal septicemic form, in which there are few macroscopic changes in the organs beyond incipient parenchymatous

degenerations. The third type is a glandular and suppurative one, which terminates in a general infection. In all these forms there have been more or less widespread hemorrhagic lesions, combined with gelatinous edemas. This last named condition was especially frequent about the base of the heart, and in some cases it was the only macroscopic lesion.

In but few cases have complete temperature charts been kept—this because most of the animals have come from herds regarded as healthy, and have died too suddenly to allow records to be prepared. The temperature charts of Cases I and II will, however, be appended. These curves show very little except a primary rise of temperature, after which there is a fall, with the subsequent curve running either near the base line or very irregularly.

The clinical cases given above agree in many points with those described in the literature, but in many details, too, they do not. Wide variation clinically and pathologically seems to be one of the most common features of the disease caused by *B. plurisepticus*.

In Bollinger's report the cases are divided into an exanthematous and pectoral type. The former is characterized by fever, swellings of the face and neck, inflammation of the mouth and tongue, with ecchymoses under the mucous membranes, and bloody diarrhea. Such cases we have not seen, nor have we observed any cases resembling them. This may be because the hide of the animal that we meet here is thick enough to prevent the edematous swellings from becoming apparent, for certainly in the majority of cases there have been subcutaneous edemas, some of quite considerable size. The latter type showed, principally, pulmonic lesions. We have studied 3 cases that followed this type, 2 in carabaos, and 1 in a horse. In 1 carabao, and in the horse, the chief lesion was a bronchopneumonia without pleuritis; in the other carabao it was a pleuropneumonia.

Lignières divides the cases he has seen into 3 classes: First, a diarrhetic one—the acute form—in which death occurs in from 1 to 2 days after the onset of the diarrhea. In this, pectoral lesions are common (*i. e.*, pneumonia, pleurisy, etc.) The second class he calls *Éntéque*. The course of this form is more chronic, and the animal may live for 3 to 4 weeks with more or less fever and fetid diarrhea, culminating in anemia and death. The third or cachectic form is marked by wasting, articular localizations and profound anemia, followed by death.

Speaking generally, the commonest types in the literature are the exanthematous and pulmonary. Oreste and Armanni described cases in which edemas and hemorrhages were the chief lesions; many of Kitt's animals showed pneumonia and pleuritis; Jensen's showed phlegmonous edemas, fibrinous pleuritis and pericarditis, and gastroenteritis; Galtier described hepatization of the lungs, subendocardial hemorrhages and peritonitis; Guillebeau and Hess found fibrinous pleuritis and pericarditis, hemorrhagic infarcts in the lungs, and small hemorrhages into the mesentery and on the surface of the kidney; Bosso described hemorrhages into the serous membranes and into the mucous lining of the intestine; Pease observed cases in which the chief lesions were ecchymoses, widely disseminated in the bodies; Fennimore remarked inflammation of the mucous membranes of stomach and intestines, pleuritis, pericarditis, and edema of the lungs; and Smith carefully studied and minutely described peculiar lung lesions in which interlobular changes were an important feature.

From a summary of the facts given in the literature, we may conclude that the animals attacked are of all ages, the onset is usually sudden, the course is rapid, and death occurs in from 85% to 98% of the cases. In the less rapid forms of the disease the symptoms may be refusal of food, cessation of rumination and lactation. The initial rise of temperature may be followed by a drop to normal or subnormal. The respirations may be rapid or labored; bloody material may be discharged from the nostrils, bowels, or bladder, and noncrepitant swellings may occur on face, neck, or about the back and ankles.

From all these varying types of disease similar organisms have been isolated. In the outbreak which we have studied the characters of the microbe have been as follows: Short bacilli with rounded ends, polar-staining, occasionally encapsulated and nonmotile; nonliquefying, non-Gram staining, grow-

ing invisibly on potato, not producing gas, not coagulating milk or reducing litmus, producing indol and nitrites and not forming spores. It is an organism which corresponds closely with the bacilli of hemorrhagic septicemia of Hueppe, and especially with that member of the group called *B. bovissepticus* (Kruse), *B. bovissepticum* (Kruse-Migula), *B. plurissepticus* (Kitt), *B. bipolare multocidum* (Kitt), *B. der buffelseuche* (Oreste-Armanni), etc. The chief differences between the present bacillus and the ones described in the literature are its indol production, which is invariable, and its invisible growth on potato, which also appears constant.

Animal Experiments.*—The organism has been injected into guineapigs, rabbits, monkeys, small birds, a dog, a chicken, and a calf. In all but the last 3 animals death has followed in from 9 to 24 hours after intrapleural injection, in 5 to 18 hours after intraperitoneal inoculation, and in 5 to 14 hours after intravenous injection of virulent material. Subcutaneous injection with a culture kept at 60° C. for 10 minutes killed a rabbit in 36 hours. Intravenous injection with the same material killed in 18 hours. In both these last two cases the organism was recovered from the heart's blood.

The lesions in animals killed with virulent cultures varied with the length of the disease and with the animal used. In all, there were edema and some hemorrhagic infiltration or ecchymosis at the site of inoculation. In addition to this, 2 or 3 cases were noticed in which there were large collections of pus surrounded by tissues in a state of coagulation-necrosis in the immediate neighborhood of the wound of inoculation. The more resistant the animal and the more attenuated the organism (within certain limits), the greater was the tendency to suppuration.

The protocols of the animal cases are as follows:

RABBIT 321.—Inoculated subcutaneously with 0.5 cc. of an emulsion of a 24-hour old agar growth. (Organism from Case I.) Dead in 18 hours. Large hemorrhage at site of inoculation, and a few small ones in axillary and inguinal glands. Lungs congested, vessels of the heart distended with blood. Liver soft, and showed diffused pale areas of fatty or necrotic tissue. Adrenals congested. No changes in gastrointestinal tract. Small amount of fluid in peritoneal cavity.

Smears from the liver, spleen, heart's blood, and site of inoculation showed the typical organisms, which were recovered in pure culture from the blood.

RABBIT 322.—Inoculated subcutaneously with 1 cc. of a suspension of a 24-hour old agar growth of the organism obtained from Case XIII. Dead in 5 hours. No wellmarked lesions. Some edema about the wound of entrance. Liver and kidneys congested. No hemorrhages or necroses. Smears from heart's blood, spleen, kidney, and liver showed the typical organisms, and these were obtained in pure culture from the blood.

RABBIT 335.—Inoculated intravenously with 1 cc. of a bouillon culture of the organism from Case I, which had been kept at 58° C. for 10 minutes. Dead 24 hours later. Autopsy showed focal necroses in the lower lobes of both lungs, in liver and spleen. Smears from spleen, kidney and blood showed a few small polar-stained bacilli, which, however, were recovered in pure culture.

MONKEY 256.—On June 16, 1 cc. of a bouillon culture was injected under the skin of the right side. On June 18, 1 cc. of a culture in placenta fluid was injected into the peritoneal cavity. Death occurred 6 hours after the second inoculation. About the points of inoculation were areas of edema. Surrounding the point of inoculation on the right side was also a large intermuscular abscess filled with a pale, greenish-yellow, gelatinous pus. Practically the whole right side of the animal was the seat of a subcutaneous gelatinous edema. The peritoneal cavity contained a large amount of sanguineous fluid, and the luster of the peritoneum was dulled, and it was injected. The other lesions were cloudy swellings of the parenchymatous organs.

Smears from the spleen, liver, and peritoneum, and from the pus at site of inoculation showed polar-stained organisms. None seen in the blood. In several leukocytes from the peritoneal cavity polar-stained bacilli were seen. The heart, peritoneum, and liver showed pure cultures of this organism.

MONKEY 297.—Inoculated intraperitoneally with 1 cc. of a broth culture of the organism from the horse mentioned above. Death in 36 hours. The abdominal wall about the wound made by the needle was edematous. The scrotum was distended and edematous. There were wellmarked subcutaneous ecchymoses and gelatinous edema with a certain amount of purulent infiltration. Coils of intestines were adherent, and there was a quantity of sanguinopurulent exudate in the peritoneal cavity. The pus extended down along the spermatic cords into the scrotum. The left testicle was much enlarged and contained some purulent and ecchymotic areas. The right testicle was small, and surrounded by a purulent exudate. The intestines showed

a few small hemorrhages under the serous layer. The other organs showed no marked change. Smears from the abdominal cavity, liver, spleen, subcutaneous abscess, and testicular abscesses showed polar-stained bacilli. These were recovered in pure culture.

These case reports of animals dying spontaneously and those dying after inoculation will give some idea of the ability of the organisms to cause widely varying types of disease. It is as Reynolds has said: "For the present at least, we must consider the term, hemorrhagic septicemia as quite inclusive, a sort of generic name, which must cover a multitude of varying types of disease."

When we encountered the first cases of the present epidemic we feared that the outbreak might take on as dangerous proportions as it had in some of the epizootics first reported, and as time has gone on this fear has been partially realized, but we still hold to the idea that the cases have been the direct result of trauma in many of these and the indirect result of infection with an organism present in the mouths of healthy animals.

It does seem very probable now that a pasture may become infected, and that new animals placed on such infected ground may die of the disease in one of its forms, especially if the animal is in any way predisposed to disease. For this reason it seems most unwise, in the present state of our knowledge of the disease, to move animals from place to place, and so risk infecting new ground to be used by well animals.

In one of the corrals in Manila, a few animals in one herd had died. Following these deaths came heavy rains, so that the corral became a great mud-hole. Into this place a new herd of carabaos was driven after they had crossed the China Sea from Shanghai. Following the advent of these animals deaths occurred rapidly, and in all but a few of the dead, the lesions of hemorrhagic septicemia were found.

It is our opinion that the disease was the result of the rough sea voyage, change of diet, the preliminary inoculation against rinderpest, and finally the filthy surroundings in Manila. Under these circumstances disease might be expected.

The question concerning the source of the infection by which death resulted remains to be answered. Were the organisms in the animals themselves? Were they in the mud of the corral? Neither of these questions can be answered positively as yet. We have not been able to find the bacilli in the mud. But just so long as there is any doubt, the animals must be treated as though they could scatter the germs of the disease with their excreta.

Up to the present time there has been no evidence that the disease here is directly contagious, but Carrougeau and Blin, Bollinger, Friedberger and Frohner, and others, considered the disease which they studied was. On the other hand, Nocard and Leclainche think that the cases are sporadic and that the disease is enzootic, and Wilson and Brimhall and Reynolds believe that it is not contagious.

For the purpose of eliminating all, or most chances, of contagion we suggest that each animal in a suspected herd should be isolated or staked out separate from the rest of the herd for at least 10 days after the occurrence of the last case in the herd to which it belongs, and until any abrasions on the surface of the body have healed. (Brimhall and Wilson have suggested that skin lesions may play a part in the spread of the disease.) While the herd is under suspicion none of the animals should be allowed to use the mud baths. After an animal has died, the ground upon which it has stood should be cleansed by fire or antiseptics, and if it has had access to the mud bath this should be disinfected in the most thorough way with lime or crude carbolic acid and then flushed out with water. There seems to be some difference of opinion as to whether the organism is able to live any length of time in contaminated water, but since similar ones have been found in rivers and in soil, it is wiser to be on the safe side and use all precautions. Theobald Smith states that the organism is very vulnerable and Nocard and Leclainche say that it is a facultative parasite. The result is, that for the present, it must be dealt with as though its resistance were great. Kitt, in Kolle and Wassermann's Handbuch, recommends that it be treated as though it were the bacillus of anthrax.

Up to the present time we have been unsuccessful in obtain-

*In these experiments, Mr. Clegg, Assistant Bacteriologist in the Biologic Laboratory, has given us much valuable assistance.

ing any serum or protective substance that will modify or ameliorate the course of the disease in experimental animals. Work along these lines is, however, being done and will be made the subject of a later report. Wilson and Brimhall report that they were able to produce a fairly high degree of immunity. In the book on "Les Maladies Microniennes des Animaux" by Nocard et Leclainche, it is stated, that the belief of Lignières, that the organism of bovine pasteurellosis can be attenuated and used as a vaccine, is possible. The details of his method are not given and thus far we have been unable to obtain them.

Note.—We have been interested to hear, since the notes for this report have been prepared, that there have been epidemics of an unknown nature among chickens and swine in the provinces about Manila. The reports make it seem probable that these diseases are related to the hemorrhagic septicemias of fowls and hogs. We have received from a gentleman in Manila a chicken that had died suddenly. From this we have isolated an organism that resembles the bacillus of chicken cholera, which, when inoculated into small birds in minimal quantities, gives rise to a rapidly fatal septicemia that corresponds exactly with the disease chicken cholera. In inoculating with this organism a needle, the tip of which was covered with a culture of the organism, was plunged through the skin and into the subjacent muscles. The disease prevalent among swine remains to be determined.

These observations make it seem probable that chicken cholera is endemic here, and, if there is any value in analogy, that other forms of hemorrhagic septicemia may be.

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THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

February 20, 1904. [Vol. XLII, No. 8.]

1. The Early Signs of Pregnancy: A Contribution to Its Clinical Study with One Pathologic Specimen. H. L. E. JOHNSON.
2. Neurasthenia and Its Treatment by Actinic Rays. ALBERT E. STERNE.
3. Some Toxemias in Relation to the Production of Nervous and Mental Diseases. SAMUEL BELL.
4. The Ocular Complications of Bright's Disease. LOUIS STRICKER.
5. The Development of Hard Tissue in the Pulp of Human Teeth. DOUGLAS E. CAUSH.
6. Splenic Anemia: Report and Demonstration of a Case. M. J. LICHTY.
7. Squint. ALBERT B. HALE.
8. A Clinical Note on Obscure Cases of Septic Fever. LOUIS FAUGERES BISHOP.
9. The Red Cross Society of Japan. N. SENN.

1.—Early Signs of Pregnancy.—H. L. E. Johnson describes a sign existing prior to and including the third month, invariably noted and after whose appearance pregnancy has been demonstrated. It can be seen by the fourth week and possibly earlier and consists of an intermittent softening and hardening of the vaginal portion of the cervix, with, in many cases, a change of color from a pale violet to the normal pink hue or the reverse. These changes in color and consistence are rhythmic more or less and are probably early manifestations of intermittent contractions of the pregnant uterus, due probably to a necessity for some change or modification in the uterine circulation incident to the nourishment and growth of the ovum. The writer has never observed this sign in any other normal or diseased condition. He reports a number of cases diagnosed when pregnancy was unsuspected by the patient. [H.M.]

2.—See *American Medicine*, Vol. V, No. 23, p. 903.

3.—See *American Medicine*, Vol. V, No. 23, p. 985.

4.—See *American Medicine*, Vol. V, No. 20, p. 784.

5.—Hard Tissue in the Pulp.—D. E. Caush divides the development of secondary dentin into normal, dentin of repair, pulp nodules, and that found where pyorrhea alveolaris has been pronounced. It is sometimes found apparently without any cause, when, as a rule, no inconvenience is produced by its development, and it is detected only after extraction. The cause may be slight irritation from constant use of the teeth. He describes the process of calcification. The dentin of repair is found with erosions and decay, and in teeth worn down by attrition and mastication. The pulp nodule is due to irritation in the pulp itself. Immediately under an eroded surface the tubules stain with difficulty, if at all. It appears as if they had been filled with some deposit from the outer surface that prevents them from performing their usual functions. The secondary dentin is to prevent acute irritation passing from the eroded surface to the pulp itself. In the writer's experience secondary dentin is found with decay only when the latter has been slow and the irritation of the pulp slight and continuous. The earlier tissue contains, as a rule no tubules, but lacunas with canaliculi. The deposits due to attrition and mastication are quite structureless at the commencement, passing from that through other forms to a dense mass filling the pulp chamber. The pulp nodules may produce much pain if so situated that they press on nerves. It grows usually by concentric rings. Its mode of development is similar to that of the pearl, the exciting cause being perhaps some dead cells or escaped blood-corpuscles. [H.M.]

6.—Splenic Anemia.—M. J. Lichty reports a case in full, adding a review of the literature of the subject and giving the main symptoms and treatment. Of 34 cases collected, 26 were males, 8 females; average age, 36. Malaria was found in 7, syphilis in 2. Melanoderma was present in 17 cases. Splenic enlargement was the most prominent feature in all, and anemia the next. Hemorrhage occurred in 24. Hemoglobin averaged 47%, the red cells 3,293,000, white cells 5,594. Excluding 2 cases in which there was leukocytosis, the leukocytes averaged 4,381. The liver was enlarged in 16 cases, small in one. Ascites was present in 7, swelling of feet and legs in 9, glandular enlargement in 3, gastrointestinal symptoms in 8, and cardiac murmurs, generally hemic, in 11. In only 2 cases was there albumin, a trace, while the one reported by Lichty had consid-

erable at times, as well as pus and casts. Of 25 cases treated medically, only 5 recovered, 12 were improved, and 7 died, hemorrhage having been the commonest cause. Operation was performed on 8 cases, of whom 5 recovered and 3 died. [H.M.]

7.—**Squint.**—A. B. Hale thinks this subject should be annually discussed at mothers' meetings as it is through the mother it is to be detected. In the young adult operation does not always lead even to cosmetic improvement and in the majority of cases the eye is after all a useless organ. The time to treat it is as soon as it is noticed. Neither nerves nor muscles are primarily at fault, but the brain, where the fusion function is located. Treatment consists in correction of refractive errors, training of the fusion sense, operation. The first is the essential factor, the second of great importance and implies such methods as the occlusion bandage, atropin to the good eye, stereoscopic, amblyoscopic, and other visual exercises. Operation is usually necessary, though squint may be entirely overcome without it. The writer's preference is for advancement. [H.M.]

Boston Medical and Surgical Journal.

February 11, 1904. [Vol. CL, No. 6.]

1. Remarks upon Cholecystectomy and Cholecystostomy, with Special Reference to their Comparative Safety and Efficiency in the Treatment of Biliary Affections. MAURICE H. RICHARDSON.
2. Cholecystostomy and Cholecystectomy: A Study of a Certain Series of Operations. CHARLES L. SCUDDER.

1.—**A Comparison of Cholecystectomy and Cholecystostomy.**—Maurice H. Richardson bases his opinions upon some 200 cases operated upon by himself, together with observation in several hundred additional cases seen in hospital wards. He says the practical arguments in deciding between extirpation and draining the gallbladder are 3 in number, namely: (1) Upon the comparative danger of the 2 methods; (2) upon the comparative efficiency of preventing the recurrence of stones; (3) upon the advantages of temporary drainage of the biliary passages, and upon the possible necessity and increased difficulty of draining these passages at some future time. In discussing these several points, he states that clinical experience shows cholecystotomy to be the safest of all operations upon the biliary passages, though there are conditions in which drainage is quite as dangerous as extirpation, such as when the gallbladder is deeply contracted, hard to find, and adherent to the surrounding viscera and infected. He believes that gallstones are rarely reformed even in the gallbladder, though the argument of liability of reformation favors cholecystectomy rather than cholecystotomy, but the weight of this argument is very light. In regard to drainage of the biliary passages, he says: It may be affected after extirpation of the gallbladder by means of the cystic, common, or hepatic ducts, but this operation is not so easy or so safe as is regarded by some. Therefore, when it is proposed to extirpate such a gallbladder it is proposed to do away with drainage, except by methods difficult and dangerous. The most important objection to extirpation is the loss of the great benefits which follow prolonged drainage of the biliary passages, and it is a serious objection to extirpation that drainage in the future will be difficult. In some instances of highly contracted and adherent gallbladder, cholecystectomy is a necessity, but when cholecystotomy can be performed the author appears to favor that method, though he confesses that during the past year he has performed more cholecystectomies than heretofore. He holds that while there is a certain analogy between the appendix and the gallbladder, it is not so great as is apparent at first thought, and that the latter is simplicity itself when compared to the former. The anatomy of the biliary passages is complex, the ramification of the bile ducts far reaching, and the anatomic relations are of the first magnitude. [A.B.C.]

2.—**Cholecystostomy and Cholecystectomy.**—Charles L. Scudder reports a series of 16 patients operated upon for gallstones. In 7 instances cholecystostomy was performed and the gallbladder attached to the abdominal parietes by suture to the peritoneum, drainage being thus established. There was 1 death. Five of these cases have been followed carefully; only 1 is absolutely well and in each of the other 4 there is more

or less discomfort. The facts in each case are given in detail. In 9 instances cholecystectomy was performed. All recovered and all the patients have been traced, a report being obtained in each instance. The longest time which has elapsed since the operation is 3 years, and the shortest, a month. In no instance has there been a recurrence of gallstone colic and each patient considers herself well. Of the 16 patients 11 or 68% showed no jaundice. He cites a series of 24 cases reported by Winslow in which cholecystectomy was performed, 2 patients died, and in the remaining 22 the recovery was complete, there being no recurrence of pain or discomfort. He likewise quotes Winslow as stating that of 183 patients operated upon for gallstone in the Massachusetts General Hospital within the last 10 years 29 or 18% came to secondary operation, most of them because of biliary fistulas following cholecystostomy. His conclusions are that cholecystostomy should be done in those cases of gallbladder and biliary duct surgery in which quick drainage is needed for the deeper ducts and in which the surgeon is not absolutely sure that the deeper ducts are entirely free. Cholecystectomy should be done in cases of acute cholecystitis, in cases of cholecystitis resulting in gangrene and empyema of the gallbladder, in small contracted (infected) gallbladders which are functionally useless and which will not be of service in facilitating drainage, and in all cases in which the surgeon is morally sure that the deeper ducts are free from obstruction. [A.B.C.]

Medical Record.

February 20, 1904. [Vol. 65, No. 8.]

1. Heart Syphilis. I. ADLER.
2. High-frequency Currents in the Treatment of Skin Diseases. CHARLES W. ALLEN.
3. The Medical Aspect of Accidents Caused by the Röntgen Rays. CARL BECK.
4. Insomnia. ELIOT GORTON.
5. Common Duct Stone Associated with Acute Septic Cholangitis. GEORGE EMERSON BREWER.
6. A Case of Choroidal Inflammation, with Permanent Loss of Vision, Caused by Excessive Use of the Eyes During a Comparatively Short Period of Time. D. B. ST. JOHN ROOSA.

1.—**Cardiac Syphilis.**—I. Adler reviews the literature of the subject and says: Cardiac syphilis is not a rare, but rather a common disease. It is often possible to make a diagnosis of heart syphilis with certainty; more frequently the diagnosis is one of probability. In conclusion, he says that syphilis as a possible factor should be considered in every case of heart disease, so on the other hand, a possible heart disease should be considered in every case of syphilis. Most syphilitic heart lesions remain latent for a long time without giving rise to any subjective symptoms, or these latter are so very slight as easily to escape the attention of the patient as well as of the physician. Often very serious cardiac disturbance, apparently quite acute and without premonition, or a surprisingly sudden and entirely unexpected death of heart failure, testifies to the fact that pathologic changes must have been going on in such hearts for a long time unnoticed. It must be borne in mind that the pathologic changes must be considerably advanced before they cause subjective or clinical symptoms. [A.B.C.]

2.—**High-frequency Currents in the Treatment of Skin Diseases.**—Charles W. Allen gives a practical review of the subject, and answers the questions: 1. What are high-frequency currents? 2. How are they produced? 3. How are they applied? 4. How is their action accomplished? 5. Of what value are they in dermatotherapy? He bases his observations on 175 histories in which record has been made of these currents. The cases recorded include 37 of acne, 26 of alopecia, 27 of eczema, 8 of pruritus ani, 8 of pruritus vulvæ, 2 of generalized pruritus, 5 of pityriasis rosea, 3 of urticaria, 4 of lichen planus, 1 of mycosis fungoides, 3 of zoster, 3 of rosacea, 2 of pruritus hiemalis, 1 of pruritus seroti, and scattered cases of psoriasis, chloasma, ichthyosis, keratosis, pilaris et follicularis, warty growths, moles, erythema nodosum, generalized molluscum contagiosum, scabies, dermatitis, dermatalgia, ulcers, etc. In conclusion he states that high-frequency currents are of decided advantage to those treating skin diseases, but are especially to be employed in connection with other measures. They are curative of themselves in a restricted class of cases. [A.B.C.]

3.—Medicolegal Aspects of Accidents Caused by the Röntgen Rays.—Carl Beck cites a number of instances in which suit has been instituted for accidents and burns resulting from röntgen ray treatment, and points to the diversified character of opinions rendered by court and juries. He says: In severer cases it appears to be natural that the patient is only too much inclined to blame his examiner. Whether the operator was negligent or not seems to be immaterial to the great majority of the injured; all they see are the consequences. Although with our present means it should not appear difficult to settle the question whether the physician has committed negligence or whether he or his patient is the victim of unfortunate circumstances, there is hardly any subject in the field of medical jurisprudence where juries, judges, and experts disagree as much as in this field. The decisions of the courts in this country, as well as in Germany, England, France, and the Netherlands illustrate a deplorable state of affairs. French courts excelled in decisions against physicians, especially in all cases in which the corpus delicti has consisted in injury to the complexions of the fair sex. [A.B.C.]

4.—Insomnia.—E. Gorton thinks too much reliance is placed on drug treatment. In sleep there is contraction of the cerebral vessels and dilation of the peripheral vessels throughout the body. There are various hydrotherapeutic measures which will bring this about, but results depend on a careful technic. In many cases the various methods of treatment should be combined. The warm, full bath before retiring, followed by a hot drink and a hypnotic in moderate dose, is of great value. The head during the bath should be enveloped in a towel wrung out of cold water. The duration of the bath should be from 15 to 25 minutes and the water should be kept at 98°. The patient should not be rubbed in drying, as this has an exciting effect. The cold, wet pack is equally efficacious, accompanied by cold to the head and face. The sheet should be wrung out of water at 70°. Warm sitz baths 95°, 20 minutes to an hour in duration, exert a distinctly sedative effect. This bath may also be used at 50° to 68°, 2 to 5 minutes, with the same effect, when there is no inflammation. The foot bath at either 104° or 54° is beneficial, the bathing being kept up until the feet are intensely red. Paraldehyd is one of the best and safest hypnotics in 2 dram doses, repeated if necessary. An irritable stomach contraindicates its use. Trional is fairly free from unpleasant after-effect. Sulfonal is often depressing. Bromid should be followed the next day by the half bath, this controlling the acne. A smaller dose is effective if all salt is withdrawn from the food. The insomnia of physical fatigue can sometimes be overcome by a mild stimulant, such as strychnin or ale. A half bath or cold dip often acts like magic. Under no circumstances should a patient be allowed to continue his accustomed work into the evening hours. [H.M.]

5.—Common Duct Stone Associated with Acute Spastic Cholangitis.—George E. Brewer reports 3 cases, at length, and discusses the subject intelligently. He states that it is not well recognized that a certain number of these cases present in addition chills, fever, and sweating, so characteristically intermittent in character as strongly to suggest a malarial infection. The condition is one of gravity, and unless promptly relieved by surgical means, leads, almost invariably, to a fatal termination. The only treatment that can hold out any hope of success is surgical, choledochotomy, removal of the stones, and hepatic drainage. In the first 2 cases which he reports, the acute symptoms had existed for several weeks, and the progress of the septic intoxication was gradual; while in another case the symptoms were grave and alarming from the first, and the progress of the sepsis was rapid. These patients, if unrelieved, suffer greatly, and eventually die from a combination of exhaustion, sepsis and cholemia. In the severe type of the disease, the patients die promptly, unless relieved at a very early period, and the autopsies show a septic and often virulent cholangitis, edema of the liver and innumerable small abscesses. [A.B.C.]

6.—Loss of Vision from Excessive Use of the Eyes.—D. B. St. J. Roosa reports the case of a physician who brought on an attack of choroiditis with a central blur by reading almost continuously through 10 hours a book with rather small type. Such a result is seldom seen by the oculist as the asthen-

opia induced usually causes the patient to desist before the danger line has been crossed. With our advanced knowledge in infectious diseases we sometimes are inclined to ignore primary mechanical and chemic causes. [H.M.]

New York Medical Journal.

February 13, 1904. [Vol. LXXIX, No. 7.]

1. The Conservative Treatment of Some Surgical Diseases of the Renal Pelvis and the Ureter by the Uterocystoscope. F. KREISSL.
2. Personal Experiences with the Administration of Nitrous Oxid and Oxygen for Prolonged Anesthesia. PRESCOTT LE BRETON.
3. Original Research Regarding Human Perspiration. JULIUS H. HOELSCHER.
4. Artificial Fluorescence of Living Tissue in Relation to Disease. WILLIAM JAMES MORTON.
5. Fluorescein in Transillumination of the Stomach. ROBERT COLEMAN KEMP.
6. Truncæck's Serum. SWITHIN CHANDLER.

1.—The Uterocystoscope in Renal Diseases.—F. Kreissl believes that the efficiency of the cystoscope as a therapeutic means has been grossly exaggerated, but he believes that when it is judiciously employed, it has its useful but very limited sphere. The method has many limitations caused by various abnormal conditions along the route the catheter or bougie has to traverse. The conditions which might call for the employment of this method are: Hydronephrosis, pyelitis, pyonephrosis, ureteritis, pyelonephritis, renal retention, and colic obstructions of the ureteral lumen by calculi, clots of blood or pus, strictures or displacements of the ureter, with their results, encroachment on the ureter by various pathologic conditions from without. He says that in several of these conditions temporary relief can be obtained by the endoureteral intervention, and in a very small fraction permanent results will be observed. [C.A.O.]

2.—Nitrous Oxid and Oxygen in Prolonged Anesthesia.—P. Le Breton clearly sets forth the advantages and disadvantages in the use of this anesthetic, and in conclusion says that its use for prolonged anesthesia is satisfactory, but limited. The wealthy class alone can demand it, because of the cost of materials and the larger fee for the engagement of an experienced anesthetist. The bulky and expensive apparatus, and the difficult method of administration are not inviting, and the occasional lack of smoothness in the narcosis discomfits the surgeon. Hence the employment of this method will be reserved for anesthetists in the larger cities, in the case of operations upon the extremities or trunk, where the condition of the patient demands an anesthesia free from danger and practically free from after-effects. The deservedly increasing popularity of the gas and ether combination predicts a similar popularity of the use of gas, oxygen and ether, when the gases are used until the incision is made and after the suturing is begun, and the ether provides complete relaxation and freedom from cyanosis during the operation proper. The contraindications are chronic alcoholism and wellmarked arteriosclerosis or cardiac lesions. [C.A.O.]

3.—Human Perspiration.—The paper by J. H. Hoelscher deals with analyses of human sweat in normal and abnormal subjects. The following arrangement is submitted: Twenty-five passive, normal sweats; 22 passive, normal sodium salicylate sweats; 25 passive, normal pilocarpin sweats; 10 passive, normal acetanilid sweats; 7 passive, normal quinin sweats, and miscellaneous sweats. The chemic analysis is limited to the determination of reaction, specific gravity, total solids, organic and inorganic, urea, and nitrogen; also uric acid, sugar, bile, etc., to a few specimens. The pilocarpin sweats, with a few exceptions, contained more organic than inorganic solids; the quinin sweats exceeded in inorganic solids; the salicylate sweats were about evenly divided, relative to organic and inorganic solids; the passive sweats slightly favored the inorganic solids; and the acetanilid sweats favored the organic solids. Among the clinical features it is important to note that the induction of passive hot air sweats, coincident with the administration of the drugs mentioned, lessens the toxic effects of the drugs. From the experiments cited the following deductions are made: 1. The hot air bath causes an aseptic fever, or temperature elevation, despite the antipyretic action of acetanilid, sodium salicylate, and quinin sulfate. 2. The hot air bath is of decided value in acute and chronic uremia. This is shown by

the fact that the perspiration contains a considerable excess of urea and nitrogen. 3. In articular rheumatism in conjunction with the salicylates, the hot air bath gives more rapid results and lessens cinchonism. 4. Certain types of myocarditis seem to be benefited by the hot air bath. 5. Pilocarpin should never be used without the aid of hot applications to the body. So combined, there is no sialagog and less toxic drug effect, and far more sweating than otherwise. 6. Three cases of catarrhal jaundice were sweated; all the modern tests failed to disclose the presence of bile pigments in the sweat; only the epithelial debris containing bile deposits. 7. Modern sugar tests failed to reveal the presence of sugar in sweat obtained from diabetics. 8. A case of chronic constipation and indicanuria did not disclose the presence of indol or skatol in the sweat. 9. Regarding the function of eliminating normal and abnormal substances, the skin is not to be compared with the kidneys. 10. Free sweating seems to favorably affect the course of psoriasis. Lastly, 1,000 cc. of sweat contains about $11\frac{1}{2}$ gm. of solids, half inorganic and half organic; about 6 decigrams of urea, and about .47 centigrams of nitrogen. [C.A.O.]

5.—Transillumination of the Stomach.—R. C. Kemp calls attention to the internal administration of a fluorescent medium in order to enhance the action of the röntgen ray. The substances available as mediums are quinin bisulfate, horse-chestnut, and fluorescin. Kemp believes the use of fluorescent mediums to be a considerable advance in the technic of stomach transillumination, and the method with fluorescin to be an ideal one. [C.A.O.]

6.—Trunccek's Serum.—Swithin Chandler reports the results of the administration of this serum by mouth, 16 cc. being given twice daily. The serum gave fine results in rheumatism and arteriosclerosis, and he found it very useful in arterial hardening and tenseness in cases that require operation. [C.A.O.]

Medical News.

February 20, 1904. [Vol. 84, No. 8.]

1. The Administrative Control of Tuberculosis. HERMAN M. BIGGS.
2. House Infection of Tuberculosis. LAWRENCE F. FLICK.
3. Case of Tetany. JOSEPH BARSKY.
4. Two Cases of Severe Röntgen Ray Necrosis, Presenting Some Unusual Features. CLARENCE EDWARD SKINNER.
5. The Value of Vaginal Cesarean Section: With Report of Two Cases. M. STAMM.

1.—Administrative Control of Tuberculosis.—H. M. Biggs finds it difficult to understand the limited extent of sanitary procedures since the discovery of the etiology of tuberculosis. Only a small percentage of governmental authorities have adopted effective measures for dealing with this disease. Notification is necessary to any plan of supervision and yet a large proportion of the older physicians have opposed it. Notification does not require any action on the part of the authorities if it is reasonable to assume such action is unnecessary. If, however, the patient is poor, without a home, or living in lodgings, supervision is unobjectionable. To facilitate early diagnosis, free bacteriologic examination of the sputum should be afforded. Unfortunately in the absence of positive results from this, the nonexpert waits for more definite signs, thus losing valuable time. An important part of the duty of the sanitary authorities is in educating both profession and people as to this disease and its prevention. They should have the power of forcible removal and isolation of patients who are in such circumstances as to make them dangerous to those about them. The most troublesome problem which has to be solved is the following up of patients as they move from place to place and in seeing that the quarters they have left are properly disinfected. Suitable food should be provided by the authorities when not otherwise obtainable. Free dispensaries should be opened, hospitals maintained for advanced and sanatoriums for incipient cases. Regulations must be issued as to cases occurring in general hospitals, hospitals for the insane, penal institutions, asylums, public schools, factories, mercantile establishments, etc.; also as to spitting in public places. The latter is the keynote to the whole question of prevention of respiratory diseases. [H.M.]

2.—House Infection of Tuberculosis.—L. F. Flick considers that communicability depends almost entirely on the

house and that were it not for infection here the disease would soon perish from the face of the earth; sunlight, air and water being its natural enemies. The victim, on account of his chilliness, malaise and helplessness, ignorantly seeks the shelter of some enclosure. Primordially the bacillus was probably a saprophyte only and was evolved into a parasite by growing on tissue much debased. Even at the present time it does not seem able to invade until the tissue has been injured by malnutrition, traumatism or some other organism. Housed animals are very prone to the disease. For implantation prolonged intimate contact is necessary. With every one there is a minimal dose and by the natural mode of entrance this is larger than by inoculation. The best environment for implantation is first the home, and second the workshop. Hotels, public halls and conveyances in which people stop for a short time only are not apt to give rise to implantation except in the caretakers who are in these places much of the time. It is the accumulation of fine dust excluded from the bactericidal action of sunlight and air that makes the house dangerous. Both animals and human beings may go through life with tuberculosis and not be seriously inconvenienced by it. Life in the open air retards development and promotes recovery. [H.M.]

3.—Tetany.—J. Barsky reports a case in an infant of 11 months, in which it was the symptom ushering in an acute bronchitis. The treatment is purely symptomatic. For the rigidity there is nothing better than the warm bath. Pain is relieved by applying cold to the joints and giving bromid and antipyrin. If life is threatened from asphyxia, chloroform inhalations should be given. [H.M.]

4.—Röntgen Ray Necrosis.—Clarence E. Skinner reports 2 instances in which pronounced necrosis and sloughing of tissue occurred long after a prolonged use of the röntgen rays. The noticeable features in the first instance were: (1) Depth to which the original necrotic process extended; (2) "tanning" and excessive proliferation in spots, of epithelium of the new skin that was exposed by the peeling of that which had been browned directly by the ray; (3) cessation of the pain so soon as the necrotic tissue had separated; (4) favorable effect of the galvanic current in hastening the healing process after necrotic tissue had sloughed; (5) appearance of an area of necrosis 5 months after the last röntgen ray application, in a region which had previously exhibited no evidences that such injury had been inflicted. In the second instance the most marked feature was the appearance of an area of necrosis 6 months after the last röntgen ray application, in a region which had previously exhibited no evidence that such injury had been inflicted. The histories of these 2 cases constitute a warning against exposing a patient to the röntgen rays with even a moderate degree of frequency through long periods of time, no matter how well they seem to bear them at first. [A.B.C.]

5.—Value of Cesarean Section.—M. Stamm cites a number of cases of vaginal cesarean section from Duhrssen and other writers, and describes 2 from his own experience. The first was a case of eclampsia in which the patient had had 7 convulsions before seen by Stamm, and was in a comatose condition. The cervix, not obliterated, admitted the index finger, but as an attempt at further dilation with instruments would require too long a delay, vaginal cesarean section was performed. The incision was made the deepest in the posterior portion, and the child delivered in 6 minutes. The incisions were stitched up with catgut sutures. Two months later the patient was in perfect health, though a small portion of the posterior incision had not united. The child lived about $1\frac{1}{2}$ hours. The second case was also one of eclampsia with recovery of the patient. Stamm endorses Duhrssen's indications for this operation as follows: 1. Abnormal conditions of the cervix and lower segment of the uterus (carcinoma, myoma, rigidity, stenosis of the cervix and partial pouch-like distention of the lower uterine segment). Dangerous condition of the mother, which may be removed or relieved by prompt emptying of the uterus; affections of the heart, lungs, and kidneys. 3. Conditions of the mother where death is imminent and can be foreseen. The last 2 indications have value only in cases where the cervix is closed and not dilatable or where the depressing influence of labor pain should be obviated as in affections of the heart and lungs. In pregnancy complicated with cancer of

the uterus he advocates immediate vaginal section with subsequent extirpation of the uterus, no matter at what stage of pregnancy or at what stage of labor this condition is encountered. [W.K.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Postdiphtheric Paralysis.—The progress of pathologic research continuously tends toward the diminution of the registered number of the respectably exclusive group of purely "functional" diseases. The social stronghold of the latter is now almost daily attacked by the irresistible engineering methods afforded by the use of the microscope, which follows that of the postmortem scalpel, and by the employment of experimental inoculation which follows suspicion of the presence of a specific poison. The most recent of the iconoclastic inroads upon the misty domain of "functional" pathology has been concerned with the interesting item of diphtheric paralysis. It is well known to all readers that in the early period which followed its recognition as a clinical entity, the various forms of those diphtheric lesions were regarded as the purest types of paralyzes *sine materia*—the best examples to be met with of the *asthenic* paralyzes of Gubler. This state of opinion prevailed down to the year 1862. It was, of course, based on the negative results obtained in the early autopsies. But it is now well known to the initiated that in the majority of instances in which careful postmortem examinations have been carried out by skilled hands, alterations of structure—more or less considerable in depth and superficial extent—have not failed to reveal themselves. Such lesions have engaged either the meninges, the cerebrospinal substance, or the nerves. The first skilled report of a meningeal origin of postdiphtheric paralysis was furnished by Humphey (in 1863), who published the details of the autopsy in a case of hemiplegia following diphtheria. He found a satisfactory explanation in the presence of a patch of meningitis covering the Rolandic area. Four years later (1867), Bühl reported the condition which he found in a fatal case of generalized diphtheric paralysis, the pia mater was honeycombed by localized extravasation of blood, which furrowed the subjacent cerebral cortex—some to a considerable depth. There were also found extravasations in the basal ganglions, the crura cerebri, pons varolii, medulla oblongata, and in the substance of the lobes of the cerebellum, and the centrum ovale of the cerebrum. The neighborhood of the hemorrhagic foci showed considerable softening, which involved in some degree almost the entire cerebral mass. The medulla spinalis was comparatively healthy, but the nerve roots, and the ganglions on the posterior one, were nearly double the natural size, and presented a dark red tint. Those changes were best defined in the lumbar region, and least in the dorsal. A case published by Oertel some years later (1871), in which death also followed generalized postdiphtheric paralysis, presented somewhat corresponding hemorrhages in the spinal meninges, especially on the right side, where they completely involved the roots of the nerves. The gray matter, especially that of the anterior cornua, was also riddled by small hemorrhagic foci. Oertel found on experiment, that corresponding conditions could be produced by inoculation. He inoculated pigeons with some of the matter of diphtheric exudation, and found intense meningeal congestion in one, and cell proliferation in the tunica adventitia of the medullary arteries in the other. Still, there was no evidence of actual paralysis in either case, and the conclusion arrived at was that the diphtheric virus displayed a kind of elective affinity for the vessels, especially those of the meninges and the nerve centers. Pierret and Maillard subsequently (1879) reported a case in which the autopsy

displayed a bulbomedullary meningitis, without appreciable lesion of the gray matter. It extended for some distance along the sheaths of the peripheral nerves. There was extensive leukocytic infiltration of the walls of the bloodvessels. Barth and Déjeuime reported in the following year (1880) the results of an autopsy in which there was found an annular meningitis, involving the lower part of the bulb and the upper portion of the spinal cord—from the plane of emergence of the hypoglossal nerves to that of the second cervical pair. The muscles of the velum palati were in a state of atrophy; their nerves showed evidences of advanced parenchymatous neuritis. Bühl had attributed the symptoms of diphtheria and of its consequent paralysis to the proliferation and accumulation of certain "cycloid bodies." They were developed in all parts of the economy, and their crowding round the motor nerve roots produced the paralytic symptoms. In fact, according to this observer, the symptoms were practically those of an anterior poliomyelitis, but, according to Sinclair, who made the microscopic examination in the case reported by Barth and Déjeuime, this explanation does not account for the symptoms of lesion of the sensory nerves which coexist. This observer regards the essential changes as the result of meningitis, or, more accurately, of a meningolymphitis. But, after all such interpretations have been discussed, and each has been allowed its own modicum of scientific recognition, the unquestionable fact remains that in many fatal cases of postdiphtheric paralysis no such meningeal lesions were found to exist. Accordingly, the true pathologic enigma of diphtheric paralysis still awaits its Edipus.

REVIEW OF LITERATURE

Buttermilk.—O. Rommel¹ has made careful observations concerning the value of buttermilk, and finds it an excellent and rapidly acting therapeutic dietetic agent in cases of acute gastrointestinal diseases and chronic metabolic disturbances. Its action is due to the small amount of fat, the very fine division of its casein, and the quantity of lactic acid it contains. The latter prevents abnormal fermentation and putrefaction of casein; it prevents late curdling and acts with the hydrochloric acid as peptonizing agent. Buttermilk cannot be used as a constant article of diet, as its lactic acid acts deleteriously on the metabolism of the body minerals, especially the amount of calcium. [E.L.]

Management of Epidemics of Contagious and Infectious Diseases.—J. S. Fulton² discusses certain general points that are of prime importance to all health officers. A health officer is handicapped from the start if for any reason his official character is seen in public only occasionally. It is very important that both health officers and the public be habituated to routine sanitary operations such as even the smallest districts require. A fact to be always kept in mind is that the American public is obedient enough to common sense and reason tactfully applied but refractory to coercion. From the beginning of his official life the health officer should make written notes of his daily work, however unimportant it may appear, and never leave the central authority unadvised of his operations. His official news should outstrip the service of the daily press. Fulton discusses procedures against the spread of infectious diseases under the following heads: Notification, inspection, immunization, isolation, quarantine, parole, disinfection. Notification must be in force all the time instead of reserved for epidemics. Fulton does not like the plan of placarding houses, and believes that a bulletin board at either end of the block, with the address of the patient in small letters, answers better in many ways. He doubts the wisdom of closing public schools when diphtheria has been discovered. Every throat in the school should be inspected and cultured, children from infected houses excluded, and those with reddened fauces sent home. The school can then continue with but little or no danger. [A.G.E.]

¹ Archiv für Kinderheilkunde, 1903, xxxvii, 252.

² Albany Medical Annals, November, 1903.

Typhoid Bacilli in Butter: An Experimental Contribution.—C. Bruck¹ performed 3 series of experiments: 1. Typhoid bacilli were added to milk and this churned to butter; the butter and buttermilk were tested separately; the length of time in which typhoid bacilli could be isolated was noted. 2. The vessels were washed with water containing typhoid bacilli, and milk for the purpose of churning, added. 3. Pieces of linen were soiled with typhoid stool matter; they were washed, and the water used for rinsing the churns. Butter made in these vessels was tested for typhoid bacilli. They were discovered in the butter after all 3 tests, although the water in experiment 3 contained but 16 colonies to the plate. The butter and cream were found to contain more colonies than the buttermilk. Typhoid bacilli were found present as late as the twenty-seventh day, and increased in number during the first few days. [E.L.]

Action of Adrenalin on the Absorptive Power of the Peritoneum.—The experiments of A. Exner² were made on rabbits, and consisted in the intraperitoneal injection of adrenalin, followed by certain poisons. He found that the adrenalin considerably retarded the absorption of such substances as strychnin, potassium cyanid, physostigmin, and indigo. Potassium iodid, however, was not influenced in this way. Further experiments showed that it is the absorption through the lymphatics which is retarded by adrenalin. It is, therefore, probable that potassium iodid and some other substances gain entrance into the blood directly by osmosis. Adrenalin also has considerable influence on the absorption of bacteria from the peritoneal cavity. This fact may be of practical use in the operative treatment of peritonitis. [B.K.]

Intestinal Origin of Tuberculosis.—L. Sorger³ announces that he has fed foxes for 6 months daily with fresh human tuberculous sputum without producing the slightest effect on them; neither tuberculosis nor deterioration of general health developed. Large quantities of the sputum were given in uncooked milk and raw beef. He concludes from this that foxes are immune against human tuberculosis, at any rate if the sputum is fed to them by mouth. [E.L.]

Should a Tuberculous Lung be "Exercised"?—It has been fashionable for a very long time, both with the laity and the profession, to advise lung exercises in cases of threatened or actual pulmonary tuberculosis. Norman Bridge⁴ says the suggestion that all this should be changed, and that we should stop purposely exercising the sick lung, that we might even sometimes put such a lung to rest completely, strikes the average mind as distinctly heterodox; to many it is the rankest heresy. When we examine the basis of the belief in deep breathing—really lung stretching—in tuberculosis, we soon find grounds for doubt. In the cases of recovery attributed to this exercise the deep breathing was only one of several agencies that might have contributed to this end. The contention for lung gymnastics and stretching in tuberculosis ignores many facts and grossly violates others. It is unreasonable to suppose that for many thousands, even millions, of years man and constructively all the mammalian animals have been breathing in the wrong way. Examples are given by Bridge to demonstrate not only that quiescence of the diseased lung is desirable for the sake of its healing, but also that mucopus in the bronchi does little harm. He concludes by stating that pumping and stretching the sick lung by useless and straining cough, by voluntary deep breathing, by devices of all sorts calculated to stretch the air vesicles, ought, in all cases of active pulmonary tuberculosis, to be abandoned completely. [A.G.E.]

The Struggle with Leprosy.—J. J. Hubert,⁵ discussing the measures adopted to limit the spread of leprosy, comes to the following results: The most efficient weapon in the struggle against the disease is unquestionably isolation of the victims. Whenever circumstances allow, private isolation with strict adherence to certain sanitary rules may be resorted to; otherwise, the leprosarium is the only safeguard. In both instances the needs of the patient should not be made subservient to

preventive measures, but rather should the two receive equal shares of attention. Since leprosy is communicable in all its clinical forms, isolation is required for all lepers, excepting those in whom the pathologic process has come to a standstill. Furthermore, isolation must be made compulsory if the spread of leprosy is to be sufficiently checked. While pleading eloquently for separation of the victims, the author does not lose sight of the justice and sympathy that we owe the outcast. [L.J.]

Inoculation of Monkeys with Bacteria from a Chancreoid.—E. Tomaszewski¹ infected a crown ape with pure cultures of streptococci derived from a chancreoid; they produced in this ape, ulcers which possessed clinically and microscopically all the characteristics of the chancreoid. Bacteria cultivated on blood agar from these sores were capable of again producing soft chancres in man. In a Java ape a similar ulcer formed, but pursued an abortive course. [E.L.]

Albuminuria of Puberty.—F. Lommel² had the opportunity of examining the urine of 587 young persons over a period of several years at about the age of puberty. Of these cases, 111, or 18.9%, showed a positive albumin reaction at least once. The test used was acetic acid and potassium ferrocyanid. The albumin was usually intermittent in its occurrence. It consisted mainly of nuclealbumin, with globulin. The amount rarely exceeded 1%. The cause of this condition is perhaps partly due to poor condition of the blood, and partly to a mild degree of cardiac insufficiency. The new formation of blood and growth of the heart do not keep pace with the rapid development of the rest of the body. The albumin of puberty may be diagnosed from that of nephritis by the absence of epithelial and granular casts, by the presence of a periodicity in the occurrence of the albumin, and by the absence of ophthalmologic signs of nephritis. Left-sided hypertrophy of the heart and increased arterial tension may occur in either condition. [B.K.]

Anastomotic Circulation of the Heart.—G. Galli³ is a defender of the statement that the coronary arteries are not end arteries and that there is a small artery connecting them. In support of this he quotes a case in which the orifice of the right coronary artery was completely occluded by sclerotic granulation tissue. The remainder of the vessel was pervious. In spite of this the right heart was perfectly well; the left ventricle showed a sclerotic patch. The explanation of the paradox was found in a branch connecting the left with the right coronary arteries, which thus prevented nutritional disorders of the right heart. [E.L.]

Studies of Gastrointestinal Catarrh in Infants.—C. E. Bloch⁴ has made a careful study of the gastrointestinal canal in 10 fatal cases of gastroenteritis in infants. He comes to the conclusion that there are, at least in some cases, decided anatomic changes. The existence of such changes has often been doubted, the reason probably being that macroscopically they are generally inconspicuous or invisible. Microscopic examination shows such changes to be present, both in the small and in the large intestine. As noted by Bloch, the changes differ somewhat in the acute and in the chronic cases. The morbid process involved in part the interstitial tissue, in part the surface epithelium and that of the tubules. In the more chronic cases, the chief feature was a round-cell infiltration of the interstitial tissue and also of the mucosa itself. In some cases, hyperemia and hemorrhages were found; in these the round-cell infiltration was slight, but there was evidence of serous exudation. In no case was there any fibrinous exudate, either in the tissues or on the surface. Slight ulcerations were present in some instances. The pathologic changes in the epithelium ranged from beginning degeneration to complete necrosis. The epithelium was degenerated only in the places in which the interstitial changes were marked. In every case only a small part of the intestinal canal was affected, the principal changes occurring in the neighborhood of the ileocecal valve. They extended for a short distance only into the small intestine, but more uniformly over the large. Occasionally the duodenum was involved. Former investigators found desquamation of the

¹ Deut. med. Woch., No. 26, 1903.

² Zeit. f. Heilkunde, Bd. xxiv, 1903, Heft 12; Abth. f. Chirurg., Heft 4, p. 202.

³ Münchener medizinische Wochenschrift, 1903, I, No. 36.

⁴ Medicine, November, 1903.

⁵ Russki Vrach, September 20, 1903.

¹ Deut. med. Woch., No. 26, 1903.

² Deut. Archiv f. klin. Med., Bd. lxxviii, p. 641.

³ Münchener medizinische Wochenschrift, No. 27, 1903.

⁴ Jahrb. f. Kinderheilk., lviii, Hft. 5, November, 1903.

epithelium over a large extent of the bowel, but this was probably due to the examinations having been made some time after death. Bloch injected formalin into the abdomen immediately after death, so as to preserve the structures from cadaveric change, and did not find any extensive desquamation. [D.R.]

Unusual Form of Gastric Ulcer.—M. Hayem¹ recently described at the Paris Academy of Medicine a form of gastric ulcer which had not been previously reported, and to which he gave the name of "mal perforans external of the stomach." This ulcer begins on the peritoneal surface of the stomach, and may be recognized in one of 3 stages: In the first there is a circular depression which resembles that made by the energetic application of a tampon; in the second it appears like a sac with the wall of the base thinned; in the third there is a cup-like depression with a colored base, due to hemorrhages. The mucosa, which is the only coat of the stomach remaining, appears as a hernia in the affected area. The first stage is not rare, and probably has not been described because it is considered of little importance. Hayem has found the second stage of the lesion 3 times, all in cases of chronic ulcer of the stomach. The stage of ulcer properly so-called has been seen but once, in a patient who died from a classic ulcer of the stomach. The field of the 2 varieties thus seems to be the same, but the processes are entirely different. [A.G.E.]

Diagnosis of Chronic Nephritis.—Schwarzkopf² reports 5 cases, in which without albumin, hyaline and granular casts were more or less plentiful. The patients in all instances showed some cardiac and arterial disturbance. In the histories of all of them alcohol and syphilis played an important part. He considers cylindruria without albuminuria an early sign of chronic nephritis, and believes it to be a most important point in the early diagnosis of a disease in which for therapeutic and prognostic purposes every sign should be welcomed. [E.L.]

Peculiarities of Temperature in Appendicitis.—W. T. Rostowtseff³ remarks that in this disease the temperature is very apt to show features which are unusual in other inflammatory visceral affections. Thus in about one-third of all cases, operation reveals pus, while the temperature has been low or falling. Several authors have observed that in appendicitis the difference between rectal and axillar temperature may reach 1° C. to 2.9° C. (1.8° F. to 5.2° F.), while in other diseases this difference amounts to 0.5° F. to 1° F. Again, in severe forms of appendicitis, there is often a disproportion of pulse and fever—a fall of temperature being accompanied by a rise of the pulse-rate. The highest daily temperature in appendicitis is frequently seen at a later hour than in other diseases, oftenest about 9 to 10 p.m. instead of 4 to 6 p.m. This shifting of the maximum is considered by the author as a *signum mali ominis*. [L.J.]

The Communicability of Bovine Tuberculosis to Man.—E. Schindler⁴ reports a case occurring in a man, whose occupation was the slaughtering of diseased cattle. This patient had cut each hand on 2 separate occasions, and, without taking proper precautions, had handled tuberculous cattle soon afterward. A typical tuberculosis of the skin followed each inoculation, and the lymphatic glands in the neighborhood of each elbow became enlarged. The tuberculin test produced a marked, local, inflammatory reaction and a slight general reaction. The enlarged glands were excised, and their examination revealed numerous, characteristic giant-cell tubercles. [B.K.]

A New Quantitative Method for the Determination of Sugar in Urine.—As diabetic urines containing organic iron compounds cannot be titrated accurately with Fehling's solution on account of the simultaneous formation of Berlin blue with the brown ring of potassium ferrocyanid, E. E. Schmidt⁵ proposes a new method which depends for its principle upon the reducing action of its glucose on an alkaline basic bismuth nitrate (Nylander's) solution. By testing it he found that 3.7 cc. of a definite bismuth solution, the formula of which he gives,

reduces 1% sugar, or that each cubic centimeter of the solution corresponds to 0.27% of sugar. Several other quantitative methods easy of application and comparatively accurate of result are discussed. [E.L.]

Tetany in a Patient Suffering from Gastric Cancer.—J. Burnet¹ gives the notes on a case of gastric cancer, with extension to the liver, in which tetany occurred the day before death. The patient was a woman of 50 who had had symptoms of pyloric obstruction for some time. She had been kept under the influence of morphin for many weeks. In connection with the occurrence of tetany, Burnet emphasizes 3 facts: 1. The case was one of involvement of both stomach and liver. 2. The patient was taking considerable morphin daily. 3. There was the history of a family quarrel some 3 days before the onset of tetany. Burnet's impression is that the quarrel, which affected the patient very much, was the real cause of the onset of tetany. If the close relationship of the nervous system to the organs of alimentation is borne in mind, there is not much difficulty in explaining why tetany should result in cases where the stomach is irritated as it undoubtedly is when it is dilated or the seat of malignant disease. Without discussing the various theories regarding the origin of tetany in gastric disease, Burnet publishes his case in order to induce others to do likewise. Thus the true incidence of the condition may be determined. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

Suture of Bloodvessels and Possible Restoration of Amputated Extremities.—The frequency with which disastrous results followed ligation of main arterial and venous trunks, early led to attempts to avoid tying larger vessels in case of injury. Although statistics of the results of such operations have greatly improved since the introduction of aseptic surgery, it is often an important question whether we can deal with a severe injury, or some pathologic condition involving the great vessels, without suddenly cutting off the blood-current which nourishes a large part of the body.

Höpfner² gives an interesting paper on this subject, based on a series of experiments in arterial suture on dogs, with a review of the literature from the earliest times up to the present date and with a bibliography of 82 references. He refers to the work of Hallowell, who in 1759 successfully arrested hemorrhage from an injured brachial artery by suture, and of Lambert, of New Castle, who in 1762 experimented with arterial suture on horses and was able to obtain satisfactory closure. Arterial suture was tried with varying success and many complete failures until the introduction of antiseptic surgery. Even as late as 1890 some surgeons of authority opposed attempts at arterial suture. From that time on suturing of vessels was frequent and the results for the most part favorable, so that in 1892 Schade was able to report 30 cases. The first successful circular suture of one of the great bloodvessels was by Murphy of Chicago, who in 1897 excised a portion of the femoral artery and closed the vessel by the invagination method. The operation was undertaken for the repair of a gunshot injury to the artery just below Poupart's ligament. Payr, of Graz, has recently performed circular suture successfully with the use of supporting absorbable rings of magnesium. In this way he is able to bring intima in contact with intima. Höpfner reports six experimental sutures by Payr's method, with two unfavorable results from thrombosis. Finding that he was able to suture bloodvessels successfully, he attempted the resection of a piece of the common carotid artery 4.5 cm. long; he turned this piece end about and sutured it in place; the recovery was uneventful and four and a half weeks later he found the wall of the vessel thickened and surrounded by scar tissue, but with no special change within the lumen of the vessel. His next attempt was the interchange of sections of two different arteries in the same animal. He was able to remove a section 3 cm. long from the carotid and femoral arteries and substitute the one for the other successfully. Both vessels healed and perfect function was retained in each. Attempts at transplanting sections of vessels from one animal to another of the same species also resulted successfully, but on attempting to substitute sections of vessels from different animals failure resulted in every case. The vessels substituted were taken from cats and rabbits and transplanted into dogs,

¹ Revue de Chirurgie, December 10, 1903.

² Münchener medizinische Wochenschrift, 1903, 1, No. 35.

³ Russki Vrach, October 4, 1903.

⁴ Prager med. Woch., 1903, No. 52.

⁵ Deutsche medizinische Wochenschrift, 1903, xxix, No. 35.

¹ The Practitioner, December, 1903.

² Archiv für klinische Chirurgie, 1903, Volume lxx, page 417.

but in all cases, even when the healing of the wound was perfect, the foreign tissue was entirely absorbed. Höpfner then tried amputation of the hind leg of a dog with immediate suture into place again in three cases. The smaller vessels were tied and the larger vessels and nerves were sutured. In two cases thrombosis and gangrene resulted, while in a third case the dog was in good condition with free circulation at the eleventh day after operation, when he died from anesthesia given in order to make the first dressing without struggling. In summing up the results of his work Höpfner speaks confidently about the possibility of suture of large vessels and of transplantation when sections of vessels are destroyed by injury or in cases in which it is necessary to resect a considerable section of a blood-vessel in operations for excision of large tumors. Transplantation of large veins is not to be recommended as a rule, and if this is undertaken the section inserted should be placed so that the valves are properly placed with the blood-current. The restoration of extremities which have been completely or almost entirely amputated he considers possible, though the difficulties are great.

Everyone now recognizes the perfect feasibility of suturing the large bloodvessels and of restoring amputated fingers, in many cases, but in successfully transplanting sections of large vessels and restoring entire extremities Höpfner has, so far as we know, taken a step in advance of any previous investigator. We doubt if this will prove to have as great practical value as the recent work of Matas in the treatment of aneurysm by arteriorrhaphy, but the subject at least deserves further experimental study. Many may look upon these experiments as unjustified and not see in the successes obtained any justification for further attempts of this kind. We feel that it is entirely too early to express an opinion as to what the development in this line will be during the next decade. Very many operations which were unheard of 25 years ago are now successfully performed, not only by masters of surgery, but by surgeons of practically every city and town. We do not believe that we have, by any means, reached the limit of things possible in surgery, though in just what direction the achievements will be made it is difficult to predict. If in the future we find ourselves able to transplant sections of large vessels successfully many valuable limbs and lives will be saved and the results of serious, unavoidable accidents will be much less appalling.

REVIEW OF LITERATURE

Wounds from Blank Cartridges.—D. P. Allen and A. I. Ludlow¹ report clinical observations upon 16 cases cared for at the Lakeside Hospital, Cleveland, with a bacteriologic report upon several of them. Among the cases was 1 wound of the abdomen, 1 of the scrotum, 1 of a finger, and 13 of the hand. None of the cases treated primarily in the hospital by excision of the wound under ether, careful disinfection and packing with iodoform gauze, developed tetanus. Most of these had been dressed previously but only by bandages. Five cases developed tetanus, all ending in death. The wounds occurred on July 4, 1903, the lacerations being relatively greater than those of previous years, this showing the increasing power of the explosives used. The injury to the deeper structures was always greater than the superficial wound would indicate. Another factor of importance is that serious symptoms did not develop at once after the injury was received. Such wounds may remain quiescent for some days, giving rise to no apprehension. Inoculations from 5 cases which did not develop tetanus proved sterile in 3. In the other 2 were streptococci and staphylococci. In only 1 case of the 5 which developed tetanus was the tetanus bacillus found. In 4 of them *B. aerogenes capsulatus* was found. Ludlow states that as the influence of light is destructive to tetanus bacilli, the influence of the röntgen ray upon their growth should be determined. Allen says that medical bodies should point out in an authoritative way to governing boards of cities that manufacture and use of toy pistols should be absolutely prohibited. [A.G.E.]

Migrating Phlebitis.—E. Niesser² removed from the superficial veins of the arms of a man 3 spindle-shaped nodes, which were painful on motion and pressure. Microscopic ex-

amination showed inflammatory proliferation, chiefly of the media and adventitia. There was nothing resembling thromboses. Shortly after the operation 3 new nodes appeared. In spite of the absence of other syphilitic symptoms, mixed treatment was ordered, and the nodes disappeared very rapidly, proving the case to have been one of syphilitic phlebitis. [E.L.]

Anesthetics in Rectal Diseases.—R. W. Lloyd¹ thinks colotomy cases should be put on a beef tea diet. With an unusual amount of cough, congestion, cyanosis, or secretion from ether, it is well to change to chloroform. For anal fissure and fistula, gas and ether have proved excellent. Should tubercle of the lung be present and the ether be found irritating chloroform may be substituted. Somnoform is unsuitable for most rectal cases but may be used as a preliminary to chloroform as it induces anesthesia in a minute or less. For colotomy it is well to begin with ether, changing to chloroform if there is much movement of the abdominal wall. With local anesthesia only the patient may shrink and by drawing in the anal region prevent access to the parts, and there may be more pain than anticipated. The amount of cocaine should be limited to a grain. Eucain may be used more freely. Anestile, a mixture of ethyl and methyl chlorid is the best local anesthetic in opening abscesses. [H.M.]

The Value of Tuberculin in Surgical Diagnosis.—M. B. Tinker³ makes a valuable practical contribution to this question, his paper being based on a study of the results of injections in 400 cases at the Johns Hopkins Hospital where Dr. Halsted has had the test applied to most surgical cases suspected of tuberculosis since 1896. The most important questions to determine are whether the use of tuberculin is harmful, and if it is reliable. The experience of 7 years at the hospital has led to the belief that in the small doses needed and under proper conditions, the injection of tuberculin for diagnostic purposes is not attended with danger, and should not give rise to serious or distressing symptoms. The reliability of the test was satisfactorily demonstrated. It was perhaps of greatest value in cases in which there was doubt as to whether they were dealing with hysteric, traumatic or rheumatoid disease of the joints or with an early stage of tuberculosis. The tuberculin employed was obtained from Dr. E. L. Trudeau, of Saranac Lake. The minimum dose was at first 0.002 gm., but with a new supply of the material, the dose was increased to 0.003 gm. If no reaction is obtained from this dose, the amount is increased to 0.006 gm. or 0.009 gm. The injection is made deeply into the deltoid muscle. Sex seems to have but little influence on the reaction. The dose should not be proportionately smaller in children. Tinker suggests a possible cause of the reaction to tuberculin. Toxins are being constantly produced by the tubercle bacilli in the body, but if the foci are small the toxin is neutralized by the body without allowing them to produce constitutional symptoms. If tuberculin be injected neutralization is not possible, and the temperature rises. In cases where the toxins are produced in large enough quantities to cause constitutional involvement with increased temperature, the addition of a small amount of tuberculin will not cause sufficient increased reaction on the part of the individual to produce a further rise of temperature. [A.G.E.]

Hepatic Cirrhosis and Angiocholitis.—G. I. Volintseff⁴ emphasizes the surgical importance of these conditions. Unfortunately, operative treatment of cirrhosis has fallen into some disrepute. While hepatic cirrhosis without angiocholitis requires only medical treatment, operation is called for when fever and pain persist in spite of mere clinical measures. The main difficulty lies in differential diagnosis, since no definite picture corresponds to cirrhosis, to angiocholitis, or to gallstones. An infectious cholecystitis may produce the same symptoms as stones in an inflamed bladder. Intermittent fever speaks for a catarrhal process in the gallbladder and ducts; continued fever rather indicates suppuration. The latter condition also produces more marked hepatic insufficiency than the catarrhal process. A circumscribed purulent angiocholitis may end in resolution without operation; on the other hand, a

¹ Cleveland Medical Journal, December, 1903.

² Deut. med. Woch., 1903, Vol. xxix, No. 37.

³ West London Medical Journal, October, 1903.

⁴ Johns Hopkins Hospital Reports, Vol. xi, 1903.

⁵ Russki Vrach, October 25, 1903.

general suppurative process indicates surgical interference. In all cases of inflammation of the bile ducts the blood-serum should be examined for biliary pigments. [L.J.]

The Frequency of Carcinoma in Munich.—O. Bollinger¹ has collected and studied the cancer statistics of Munich for the last 50 years. He does not find that cancer has increased in frequency during these years, nor has its mortality become greater. The cases and deaths have simply paralleled the growth of the population and not exceeded it. He believes the reasons for an apparent increase in other cities to be: Greater duration of life, improvement in methods of diagnosis and increase in number of autopsies, thus leading to the discovery of a number of cases of carcinoma clinically latent. He adds to his paper an argument against the infectious nature of cancer. Ordinarily infections are very prevalent before the age of 20; why cancer, if it is of parasitic origin, should attack people of advanced years and leave unscathed children and young adults, he cannot conceive. [E.L.]

Bullet Extracted from the Wall of the Heart.—This case was recently reported to the Paris Society of Surgery by M. Tuffier.² The patient was an officer who received a pistol wound in the second left intercostal space. He remained on his horse for half an hour when he was seized with violent oppression. This passed away and finally the external wound healed. After some time there appeared symptoms referable to the heart and a radiograph showed a foreign body superficially on the left wall of the heart and having the movements of that organ. A portion of the second left costal cartilage was removed, the finger introduced under the border of the lung and the foreign body finally located. The overlying tissue was carefully denuded and the ball extracted. The patient suffered a slight oppression following the operation, but made an uneventful recovery. [A.G.E.]

Radical Operation in Inguinal Hernia.—After discussing the frequency of inguinal hernia in Japan, T. Honde³ describes the method he employs for its radical cure. He has modified Bassini's method as follows: After removal of the hernial sac, he introduces his finger into the internal ring and separates the transversalis fascia from the peritoneum for a distance of about 3 cm. (1½ in.). The ends of the silk thread used for ligation of the sac are carried through this space, and brought forward through the entire thickness of the abdominal muscles, and tied external to the external oblique aponeurosis. His statistics vie with the best. In femoral hernia he employs the same modification. [E.L.]

Rizzoli-Esmarch Operation for Ankylosis of Mandible.—J. A. Presno y Bastiony⁴ gives the interesting result of this in the case of a child of 8, in whom, after having an attack of measles 4 years ago, occurred a gangrenous process of the lower jaw. Treatment of various inefficient kinds had brought about an ankylosis. Esmarch conceived the idea of a linear osteotomy about the cicatrix at the joint. Rizzoli modifies this to a cuneiform resection. In this instance, after operation the child was able to masticate with ease. [T.H.E.]

Cocainization of the Spinal Cord Combined with Adrenalin.—Acting upon Braun's conclusions that adrenalin diminishes the toxicity of cocain and increases its anesthetizing property regarding length of time and intensity, A. Doenitz⁵ performed some experiments to prove the truth of these conclusions when cocain is used intraspinally. He employed cats for experimentation; they die ordinarily when 0.018 gm. (¼ gr.) is injected. Preceding the cocain injection with an intradural injection of 0.5 cc. of a solution of adrenalin, 1 to 1,000, the cats were able to bear as much as 0.1 gm. (1½ gr.) of cocain; injecting the 2 simultaneously, 0.06 gm. (1 gr.) of cocain was tolerated. The adrenalin itself is but very slightly injurious, as proved by personal experience. That it also increases the anesthesia is shown by the fact that anesthesia is produced by much smaller quantities of cocain than usual; from 0.0075 gm. to 0.015 gm. (⅓ gr. to ½ gr.) were sufficient for even major operations. Doenitz believes that this solves the question of

spinal anesthesia and prophesies the time when general anesthesia will be abolished. [E.L.]

Primary Resection of Intestine in Gangrenous Hernia.—A. Martina,¹ writing from Payr's clinic, reports 36 cases of strangulated hernia (22 femoral, 12 inguinal, and 2 umbilical). The incarcerations lasted from 1 to 9 days. Sixteen were operated upon with the Murphy button method, 20 with primary resection and suture; 3 of the former and 4 of the latter died. Since 1899 the latter operation was performed almost wholly, no matter how serious the condition, while previous to that period an artificial anus was made in all dangerous cases. The author considers the results since 1899 better than before that period, and therefore advises in all cases where a skilled surgeon and assistants can be had, primary resection and suture, no matter how grave the case. In country practice it may become necessary, in grave cases, to establish an artificial anus. [E.L.]

Surgical Treatment of Fractured Spine.—C. H. Rodi² reports 4 cases to illustrate the value of surgical treatment of fractured spine. He believes it to be the duty of the surgeon to operate in every case, as almost any risk is justifiable when the hopelessness of spinal fracture when untreated is taken into consideration. Even in traumatism of the spine associated with paraplegia, operation is indicated to determine if the paralysis is not due to bony pressure incapable of spontaneous relief. The operation should be deferred no longer than recovery from the original shock may demand. One of the cases reported is believed to corroborate the results obtained by Stewart in a case of severed cord. The injury in this case was due to falling rock, the fracture and dislocation being at the tenth and eleventh dorsal vertebrae. The cord was found to be completely severed with the exception of a strand the size of an ordinary pin. Sensation was present below the pelvis on the day following the operation and in the ankles at the end of a week. One year after, the patient could evacuate his bladder every 8 hours; had voluntary action of the bowel, though constipated; could stand alone with hand on table, and hobble about with the aid of crutches. He was improving constantly and looking forward to complete recovery. [A.G.E.]

Intravesical Separation of the Urine of Both Kidneys.—Keydel³ reports 25 cases, 4 of which were his own, in which the Luys or Cathelin vesical segregator were employed with success. These instruments push the vesical floor downward and separate the bladder into 2 compartments by means of a hard rubber membrane. The results which he reports were absolutely satisfactory and superior to the results which are reported with urethral catheterization. [E.L.]

Colopexy in Prolapse of Recti.—J. Rotter⁴ prefers colopexy in extensive rectal prolapse to resection, as the latter presents considerable danger, may leave strictures at the point of operation, and is followed by relapse as often as the former. When colopexy is performed by suturing 2 serous surfaces together, the union cannot of necessity be very firm. To produce good fixation he sutured the rectum in one case to the muscles of the abdominal wall, bringing it through the peritoneal incision; in another case he sutured the sigmoid flexure to the cellular structures of the false pelvis. In both cases the final result promises to be very good. [E.L.]

Operation for Strangulated Hernia in a Man of Ninety-seven.—G. R. Curran⁵ reports this case. Owing to irregularity of the heart the strangulated inguinal hernia was operated upon under local anesthesia. The operation was performed on an old pine table in a log cabin, with numerous flies about. The patient quickly recovered and soon after celebrated his ninety-seventh birthday. [A.G.E.]

Mesenteric Openings as a Cause of Intestinal Obstruction.—W. N. Orloff⁶ has made a series of clinical experiments on dogs in order to show the role of mesenteric openings in causing obstructions of the intestines. Usually these openings have been considered as productive of internal incarceration, not obductory obstruction. The author's experiments seem to

¹ Münchener medicinische Wochenschrift, 1903, I, No. 38.

² Revue de Chirurgie, December 10, 1903.

³ Deut. med. Woch., August 6, 1903, No. 32.

⁴ Revista de Medicina y Cirugía de la Habana, No. 17.

⁵ Münchener medicinische Wochenschrift, August 25, 1903, No. 34.

¹ Archiv f. klinische Chirurgie, 1903, lxxi, 591.

² Journal of the Michigan State Medical Society, November, 1903.

³ Münchener medicinische Wochenschrift, 1903, I, No. 35.

⁴ Deut. med. Woch., August 6, 1903, No. 32.

⁵ St. Paul Medical Journal, January, 1904.

⁶ Chirurgia, November, 1903.

justify the following conclusions: 1. Intestinal coils, having become caught in the mesentery, do not, as a rule, cause obstruction, unless incarceration or twisting of the intestine takes place. But even if symptoms of obstruction are produced, the offending coil may yet disengage itself during the violent peristalsis. Repeated attacks of transitory intestinal obstruction are probably often due to this very circumstance. [L.J.]

Congenital Malignant Tumors.—E. Joseph¹ reports 2 of these rare tumors in children. (1) In a child of 15 months a mass developed, which upon operation was found to be a tumor involving the entire left kidney. The kidney was removed and the child recovered. Histologic examination showed it to be a mixed tumor. Additional points of interest in the case are, absence of metastases and no recurrence 18 months after. (2) From the abdominal wall of a 5-months' old child an embryonal tumor was removed, which had undergone sarcomatous degeneration. [E.L.]

Anatomic Criticism of Total Prostatectomy.—Cuthbert S. Wallace² gives a detailed description of the normal prostate, likewise of pathologic specimens of the enlarged organ and its relation to the bladder, removed postmortem. His conclusions are that the usual form of prostatic enlargement is an adenomatous one; that the adenomatous tissue may surround the urethra or form masses in the lower parts of the organ behind the urethra, or in all three parts; that the parts removed may consist of adenomatous masses in the lower parts or of an adenomatous formation completely surrounding the urethra; that there is always left behind a definite laminated envelope containing glandular tissue derived from the extended outer portion of the organ; that the amount of envelope left on the surface of the tumor, after removal, depends on the depth at which the enucleated finger cleaves the envelope; that the rectovesical fascia is not opened nor the prostatic plexus of veins injured at operation; that though it is possible to remove a small adenoma from the center of the lower part of the prostate without extensively injuring the urethra, yet this canal is removed *in toto* when the adenomatous growths are extirpated in their envelope. The lateral walls come away adhering to the adenomas, and these are of considerable size. He suggests that the term "surgical capsule" should be applied to the outer envelope formed from the prostate by the extension of the adenomas. This represents more than the outer nonglandular portion to which Shattock has given the name of cortex. To its presence is due the small amount of bleeding and absence of urinary extravasation. The enucleating finger never goes outside, therefore cannot injure the rectovesical fascia. [A.B.C.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

Postpartum Infection of the Uterus.—Chief among the bacteria of puerperal infection are the streptococcus, gonococcus, colon bacillus, and the saprophyte. The saprophyte never attacks the living cell or invades the deeper structures of a healthy organism. The streptococcus is the most deadly of these germs, and in contradistinction to the other germs, it may and does proliferate in living tissues, and is the only one which jeopardizes life, though the others may produce invalidism. Hence the importance of distinguishing between streptococcus infection and that of other germs, and this can be done positively only by microscopic investigation. But when this cannot be had, clinical evidences must be depended upon, and it may be stated as a rule that putrid infection is characterized by high temperature, slow pulse, and foul odor; whereas in streptococcal infection there is no odor in the earlier stages, and the pulse is markedly accelerated according to the virulence of the infection. Digital examination of the uterine cavity will also give valuable evidence. In putrid infection the uterine cavity contains debris, whereas in streptococcus infection the

mucosa may be perfectly smooth. According to D. Tod Gilliam¹ the normal deathrate for puerperal infection is about 1 in 100, but in streptococcus infection alone it is 1 in 25. The safeguards against infection are autosterilization of the genital tract, the uterine mucosa, and the massing of germicidal leukocytes beneath the epithelium. [W.K.]

Vaginal Operation without Anesthesia.—J. V. Frommer² reports 3 cases having undergone vaginal operations without any general anesthetic because of strong contraindication. Two were aged 69 and 77 years. Anterior colporrhaphy and amputation of the portio were performed in the former, sclerosis of the arteries being the contraindication; and the latter underwent vaginal hysterectomy for carcinoma without anesthesia because of myocarditis. The remaining case was that of a woman, of 34, with insufficiency of the mitral valve, and operated upon for erosion of the cervix; both lips of the cervix were excised followed by colporrhaphy and rectocelorrhaphy. In regard to the patient of 77, he remarks the sensibility during the operation was so slight that she only groaned twice. There was satisfactory recovery in each case. On the ground of these experiences Frommer recommends where general anesthesia is contraindicated, to operate without it, with the help of local anesthetics. Also in each case a half hour before the operation he used a small injection of morphin which tranquilizes the patient. As a local anesthetic he recommends the injection of a weak Schleich's solution into the perineum and the region of the vulva before operating; and he considers the injection of this into the connective tissue of the ligaments and tubes before ligation as superfluous. [W.K.]

A New Operation for Cancer of the Uterus.—M. A. Strauch³ recommends a modified radical operation of his own which has given him excellent results in 20 cases. He describes his method in these words: The surgeon thoroughly scrapes out the cancerous tissues with a sharp spoon—or, if feasible, cuts off the growth with scissors. The resulting excavation or raw surface is then well cauterized with the Paquelin. The vagina is tightly packed with iodoform gauze in order to check the hemorrhage and raise the uterus as high as possible. Thereupon the patient is placed in the Trendelenburg position and the linea alba incised from navel to symphysis. Bleeding vessels are clamped with Kocher's clamps, and the fundus uteri is grasped with strong Muzeux forceps and lifted high up. The infundibulopelvic and the round ligaments are ligated with strong catgut as far as possible from the uterus, and besides, Kocher's clamps are inserted nearer the uterine body in order to prevent bleeding into the peritoneal cavity. With scissors the surgeon now cuts the upper portion of the broad ligament and separates bluntly the two folds. This exposes to view the lateral ligament, showing the ureter in the depth, and just above the ureter is the uterine artery, which is ligated on both sides near its union with the hypogastric artery. The anterior uterine surface is separated from the peritoneum, the bladder and vagina being pushed high upward. The rectouterine ligaments are seized near the pelvic wall with Kocher's clamps and severed. The peritoneum of the Douglas space is opened and the rectum separated. When all this has been done the uterus remains connected only with the vagina. The latter is now cut off at a good distance from the uterus, and the anterior vaginal wall united with the apex of the bladder, leaving the peritoneum free. The posterior vaginal wall is united to the posterior fold of the peritoneum. The glands at the obturator nerve and at the inner inguinal ring are removed. The peritoneum is also opened along the course of the large vessels and all glands excised. The subperitoneal space is drained from the vagina with 2 narrow strips of gauze. The abdominal incision is closed with a 3-story suture of catgut, together with a few silk sutures. [L.J.]

Thrombosis of the Femoral Veins Following Aseptic Laparotomy.—E. R. Secord⁴ reports the case of a woman, aged 35, operated upon for double hernia; that on the left side had been present 12 years, during which she had worn a truss, but the right hernia had existed only a few weeks, was gradually

¹ Deutsche medizinische Wochenschrift, 1903, xxix, No. 35.

² British Medical Journal, January 30, 1904.

³ American Journal of Obstetrics, November, 1903.

⁴ Zentralblatt für Gynäkologie, November 7, 1903.

⁵ Russki Vrach, August 30, 1903.

⁶ American Gynecology, October, 1903.

enlarging, and caused considerable pain. The early convalescence was uneventful, but near the close of the second week pain in the left groin led to an examination, showing a hard, indurated, tender cord occupying the position of the upper end of the long saphenous vein. A rise in temperature followed, with increase in pulse-rate. The condition was an extensive venous thrombosis involving the saphenous and femoral veins, following 2 weeks after an aseptic operation, with typically aseptic wound healing. It was on the left side where the smaller operation was performed, but where a truss had been worn for 12 years. Secord reviews the reports of several authors, notably that of Schenck, 58% of whose cases of thrombosis occurred after the removal of tumors. He also estimates that of the cases reviewed, in 73% the thrombosis followed operations which lessened local tension. His conclusions are: 1. No single etiologic factor is alone responsible for this complication. 2. The role of infection, in otherwise noninfected cases, does not appear to be an important one. 3. Conditions of sudden decrease of pressure dependent on the operation probably exert a causative influence. 4. Treatment should be prophylactic, by avoiding unnecessary traumatism, hemorrhage, or a sudden decrease in tension, by having the wound area well supported by firmly applied dressings. 5. So far as he is aware, there has been no mortality in the reported cases, but the occurrence of pulmonary embolism in a certain proportion warns us that this termination is not impossible. [W.K.]

Diseases Cured by Stem Pessaries.—J. H. Carstens¹ recommends the use of the stem pessary in the following kinds of cases: Infantile and poorly developed uteri, amenorrhea, scanty and irregular menstruation, as found in fleshy women; simple cases of retroversion in young girls, cases of stenosis or tortuous uterine canal. The stem must be worn at least 6 months. A year or even 2 years is better. If any irritation is produced, the pessary can easily be removed. No after-treatment is necessary, not even douches need be given. There must be absolutely no inflammatory pelvic trouble, either acute or latent. If there is ovarian or tubal trouble, other treatment or operation is necessary. His theory of the action of the stem pessary is based on the physiologic development of the muscles by exercise. Poorly developed muscles can only be made strong and large by exercise. As the tendency of the uterus is to expel all foreign substances, it exercises to get rid of the stem pessary, and thus it gets strong and large. [W.K.]

Overdistention of the Walls of a Gravid Bilocular Uterus.—J. Jurinka² gives the history of a woman, aged 32, who complained of severe, persistent pain in the right pelvic region. From a diagnostic point of view the severe pain was the strong indication for operation. Median laparotomy was performed and the uterus with the right adnexa amputated. Examination of the specimen showed the 2 halves of the uterus irregularly developed. The left half, normal in form, was enlarged and the cavity, 7.5 cm. (3 in.) in length, was filled with a decidual growth. The right half was much larger and contained a 14-weeks' well-developed, male fetus, 12 cm. (5 in.) in length; and while the walls of the left cavity were 20 mm. ($\frac{3}{4}$ in.) in thickness, those of the left were in some parts only 3 mm. to 5 mm. ($\frac{1}{4}$ in. to $\frac{1}{2}$ in.). This overdistention of the uterine wall was undoubtedly the cause of the severe pain and the radical operation was justified as preventing a repetition of pregnancy under such dangerous conditions. [W.K.]

The Mischievous in Midwifery.—W. P. Manton³ considers some of the everyday conditions incident to pregnancy, labor and the puerperal state, in which mischievousness in practice or neglect is of common occurrence. First is the failure to exercise a systematic supervision of the patient during pregnancy. At least monthly examinations of the urine, microscopic as well as chemic, should be made from the beginning of pregnancy until term. When threatening symptoms intervene, the induction of premature labor should not be postponed too long. Manton is convinced that many lives are lost annually because of lack of courage on the part of the physician to resort to vigorous measures sufficiently early in the presence of imperative symptoms. Diet, clothing, exercise, and rest

during gestation are of the greatest importance to the future mother, but are generally considered too trivial to elicit the careful attention of the physician. [A.G.E.]

Pathology and Treatment of Gonorrhea in Women.—A. P. Stoner¹ says: In the human body the gonococci may lie dormant for years and then produce virulent infection, though in the majority of cases after the infection has existed for a certain length of time the gonococci disappear spontaneously. This is accounted for by the displacement of the cylindrical epithelium by the pavement variety, which is more resistant and it is at this stage that treatment avails most. The urethra offers the most fertile soil for these microorganisms, next the uterine cavity beyond the cervix. This once invaded, the tubes rarely escape. The vaginal tract is the most resistant to all infections, as germs are killed by the secretions of the vagina in its normal state. During the early stages of gonorrhea cleanliness and rest should be procured. Vaginal douches are often harmful, in that they spread the disease. Pus formed in the urethra of a previously healthy woman is an almost certain sign of gonorrheal infection. If examination of vaginal discharges proves negative, douches are contraindicated and treatment should be directed wholly to the urethra and vulva. A pad of absorbent cotton should be snugly tucked between the labia and changed as often as soiled, and the outside parts doused with tepid water. After the second week a 2% to 4% solution of protargol, or a 15% solution of argyrol may be instilled into the urethra. Should the infection extend to the uterus a general siege now begins, which usually ends by the intervention of the surgeon and the entire removal of the diseased organ. If the tubes and ovaries have to be removed, the writer believes in removing the uterus also, especially in gonorrheal infection. [W.K.]

Should the Uterus and Ovaries be Removed in Operating for Double Pyosalpinx?—C. C. Frederick² thinks that a woman who has a pair of pus tubes is an invalid, and that in such cases both tubes should be completely removed, that it is unsurgical to leave any part of a diseased tube. With both tubes removed the woman is sterile, but so she was before the operation. The rule should be to save as much healthy ovarian tissue as possible. In some rare instances the uterus should be taken out also, for instance, if the condition is tuberculous the uterus should certainly be extirpated. But even if both tubes and the uterus are taken, leave the ovaries in whole or in part, if possible; but in double pyosalpinx remove the tubes in toto. [W.K.]

Cesarean Section in Eclampsia.—Westphal³ thinks that by cesarean section in eclampsia one avoids the long and dangerous delay required for the completion of induction of labor; the danger of injuring the adjacent parts and the danger of infection. He also regards it as easier and less dangerous than perforation or high forceps delivery. [W.K.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Cold in Ocular Therapeutics.—Scrinii⁴ states that applications of cold in ocular therapeutics are much more restricted than those of heat. Two methods are usually employed: The first consists in applying to the eye, the lids being closed, small pieces of aseptic, absorbent cotton or gauze which have been dipped in cold sterile water, to which some mild antiseptic may be added. These should be renewed frequently; in the presence of profuse suppuration they should not be left in place long enough to become warm. When the inflammatory reaction is not so marked the compress may be cooled by allowing the water to fall on it drop by drop at frequent intervals. A much inferior method of applying cold is the use of an ice-bag, or Leiter's tubes. The ice-bag has the disadvantage

¹ American Journal of Obstetrics, November, 1903.

² Zentralblatt für Gynäkologie, November 7, 1903.

³ The Medical Age, October 25, 1903.

⁴ American Gynecology, November, 1903.

⁵ Amer. Jour. of Obstet., November, 1903.

⁶ Zentralblatt für Gynäkologie, November 14, 1903.

⁷ Journal des Praticiens, Vol. xvii, No. 42, 1903, page 659.

of causing uncomfortable pressure and its cooling action decreases as the ice melts, so that it is necessary to watch it constantly, which is not always possible. In using Leiter's tubes, the patient must be perfectly quiet, or they will become displaced. Beside, the prolonged application of intense cold is disadvantageous when the cornea is involved in a suppurative process, as it tends to decrease the already lowered vitality. Cold is used principally in the treatment of purulent ophthalmia of the newborn, gonorrheal ophthalmia of adults, and in purulent inflammations, associated with edematous swelling of the lids and chemosis. It is valuable in burns, in traumatism of the lids and globe, by calming the pain, and especially in preventing the inflammatory reaction, which is often intense. Goldzieher believes that cold favors the absorption of recent intraocular hemorrhages. The application of cold is contraindicated in diphtheric conjunctivitis. [L.F.A.]

Exercise as a Preventive of Gout.—According to J. K. Mitchell¹ it is as a preventive of gouty outbreaks rather than as a remedy for the affection, that exercise is valuable. But to this end it must be constantly and not spasmodically used. The hard-drinking men of former days kept off the gout, possibly unintentionally, by the active lives they led, in spite of their excesses in the matters of port wine and madeira. When they traveled they rode hard-trotting hacks or drove in a gig over rough roads, and hunting and shooting were their daily sports or, often enough in this country, their daily bread. Free water-drinking, a diet restricted in quantity as well as in character, and daily exercise sufficiently active to cause sweating and long enough continued to be moderately fatiguing are the only prophylactics. The tastes of the patient may be consulted as to the form of exercise, only the work must be distinctly active, and on occasion even severe, like tennis, a bout at hand-ball, 10 miles on a hard-trotting horse, or 20 minutes with a lively opponent at tossing a medicine ball. It must be done daily, or at least often enough to keep the victim of hereditary gout in fair training. The gouty patient who suddenly begins to take strong exercise without preparation may have an attack brought on by the exertion; and the same thing occasionally occurs when one abruptly ceases hard exercise. In the former case the result is probably due to an accumulation of alloxuric bodies in the blood beyond the abilities of the system to eliminate. In the latter instance the elimination has been effectual while physical activity kept all the functions of the body at their best—but the activity ceasing, its stimulating effect on the circulation, the skin, and the digestive tract is withdrawn, and the poisonous substances are less thoroughly removed; while in all probability the man has kept the appetite for food induced by his previous labors, so that the body is over-supplied with nitrogenous matters. In fine, it is necessary that the inheritor or acquirer of gout should remember that he is sentenced for life, and that regular activity is the price of his reprieve.

Treatment of Enteritis by Methylene-blue.—Renon² recommends methylene-blue in the treatment of tuberculous enteritis. Favorable results were obtained by him in 80% of such cases. The drug is usually given in doses of from 0.15 gm. to 0.20 gm. (2 gr. to 3 gr.) daily, either in single dose or in divided doses. It is usually prescribed with lactose, as follows:

Methylene-blue . 0.15 gm. or 0.20 gm. (2 gr. or 3 gr.)
Lactose 0.60 gm. or 0.80 gm. (9 gr. to 12 gr.)

To be made into 4 cachets and taken during the day.

Methylene-blue has also been found useful in other forms of enteritis. Its action is probably due to its inhibitory action on the development of the microbes of secondary infection. [L.F.A.]

Anæsthetic Action of Yohimbin of Spiegel.—Loewy and Muller³ have found that the direct application of yohimbin to peripheral motor and sensory nerves produces complete insensibility; the same effect is produced by its application to mucous membranes. Hirschberg and Loeser have found that the instillation of a few drops of a 0.5% to 1% solution of yohim-

bin in the eye allows of the removal of foreign bodies from the cornea without pain. Loewy and Muller noticed no change in the size of the pupils as a result of its use; it produced, however, ciliary inflammation. [L.F.A.]

Prophylactic Treatment of Migraine.—Combemale¹ considers migraine a manifestation of some constitutional derangement. Prophylactic treatment of simple migraine consists in physical exercise in the open air, the use of food rich in nitrogenous principles, regulation of the functions of the skin and intestines, the avoidance of excessive intellectual work. If the patient suffers from dyspepsia he must be carefully treated; he should abstain from all alcoholic beverages and, if necessary, use large quantities of alkaline mineral waters or laxatives such as cascara sagrada. The gouty diathesis serves as a causative factor and should be treated by the administration of the following:

Lithium salicylate 10 gm. (2½ dr.)
Water 250 gm. (8 oz.)
One dessertspoonful at the principal meal.

Careful attention should be given to the action of the liver and kidneys. [L.F.A.] [Eye-strain must be sought for and corrected. S.S.C.]

Empyroform.—Sklarek,² in experimenting with empyroform, finds that it is very valuable in the treatment of eczema. It calms the itching and stops the oozing without irritating the skin. Empyroform is a condensation product of tar and formol, occurring in the form of a brown, nonhygroscopic powder, of slight odor, insoluble in water, soluble in caustic alkalies, acetone, and especially in chloroform. It is tolerated by patients who are unable to use tar. Sklarek recommends the following formulas:

Empyroform } of each 25 gm. (6 dr.)
Starch }
Vaselin 50 gm. (12½ dr.)

For external use.

Or
Empyroform 15 gm. (4 dr.)
Venise talc } of each 10 gm. (2½ dr.)
Glycerin }
Distilled water 20 gm. (5 dr.)
Alcohol } of each 10 gm. (2½ dr.)
Water }

For external use.

Or
Empyroform 5 gm. to 10 gm. (1 dr. to 2½ dr.)
Chloroform } of each 50 gm.
Tincture of benzoin }

To be used externally.

In other dermatoses, empyroform has not given satisfactory results. [L.F.A.]

Treatment of Acute Gastroenteritis of Infants.—Hutinel³ points out the following main indications in the treatment of acute gastroenteritis of infants: (1) Withdrawal of the source of infection; (2) antiseptics of the intestinal tract; (3) ingestion of water to supply that which is lost. The first indication is met by withdrawing milk entirely, allowing the patient only boiled water in small quantities, frequently repeated. This should be given cold, or even iced, if there is a tendency to vomit; warm or hot if there is a tendency to coldness. In infants less than a year old, after 12 or 15 hours, when the contents of the intestine have been evacuated and the vomiting has stopped, food may again be given cautiously. If the symptoms persist, it may be necessary to wait 24, 36, or even 48 hours. When first returning to a milk diet, it should be given with an equal quantity of water, and gradually increased until the normal amount is again reached. In older children kefir or buttermilk may be allowed. If the vomiting and general symptoms persist for a long time, lavage of the stomach may be performed. Small doses of calomel should be given early in the attack. Intestinal antiseptics may be favored by the use of high enemas of normal salt solution. This should be performed once or twice a day while the stools remain fetid. Hutinel has not obtained favorable results from the administration of salol or other antiseptics. Subcutaneous injection of normal salt

¹ Massage and Exercise, Blakiston, 1904.

² Journal des Praticiens, Vol. xvii, No. 42, 1903, p. 667.

³ Nouveaux Remèdes, Vol. xix, No. 21, 1904, p. 485.

¹ Le Mois Thérapeutique, Vol. iv, No. 10, 1903, p. 114.

² Bulletin Général de Thérapeutique, Vol. cxlvi, No. 20, 1903, p. 792.

³ Journal des Praticiens, Vol. xvii, No. 42, 1903, p. 668.

solution has produced good results in extreme cases. The use of hot baths in those cases associated with high fever has produced good results. These may be repeated every 3 hours or 4 hours, and should last about 10 minutes. Pain in the abdomen may be combated by hot applications to the part. [L.F.A.]

FORMULAS, ORIGINAL AND SELECTED.

Snuff for Nasal Affections.—Tissier¹ recommends the following as a basis for snuffs to be used in the treatment of nasal affections:

Powdered boric acid	20.00 (5 dr.)
Salol	1.00 (15 gr.)
Menthol	0.50 (7½ gr.)

This may be used alone or to it may be added various substances; thus, when there are hemorrhagic erosions of the septum 1 gm. to 5 gm. (15 gr. to 75 gr.) of antipyrin, or an equal quantity of pulverized adrenal substance, or of carefully purified alum. In vasomotor rhinitis, Tissier adds a small quantity of cocain (0.10 gm. to 0.20 gm.—¼ gr. to 3 gr.) if no objection exists, and 2 gm. (30 gr.) of quinin sulfate. [Care must be taken not to induce a cocain habit. S.S.C.]

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 19, 1904:

SMALLPOX—UNITED STATES.			Cases	Deaths
California:	San Francisco.....	Jan. 31-Feb. 7.....	4	
District of Columbia:	Washington.....	Feb. 6-13.....	5	
Florida:	Jacksonville.....	Feb. 6-13.....	2	
Illinois:	Cairo.....	Jan. 1-21.....	13	
	Danville.....	Feb. 6-13.....	1	
Louisiana:	New Orleans.....	Feb. 6-13.....	4	
Michigan:	Detroit.....	Dec. 6-13.....	4	
	At 82 places.....	Jan. 30-Feb. 6.....	Present.	
Missouri:	St. Louis.....	Jan. 30-Feb. 6.....	20	
New Hampshire:	Manchester.....	Feb. 6-13.....	8	
New Jersey:	Camden.....	Feb. 6-13.....	8	
	Trenton.....	Feb. 6-13.....	1	
New York:	Elmira.....	Feb. 6-13.....	1	
Ohio:	Cincinnati.....	Feb. 5-12.....	1	
	Dayton.....	Feb. 6-13.....	18	
	Warren.....	Feb. 6-13.....	1	
Pennsylvania:	Allentown.....	Feb. 6-13.....	5	
	Butler.....	Feb. 6-13.....	1	
	Johnstown.....	Feb. 6-13.....	1	1
	Philadelphia.....	Feb. 6-13.....	58	16
	Pittsburg.....	Feb. 6-13.....	10	2
South Carolina:	Charleston.....	Jan. 30-Feb. 13.....	16	1
Tennessee:	Memphis.....	Feb. 6-13.....	42	
	Nashville.....	Feb. 6-13.....	8	
Washington:	Tacoma.....	Feb. 1-8.....	1	
Wisconsin:	Milwaukee.....	Feb. 6-13.....	6	

SMALLPOX—FOREIGN.

Austria:	Prague.....	Jan. 16-23.....	7	
Belgium:	Antwerp.....	Jan. 10-17.....	3	1
Brazil:	Pernambuco.....	Dec. 16-31.....	28	
	Rio de Janeiro.....	Jan. 10-17.....	39	28
Canada:	Vancouver.....	Jan. 1-31.....	7	
China:	Hongkong.....	Dec. 26-Jan. 2.....	1	
France:	Paris.....	Jan. 22-30.....	34	3
Great Britain:	Edinburgh.....	Jan. 22-30.....	9	
	Glasgow.....	Jan. 29-Feb. 5.....	46	
	Leeds.....	Jan. 22-30.....	1	
	Leith.....	Jan. 16-23.....	1	
	Manchester.....	Jan. 23-30.....	1	1
	Nottingham.....	Jan. 16-30.....	23	
	South Shields.....	Jan. 16-23.....	2	
	Sunderland.....	Jan. 23-30.....	1	
India:	Bombay.....	Jan. 12-19.....	3	1
	Karachi.....	Jan. 10-17.....	3	
	Palermo.....	Jan. 9-16.....	1	
Italy:	.....	Jan. 9-16.....	2	
Malta:	.....	Jan. 10-31.....	0	3
Mexico:	City of Mexico.....	Jan. 16-30.....	9	1
Netherlands:	Amsterdam.....	Jan. 16-30.....	4	1
Russia:	Moscow.....	Jan. 9-16.....	4	1
	St. Petersburg.....	Jan. 16-23.....	4	4
	Warsaw.....	Jan. 8-16.....	10	
Siberia:	Vladivostok.....	Jan. 11.....	Epidemic.	
Spain:	Barcelona.....	Jan. 31.....	16	
	Madrid.....	Jan. 20.....	Epidemic.	
	Santander.....	Jan. 25-Feb. 1.....	8	1
Turkey:	Constantinople.....	Jan. 17-31.....	9	

CHOLERA—FOREIGN.

Turkey in Asia:	Syria and Mesopotamia.....	Jan. 11.....	11	4
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¹ Pneumothoraxy.

PLAGUE—UNITED STATES.

California:	San Francisco.....	Feb. 7.....	1	
PLAGUE—FOREIGN.				
Brazil:	Pernambuco.....	Dec. 16-31.....	3	
Egypt:	Alexandria.....	Jan. 21.....	1	
India:	Bombay.....	Jan. 12-19.....	189	
	Karachi.....	Jan. 10-17.....	8	9
	Madras.....	Jan. 9-15.....	1	
Russia:	Cronstadt.....	Jan. 20.....	1	
South Africa:	Cape Colony.....	Jan. 2-9.....	1	1

Laboratory infection.

Changes in the Medical Corps of the U. S. Army for the week ended February 20, 1904:

FERGUSON, JAMES B., contract surgeon, is relieved from duty at Boise Barracks, Idaho, and will proceed to San Francisco, Cal., and report for duty as transport surgeon on the transport Dix, to relieve Contract Surgeon William H. Tukey, who will proceed to Boise Barracks, Idaho, for duty.

HULL, A. R., contract surgeon, is relieved from duty at Fort Logan and will proceed to his home, New Sharon, Iowa, for annulment of contract.

DEAN, Captain ELMER A., assistant surgeon, is granted leave for ten days, to take effect upon his being relieved from duty at Fort Strong.

SANDS, JOHN R., first class sergeant, will proceed from Fort Baker to San Francisco, Cal., and report for duty on the transport Buford.

SHAW, CHARLES N., first class sergeant, will proceed from Fort McDowell to Fort Baker for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended February 20, 1904:

McCLANAHAN, R. K., assistant surgeon, ordered to the Naval Hospital, New York, N. Y., for treatment—February 12.

NEILSON, J. L., assistant surgeon, detached from the Naval Station, Cavite, P. I., and ordered to the Naval Station, Guam, L. I.—February 18.

WILLIAMS, R. B., passed assistant surgeon, commissioned passed assistant surgeon, with rank of lieutenant, from November 17, 1903—February 16.

BUTLER, C. St. J., assistant surgeon, ordered to the Constellation, with additional duty at the Naval Training Station, Newport, R. I.—February 16.

Changes in the Public Health and Marine-Hospital Service for the week ended February 18, 1904:

STONER, J. B., surgeon, to proceed to Cape Charles quarantine station and assume temporary charge—February 17, 1904.

KORN, W. A., assistant surgeon, granted eighteen days' leave of absence from February 19—February 18, 1904.

WARREN, B. S., assistant surgeon, bureau letter granting assistant surgeon, Warren leave of absence for seven days from February 12, amended to read seven days from February 16—February 16, 1904.

HANRATH, F. R., pharmacist, upon being relieved by pharmacist E. Rogers, to proceed to St. Louis, Mo., and report to medical officer in command for duty and assignment to quarters, relieving pharmacist M. Walerius—February 12, 1904.

WOODS, C. H., pharmacist, relieved from duty at Chicago, Ill., and directed to proceed to Cincinnati, O., and report to medical officer in command for duty and assignment to quarters, relieving pharmacist E. Rogers—February 12, 1904.

WALERIUS, M., pharmacist, upon being relieved by pharmacist F. R. Hanrath, to proceed to Chicago, Ill., and report to medical officer in command for duty and assignment to quarters—February 12, 1904.

ROGERS, E., pharmacist, upon being relieved by pharmacist C. H. Woods, to proceed to Cleveland, O., and report to medical officer in command for duty and assignment to quarters, relieving pharmacist F. R. Hanrath—February 12, 1904.

HERTY, F. J., pharmacist, upon being relieved by Pharmacist B. E. Holsendorf, to proceed to Boston, Mass., and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist L. C. Spangler—February 12, 1904.

SLOUGH, C., pharmacist, relieved from duty at San Francisco Quarantine, and directed to proceed to San Francisco, Cal., and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist M. R. Mason—February 12, 1904.

HOLSENDORF, B. E., pharmacist, relieved from duty at Habana, Cuba, and directed to proceed to San Juan, P. R., and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist F. J. Herty—February 12, 1904.

MASON, M. R., pharmacist, upon being relieved by Pharmacist C. Slough, to proceed to San Francisco Quarantine, and report to medical officer in command for duty and assignment to quarters—February 12, 1904.

SOUTHARD, F. A., pharmacist, granted leave of absence for one day, on account of sickness—February 10, 1904.

SPANGLER, L. C., pharmacist, upon being relieved by Pharmacist F. J. Herty, to proceed to Tampa Bay Quarantine, and report to medical officer in command for duty and assignment to quarters—February 12, 1904.

STIER, C., pharmacist, relieved from duty at Tampa Bay Quarantine, and assigned to duty at Key West, Fla.—February 12, 1904.

BIERMAN, C. H., granted leave of absence for twelve days from February 8—February 15, 1904.

Board Convened.

Board convened to meet at Washington, D. C., April 4, 1904, for the examination of candidates for appointment as assistant surgeon. Detail for the Board: Surgeon D. A. Carmichael, chairman; Surgeon G. M. Gultaras; Passed Assistant Surgeon J. F. Anderson, recorder.

American Medicine

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A Medical Representative on the Panama Canal Commission is urged by the Committee on Medical Legislation of the American Medical Association. It says that under both of the French administrations at the Isthmus, the engineering problems themselves, to the chagrin of the medical profession of the world, failed of accomplishment largely through the frightful mortality among officers and laborers consequent upon lack of authority on part of medical officers entrusted with the work of sanitation; that the same conditions of insalubrity exist now that existed then, and that, consequently, the sanitary problems are to be recognized as second in importance, if second at all, only to those connected with the engineering department. As a consequence, the Committee, in furtherance of the principle established by the Congress, urges that the technical skill involved in the solution of medical and sanitary problems be likewise invested with highest administrative authority through actual representation in the personnel of the Commission. There can be no question as to the facts stated and none as to the wisdom of the recommendation. The entire undertaking depends upon enlisting the best minds in a thoroughgoing administration of the established scientific principles of sanitation and preventive medicine. Any lapse of attention to this *sine qua non* of success would be enormously expensive in money and lives, and might even prove disastrous. The splendid success of American medical and military methods in Cuba makes it imperative that professional advice and help shall be secured in this great enterprise. Dr. Gorgas, whose appointment is urged, would, as all medical men know, be our most fitting representative on the Committee.

A dispensary for the treatment of pulmonary tuberculosis is to be opened by the Department of Health of New York City. The objects of the clinic are to be: The early recognition and diagnosis of cases of pulmonary tuberculosis, the care of patients applying, the continued observation at their homes of indigent, needy, and ambulatory patients; the removal to a hospital of patients requiring hospital treatment, the provision of a municipal institution to which all tuberculous patients may be referred, the extension and strengthening of the sanitary control of tuberculosis among the poor of the Department of Health, care of patients with

laryngeal tuberculosis. As to the home cases, a special staff of trained nurses will visit the patients at their homes, to see that the instructions given are being observed, that the sanitary surroundings are satisfactory, and that such assistance as is required is afforded. In suitable cases the patient will be referred to the various charitable organizations for food, fuel, ice, etc. Special attention will be paid to the children in the family, and every effort made to prevent their infection. The plan represents a grappling with the practical difficulties of the tuberculosis problem which is most commendable and well worthy of imitation.

Legal Aid Charities.—There are numbers of direct and many indirect ways in which the administration, or rather the maladministration of justice, may cause or result in medical conditions. With the very poor a wrong done them by a hundred forms of illegality may mean the failure to get proper treatment of disease, proper food, etc., upon which health depends. One therefore sympathizes with the movements, too few indeed, which have been made to secure for the deserving poor, legal counsel and help, which is often as needed as the relief for actual disease furnished so liberally by physicians and hospitals. The Legal Aid Society of New York has been in existence for 27 years, and during that time it has handled 146,798 cases. Patterned after this model the Legal Aid Society of Philadelphia was organized in December, 1902, and during the first year of its existence it has taken care of 213 cases, 171 of women, 30 of men, and 12 of infants. The total cost has been less than \$750, and the society appeals for financial assistance. Nonsupport, cruelty, wage claims, rents, fraud, etc., are the chief causes of trouble. The society has been far more careful than the medical profession has been in its charitable work, to avoid pauperizing its applicants, and to prevent any injustice in seeking to do justice.

Public Health and Marriage.—All peoples, except those of the lowest state of development, deemed marriage an institution of the most vital importance toward perpetuation and advancement of human society. At the earliest dawn of civilization religious systems and codes of law sought to regulate by their decrees the social conditions arising from marriage relations in so far

as this state concerned one particular nation or involved mankind in general. Aside from the ethical standpoint the legal aspect received serious consideration—the rights of husband and wife to each other, to their kin, their posterity, as well as to the entire community have been defined and propounded with the closest attention to detail by all tribes, while the physical conditions in their relation to wedlock have never been accorded their proper share of deliberation. To what degree the somatic condition of each spouse influences the matrimonial alliance and vice versa—how far this connubial relationship influences their life and health, that of their offspring, and welfare of the family and community at large—such questions received scant attention from the public authorities. The medical profession, however, has always known the interrelationship between health and marriage, yet it never succeeded in arousing the interest of the public, and in inducing suitable legislation on these points. One could even infer its greater or less indifference in this matter. Recently, two works were published which respectively aim to attract the attention of the educated laity and the legislative bodies, and prove to them the absolute necessity of instituting pertaining laws and regulations. The one book,¹ by a number of authors, is a compilation of essays of intrinsic value upon the relation of ill health and conjugal association. The other, the work of an American author,² dwells upon the influence of the so-called social diseases upon married life and the progeny. Although neither of these works are exhaustive, and the various essays in the German publication are of unequal merit, they cover the ground fairly well, and will undoubtedly arouse the public in general, stimulate to action the clergy, the legislative bodies, and the executive authorities.

Marriage Laws among the Ancients.—The Mosaic Law, which embraces the most detailed hygienic measures, covering all possible phases of life, is remarkably brief in its marriage precepts. It confines itself to rules applying to sexual intercourse to the extent of preventing infection and to the interdiction of incestuous marriages. In the State and religious laws of other ancient peoples, health and disease in their relation to marriage were regarded only in so far as these affected the purpose of marriage. The purpose of marriage has been conceived differently at different times by different nations. At remote periods and among early nations it was the begetting of children—inducing the preservation and increase of the family, tribe, tribal union, or State. From this standpoint possible factors preventing procreation were regarded as inimical to marriage, otherwise no stress was laid upon the physical condition of the parties contemplating wedlock, or that of individuals already thus allied. It was the Spartans who most rationally interpreted the demand of the State by exempting from monogamy and monoandry those whose unions had been issueless, and by exposing sickly and feeble children to perish. The Spartan idea was the “Leitmotiv” of Plato’s essays on “The Ideal State,”

and found expression in Aristotle’s politicophilosophic system. The Spartan usages have at no time been generally accepted, they are entirely antagonistic to modern sentiments and to modern conceptions of humanity and ethics. The ideas of Plato and Aristotle have never been put into practical execution, at least never in their entirety, partly, presumably, because they authorized the central power, the State, to encroach to an unlimited extent upon personal liberty of the citizens, and also since Christianity placed an ethical conception upon marriage.

Individual Health and Marriage.—The influence of married life extends beyond the begetting of healthy offspring. It makes itself felt in other directions. Marriage may be a cause of illness and conducive to the aggravation of certain existing forms of diseases. Disease and physical defects may exert a deteriorating and pernicious influence upon married life, and then again marriage may effect an amelioration in or the cure of morbid conditions. Concerning marriage as a cause of disease, the change in the mode of living generally following matrimonial alliance, the deviation from accustomed conditions, the association with a person of the other sex may give rise to various depressions and manifold disturbances which do not depend upon the sexual intercourse alone, but frequently arise from the inevitable necessity of the greater or less dependence of one spouse upon the other and their adaptation to each other. Naturally, the effects of wedlock are more pronounced in the woman, partly, on account of the greater sensitiveness of her nervous system, and partly because marriage creates a more radical change in the young wife’s mode of living. As to marriage as a source of infection it may become a fertile source for the spreading of ill health by the communication of disease from one person to the other—not only venereal affections but many others, such as tuberculosis, and other communicable diseases are naturally easily transmitted through the close association and joint living of husband and wife. But that marriage is not only a cause of disease, but may also bring about the improvement or even cure of morbid conditions is a fact known to the observer. This is evident when we consider the more settled and usually better regulated mode of living concomitant with the married state.

The Administrative Control of Tuberculosis.—The recent address in Philadelphia, under the auspices of the Phipps Institute, by Dr. Hermann M. Biggs, of the New York Health Department, was a calm and logical presentation of the results obtained by that city in its efforts to check the ravages of tuberculosis. The fall in the tuberculous deathrate, more rapid than in any other large city in the world, and especially true of children under the age of 15, must be in part at least accredited to systematized methods of administrative control. To the honest opponents of such methods of combating the disease we can present no better argument than the published address of Dr. Biggs. One point in the address is worthy of particular attention as answering an objection commonly urged against the registra-

¹ Krankheiten und Ehe. Darstellung der Beziehungen zwischen Gesundheits-Störungen und Ehegemeinschaft. New York: Rebman Company.

² Social Diseases and Marriage: Social Prophylaxis, by Prince A. Morrow. Lea Brothers & Co., 1904.

tion of all cases of tuberculosis. The point in question is that the notification of a case of tuberculosis does not necessarily imply any action on the part of the authorities. If the patient be under the care of a physician, the latter is assumed to employ all necessary precautions to prevent the spread of the disease. To such patients, notification means neither hardship nor annoying publicity. It is with cases without care, or proper care, that the authorities would deal, and this is necessary for the public good. We take it that a large part of the opposition to municipal control of tuberculosis comes from the older members of the profession, who, necessarily, do not appreciate bacteriology, with all that means in the control of disease, as do the younger men, whose advantages in this line have been inestimably greater. We say this advisedly, believing it to be a fact, and absolutely with no intent to cast aspersion upon experienced, able, and honored physicians. It is the duty of the younger men to bring about such change in this sentiment that registration and administrative control of tuberculosis, and all other menacing infectious diseases, shall be made possible. The authorities of any city who seek to establish such conditions should be given the staunch support of the rank and file of the medical fraternity.

Panama.—An excellent report of the sanitary conditions of Panama and the Isthmus is given in Public Health Reports by Dr. Claude C. Pierce, Assistant Surgeon U. S. Public Health and Marine-Hospital Service. From it, one gets a conception of the conditions we shall have to meet when the canal is being built. At the present time the estimated population of Panama is 18,000, composed of 20% Jamaican negroes, 40% native negroes, 5% Chinese, the other 35% being the white natives and foreigners who came to Panama during the French canal work.

Total area of Panama City	acres .	674½
Area of old section	"	250
Total area of streets	"	39
Covered by structures and yards	"	591
Area of squares and parks	"	2½
Space unoccupied by buildings	"	42
Average width of streets	feet .	35

The buildings of the old section of the town are constructed of large bricks, irregularly shaped stones, coral, and a porous stone taken from the beach. Such walls are thick and always damp during the wet season, due to the salt in the material. In the newer or "outside" part of the town the majority of the buildings are wooden shacks. None of these houses is connected with sewers and few have proper privies, consequently the surroundings are extremely filthy and unsanitary. Mosquitoes, all the disease-conveying varieties, are present, and though not highly abundant are more dangerous than if in great numbers, as mosquito nets are not held to be necessary. In January, 1904, the deathrate was 61.33. Leprosy exists in the city of Panama, in the villages along the line of the Panama Railroad to Colon, and in the rural districts. There are 22 known cases in Panama City. There is a collection of shacks, known as a lazaret, on the outskirts of Panama where lepers may go if they choose to and be supported by

charity, but as they are not compelled to be isolated, cases can be found in nearly any part of the city. Beriberi is very common, especially since 1897. During that year, and since then, it could be considered as epidemic along the canal route and in the city of Panama. There are now at least 30 cases in the French hospital in Panama and the city hospital of San Tomas, and many other cases are scattered throughout the town. Not only Chinamen and negroes are affected, but some white men. Smallpox has been epidemic throughout the Republic until recently. Now but few cases exist except in the interior villages. A general free vaccination has bettered the condition. Yellow fever is endemic; only the presence of nonimmunes being necessary for an epidemic, unless the proper precautions are taken. Mosquitoes are prevalent in all the neighboring villages, breeding in the rain-water barrels, in the swamps along the streams, and in ponds. Tuberculosis, dysentery, pernicious malaria, leprosy, elephantiasis, and beriberi are always to be found, and yellow fever and smallpox will occur when favorable clinical material presents itself, unless the proper precautions are taken. Of one of the hospitals, the report says that

"The latrines are very foul, and no provision is made for bathing. Mosquito bars are unheard of, although there are cisterns, wells, and other collections of water in the patio in which mosquitoes breed. There is an old unused gas tank in the yard of this asylum 50 feet in diameter and 15 feet deep that contains some water all the time. Buzzards roost on the trestle around the tank, and several dead vultures can be seen in the reservoir at any time. The tank is absolutely useless and has been for several years a filthy, foul-smelling nuisance. The effect this well-intentioned institution has upon public health cannot be accurately determined, but persons come and go at will, no restrictions being placed upon the inmates, either to enter or leave. Apparently it could well be regarded as a center for distribution of all communicable diseases, as a number of the beneficiaries sleep in the place and beg upon the streets daytimes."

The conclusion of Dr. Pierce is that with a good and abundant water supply and proper sanitation of the city and an efficient quarantine, the health of Panama could be made to compare favorably with the health of coast cities in the Southern States, and the port would no longer be an endemic focus for the distribution of quarantinable diseases.

New Definitions.—Sometime since we cited an illustration taken from "a medical journal" of anatomic ignorance which would have made even a newspaper reporter smile. The answers to correspondents in some of our osteopathic, eddyistic, and other sectarian journals are also shining examples of *lucus a non lucendo*. Those remarkable periodicals devoted to "Physical Culture" and "Health," are also flooding their readers with light from their darkness. A correspondent of "Health" recently sought medical advice from his mentor concerning a permanent enlargement of the pupil of one eye due to a blow. The learned one replied:

The pupil being simply a cylindrical opening, extending from the front to the rear of the eye, the enlargement would appear to be due to a rupture of its walls, and the consequent displacement of the vitreous humour surrounding it.

Dr. Coleman, of Columbus, Ohio, has culled some answers of medical students in certain examinations, which also illustrate the thoroughness of some medical instruction and the value of State Boards of Examiners:

Q.—Bound the inframammary region.

A.—Bound above by the clavicle on either side and neck skin and facia; on the sides by the ribs from the fifth up and below by the diaphragm.

A.—All the parts of the body below the mammary gland and above the symphysis pubis.

A.—The right and left hypochondrium and the epigastrium.

Q.—What are the differential physical signs of ascites, ovarian cyst, and pregnancy?

A.—In ascites the only positive sign that I know is to see some section of a tapeworm pass. Of course, there are other symptoms that may lead you to suspect ascites.

Q.—State fully the physical signs of morbus cœruleus.

A.—A degenerative inflammation somewhere.

A.—Seems like blue disease, so will give emphysema.

A.—I think morbus cœruleus means disease of the cœcum or more nearly the appendix.

Q.—Define normal bronchial respiration, and state where it is heard.

A.—Normal bronchial respiration is a sound heard in the broncho while breathing.

The Antics of an Anti.—Last week's number of our excellent humorous contemporary, *Life*, settles definitely and definitively three great questions in medical science, and for this remarkable service the profession and the race will be forever grateful. The first is the most important one of the existence of germs and the infectiousness of disease. Henceforth all civilized, and even the uncivilized clean, if there are such, may depend upon it that so far as health and the length of human life are concerned, filth, dirt, and carelessness have nothing to do with the generation and dissemination of bacteria or the diseases which are erroneously supposed to be caused by them. In the second place, vaccination is demonstrated to be unnecessary, dangerous, and productive of much suffering. Lastly, operation in appendicitis is "unnecessary." So Dr. T. E. Reed, of Middletown, Ohio, writes to *Life*, and his letter is quoted approvingly. Now, *Life*, as we have said, is a capital humorous paper, but its most humorous humor is that directed against medical science. In the issue thus dashing all our great supposed discoveries and truths, *Life* prints unstinted praise of gin, cocktails, fizzes, rickeys, whisky, ale, cigarets, club cocktails, tobacco, old rye, ale as a tonic, bitters, beers—loss of voice, and all that; but more noteworthy still, a "safe, sure and effective remedy for gout and rheumatism." *Life* probably would say these are not medical things, and hence it is free to advertise them to its trustful readers.

Nurses for Tenements.—A new field of work was opened for the Presbyterian Hospital Training School for Nurses through a gift of \$5,000 by Mrs. W. K. Vanderbilt, on the condition that it be spent to send nurses to attend the sick poor in the city's tenements. Miss Anna C. Maxwell, superintendent of the training school, states that the donation has been made and that "it was to begin the work," indicating that Mrs. Vanderbilt will give largely should the venture prove as successful as she hopes. This first \$5,000 is to be spent during the present year, and there is good authority for stating that Mrs. Vanderbilt intends to spend not less than \$50,000 upon the same work.

BOOK REVIEWS

The New International Encyclopedia. Volume XIII.—Dodd, Mead & Co., New York.

This number extends from New Kensington to Phigalian Marbles. It contains an unusually long list of medical subjects, but many of these are of comparative unimportance and are very briefly treated. Some are unjustifiably abbreviated. Nearly half of the space devoted to obstetrics is occupied by a historic review, while deformities of the pelvis are barely alluded to in this and are completely ignored further on in the 2 pages given to the normal structure. The newborn infant is apparently left to shift for himself, neither his physiologic needs nor pathologic conditions receiving the slightest notice. Four pages are devoted to pedagogy, but pediatrics is not so much as mentioned. Most of the other comparatively long medical articles, while necessarily concentrated, are more comprehensive. Fewer medical men than usual receive notice; the number should have been swelled by the names of Norris, Neumann, Nicolaier, Niemeyer, Nothnagel, Obermeier, Paquelin, Pagenstecher, Parinaud, Parkinson, Pavy, Petit, Peyer, Pfeiffer, and others. Among the medical and relative subjects treated are:

Newton's rings	Oxalic acid
Nickel	Oxaluria
Nicol prism	Oxygen
Nicotine	Oxytocics
Night blindness	Ozena
Nightmare	Ozone
Nitric acid	Pain
Nitrification	Palate
Nitroglycerin	Palpitation
Nitrous ether	Pancreas
Nitrous oxid	Pancreatin
Nosology	Papain
Nostalgia	Papule
Nurses, Training of	Paraldehyde
Nux vomica	Paralysis
Nyctalopia	Paralysis agitans
Obesity	Paranoia
Obstetrics	Parasite
Occupation neuroses	Parasitic diseases
Oedema	Paregoric
Oesophagus, Diseases of	Pareira brava
Official plants	Paresis
Ointment	Patella
Oleic acid	Pathology
Olive oil	Pellagra
Ophthalmia	Pemphigus
Ophthalmoscope	Pennyroyal
Opium	Pepsin
Optic neuritis	Percussion
Organotherapy	Perineum
Ossification	Periostitis
Osteomalacia	Peritonitis
Osteopathy	Pestilence
Otalgia	Petechia
Otitis media	Pharmacopeia
Otorrhea	Pharyngitis
Ovary	Phenacetin

The following are without treatment or cross references:

Newborn infant	Orbit, Diseases of
Nictitation	Ox-gall, Medical uses
Night sweats	Pack
Nocturnal emissions	Paper, Medicated
Nocturnal enuresis	Paraffin (surgical uses)
Nose, Diseases, Deformities, etc.	Paramyoclonus
Nystagmus	Paronychia
Onomatomania	Pathologic technic
Ophthalmometer	Pediculosis
Opisthotonus	Pelvis, Deformities of
Optic atrophy	Penis, Diseases of

A Textbook of Legal Medicine and Toxicology.—Edited by FREDERICK PETERSON and WALTER HAINES. W. B. Saunders & Co., 1904. Volume II.

Volume I of this book appeared during the summer of 1903 and was reviewed in the issue of this journal of July 25, 1903. Volume II, just issued, includes a continuation of Part I of Volume I, treating of Legal Medicine, and a Digest of the Statutes of all the States and Territories, and of the District of Columbia, relating to the Commitment, Care, and Custody of the Insane, to which subjects 296 pages are devoted. The remaining part of the volume is devoted to Toxicology. The

various subjects under the heading Legal Medicine are described in a clear and concise manner. The latest opinions on the subjects are given. The chapter on "Expert Evidence" explains the duties and privileges of experts, and contains suggestions concerning methods of obtaining information from medical experts and other witnesses which should be valuable to the examining attorneys. An especially important topic, which is treated somewhat in detail, is the medicolegal aspects of the untoward effects of the röntgen rays. The part devoted to Toxicology covers the entire scope of the subject and, among other good things, possesses the merit of including only those methods which experience has shown to be reliable. It is a book which must be of great value to members of the medical profession, to toxicologists, and to attorneys interested in forensic medicine.

Diseases of the Eye.—By L. WEBSTER FOX, A.M., M.D. D. Appleton & Co., New York.

This volume is well illustrated, in many instances with original photographs. A pleasing feature from a literary standpoint is the concise historic sketch that is often incorporated in the discussion of the more important methods of diagnosis and treatment. There is an excellent chapter on Ocular Affections in General Diseases, and the sections on the Pupil in Health and Disease and Injuries of the Eye in Parturition will be appreciated by the general practitioner. A convenient glossary and an extensive index are appended. The printer has not kept pace with the author, for the book bears marks of hurried proofreading, and faults in style of type, alignment, etc., are too frequent. The use of the word "vision," instead of "vitreous" on page 327 affords an example of the confusion of sense that a proofreader's slip may cause. As a rule proper names are carefully spelled, but Darrier appears for Darier on page 116, Meyers for Myers on page 120, Thompson for Thomson on page 298, and Levi for Levis on page 546. The noticeable lack of system and uniformity in terminology and the somewhat questionable Latin in which some of the formulas are given, suggest the wisdom of the more general use of plain English terms throughout the text.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

The Artificial Naueim Bath: Its Uses, Methods, and Results. The Naueim Bath, New York City.

Eighteenth Annual Report of the State Board of Health, and Vital Statistics of the Commonwealth of Pennsylvania. Transmitted to the Governor, November 28, 1902. Wm. Stanley Ray, State Printer of Pennsylvania, 1903.

International Clinics, Vol. IV, Thirteenth Series, 1904: A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and other topics of interest to students and practitioners by leading members of the medical profession throughout the world.—Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, U. S. A. With the collaboration of William Osler, M.D.; John H. Musser, M.D.; Joseph Stewart, M.D.; J. B. Murphy, M.D.; A. McPhedran, M.D.; Thomas M. Rotch, M.D.; John G. Clark, M.D.; James J. Walsh, M.D.; J. W. Ballantyne, M.D.; John Harold, M.D.; Edmund Landolt, M.D.; Richard Kretz, M.D.; J. B. Lippincott Company, Philadelphia, 1904. Price, cloth, \$2.00 net.

Transactions of the American Dermatological Association, at its Twenty-seventh Meeting held in Washington, D. C., May 12, 13, 14, 1903, in connection with the sixth triennial session of the Congress of American Physicians and Surgeons. Official report of the proceedings by CHARLES J. WHITE, M.D., Secretary. The Grafton Press, New York.

Diseases of the Nervous System: A Textbook for Students and Practitioners of Medicine.—By H. OPPENHEIM, M.D., Professor at the University of Berlin. Translated and edited by EDWARD E. MAYER, A.M., M.D., Pittsburg, Pa. Second American edition, revised and enlarged. With 318 illustrations. Price, cloth, \$5.00 net. J. B. Lippincott Company, Philadelphia, 1904.

A Handbook of the Prevention of Tuberculosis. Published by the Charity Organization Society, New York City, 1903.

System of Physiologic Therapeutics: A Practical Exposition of the Methods Other than Drug-giving, useful for the Prevention of Diseases and in the Treatment of the Sick.—Edited by SOLOMON SOLIS COHEN, A.M., M.D., Senior Assistant Professor of Clinical Medicine in Jefferson Medical College; Physician to the Jefferson Medical College Hospital, and to the Philadelphia, Jewish, and Rush Hospitals, etc. Vol. viii, Rest, Mental Therapeutics, Suggestion, by FRANCIS X. DER-CUM, M.D., Ph.D., Professor of Nervous and Mental Diseases in the Jefferson Medical College of Philadelphia; Neurologist to the Philadelphia Hospital; Consulting Physician to the Asylum for the Chronic Insane at Wernersville; Consulting Neurologist to the St. Agnes Hospital; Consulting Neurologist to the Jewish Hospital, etc. P. Blakiston's Son & Co., Philadelphia, 1903.

AMERICAN NEWS AND NOTES.

GENERAL.

The Society for Psychical Research.—At the recent meeting of the Society for Psychical Research, it was announced that the sum of \$30,000 had been collected for a scholarship, which it was hoped would be increased to \$40,000. The English society now numbers 832 members, and the American Society 530 members.

Diphtheria on War Ship.—News from San Juan, P. R., under date of February 25 says: Five cases of diphtheria are reported on board the United States Ship Monongahela. The crew and officers have gone into camp at the naval station until the ship shall have been fumigated. The sick men are not believed to be in danger.

Portion of Needle in Her Body for 16 Years.—According to reports 16 years ago a woman of Camden, N. J., stepped on a needle that penetrated one of her heels. In removing the needle it broke in half, and efforts of physicians to locate the other half were of no avail. To her surprise recently she found the long-lost portion of the needle had protruded from the skin above the knee. It was removed with difficulty.

The National Congress of Mothers will be held this year in Chicago, May 11 to 14. The national boy problem, moral education, uniform marriage and divorce laws, education for the art of life, industrial education a factor in civic betterment, child labor conditions, the probation method, the dependent and delinquent children, literature for mothers and children, mothers' mistakes, and domestic science are subjects that will be included on the program.

Athletic and Physical Development of the Army.—General Frederick D. Grant believes the soldiers in the department of the lakes should be athletes, and has prepared a program for the systematic instruction of the men at Fort Sheridan. There will be baseball, handball, football, and track teams. In July there will be competitions and prizes are to be awarded. An order was issued requiring that at least 2 hours a week be devoted to gymnastics and calisthenics.

Miscellaneous.—NEW YORK: A grant of \$500 was given this year by the Rockefeller Institute of Medical Research to Dr. A. S. Warthin, professor of pathology in the University of Michigan, for his researches on the etiology of the anemias. The grant has been used for the establishment of a fellowship in pathology, to which Mr. H. Woltmann has been appointed. —To AID DR. REMICK: "Reader, M.D.," sends \$2 for fund to aid Dr. Remick, "an unfortunate colleague," mentioned in recent issues.

Nurses for Japan and Korea.—The 10 nurses who are to be sent to Korea by the Philadelphia branch of the society to aid Japanese and Russian soldiers during the war will leave Philadelphia on March 17 for the seat of action. It has been definitely decided that five will go from Philadelphia, two from Boston, and three from Washington. They will arrive in San Francisco on March 22, and start on the voyage to Yokohama the following day on the steamer Siberia. Upon their arrival in Japan the nurses will be at the direction of the Japanese Red Cross Society, but in the field they will act entirely neutral, going wherever needed.

Adulterated Tomato Catsup.—From our analyses and comparison of our results with those obtained by other analysts it would seem that all the tomato catsups on the market are adulterated, either by coloring matter, or preservatives, or both. Such practice seems unnecessary and injurious to the trade, in view of the fact that we have recently opened bottles of catsup put up some 12 years ago and found them in perfect condition. The addition of coloring matter to catsups gives the goods a brighter, though unnatural color, and allows the use of green and inferior stock. The catsup manufacturer has evidently the idea that he must add some color, and he frequently does so without regard for hue or shade. A sample recently examined was yellowish and proved to be colored with annatto. The statement of a local manufacturer that in preparing his catsups he used an ounce of salicylate of soda to every 8 bottles shows the extent to which the drugging of these products is carried.—[N. H. Sanitary Bulletin.]

Railroad Casualties.—According to a bulletin issued February 10 by the Interstate Commerce Commission, showing the railroad accidents in the United States during July, August, and September, 1903, 60 passengers and 220 employees were killed and 1,663 passengers and 1,914 employees injured, making in all 280 persons killed and 3,582 injured in train accidents. Other accidents to passengers and employees, not the result of train accidents, make the total number of casualties 15,187; 109 passengers and 916 employees killed, and 2,688 passengers and 11,474 employees injured. The total number of persons killed during the quarter shows an increase of 181, and the number killed in train accidents 280, as against 230 for the preceding quarter, shows an increase of 50. Seventy employees were

killed in coupling and uncoupling cars, an increase of 8 over the number of fatalities for this cause in the preceding quarter. The total number of collisions and derailments was 3,603 (1,765 collisions and 1,298 derailments), of which 251 collisions and 251 derailments affected passenger trains.

Pure Food Bill in the Senate.—As amended and revised the bill which is now before the United States Senate and which probably will be passed reads as follows: "To investigate the adulteration of foods, drugs and liquors when deemed by the Secretary of Agriculture advisable, and the Secretary of Agriculture, whenever he has reason to believe that articles are being imported from foreign countries which are dangerous to the health of the people of the United States, shall make a request upon the Secretary of the Treasury for samples from original packages of such articles for inspection and analysis, and the Secretary of the Treasury is hereby authorized to open such original packages and deliver specimens to the Secretary of Agriculture for the purpose mentioned, giving notice to the owner or consignee of such articles, who may be present and have the right to introduce testimony, and the Secretary of the Treasury shall refuse delivery to the consignee of any such goods which the Secretary of Agriculture reports to him have been inspected and analyzed and found to be dangerous to health or falsely labeled or branded.

NEW YORK.

Law Does not Require that Vaccination Shall Take, in New York.—Attorney-General Cunnene holds that the law requiring public school children to be vaccinated has been obeyed when a child has been inoculated with vaccine virus, even though there is no outward sign by swelling or soreness that the virus has had the desired result, and though a number of attempts upon the same individual do not take.

War on Spitting.—Health Commissioner Darlington has announced that no further leniency is to be shown toward violators of the provision of the Sanitary Code that makes spitting in public a misdemeanor. Officers of the Health Squad have been ordered to make summary arrests in all cases. The streets and sidewalks, railroad platforms, and all other public platforms are said to be in a filthy condition, and the Health official now gives formal notice through the press that there is to be no more leniency toward offenders.

Surgical Outfit for Each Hook and Ladder Truck.—Twenty-five leather surgical cases, part of a similar equipment which is to be extended throughout the Fire Department, were distributed recently among the hook and ladder companies of Manhattan and Brooklyn boroughs, by order of Fire Commissioner Hayes. The idea of thus equipping the firemen is one conceived by Chief Croker some time ago, but only now put into operation. In time every fire company in the greater city will have one of the cases as part of its outfit.

New York Hampered in Its Fight against Tuberculosis.—The annual report of the State Charities Aid Association to the State Board of Charities has recently been made public. It says in part: One of the most disastrous measures passed by the Legislature and signed by Governor Odell was that which forbids the establishment of any hospital or camp for the treatment of patients suffering from pulmonary tuberculosis in any town without the consent of the town's governing board and of the Board of Supervisors of the county in which the town is. The effect of this law is to make it impossible for any city in the State, or any fraternal order, charitable society or philanthropic individual to establish a hospital, camp or other establishment for the treatment of the tuberculous outside the city limits, except under conditions which are practically prohibitive. The report says that in the opinion of the association the country districts were sufficiently protected by the laws then existing, which forbade the establishment of any institutions for the tuberculous in the State without the approval of the State Board of Health and which laid down other restrictions.

PHILADELPHIA, PENNSYLVANIA, ETC.

The New Municipal Hospital for Infectious Diseases.—Although the new smallpox hospital is nearly ready for occupancy, there is no likelihood that the old institution will be soon vacated. Funds for the completion of the hospital will come from the new \$16,000,000 loan, which contains an item of \$1,000,000 for the work. What is needed now to complete the hospital is a heat, light, and power plant, for which plans will soon be prepared.

Typhoid and Pneumonia Still Prevalent.—There were 148 new cases of typhoid fever reported to the Bureau of Health for the week ended February 27, the greatest number for any one week in the past 10 months. The reports of the physicians show that disease prevails in every ward of the city with the exception of the Eleventh, Sixteenth, and Twenty-first. Last week was also a record breaker in typhoid fever cases, the number reaching 142. There was a marked increase in the city's mortality which reached a total of 693, of which 120 alone were due to pneumonia. This is only 5 less than last week's record, which was unusually heavy.

Crusade of Vaccination Closed.—The vaccine corps attached to the Department of Health of Philadelphia, which was legislated out of office on December 31 last, and was succeeded by the appointment of new medical inspectors, performed vaccinations on 207,000 persons in Philadelphia in the period between July 10, when active work was begun, until December 31 last. Of this number reports to the health officials indicate that 156,000, or 75%, of the vaccinations were successful.

Wood Alcohol in Whisky.—The discovery that wood alcohol is used to a large extent in this city to adulterate whisky has been made by Dr. Warren, State Dairy and Food Commissioner. Prosecutions against those trafficking in this liquor have already been begun in the country districts, and the first steps in this direction against dealers selling it have been taken. Attorneys of the department have been instructed to proceed vigorously against dealers here whose goods show, according to chemists, that wood alcohol and other forbidden ingredients have been used. Informations have been filed against wholesale and retail liquor dealers, and warrants have been taken out. Dr. Warren says that the use of wood alcohol in liquor has been proved most dangerous to health. It may not only cause total blindness, but death.

SOUTHERN STATES.

Medical Branch of the U. S. Army.—A bill has been introduced in Congress for the reorganization and promotion of the efficiency of the medical branch of the army. The bill is indorsed by Secretary of War Taft, Surgeon-General O'Reilly, and the General Staff of the Army, and in principle by former Secretary of War Root, because it will abandon to a large extent the present system of contract surgeons. As reorganized, the medical branch of the army will consist of a surgeon-general, with the rank of brigadier-general; a medical corps, a medical reserve corps, a hospital corps, and a corps of nurses and dental surgeons. The medical corps will be made up of 12 colonels, 18 lieutenant-colonels, 110 majors, and 300 captains and lieutenants, all ranking like similar officers in the cavalry branch of the service. The bill provides that the present officers of the medical branch of the army shall be recommissioned in relative order of seniority, the assistant surgeon-generals as colonels, the deputy surgeon-generals as lieutenant-colonels, the surgeons as majors, the assistant surgeons whose commissions date prior to last Christmas to be captains, and other assistant surgeons to be first lieutenants.

WESTERN STATES.

Insane Asylum Burned.—Information from Racine, Wis., under date of February 20, states that all of the 133 patients in the Racine County Insane Asylum, which burned February 19, were rescued in some cases with the greatest difficulty. The loss aggregates \$115,000, with insurance of \$35,000.

Race Suicide in Portions of Wisconsin.—Here are some of the figures made public by Mr. Torrey, the register of deeds in Kenosha county, which, he declares, are characteristic of the entire county: The town of Bristol with 2,000 population, had but 1 birth in 1903. Wheatland, with 1,000 population, had but 1 child born in a year. Brighton, populated by sturdy Germans, reported but 4 births. At one time during the year there were 17 spinsters living in a single Kenosha street. This dearth of children is among the middle, not the wealthy class. The rich families, of which Kenosha has more than any other city of its size in the State, are all large, some numbering 10 children. In Bristol, figures show that women outnumber the men about 5 to 3. In Kenosha, the number of factory girls brings the proportion to about the same figures.

Chicago Secures Antitoxin.—The Bulletin of the Chicago Health Department, for the week ended February 20, says: As a result of the commissioner's recent eastern trip in search of diphtheria antitoxin at reasonable prices the department is enabled to announce the immediate reestablishment of the antitoxin stations throughout the city. Thanks to the public spirit of the commissioner and president of the New York City Board of Health, Dr. Thomas Darlington—the first installment of 500 vials of the New York product was received at the close of the week, and triweekly installments have been arranged for so as to supply a sufficient number of stations, so located that no physician need send further than half a mile for the remedy. The prices for the present will be those of the New York Board, viz., 75 cents for 1,000 units, \$1.25 for 2,000 units, and \$2.25 for 3,000 units.

Honor Dr. Andrews' Memory.—As a tribute to the memory of Dr. Edmund Andrews, of Chicago, a notice of whose death has previously appeared in these columns, memorial services were recently held in his home city. The meeting was arranged under the joint auspices of the Chicago Medical Society, Chicago Surgical Society, the Illinois and Michigan State Medical Societies, American Medical Association, Grand Army of the Republic, Academy of Sciences, and the Northwestern, Chicago, and Illinois Universities, with the work of all of which Dr. Andrews had been identified. The principal

address was made by Dr. F. W. Gunsaulus, who eulogized Dr. Andrews' character as a man, as well as his greatness as a physician. Other speakers were Dr. Victor C. Vaughan, of the University of Michigan; President James, of Northwestern University; Professor J. C. Grant, of the Harvard School; Dr. J. H. Hollister, of the Chicago Medical College; H. W. Dudley, of the Grand Army of the Republic; and Dr. N. S. Davis, of the Academy of Sciences.

Antitoxins and Diphtheria.—The Bulletin of Chicago's Health Department, for the week ended February 13, makes a comparison in the mortality from diphtheria between the 2 periods from 1888 to 1895 and from 1896 to 1903. During the former period antitoxin was not used by the Health Department in combating diphtheria, and in the latter period it has been used. According to this the reduction in actual number of deaths was 5,400, or 47%. Before using, the deathrate per 1,000 was 12.45, while during the late period it was 4.55. Decrease of diphtheria deaths, 63.4%. Between October 5, 1895—date of first case treated—and December 31, 1903, the Antitoxin administrators of the Department treated 7,435 cases of bacterially-verified diphtheria, of which number 479 died—a mortality rate of 6.44%. The average mortality without antitoxin still remains about 35%. That the value of antitoxin depends upon its early administration is shown by the following: Of the total 7,435 cases, 585 were treated on the first day of the disease, with 2 deaths—mortality rate, 0.34%. Of 1,913 treated on the second day, 28 died—mortality rate, 1.46%. Of 2,624 treated on the third day, 85 died—mortality rate, 3.24%. Of 1,374 treated on the fourth day, 148 died—mortality rate, 10.8%. Of 936 first treated later than the fourth day, 216 died—mortality rate, 23.1%.

FOREIGN NEWS AND NOTES

GENERAL.

Has He Cured Cancer?—News from Paris under date of February 22 states that Dr. Doyen, has read a paper before the Academy of Medicine on a new method of treating cancer by injecting serum prepared from *Micrococcus neoformans*, a microbe peculiar to cancerous tumors. Of 126 cases treated in 2 years, 58 did not show favorable results, 47 improved in varying degrees, and 21 now do not show any trace of cancer and are regarded as cured.

Fighting to Prevent Yellow Fever in Mexico.—Information from the City of Mexico, under date of February 27, says that the Mexican Government has decided to spend \$7,000,000 during the present year to prevent a recurrence of yellow fever within its borders. Important sanitary work is now under way at Vera Cruz, which is regarded as a distributing point for the infection. The comprehensive plan for suppressing and preventing yellow fever in cities and towns of northwestern Mexico has been devised by Mr. Lyega, Chairman of the Superior Board of Health. The plan is to follow the course the board took last summer and take rapid action should the fever again show itself. Mosquitos will be thoroughly destroyed. The board proposes to work in entire harmony with the health authorities of the United States and the State of Texas. The remarkable exemption of the City of Mexico from typhoid fever this year is an indication of what can be done by sanitation.

A Fund to Encourage the Study of Bacteria.—At the ordinary quarterly *comitia* of the London Royal College of Physicians, held on January 30, the president, Sir William Church, announced that Dr. Horace Dobell, of Dorset, had presented a sum of £500 in cumulative consols to the college for the promotion of original research into the ultimate origin, evolution and life history of bacilli and other pathogenic microorganisms. The conditions are, that the president and censors of the college shall select a lecturer once in every 2 years, who shall give a record of original researches on the above subject, made by himself and others, and that he shall receive a fee of £50 for so doing. These lectures are to be continued biennially, as long as a sufficient amount of the £500 and its accumulated interest remains. The first lecture will be delivered during the year 1904.—[*Science*.]

Crusade against Rats.—Dr. Adrien Loir, a Paris professor of hygiene, says: "The president of the French republic has just issued a decree calling for the wholesale destruction of rats on shipboard. The science of Pasteur has shown us that the principal propagator of the plague is the rat. Those rodents, as is well known, go on shipboard in the remote countries where the epidemic is constantly raging, reach our shores, and thus spread the germs among us. The most effective means of protecting ourselves against this evil is therefore to wage pitiless war upon rats." In commenting upon this, a correspondent makes the statement that before the plague attacks men it invariably exterminates a great number of rats. The Hindus and the Chinese know that the plague is approaching when the rats leave their dwelling places by hundreds and flee from the

district, as they do when they see a great many of their fellow-parasites killed off. They instinctively fly from the danger, and they leave the stricken region to return thither only after a long period. This is how they spread epidemics, and their destruction is therefore a prime desideratum.

Physical Decline in England.—From statistics presented to the House of Commons by the Home Secretary there has been a steady annual increase in the last 10 years in the police court cases of drunkenness in England and Wales. Between 1892 and 1896 the cases numbered 583.47 per 100,000 population; between 1897 and 1901, 642.87; in 1901, 644.84; and in 1902, 666.16. The actual number of cases has grown from 175,627 in 1892 to 219,908 in 1902. This is a very unfortunate showing, and is all the more significant when taken in connection with the returns of recruiting officers. An army officer quoted in the *London Express* says: "In the last 20 years stature and chest have so dwindled that if we attempted to enlist on the standard of the 80s we should reject 70% of the men offering." Since April, 1899, the number of men rejected as unfit was 113,000 out of 365,000 candidates, and in addition 10,000 recruits were invalidated within 2 years of enlistment. Every third man is thus a "defective." This is a bad showing for the United Kingdom, and a royal commission is at work to investigate the cause of this condition of the national physique.—[*Philadelphia Press*.]

OBITUARIES.

William Rankin, Jr. at his home in Newark, February 26, aged 56; a graduate of Rutgers College in 1868 and four years later from the College of Physicians and Surgeons in New York. He studied extensively abroad and at the time of his death was secretary of the Newark Eye and Ear Infirmary and one of the operative surgeons connected with the institution.

David D. Toal, at his home in New York, February 26, aged 66. Being born in Ireland he was brought to this country by his parents when he was but two years of age. He educated himself by working in shops and was graduated from the University Medical College in 1867. He was extensively known both politically and socially on the lower East Side.

John R. Hinkson, at his home in Blissville, Long Island City, aged 48; a graduate of Bellevue Hospital Medical College in 1889, and at one time a professor of surgery in that institution. Had lived in Blissville about fifteen years. Was a member of the Queens-Nassau Medical Society, and was noted for his generosity and kindness to the poor.

Frederick G. Winter, at Kingfield, Me., February 11, aged 46; a graduate of the Long Island College Hospital, Brooklyn, in 1882. He was formerly president of the Brooklyn Medical Society and surgeon to the Twenty-eighth Infantry, N. G., N. Y.

Ephraim P. Russell, at the Walter Sanitarium, Evansville, Ind., February 16, following a surgical operation, aged 61; a graduate of Jefferson Medical College and member of the Clinton County Medical Society.

Charles Elliott Denig, at his home in Columbus, Ohio, February 9, aged 78; a graduate of the Stirling Medical College, Columbus, in 1850, and a surgeon of the United States army during the Civil war.

Frank A. Box, of Pulaski, N. Y., from pneumonia, at the Oswego Hospital, February 11, aged 38; a graduate of the State University of Iowa and the College of Homeopathic Medicine, Iowa City, in 1890.

McDuffie Blanchard, at his home in Columbus, Ga., February 12, from pneumonia, aged 68; a graduate of the University of Nashville in 1857, and a surgeon in the Confederate army during the Civil war.

Maximilian G. Raefle, at his home in New York City, February 13, from apoplexy, aged 67; a graduate of Humboldt Medical College, St. Louis, in 1861; a surgeon in the U. S. N. during the Civil war.

James M. Laird, at Sheltering Arms Hospital, Paint Creek, W. Va., February 15, aged 51. He was a wellknown practitioner of the Kanawha and New River Valleys, W. Va.

Frank LeRoy Tetamore, was drowned with a party of eight officers near Manila, P. I., February 10. He was captain and active assistant surgeon of Volunteers, U. S. A.

Wm. E. Woodbridge, at his home in Washington, February 23, aged 80. He was the inventor of the rifle gun and an expert in ordnance and explosives.

Sereno E. D. Bumstead, at his home in South Framingham, Mass., February 14, aged 81; a graduate of Harvard Medical School in 1844.

Charles E. Cook, at his home in Huntley, Ill., February 13, from double pneumonia, aged 51; a graduate of Chicago Medical College in 1880.

John W. Thompson, of Hillsboro, Ark., was shot and killed February 12; a graduate of the University of Arkansas, Little Rock, in 1877.

Albert Trenchard, at his home in Glassboro, N. J., February 11, aged 60; a graduate of Jefferson Medical College in 1870.

Joseph R. Askew, at his home in Jacksonville, Ill., February 11; a graduate of the University of Pennsylvania in 1841.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE HISTORY OF THE TREATMENT OF GONORRHEA WITH SPECIAL REFERENCE TO THE LINES ALONG WHICH IMPROVEMENTS MAY BE ANTICIPATED.

BY

G. S. PETERKIN, M.D.,

of Seattle, Wash.

In studying the history of the treatment of this disease, the student is immediately impressed with the fact that the treatment of gonorrhea employed at various periods depended upon notions that the medical men of the day entertained as to its nature and causes. The disease has existed from time immemorial, as is clearly shown by the writings of Moses, 14 centuries before Christ. Nevertheless, though it may seem strange, the methods employed at all times, irrespective of the theories held as to the causes of the disease, have varied so slightly that they may be conveniently classified under one of the 3 well-known modern divisions of treatment: The expectant treatment, rest, diet; the modified expectant treatment, rest, diet, drugs internally; the local or injectional.

Considered from an evolutionary standpoint, the primeval mode of treatment was undoubtedly the expectant. And the universal treatment of today, the injectional, is itself as antiquated as authentic history, for in the most ancient medical writings existing, the Papyrus Ebers (1,600 years B. C.), we find the injection of different vegetable extracts recommended for discharges of the genital organs. The Greeks and Romans used injections. They borrowed a greater part of their knowledge from the Egyptians, and sweet milk and honey was injected into the urethra, not only to propitiate Venus, but at the same time to cleanse the canal; with the result that each, infidel and believer, worked with equal zeal.

The sciences of the middle ages built their superstructure upon Egyptian learning also. An investigation of the authors of this epoch shows that the treatment of gonorrhea still retained its primitive form until about 1850 A.D. The slow progress in improving the treatment of this disease during these centuries may be accounted for on the grounds that learning was confined to a very limited class, the nobility and the clergy, and medicine, for this reason and for opportunities it presented for benevolence and charity, was practised as an art and science, mainly by the latter class. Environments, the lack of educational opportunities, class prejudices, etc., prevented others from entering its confines, except in a desultory manner that placed them in the position of the mountebank or quack of today. Moreover, during these times and by all classes, venereal diseases were regarded as heaven's judgment for a voluntary immoral act, and as loathsome diseases, contaminating even those who mentioned them. A sufferer was receiving only his just dues, was, in fact, atoning for his misdeeds. With such sentiments, and with the power to act in the hands of religious bodies whose creeds bordered upon fanaticism rather than humanitarianism, naturally advancement could not be expected.

Though possible to classify the forms of treatment, it is impossible to consign any one of them to a definite period. In the history of venereal diseases it is the technic rather than the principles of treatment that have been modified. For example take injections, the principle of using a syringe has been constant as has been shown, and the modifications in treatment have followed along the lines of medication, evolving from the stage of sweet milk and honey, previously mentioned, through innumerable numbers to the modern antiseptics and astringents of today.

The notions entertained as to the causes and nature of the disease, however, permit of a division of the history of venereal diseases into 3 natural epochs: (1) The religiophilosophic and metaphysic period from the year 1500 B.C. to about 1700,

A.D.; (2) the clinical, from 1700 to 1879; (3) the microbic, from 1879 to date, 1904.

As to the first period, enough has already been said as to the general belief that an omnipotent power was the cause of the disease, yet it may be of interest to sketch some of the ideas held by individual authorities. The opinion of Hippocrates, the father of physic; Celsus, Galen, and other ancient writers, can be readily dismissed, for though they mention various affections of the generative organs, they are not stated to have followed sexual intercourse.

In the thirteenth century the contagion was attributed to foul women, and was supposed to originate in hot humors which found their way out of the body through the womb. Thus the pure expectant treatment again came in vogue, and the discharge, supposed to consist of laudable pus, was not checked, as it chased the bad humors from the body. A clever idea at times put into practice today, I believe?

In the fifteenth century the theory of astrologic influences was held even by the best educated physicians of the times, though it was union that caused the disease, it was union of the gods, Venus with Mars, or Jupiter with Venus. And though the chivalry of the middle ages has passed, yet the human characteristic of blaming someone else, if not the gods, still exists. Later, more special causes were sought for, and it was attributed to leprosy, ulcers of the womb, use of lime in bread, to wells poisoned by the Neapolitan. (The renowned Fallopius was an ardent advocate of this latter cause.)

In the seventeenth century, even Van Helmont believed the disease sprung from unnatural connection between man and horse. Many more hypotheses as vague and fantastic as these could be given, but being the principal ones, I shall desist and pass to the second, or clinical period, and to the authorities and makers of history in this branch of medicine. I speak of masters—Astruc, Hunter, and Ricord. Astruc, physician to Louis XV, in 1736, wrote the first methodic treatise on venereal diseases, claiming that venereal diseases were brought to Europe by the followers of Columbus. His work was divided into 2 parts: the first described the first stage or local venereal disease and included: (1) Virulent gonorrhea; (2) venereal bubos; (3) chancres; (4) verrucas and condylomas.

In the second or systemic stage, he classified the constitutional symptoms of syphilis anatomically under 9 separate headings. It must be here recalled to mind, before proceeding further, that even during this period clinically, gonorrhea, chancroids, chancres and syphilis were considered one and the same disease until Benjamin Bell in 1782 brought forward his experiments and reasons for separating gonorrhea from syphilis and chancre. The great Hunter, like Astruc, admitted the existence of a venereal virus, but maintained that the one virus caused all the venereal diseases and affected the system in two ways, primarily or locally, secondarily or constitutionally. That when the virus came in contact with the mucous membrane, gonorrhea resulted; on the contrary, when it came in contact with the skin, chancres.

From Astruc's and Hunter's time the genitourinary surgeons were practically divided into 2 great camps. The "virulists," among whom were Diday, Rollet and Martin; who were so by a sort of nosologic instinct, by a conviction that could not be proved. But a greater number of the medical men shared the opinion of Brüssais on this point and believed it quite a local inflammatory disease. They were the "antivirulists" or phlogogenists, because of the hypothesis (maintained by Ricord) of a catarrh produced by the contact of two organisms, both equally pure and created by the ardor of embraces.

The germ theory, which began to develop about 1820, and reached its full development in 1850, had no material influence on venereal diseases until 1879, when Neisser discovered the specific germ of gonorrhea—the gonococcus. With the discovery of this germ, there has developed a fallacy that again threatens to plunge us into a period of inactivity. This is that a germ is not subject to the laws of evolution and has a "specific consistency" of infection. In other words, the belief that to cure a disease all we have to do is first discover the specific germ, then the remedy that will kill the germ and—the disease will vanish.

We forget that the gonococcus is an organic being and subject to the same evolutionary laws as man. Therefore in adapting itself to its environments, it is capable of not only having its type changed, but also of having its properties modified. This practical fact, that a germ may generate new and virulent properties, is one worthy of being remembered.

Today the treatment of gonorrhea stands almost as it did 20 centuries ago; expectant, modified expectant and injective, with the addition of this one great step, the discovery of the specific germ. Why has not this discovery caused greater improvement in the treatment of this disease than now exists? For one simple reason, we have not learned the lesson history teaches, that a fact taken in the abstract is often a stumbling block to progress, but are attempting to improve the treatment along one and the same line as our ancestors did before us. By changing or improving the drug used. For this today, is the popular dictum in treatment. Try one antiseptic drug; administer it hot, or administer it cold. Make the dose large or make it small. Let it remain a long time or let it remain a short time, but, if you do not succeed, try another.

I am not decrying this means of attaining a cure, for it has netted some very good results, one of which is the albuminated salts of silver. But is that the only line along which we should work? Is it rational and scientific to believe so? Let us for a moment review briefly all the lines along which improvements may be anticipated.

1. Biochemic research and observation along evolutionary lines, will enable us to control the life of the microorganism and thus its infectious properties, and likewise comprehend the factors that decrease the susceptibility of the human body for the gonococcus and increase its resistance to it.

2. By construction of a syringe with due regard to the anatomy and physiology of the parts, one that can be used by the patient himself, that can be used both for interior and posterior injections, that can be sterilized, and yet, be so regulated that in anterior urethritis it will always inject a quantity of liquid corresponding in size to the individual patient's urethra, and the inflammatory stage present, without forcing the sphincter. This, I believe, Dr. Englebreth of Copenhagen claims he has accomplished.

3. The discovery and manufacture of a drug of such bactericidal and penetrative properties that it will, if applied locally penetrate the tissues of the genitourinary tract, kill the bacteria, yet not injure the infected tissues.

4. Obtaining a drug of such strength and properties that, if administered internally, it will destroy the gonococci and its toxins, as quinin does the plasmodium of malaria, and mercury the germ of syphilis.

5. Obtaining an immunizing serum or antitoxin.

6. The discovery of a microorganism capable of growth in the urethra, yet nonvirulent to the host, but destructive to the gonococcus and a neutralizer to its toxins.

If, now, we consider each of these means rationally and without bias, we will discover that not in any one of them can we hope to find a panacea, but rather a form of treatment that unites the good qualities of each; and will so control this disease that in the time to come, future generations will either not know gonorrhea, or will only know it in a modified form, and robbed of its serious consequences, as we today know smallpox, syphilis, etc. I believe that we will live to see the idea of the specific consistency of germs uprooted, and as a result the future genitourinary surgeon will also be a physician, who will devote time to the systemic treatment of gonorrhea, with the object of destroying the gonococcus, through increasing the bodily resistance to that organism. The local treatment, and the syringe, will be only one of the means to the end, and not the main road to a universal panacea.

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THE SUBSTITUTION OF POTASSIUM CYANID FOR AMMONIUM CARBONATE, WITH FATAL RESULT.

BY

P. S. DONNELLAN, M.D.,
of Philadelphia.

To the Editor of American Medicine:—I have read with much interest in your issue of February 24 your editorial comment regarding the dramatic suicide of Whitaker Wright in a London Law Court recently, and your incidental reference to the fatal mistake of the substitution of potassium cyanid for ammonium carbonate in a prescription which occurred in Dublin a third of a century ago.

Perhaps it may interest your readers to know that the Dublin patient referred to was the head of the celebrated Guinness family of brewers and philanthropists. He had been ill with acute bronchitis and, as you correctly state, was given a prescription by his physician for a mixture containing ammonium carbonate. This was dispensed by the leading apothecary of the city, but the patient died a few minutes after taking the first dose. A rigid inquiry followed, with the result that the mistake was discovered to have been made when the ammonium carbonate bottle in the dispensary department was found to have been empty some days previously and was filled from the bottle in the stock room, but in doing so potassium cyanid was substituted by mistake, so that when the drug clerk dispensed the Guinness' prescription, he, unknowingly, gave the fatal drug, for the bottle was labeled "ammonium carbonate," and he was deceived by the similarity of appearance and by the presence of the odor of the nonpoisonous drug which clung to the dispensing bottle.

This was a *cause célèbre* at the time and for many years after was always a favorite theme in the course of lectures on Materia Medica in the Dublin medical schools.

INSPECTION OF SERUM AND VACCINE PRODUCTS.

BY

M. T. NAUGHTON, M.D.,
of Chicago.

To the Editor of American Medicine:—In your issue of November 14, Dr. Evans, of West Virginia, says, "he has been informed that the U. S. Government requires inspection in all of their departments of all establishments in which toxins, antitoxins, vaccines, etc., are prepared, and that interstate traffic in biologic products prepared in establishments having no such inspection is prohibited." This, unfortunately, is not true, but there is no doubt in the minds of medical men using such preparations that it should be so, and that such inspection by the Federal Government is absolutely necessary in order to standardize dosage, control the technic of manufacture, and to see that the laboratory animals are free from mixed infections.

The Bureau of Animal Industry of the Department of Agriculture, acting under authority of the Interstate Commerce act and other Federal laws, is at present engaged in the most extensive hygienic task of any sanitary corps in existence. Every pound of meat and other animal product intended for interstate trade, is rigorously inspected, and millions of pounds of diseased meats are condemned and converted into fertilizer every year. (See Dr. D. E. Salmon's reports, Washington, D. C.) This supervision is done without interfering in any way with the packer's business, except to see that his finished product is fit for food.

The law that gives authority for this kind of work also gives the department power to regulate interstate traffic in biologic products.

At present there is no disinterested supervision of the marketing of this line of animal products. We can only rely on the commercial honor of manufacturers that the article is what they represent it to be. We have no alternative but to take their word, and many times it appears that our confidence has been misplaced. We do not get expected results, sometimes we are unfortunate enough to have a patient die, the direct result of contaminated serum medication. I have seen very bad results

of vaccination in the hands of careful men, who relied on the product they were using. Last summer, for instance, I was exposed to smallpox, and thought it would be well to vaccinate myself and my child. Both of us were thoroughly septic as a result, in spite of modern treatment.

Again, diphtheria has been robbed of its terrors by the serum treatment. After an experience of over 1,000 cases so treated, I regard an honestly prepared diphtheric serum as near a specific as that term can imply, but there are many brands on the market. We cannot always get what we want in the shops. We may not have the time to wait, so we use what we can get; oftentimes it seemed to me that I was using inert sterile horse soup, so far as physiologic action was concerned. This should not be so. Every single dose of virus or vaccine should be certified to by the Federal Government, so that the man in Oregon can have just as reliable a product as his colleague in New York.

I am sure reputable houses would welcome supervision of this kind under such regulations as the department may see fit to prescribe.

Our desks are covered with literature advising patronage of some new firm that supplies a "splendid" article cheap. We have no reason to doubt the statements of the heads of those concerns at the time the article is purchased, but we do know that their products differ. We do know that commercial honor is a peculiar thing, and that department managers must show a profit to the owners of the establishment or quit. Let us urge the government to take this very important matter up at once, for the protection of the patient, ourselves, and the manufacturers.

RÖNTGEN RAY TREATMENT OF PATIENTS.

BY

WILLIAM S. NEWCOMET, M.D.,
of Philadelphia.

The treatment of patients by the röntgen ray is extremely tedious, when one patient after another must be protected by an individual screen, and each given a period of 10 minutes for the exposure. This most annoying obstacle is removed to a great extent by the use of a protecting screen, such as described below. The time of a competent operator is valuable, and when the röntgen ray has been employed by those who do not understand the working of the apparatus and the effects upon the system, poor results have usually followed, and those in charge have become discouraged, and the whole matter dropped.

While these points are in favor of the operator, there are just as many in favor of the apparatus; the tube, for instance, which is always subjected to such rapid degeneration, will do more work than when only one patient at a time is treated, and since it has been proved that the röntgen ray generated in all the active portion is about the same intensity, there is no reason why the whole portion of this light should not be used. This also saves the contact, of the coil, and no more electric energy is needed to treat 4 patients than would by ordinary methods be used in treating 1 patient.

The frame is made of wooden strips about 2 inches wide and 5 feet 5 inches high, the distance from the 2 sides is 20 inches; this makes a center of 10 inches; the front will give 2 more sides of 12 inches in width, 10 inches from a common center; the back is left open for the operator to work the apparatus, and at the same time he can see the proper exposure of the area to be treated, which cannot be done so readily by the other methods. If this frame were complete in the back it would be a regular 6-sided prism. The whole frame, or at least the active part, is covered with lead, and in this lead windows of varying sizes are cut; these windows have smaller sheets which reduce the size to the desired opening for the individual case. The tube holder is fastened to the side of the frame, and should have several universal joints which will allow the tube to be set at different positions beside varying the distances between the different sides, should this be desired; for instance, by moving the lamp forward to within 6 inches to the 2 front sides, it will still be 10 inches between the 2 lateral

sides. For the sake of privacy, movable frames are made to fit at the 3 corners. These can be covered with some material that will give all the privacy of separate rooms; these frames should be fastened with a hinge that is easily detached.

Beside the use of this frame in the treatment of patients, it can also be used for fluoroscopic examinations, the patient fixes the part to be examined before the window, then the fluoroscope is placed against the part; in this way the operator is not exposed to the ray, and therefore he is less likely to suffer from the burns that are so frequently seen.

This reason alone should recommend the use of some apparatus such as I have described.

AN INTERESTING CASE OF LAPAROTOMY.

BY

R. H. VON KOTSCH, M.D.,
of Chicago.

To the Editor of *American Medicine*:—I desire to report the following case, which may prove of interest to some of your readers.

Recently, a meat dresser in the Chicago packing house of Swift and Company, performed a laparotomy on a common Minnesota cow. The abdominal incision brought the stomach into the field of operation, and upon incising the wall of this organ, a hard solid mass, covered with a slight coat of mucus, was found in the stomach. The mass was shaped like a cricket ball, and weighed nearly 14 ounces. Inspection showed that the ball consisted of particles of grass, hair, no less than 1,000 ordinary pins, and 2 good-sized nails. The pins were all bent in a most peculiar way, points were all inward and heads toward the outer surface of the ball.

Conjecture is rife as to the presence of the metal ball. A plausible theory is, that the bovine, while grazing, picked up a package of pins, or perhaps 2 or 3 packages. These succeeded in reaching the stomach, and, in the process of digestion, formed the spheric mass.

LICENSURE.

BY

D. J. M. MILLER, M.D.,
of Philadelphia.

To the Editor of *American Medicine*:—The concluding clause of Dr. Sheets' letter on "Licensure" in your issue of December 26, 1903, that in three instances he has known registered pharmacists to interpret the Latin preposition *ad* as an abbreviation of the English word *add*, and so incorrectly compound prescriptions is, it seems to me, worthy of notice.

Twice have I met pharmacists who entertained the same misconception of the Latin word. In one case the offender was a registered pharmacist, the proprietor of a small shop in a portion of the city occupied by artisans, small tradesmen, and mill workers; in the other, he was not registered, conducting a moderate prescription business at a seaside resort.

How many more, as ill-informed as these two, are compounding prescriptions under the ægis of the boards of licensers I do not know—I hope and believe but a few; that at least five are so doing is shown by the experience of Dr. Sheets and myself.

The passing of such men by colleges and licensing boards is an evidence that these bodies do not scrutinize rigidly and thoroughly enough the acquirements of the candidates who come before them.

Tenth International Congress of Ophthalmology.—The committee of the Tenth International Congress of Ophthalmology has charged Professor Dr. A. Siegrist, Bern, Switzerland, with the preparations for the appropriate exhibition of all scientific apparatus, instruments, and the various appliances for instruction, which will be sent to the Congress. He therefore requests all colleagues, as well as all scientific, optical, and mechanical firms who wish to exhibit any objects at the International Ophthalmological Congress in Lucerne to apply to him before July 1, 1904, giving an exact statement of the object to be exhibited, of the space demanded, and of the kind and strength of electric force which may be required. Objects, which are announced later, can only be accepted as far as the space at disposal will still allow.

ORIGINAL ARTICLES

RECENT RESEARCHES IN RADIOACTIVITY AND ELECTRICITY. THEIR BEARING ON RADIO-THERAPY. LEGAL STATUS.*

BY

J. SHERMAN WIGHT, B.S., M.D.,
of Brooklyn, N. Y.

Assistant to the Chair of Operative and Clinical Surgery at the Long Island College Hospital Medical College and Assistant Visiting Surgeon to the Hospital.

A new era began in surgery with the discovery of the röntgen rays. The cathode rays, röntgen rays, and radioactivity, now promise to play as important a part in the therapeutics of malignant growths, in fact, have already shown potent effects on the metabolism of the cells of the body. Recent investigations with radiations, in which the electric properties of gases have played an important part, have given an insight into the nature of these radiations. A review of this work will give us some knowledge of what they have in common and enable us to discover how far this is effective in bringing about therapeutic results claimed for each in turn.

The discovery that the incidence of ultraviolet light on a spark gap facilitated the passage of the spark led to investigations on the effect of ultraviolet light on charged bodies.¹ It was proved that some metals lost their charges when ultraviolet light fell upon their surface, while if this surface was uncharged to begin with, it acquired a positive charge.² Sunlight is not rich in ultraviolet light rays as these have been absorbed by the atmosphere. The ultraviolet light is obtained from an arc light (carbon or iron terminals), burning magnesium, or by sparking with an induction coil between zinc, iron or cadmium terminals.³ These rays affect the conductivity of gases. In high vacua, metals when illuminated with ultraviolet light give out corpuscles, *i. e.*, bodies whose mass is only $\frac{1}{1000}$ of that of the hydrogen atom and their velocity through any gas is very approximately the same as that of the ion produced by the röntgen rays through the same gas.^{4,5} The photoelectric effect is diminished when the pressure is low by a transverse magnetic field.⁶

Radium gives off rays that are deflected when placed in an electric field and hence carry a charge of electricity.⁷ It also gives off nondeviable rays that are absorbed by aluminum foil. Heating has an enormous effect on the issue of the emanation from radium. In order to determine an increase due to heat, the radium is placed in a platinum tube, a constant current of air is passed over the radium and through a testing vat in which the saturation current is measured, the latter is due to the ionisation of the air in the vat, by the radiation from the emanation and also by the induced radiation of the walls of the vessel which become radioactive. On heating the platinum tube red hot the current increases 5,000 times. The emanations are found to be but very little increased over those in the cold state, on cooling the radium down and reheating after a few hours.⁸ This is due to a radioactive gas which has been found to exist in radium and has a molecular weight between 40 and 100, while the molecular weight of

radium is 225, so this gas cannot be radium. Rutherford and Soddy* give strong reasons for supposing that radioactivity is the result of the breaking up of the atom; thus the radium atom breaks up at first into the positively electrified particles which constitute the α rays, the emanation, and possibly other substances; the emanation breaks up, one of the products being the substance which gives rise to induced radioactivity, this, as it is radioactive breaks down again into products which, since they are not radioactive, have not been detected. It has been found that a strongly negatively electrified body suspended in the open air becomes temporarily radioactive. It will ionise the air in its neighborhood and affect a photographic plate. This body can be a conductor or insulator.⁹ This induced radioactivity falls to about one half its value in three quarters of an hour. It is more penetrating than the rays from substances made active by the thorium emanation, or than the nondeviable rays from thorium and uranium. The emanation from

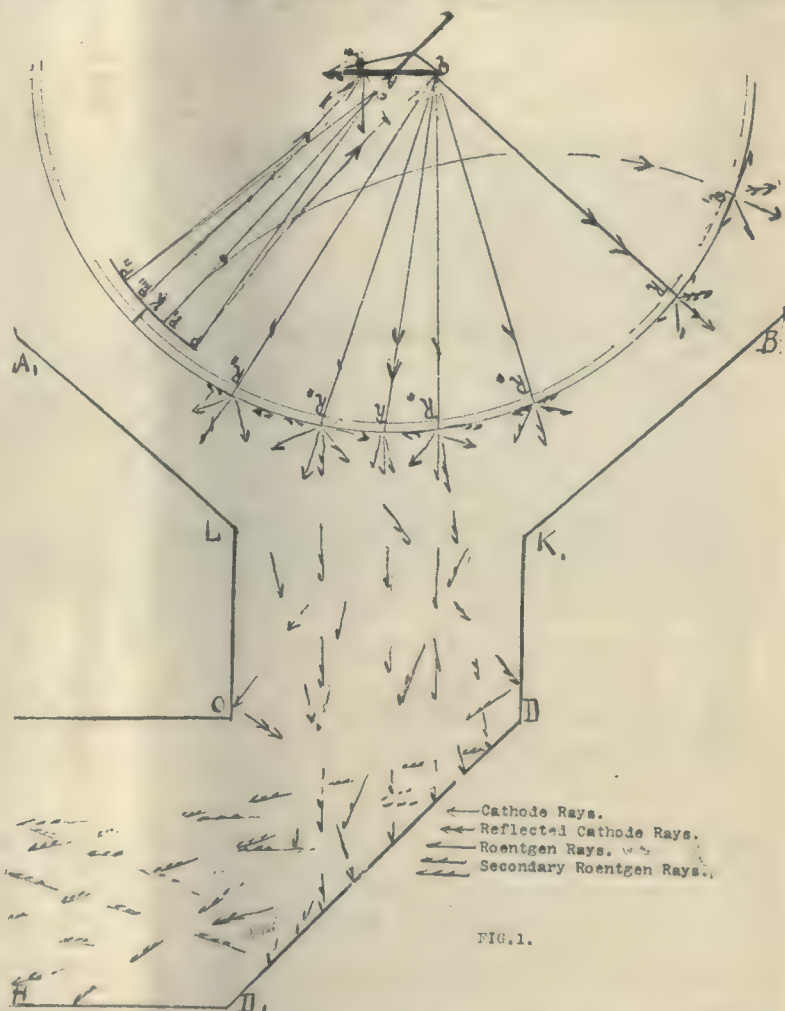


FIG. 1.

thorium will be attracted to a body charged with negative electricity and the induced radioactivity will be concentrated on this body at the expense of that on surrounding objects. C. T. R. Wilson has observed radioactivity in freshly fallen rain and the rate at which it dies away is about the same as that on a negatively electrified body. The radioactivity of rain and a negatively electrified body is induced radioactivity. Elster and Geitel ascribe the induced radioactivity to the deposition on the body of some radioactive substance which is diffused through the atmosphere as that product

* Read before the State Medical Society, January 27, 1904, at Albany, N. Y.

* Phila. Mag., Vol. vi, p. 576, 1903.

to the surface of the cathode, so we have negative ions starting from close to the surface of the cathode; these are driven from it with such velocities that they ionise the gas through which they pass, producing a supply of positive ions which are attracted by the electric field up to the cathode, there to produce a fresh supply of negative ions. (Fig. 1.)¹⁰ (There will be no cathode rays arising from that portion of the cathode in the shadow of a body interposed between the cathode and anode.) M. Villard proved in 1899 that the cathode rays are negatively electrified corpuscles— $\frac{1}{1000}$ of the mass of the hydrogen atom and their velocity through any gas approximately the same as that of an ion produced by the röntgen rays passing through the same gas.

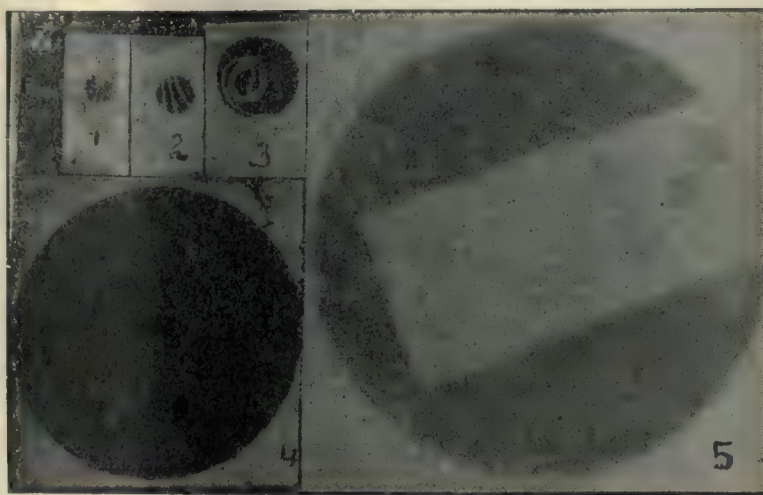
The impact of the cathode rays produces chemie changes on the haloid salts of the alkali metals, and they exert a reducing action on oxidized plates. The thermal effect is sufficient to raise platinum to incandescence, fuse glass, and char the surface of a diamond, when placed at the point of concentration when a portion of a spheric shell is used as the cathode. The thermoluminescence exhibited by certain substances, *i. e.*, the power of becoming luminous when the temperature is raised to a point far below that at which they became luminous when in their normal state, after exposure to the rays, is regarded as arising from the ionisation of the substance, causing complex substances to be formed, stable at ordinary temperatures, but unstable at high temperatures, decomposing and producing thermoluminescence. The phosphorescence of some gases, especially those which polymerize with great ease, which is observed after electric discharges have passed through them would be due to the formation of complex molecules unstable at the temperature of the room.¹¹

When the cathode rays strike the surface of either a conductor or an insulator, cathode rays start from the surface in all directions. This reflection is very diffuse, but greatest in amount in the direction in which the angle of emergence is equal to the angle of incidence.¹² The velocities of many of the reflected rays are much less than those of the incident rays. The surface struck by the cathode rays emits secondary rays of lower velocity which is in many respects analogous to the emission of corpuscles from a body illuminated by ultraviolet light. The corpuscles of the primary rays penetrate some little distance below the surface ionising the molecules against which they strike; the secondary corpuscles produced in this way, and perhaps also some of the primary ones whose motion has been reversed by collision with the molecules of the reflector, escape from it and form the reflected rays.

Lenard proved the transmission of the cathode rays through solid bodies by showing that the rays transmitted through aluminum and coming from the cathode of a vacuum tube were deflected by a magnet and by an electric field, and carry a negative charge of electricity, proportional to the mass of the carrier and of the same value as for cathode rays.¹³ The cathode rays are deflected by an electric force, hence as the electric field is very intense in Crookes' dark space, the rays as they pass through this space will be deflected, even if the lines of force are straight and their paths will not quite coincide to the normals to the cathode at their point of projection. Deflection also occurs with converging rays from the cathode, due to the electrostatic repulsion of the negative electricity traveling along the cathode rays by the strong electric field which surrounds the cathode. Since the cathode is an equipotential surface, and if the corpuscles leave that surface normally and with equal amounts of energy, their paths will, by the principle of varying action, be the orthogonal trajectories of a system

of surfaces. Corpuscles are projected from an incandescent metal or glowing piece of carbon, the same carriers as the cathode rays, these are negatively electrified bodies of constant mass, and in all cases yet investigated, act as the carriers of negative electricity in high vacua. When they pass through a gas, moving at a high rate of speed, they make it luminous.

It has been shown that the spot struck by the cathode ray is the place where the röntgen rays originate, by taking photographs of a card pierced with pinholes, and drawing lines joining the photographs of a hole with the hole itself, and finding their point of intersection. Thus, when the cathode rays strike the walls of the tube, the phosphorescent part of the glass is the origin of the röntgen rays. (Fig. 1.) Those rays that impinge normally are more effective in producing röntgen rays than those which strike obliquely, absorption taking place through a greater depth of the glass, so that when the cathode rays strike against a plane area the röntgen rays come off approximately uniformly in all directions.¹⁴ This explains the uniform effect of the röntgen rays on a hemispheric photographic film placed so that its border intersects the plane of the platinum disc. The röntgen rays incident on a spark gap facilitate the passage of the spark. They ionise gases, increase the electric con-



Effect of primary rays from concentrator on a photographic plate

ductivity of badly conducting liquids, and the electric absorption of solids.²⁵ Diffractive effects have been shown similar to the diffractive fringes with sunlight, corresponding to the order of thickness of the discontinuous pulse. When röntgen rays pass through a substance they cause it to emit röntgen rays called secondary rays, which in many cases are different from the primary rays which produced them. This substance may be solid, liquid, or gas. More rays are produced when the primary rays impinge on a metal plate than when rays of the same intensity pass through air without coming into contact with the plate and the saturation current is higher when a lead plate is used.¹⁵ These secondary rays are detected by their action on a photographic plate. I have obtained them for therapeutic use by enclosing a tube generating röntgen rays in a metal box having a window opening into a metal tube to confine the rays, called a concentrator.

PLATE 1, shows both the exterior and interior views of this metal box m'bdrrh" with the concentrator A'A'L/Lt in position. The interior view shows that portion of the back of the metal plate, A'A'L/L, that fits into the square opening in the metal box with the metal ring that carries the projecting arms, aaaa, that hold the concentrator fast by drawing the projecting surface of the plate A'A'L/L, as appears in the exterior view, tightly against the outer surface of the box. Turning the arms through an eighth of a revolution releases the concentrator.

Fig. 2, shows a vertical section through the long axis of the

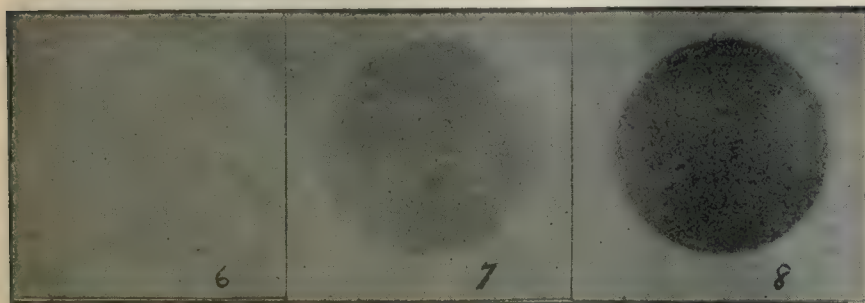
concentrator. The plate A' LK' B is in contact with the outer face of the box, JJ', and the arms aa are in contact with the inner face. This holds the concentrator in position. The elbow mx D' H F D' m' is shown on the end of the tube, LDK' O. The paraffin block, ETT' E', makes an angle of 45° with long axis of the tube. The cap, nzz' n', carrying the adjustable diaphragms, gsg', is on the end of the elbow tube and gives exit to the rays through the opening, wg". The advantage of using a conical tube concentrator is so small as to be disregarded.

The röntgen ray tube placed in the metal box opposite the opening into the concentrator at LK' projects the röntgen rays along the paths /. They impinge on and penetrate below the surface of the paraffin block, ETT' E' and give rise to the secondary röntgen rays /- that pass out through the opening wg'.

PLATE 2, shows several views of my concentrator with attachments and the effects on a photographic plate of the pencils of both primary and secondary röntgen rays, the latter after passing through $\frac{1}{8}$ mm. of aluminum. I have found these secondary rays valuable in treating healing surfaces left by the removal of malignant growths and the delicate structure formed in the repair of grafted surfaces. The concentrator protects patient and operator.

A cap of one to three thicknesses of tin-foil is used to sift out the soft rays in applying primary röntgen rays to affect deep structures, as it will be seen (vide infra) that the soft rays never touch them, but burn the surface.

We may compare the effects produced when röntgen rays fall on a metal plate with those produced by the incidence of ultraviolet light; *vide supra*, in both cases cathode rays are emitted by the metal. The secondary röntgen rays may be compared with the reflected light given out by certain substances under the influence of ultraviolet light, for which the reflected light is the same quality as the incident light. The secondary rönt-



Effect of secondary rays produced as indicated and passing through $\frac{1}{8}$ mm. of aluminum, on photographic plate. 6, secondary röntgen rays from lead plate. 7, secondary röntgen rays from paraffin block. 8, secondary röntgen rays from brass plate.

gen rays are not of the same nature as the primary rays, being much more easily absorbed. On account of the great absorption of the secondary and cathode rays, the layer from which they come must be very close to the surface. Langevin* has investigated the secondary radiation produced when the primary rays fall upon a metallic surface, and has shown that the denser the metal the smaller the penetration of the secondary rays, and also that the penetrating power of the secondary rays increases with that of the primary. J. J. Thomson has shown that the amount of energy radiated away in the röntgen pulse varies inversely as the thickness of the pulse, and the thickness of the pulse depends on the abruptness with which the particle is stopped; if the stoppage is very abrupt, the pulse is thin, if it is gradual, it is thick. The thin pulses move with a high velocity, and go much further before losing their energy, and would, therefore, be more penetrating. It follows that the penetrating rays affect the tissues of the body only in proportion to their loss of energy in passing through the body. This loss is gradual, therefore the total energy of one pulse is not given up at any one point of its path. The thick pulses lose all their energy in their passage through the skin. On the electromagnetic theory of light, the pulses which we suppose to constitute the röntgen rays are in many respects identical with the rays of visible light; both consist of electric and magnetic forces at right

angles to each other and to the direction of propagation; the difference between the röntgen rays and a beam of sodium light is that the thickness of the röntgen ray pulse is very small compared to the wave length of sodium light, and that in the röntgen rays there is not that regular periodic character occurring in a train of waves of constant wave length. Blondlot has shown that there is in addition to the röntgen rays, a new type of rays, which he calls the N rays, given off by the röntgen ray tube. These rays are also emitted by incandescent burners and sparks, they are refracted, and are apparently very long, some measured by Sagnac had a wave length of one-fifth millimeter. When these rays fall on incandescent platinum they increase its brightness without appreciably increasing its average temperature.

In Fig. 1. the cathode rays starting from P, P', P'' are deflected by the electric field in Crookes' dark space, and do not follow the normals to the cathode at these points. If the pressure in the tube is not very low, the paths of these rays will be along the radii of the cathode, and will be brought at a focus at the center C. If the platinum disc is at this point, it will be heated white hot, and the efficiency of the tube in röntgen rays will be very small or nothing. When the pressure of the gas in the tube is within certain limits, the cathode rays do not form a solid pencil, but are condensed into a hollow conical shell. The deflection of the cathode rays depends mainly upon the rate at which the intensity of the electric field diminishes as we recede from the cathode. When the pressure is lower, the field changes slowly as we recede, as the exhaustion is increased, the deviation of the rays is greater and the focus gets further from the cathode. The path of the cathode ray will not be along the normal PC, but along PQ somewhere

between the normal and the line of force in the field. There will be a diffuse reflection of cathode rays at Q resulting in the less intense cathode rays QR, which on coming in contact with the phosphorescent parts of the glass at R cause the emanation of röntgen rays and still weaker cathode rays, while some of the reflected cathode rays from Q pass on through the wall of the tube. Q will also be the origin of the röntgen ray QR' which passes through the wall of the tube at R'. R' also becomes the origin of secondary röntgen rays and cathode rays. All the rays take straight paths from Q, since they leave the surface of a plane disc. P'Q' will be the path of a cathode ray when the focus has receded still further from the cathode. It will be effective in producing röntgen rays at the phosphorescent part of the glass where it impinges as well as cathode rays. If the metallic elbow-tube A' LOFBKD' D'H is placed to receive the röntgen rays emanating from the surfaces of the tube and the platinum disc within the tube on the lead plate DD', secondary röntgen rays will emanate from their points of contact with this plate as well as from beneath its surface. Cathode rays are also given off; the plate emits negative electricity and acquires a positive charge. Most of those coming from below the surface will be absorbed during their exit, as they must travel through the same distance as the original ray producing them, and are much less penetrating. If a solid block of paraffin replaces the lead plate, the secondary rays will be more penetrating than those coming from the lead plate in the proportion of 15.5 to 6. The paraffin is less dense, and the secondary rays meet less resistance to emergence.

Some röntgen ray tubes have a small auxiliary tube attached, which gives emanations that ionise the gas in the main tube before the discharge takes place in it; they also contain a salt that gives off water vapor or other gaseous impurity in the main chamber of the tube, which as well as the ionisation, increases the conductivity of the gas in the tube. While in operation these tubes maintain a fairly constant rate of change in the intensity of the field receding from the cathode. They can also be operated at different values for the conductivity of the gas in the discharge tube, giving hard or soft rays, at the will of the operator, within certain limits. With a given low pressure in the tube, the röntgen rays increase as the electric energy supplied to the tube increases, till the cathode rays are projected from the entire concave surface of the cathode and the rim of the bowl. The rate at which the intensity of the field changes as we recede from the cathode is slow and

* Recherches sur les gaz ionisés.

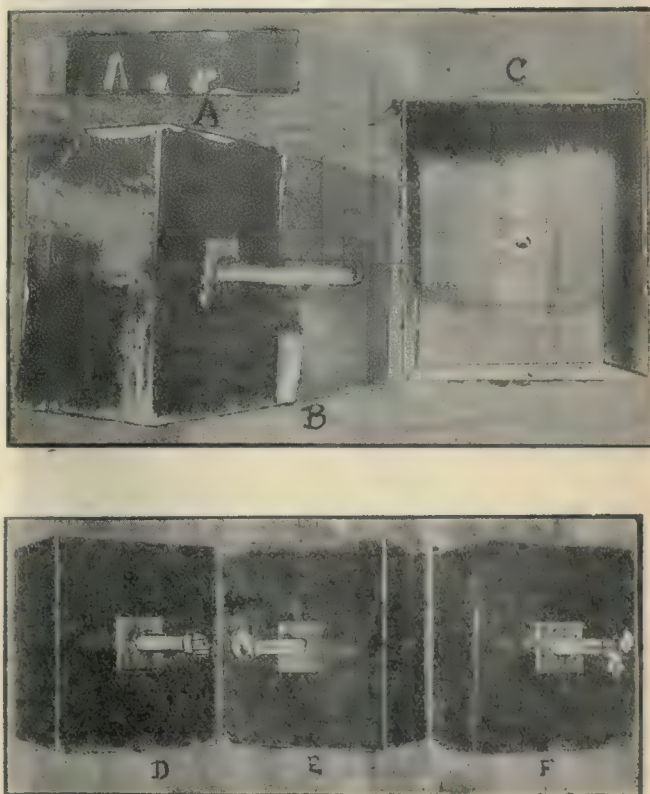
the focal point is the same distance from the cathode, whether a portion of the cathode or the whole cathode is giving off cathode rays. The kinetic energy at the focal point would be greater when cathode rays are being projected from the whole surface of the cathode. The shorter the radius of curvature of the cathode, the nearer the focal point, and the lower the pressure required in the tube to cause it to recede to a point on the platinum disc. The increase in röntgen rays with an increasing supply of electric energy to the tube goes on till it is at a maximum, when the platinum disc is a dull red heat and falls when it becomes a yellow heat. The cathode rays leave the cathode at a very great velocity. Their collisions with the molecules of the gas cause secondary cathode rays to be formed. The intensity of cathode rays therefore increases up to a certain distance from the cathode and then diminishes beyond that point. This place varies with the velocity with which the corpuscles are shot out from the cathode. The higher the vacuum in which the discharge takes place, the greater this velocity, therefore this point would change with the pressure. If the cathode rays should come to a focus at a distance from the cathode where this maximum of intensity is attained, the kinetic energy at this point would be enormous. Beginning at a very dull red heat, there are positive ions around the platinum disc, and these increase as the temperature increases. Negative ions, however, do not make their appearance until about a bright yellow heat; they increase more rapidly with the temperature than the positive ions, until at very high temperatures there are as many negative as positive ions, indeed, the number exceeds that of the positive ions.²⁶ Thus, the temperature of the platinum disc limits the increase in intensity, and finally diminishes the supply of cathode rays. A water-cooled platinum disc lessens the injurious effect of heat to some extent. Since the cathode rays come from the surface of the cathode, the larger the surface projecting them the more rays in a unit of time. A strong magnetic force parallel to the line of discharge produces a large diminution in the potential difference required to spark through the tube. This can also be produced by covering the tube in the neighborhood of the cathode with tinfoil connected with the cathode or by grounding the cathode terminal.

The secondary radiation is explained if we take the view that the röntgen rays consist of exceedingly thin pulses of very intense electric and magnetic force. Suppose that such a pulse is traveling through a medium containing ions, it is not necessary that the ions should be free; when the pulse reaches a charged ion, the ion will be acted upon by a very intense force and its motion accelerated. When the velocity of a charged body is changing, pulses of electric and magnetic force proceed from the body, the magnitude of these forces being proportional to the acceleration of the body; thus, while the primary röntgen pulse is passing over the ion and accelerating its motion, the ion gives out a pulse of electric and magnetic force, the secondary röntgen pulse; this ceases as soon as the primary pulse has passed over. There are several sources of loss of energy here. When we take into account the energy absorbed by the ions and neglect that radiated by them, the coefficient of absorption increases with the thickness of the pulse and the distance between them. The broader the pulses, the greater the absorption. The soft rays correspond to the broad pulses and the hard rays to the narrow penetrating ones. Tertiary rays have been obtained by allowing secondary rays to fall on a metal plate and correspond to still broader pulses.¹⁶

A striking analogy of the properties of ultraviolet light rays, cathode rays, röntgen rays, radioactivity, and electric discharges appear in this review. This, together with the results of investigation here set down, suggest more practical methods for their application in medicine and surgery, and their bearing on the constitution of the living cell will appear in a study of its physiology.

The metabolism of living substances upon which all life is based, is conditioned by the existence of certain labile compounds which stand next to the proteids, and on account of their elementary significance in life are best termed biogens.²¹ We must imagine that by reason of the extremely active intramolecular motion of the atoms, which is the cause of the labile condition, certain atoms, partly spontaneously and partly as a result of external commotions, come under the influence of others, for which they possess greater affinity than for their original neighbors, and in this manner more stable groupings of atoms arise as independent compounds. In this respect the biogens can be compared to explosive substances, the atoms of which possess, likewise, very labile equilibrium, and which upon receiving violent shocks explode, *i. e.*, rearrange their atoms into more stable compounds.

The biogens agree in essential structure, but differ in



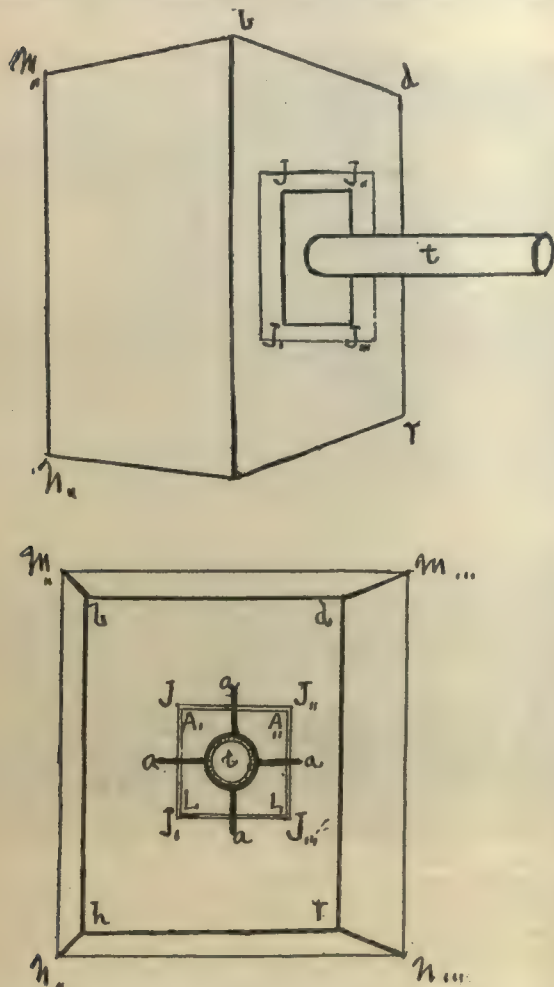
A, adjustable diaphragms, paraffin box, lead and brass plates for producing secondary rays. B, concentrator in position. C, inside of metal box, showing method of securing concentrator. D, cap, carrying diaphragms in position. E, elbow tube for secondary rays in position. F, concentrator and elbow; tube carrying diaphragms ready to produce secondary rays from paraffin box.

constitution in different cells and various differentiations of the same cell. The essential part of metabolism is the continual construction and destruction of biogens.²² It is known that by the introduction of oxygen the biogen molecule takes on an extraordinarily labile constitution, *i. e.*, its intramolecular heat becomes very great. As a result of this, the molecule tends toward decomposition and explodes, partly spontaneously and partly on slight external stimulation. This explosive decomposition depends upon a rearrangement of the atoms, whereby, as in all explosive bodies, within single atomic groups stronger affinities become united than were previously united in the labile molecule. Therefore, as a whole, the dissimilatory processes must be associated with considerable production of energy.

The compounds derived from this decomposition of the biogens which leave the body, such as carbon dioxide,

water, etc., contain scarcely perceptible quantities of chemic potential, while the compounds that remain in the body, the residue of the biogens, again possess chemic affinities for foodstuffs and oxygen, and employ them in uniting with the latter. The energy thereby made available is employed again for loosening the biogen molecule, and thus the chain ends. The principle upon which it is based is: There is a continual storing up of potential chemic energy and a transference of it into other forms; the source of it is largely the food and oxygen; the original capital is the chemical energy that every minute droplet of living substance has carried over from its ancestors; and the result is expressed in the work accomplished by the living substance.

If we consider the quantitative relation of assimilation to dissimulation in a considerable mass of living substance, for example such as is contained in a cell, we



find it very variable and even without the influence of stimuli it changes within wide limits. This relation of the two processes in the unit of time, which can be

expressed by the fraction $\frac{A}{D}$ termed the biotonus, is of

fundamental importance for the various phenomena of life. The variations in the value of the fraction, effect all changes in the vital manifestations of every organism. The events that lead to the construction of the biogen molecule and the formation of the decomposition products are very complex and consist of many processes closely interwoven. In order to understand the effect of any stimulus on the biotonus we must know if it excites or depresses and to what component of biotonus the action extends, assimilation or dissimulation.

When every increase in assimilation results in a cor-

responding increase in dissimulation, the biotonus should be expressed in a specialized way and the fraction takes

the form $\frac{a+a_1+a_2}{d+d_1+d_2} = 1$, in which a, a_1, a_2 , etc., and

d, d_1, d_2 , etc., represent the partial processes that combine to form the whole, and the metabolic equilibrium continues to exist in spite of the absolute change in the extent of metabolism. This is the internal self regulation of metabolism. It has been found as to its behavior toward ingested nitrogen that with a definite quantity of ingested proteid, about 118 gr. in the laboring man, nitrogenous equilibrium continues to be maintained; i. e., the more nitrogen introduced in the proteid, the more is excreted in the urine, a sign that the dissimulation of proteid increases in the same proportion as the assimilation.²³ Internal self-regulation of metabolism does not exist everywhere and when it exists it is confined within certain limits, for if it were effective at all times and in all places, continual metabolic equilibrium would exist, and growth, development and atrophy would be impossible.

The biogens are labile compounds that polymerize readily, the atoms of their molecules are in active motion. As a result of this, certain atoms come occasionally into the sphere of attraction of others, and becoming united with them into a more fixed combination, separate off as an independent molecule. When the chemic affinities made available by the withdrawal of the separate groups of atoms have an opportune possibility of combining again so that the residue of the biogen can be rebuilt into a whole biogen molecule, spontaneous assimilation follows spontaneous dissimulation. Any increase in the intramolecular motions of the atoms assists the process of dissimulation. In this way the decomposition of living substance takes place under the influence of chemic, mechanical, thermal, photic, and electric stimuli, and if these external influences are so strong that no residue capable of regeneration is left there results molecular death of living substance. On the other hand, the process of dissimulation is depressed by all factors that diminish the intramolecular motion of the atoms, such as forces that fixate single atoms in definite position, substances do this by chemic attraction. All factors that favor the union of the available chemic affinities belonging to both the biogen residues and the complete biogen molecules themselves, due to their inclination to polymerize, increase assimilation, e. g., increased introduction of food material and production of ferments to make them soluble, oxygen, light to split up carbon dioxid in the green plant cells and make the carbon available. The changes that vital phenomena undergo may be either quantitative or qualitative. The metamorphic process of necrobiosis, typified by amyloid metamorphosis, shows clearly that here individual members of series A and series D must slowly and gradually change, independently of one another, otherwise accumulations of individual substances that normally do not occur in the cell cannot take place.

The most important physical characteristic of living substance is its liquid nature. There are deposited within the liquid all sorts of solid elements of very various consistencies, so that the whole constitutes a mixture, but vital phenomena are associated only with a liquid organization. All the structures that have a rigid consistency, like tendons, connective tissue fibers, cell membrane, and the ground substance of bone and cartilage, show no active vital phenomena, and the old dictum, "*corpora non agunt nisi soluta*," although its universality may be attacked here and there, applies perfectly to living substance.²³ There is a uniform solid organization of the cells that enter into the repair of lesions of the body. This has come about through the loss of the liquid nature of the living substance of these cells. Bearing on the loss of the liquid consistency, is the

capacity of clotting or coagulating, a physical property that belongs to almost all proteids, with the exception of their hydrates, the peptones, and is connected with their polymerism. Bearing directly on the nutrition of the cells, is the further physical property of diffusibility. The proteids in their polymeric form will not diffuse through membrane, on account of the very considerable size of the molecule. They are chain-like combinations of many similar groups of atoms. The single similar atomic groups that arise by hydrolytic cleavage have the chemic characteristics of the original combination, but are smaller and, therefore, diffusible. Thus repair and nutrition appear to be connected with polymerism. The application of ultraviolet light rays, röntgen rays, and electric discharges to areas affected in certain pathologic conditions, such as ulcers, lesions of skin diseases, lupus (cancer after operation), etc., relieves pain and often brings about repair. This is not recognized as connected with any of their familiar physical properties. Experiment has shown their marked influence in retarding osmosis. When röntgen rays impinge on the surface of the body the molecules and atoms lose negative electricity and acquire a positive charge, negative corpuscles are given off which may, of course, combine with the positive ions, the body is ionized. A pointed conductor brought near the body will cause a spark discharge. The available chemic affinities of both the biogen residues and the complete biogen molecules would be affected, polymerism would be increased, and fixation of the atoms would in some measure take place. It has been shown that when the röntgen rays pass through one layer of tinfoil after another, the absorption produced by the first few sheets of tinfoil traversed is much greater than that due to the same number of sheets after the rays have already traveled through several sheets of tinfoil. This shows that some of the rays are readily absorbed, while others pass through with great facility.²⁷ The rays that are readily absorbed are the ones that produce burns, and play the most important part in ionization.

We have already spoken of thermoluminescence of solids and the afterglow of some gases under the influence of these agencies. The afterglow has been found to be connected especially with those gases that polymerize with great ease as oxygen and cyanogen, and is only developed between the pressure limits of 6 mm. and .01 mm.²⁴ If the discharge is sent through the gas at a pressure not between these limits, there is no glow but if the discharge has ceased and the pressure is altered so as to come within the limits the gas at once begins to glow, suggesting that the polymerized form is stable; that is, does not go back into the normal form except between the limits mentioned. The conclusion is that the proteids and biogens as well as some gases contained in the tissues are affected in their polymerism. The further effect on the tissues is electrochemic, due to the acceleration of the charged ions.

I have been able to show that high frequency discharges will clot blood acting as a hemostat, and will coagulate serum albumin, but this is in some degree due to the formation of nitric acid from the air but there is no destruction of tissue with ordinary care. I have made use of this in sealing surfaces after the removal of small diseased areas especially in the neighborhood of bone and in fixing grafts to granulating surfaces the results of which have been so uniformly successful in my experience that I now ask attention to the technic of this method of electric grafting: Render the granulating surface sterile; prepare it to receive the grafts by curetting it thoroughly; and while it is still oozing place the grafts of any form desired in position on the surface and bathed in blood; apply the high frequency discharge from a pointed electrode over the entire surface till clotting is firm and the grafts are fixed on a dry surface. Serum that is squeezed out in the process of clotting should be sponged off. The dressing consists of

3% carbolized vaselin on plain sterile gauze. It is renewed at the end of the third day. The repair follows in the usual way but takes a shorter course. Repair was hastened in some cases in which the secondary röntgen rays were used at the end of the first week.

The following cases were subjected to this method of grafting:

CASE I.—A. N., aged 42, liquor dealer, 18 months ago was operated on for varicose veins of the left leg, and the ulcer on the leg healed in the course of 10 weeks. The ulcer reopened in 2 months, attaining the size of a silver dollar, and was treated with some improvement to October 26, 1903. It was then given a 3 days' preparation with soap, water, and dilute carbolic acid. Reverdin grafts were taken from the thigh and applied by the electric method. At the end of a week the healing surface was exposed to the secondary röntgen rays for 10 minutes. This was repeated at intervals of 3 days. Repair was complete in 3 weeks, and has remained so.

CASE II.—Mrs. T., aged 36, recovered from a cellulitis of the right leg with an ulcerating surface extending from the outer malleolus $3\frac{1}{2}$ in., down on the dorsum of the foot, and 2 in. in width. I grafted the surface with Thiersch grafts by the electric method, November 24, 1903. The secondary rays were not used till the beginning of the second week, and only repeated twice, 15 minutes at a sitting. Repair was complete by December 29, 1903. I have not seen her since.

CASE III.—W. B., aged 40, mate of a steamship, was admitted to the service of Dr. Bristow at the Long Island College Hospital, Brooklyn, October 11, 1903, suffering with ulcers of both legs, covering the front of the legs and extending around to the calves from the knee to the ankle. The small superficial veins were injected and the ulcers had increased in severity for the past 5 months. I saw him on November 27, 1903. There was a high degree of inflammation of both legs. I had them scrubbed with soap and water and washed with alcohol. The same day I grafted the surfaces of the ulcers of the left leg with both Reverdin and Thiersch grafts by the electric method. The next day I grafted the right leg. The dressings were not removed till December 2, when the secondary röntgen rays were applied for 10 minutes. The legs were not again exposed to the secondary rays. December 23, 1903, the right leg was healed, and January 11, 1904, he was discharged from the hospital with repair complete in both legs.

CASE IV.—O. A., aged 29, housewife. Varicose ulcer of right leg, just below the patella for 4 months. She was admitted to the service of Dr. Bristow at the Long Island College Hospital, December 11, 1903. December 12, 1903, ulcer was curetted and bone drilled under general anesthesia. December 22, 1903, the case was referred to me, and I grafted a surface $2\frac{1}{2}$ in. in diameter with Thiersch grafts by the electric method. The wound was dressed every third day till she left the hospital, January 3, 1904. She has since come to my office every week and had the healing surface exposed to the secondary röntgen rays for 15 minutes. January 25, 1904, the surface was not fully repaired; it measured $\frac{1}{2}$ in. in diameter.

CASE V.—E. S. B., aged 73, first noticed a growth on the tragus of the right ear, January, 1903. It grew larger to about the size of a small almond until August, 1903, when it broke down. It was still discharging December 29, 1903, when I saw him. I froze the surface with ethyl chlorid, cut off the growth with a pair of scissors, and curetted its base. The high frequency discharge was applied till the surface was dry, and a dry dressing put in place. January 4, 1904, the surface was again exposed to the high frequency discharge to fix a small graft in place. January 7, primary röntgen rays were used for 10 minutes. January 12, removal of the dressing started some oozing, and the high frequency discharge was again used. January 18, 20, and 23, the secondary röntgen rays were used for 15 minutes, and at the last visit repair was complete, leaving almost no scar. Microscopic examination of the specimen in this case showed the growth to be epithelioma. I shall endeavor to keep the patient under observation for recurrence of the growth.

CASE VI.—K. McQ., aged 60, housework. Admitted to the hospital November 17, 1903, suffering with a carbuncle at the back of the neck. Deep incisions were made November 18, 1903. December 19, 1903, the granulating surface, $3 \times 2\frac{1}{2}$ in. in extent was grafted by the electric method. No secondary röntgen rays were used in this case, and January 25, 1904 there is still a surface of 1 in. by $\frac{1}{2}$ in. left to heal.

It is evident that we are at present quite unable to review even approximately special changes that biotonus experiences in concrete cases under the action of these stimuli. For the present it is only possible to analyze step by step the outward expression of these changes.

The assumption of superior knowledge and skill in the application of the röntgen rays or radioactivity by some men has been noted and we may point out that this assumption tends to break down the wall that stands between what we can and what we cannot do.

The röntgen rays and the radiations from radioactive substances as well as the cathode rays have certain dangerous qualities inherent in their action on the tissues of the body. The benefit derived from their therapeutic application has passed beyond the experimental stage. The diagnostic value of the röntgen rays is on record. The question arises, how can we as medical men use these radiations for the purpose of diagnosis and therapeutic effect, and feel a full degree of security granted and secured by law? In the case of Bancroft vs. Perce, tried before the Superior Court in California, the defendant showed that he had fully given the plaintiff to understand before subjecting him to the röntgen rays that accidents had occurred from its use and might happen again, that people had been burned about the body. This was held to be sufficient warning. He had used an approved apparatus and had taken the precaution to protect the adjacent parts that were burned. A verdict was found for the defendant. Another case was tried in Paris against a medical man who had exposed a patient suffering with sciatica to the röntgen rays for 40, 45 and 75 minutes on three separate occasions. After the first 2 exposures the skin became red and inflamed and while in this state the third exposure was made. The apparatus was shown to be defective. The court found that he had acted more like a workman than a medical man, and directed a verdict for the full amount of damages. The records contain but few of these cases and there are, no doubt, points that have not as yet come up for the ruling of the presiding judge or the decision of the higher court, but there are some suggestions from those already tried that we shall do well to follow in this line of work.

We should be sure to use an approved apparatus and technic, and keep abreast of the progress in this field. Give the patient full advice of the risk of injury. Record the form of apparatus used, previous exposure to radiation, source, time elapsed since exposure, length of exposure, distance from the surface of the tube, time of exposure, register of penetration, form of protection to adjacent parts, and part exposed. Every plate should register the penetration in a picture of the gauge appearing on its border. If a blank form contains all that has just been outlined and is filled out by the operator and signed by the patient it will prove a valuable record of the case and have the force of a waiver in the event of litigation.

A röntgen-ray picture is admitted as competent evidence when the witness describes the apparatus, shows proof of every step in the making of the picture, identifying it in court whether it is a print or a direct positive, shows that he has looked with the fluoroscope and that the picture corresponds exactly to that seen on the screen. He must be prepared to say that he has operated and verified the condition represented by the röntgen ray picture of some deepseated injury in order to show that he has verified these pictures. He must further show that the picture represents the part claimed to be injured.¹⁷ A plan or picture, whether made by the hand of man or photography, is admissible in evidence, if verified by proof that it is a true representation of the subject, to assist the jury in understanding the case. Whether it is sufficiently verified is a preliminary question of fact, to be decided by the judge presiding at the trial and not open to exception.¹⁸ It has been held that after admission of röntgen ray pictures the negatives could be introduced in evidence at the instance of the opposing party to show that the pictures were incorrectly designated left and right.¹⁹

It will be seen from what has already been said of the penetration of the röntgen rays and the emission of secondary rays when the primary rays pass through a substance that the picture is a high-class photograph with not only outline, but the details and plan of the varying densities in the structures within the surface of the object, and is comparable in qualities of true imagery

with the best photography by reflected light. The difference between this and a shadow picture is a fact visible to the eye. The truth would appear on inspection of the given picture. The fluoroscopic examination alone is not admitted except when the picture could not be taken or is lost, and may then be excluded on the ground that the picture itself is the best evidence.²⁰

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A CASE OF ACUTE LEUKEMIA, WITH DEATH DUE TO RUPTURE OF THE SPLEEN.

BY

JOSEPH L. MILLER, M.D.,

AND

JULIUS HESS, M.D.,

of Chicago.

Acute leukemia, first described by Friedreich in 1857, may be considered a rare disease, more prevalent, however, than the reported cases would indicate. Mixa,¹ 1901, collected 69 cases from the literature. The relatively large number of cases reported by some observers as Fraenkel, who in 7 years—in a yearly material of 4,500—saw 12 cases, indicates that those familiar with the clinical picture see the disease quite frequently; while others with equally great opportunities have never recognized a case. That the disease is frequently not diagnosed is probably true, as in a study of the cases reported it is in comparatively few that the correct diagnosis has been made in the beginning, but only after the development of unusual signs and symptoms leading to a more careful examination, has the correct conclusion been reached.

The characteristic symptom-complex is easily recognized, but atypical cases are frequent and it is only when we have constantly in mind the possibilities, that these cases are detected. Even when the unstained blood is examined, the moderate increase in the leukocytes with the associated fever, might lead to the diagnosis of inflammatory leukocytosis. The findings often differ so widely from those considered as typical for leukemia, that blood-examination is not made. The predominance of the hemorrhagic tendency, with local areas of necrosis in the mouth, and moderate lymphatic and splenic enlargement leads to the diagnosis of purpura hæmorrhagica. Gilbert and Weil report a case in which the onset resembled an infectious stomatitis. The epistaxis, splenic enlargement and fever have led to the diagnosis of typhoid or some obscure septic condition. Some patients find their way to the surgeon on account of the ulcerative processes in the mouth and the correct

diagnosis is only made on the autopsy table. We have seen a case of this nature. The marked anemia, often due to internal bleeding, has led to the diagnosis of chlorosis or secondary anemia.

The following is a history of our case:

Mr. S., American, aged 24, traveling salesman. Father died of heart disease at 60. Mother, 2 brothers, and 2 sisters are living and in good health. One brother suffered several years ago from tuberculosis of the ankle.

With the exception of a mild attack of typhoid fever 4 years ago, the patient has always had fair health. He denies luetic infection. He has used alcohol moderately, and tobacco to excess.

He first consulted a physician in October, 1901. He then complained of anorexia and severe abdominal pain, especially after eating, and was told that he suffered from acute gastritis. These symptoms continued with periods of intermission for 5 weeks, when he came under the observation of Dr. Hess. At this time he was complaining of pains in the lower abdomen, associated with pains in the epigastric and lumbar regions, anorexia, and marked flatulency and malaise. No history of hemorrhage.

Physical Examination.—Patient is emaciated; skin and mucous membranes pale. Slight but general enlargement of the superficial lymphatic glands. Slightly impaired resonance over the right apex; lungs otherwise normal. Heart normal boundaries, tones faint, soft systolic murmur over the pulmonary area. Liver border palpable, smooth, normal consistency, and not tender. Spleen barely palpable. The abdomen is uniformly distended, giving a tympanitic note, with no signs of free fluid. Patient says he has had difficulty in buttoning his trousers on account of the enlargement of the abdomen. No tumor palpable. The urine is free from albumin. The sputum negative for tubercle bacilli.

Under light diet and free catharsis the patient showed marked improvement, and was not seen until 3 weeks later, November 14. He was then in bed, and complained of severe pain in both hips and region of the crest of the ilium. Moderate doses of salicylate relieved the patient somewhat.

November 18: The patient still had pain in pelvic bones. Very severe epigastric pain. Slight pain in the sternal region. The liver and spleen were larger than at previous examination; otherwise the findings were unchanged. A tentative diagnosis of tuberculous peritonitis was made.

November 19: We both examined the patient. Temperature, 101°. Patient very anemic. For several days he has noticed marked epistaxis and bleeding from the gums. Nostrils contained clotted blood. Slight oozing from the gums, no ulceration or swelling of the alveolar mucous membranes. Cervical lymphatic glands are the size of a date seed, soft and painless. Axillary and inguinal glands present about the same enlargement. Ecchymotic spot, about the size of a half-dollar, on inner aspect of the right knee. Numerous petechial hemorrhages. Marked tenderness over the sternum and some of the ribs. None over the bones of the extremities. Lungs and heart as in previous examination. Abdomen very much distended, tympanitic, no signs of free fluid. On account of the marked distention and tenderness, deep palpation was impossible. Liver edge, 3 fingers below the costal arch, smooth, painless, and of normal consistency. Spleen, on deep inspiration, extends 2 fingers below the costal arch, smooth, soft. Rectal examination negative. Urine free from albumin; no blood; no casts. A fresh specimen of blood showed considerable leukocytosis. A white count gave 50,000 leukocytes.

The leukocytosis, with the other findings, led us to make a probable diagnosis of acute leukemia, pending a more complete blood-examination. This was made the following day. Leukocytes, 50,000. Erythrocytes, 2,800,000. Hemoglobin, 48%. A differential count of 200 leukocytes. Small lymphocytes, 4%; large mononuclears, 84%; eosinophiles, 3%; myelocytes, 1%; polymorphonuclear neutrophilic cells, 8%. Numerous nucleated reds, chiefly megaloblasts, many of these showing mitotic figures.

November 20: Dr. Hess was called at 4.30 a.m., and found patient in collapse; cold perspiration, small rapid pulse, labored breathing. Patient reported that during the night he had attempted to go to the bath-room. On the way he fainted and fell, and when found was in this state. Under stimulation, he improved somewhat. At 10 a.m. he vomited bile-stained mucus containing small clots of blood.

November 21: Patient began sinking rapidly about 5 a.m., and 500 cc. of a normal salt solution was injected subcutaneously, without noticeable effect; patient died during a fit of vomiting at 10.45 a.m. Blood-examination and cultures just before death gave 2,849,000 erythrocytes, 48% of hemoglobin, 161,600 leukocytes. Differential count showed 78% large mononuclears, 4% small lymphocytes, 3% of eosinophiles, 2% of myelocytes, 13% of polymorphonuclear neutrophils, and numerous megaloblasts. Cultures were negative.

Autopsy 10 hours after death by Dr. Otto L. Schmidt and the essayists. Body anemic and poorly nourished. Several large ecchymotic areas on the lower extremities. Heart dilated, muscle pale and friable, valves normal. Cicatrix in both apices. No enlargement of the mediastinal gland. Peritoneal

cavity filled with clotted blood. Right lobe liver 20 cm. by 25 cm. Normal consistency. Markings indistinct. Spleen 10 cm. by 15 cm., soft and pulpy. On the anterior superior surface are two tears about 3 cm. in length, extending deep into the parenchyma, the edges coated with lymph. In the same region is a small circular area of necrosis about 1½ cm. in diameter, its base and edges thickly coated over with lymph.

Just below the stomach in the omentum was a small hazelnut-sized body, with color and consistency of the spleen. Later microscopic examination demonstrated this to be an accessory spleen.

Kidneys normal size. Capsule free, with the exception of a small infiltrated focus in the left kidney, and the pallor of normal appearance. Pancreas normal appearance. Matted mass of postperitoneal glands larger than a man's fist along the lower lumbar spine. On section the outline of the individual glands was well marked. Several glandular tumor masses in the mesentery and the omentum.

Appendices epiploicae are very large, due apparently to lymphoid infiltration. The presence of these along the rectum compressed the posterior wall of the bladder. Stomach mucous membrane shows areas of lymphoid infiltration .5 cm. to 1 cm. in diameter, with central erosions forming small ulcers in the mucosa. Numerous submucous hemorrhages.

Portions of the intestines are adherent to the tumor mass in the omentum and along the spine. A long ileocecal intussusception; a large infiltrated Peyer's patch about 25 cm. above ileocecal valve being the apparent cause. Marked hyperplasia of Peyer's patches and small scattered areas of infiltration, many with necrotic centers giving a crater-like appearance. Numerous submucous hemorrhages.

Bone marrow: Sternum and ribs reddish-gray, and on microscopic examination, a count of 200 cells failed to show a single granular cell. Large mononuclear cells, resembling those in the blood, predominating. Many of these closely resemble myelocytes without the granules.

Histologic Findings.—All the organs showed a diffuse lymphoid infiltration with a large cell resembling those found in the blood. In the kidneys small areas of infiltration abound, the kidney tubules in many places being compressed, the glomeruli escaping. The infiltration in the liver is mainly interlobular. Some areas were found where the liver structure was almost obliterated, only a few liver cells being found. There was a diffuse infiltration of the wall of the stomach, most marked in the mucosa; the glandular structures in many places obliterated.

The clinical symptoms, blood condition, and the autopsy findings are those of an acute leukemia. It is difficult to determine whether the rupture of the spleen was due to the fall or whether it antedated it. The extreme dizziness of the patient on his attempt to go to the bath-room rather favors the presence of previous hemorrhage and, therefore, spontaneous rupture, as he had been walking about the day previous without special difficulty. The presence of two tears in the capsule favors its traumatic origin.

The etiology of all forms of leukemia is still obscure, but the acute course with the associated fever points to the probable infectious nature of the acute type of the disease. Obrastzow's² two cases, in which the attendant of a man suffering from acute leukemia developed the disease, is an isolated case and of slight significance. Several cases have apparently developed from a pseudoleukemia, *i. e.*, enlarged lymphatics and spleen without perceptible blood changes; later, the development of a leukocytosis, hemorrhagic tendency, and rapid death. Kuhn and F. Weiss³ report a case in which the clinical symptoms were those of a pseudoleukemia with a leukocyte count of 2,800. At the end of 8 months the patient received an injection of pilocarpin. The next day the patient had a leukocytosis of 22,800. Two days later a second injection of pilocarpin was followed by an increase to 24,000. Ten days later there was marked reduction in the size of the spleen and lymphatic glands with steady increase in the leukocytes, until at the time of death—one month after the first injection—they reached 146,000. The assigned cause of death was lympholienal leukemia. Wende⁴ reports a case which he considered a typical pseudoleukemia.

April 26. Red corpuscles, 5,128,000; leukocytes, 4,000; hemoglobin, 88%. Differential count of leukocytes gave 68% Polymorphonuclear, 27% lymphocytes. Under arsenic at first improvement, then rapidly worse with fever and hemorrhages. July 10: 1,936,000 red corpuscles; 34,000 leukocytes; 95.5% of the small lymphocytes. Death July 30.

Fleischer and Penzold,⁵ and Mosler,⁶ report cases in which an acute leukemia developed in patients with pseudoleukemia. We are not justified in these cases in

saying that a pseudoleukemia has become converted into an acute leukemia, but rather that a patient with pseudoleukemia has developed acute leukemia.

Two of Fraenkel's patients had just recovered from influenza. Eichhorst reports a case following whooping-cough. One case developed during the eighth month of pregnancy. In several cases a severe anemia has been reported preceding the onset, although in these cases the anemia may have been secondary to an undetected leukemia.

The proportion of males to females is about 3 to 1. In children under 10 years, 13 cases have been reported. Pineles⁷ reports a case in a patient of 73.

The onset may be very acute or may develop gradually, and no single symptom may be considered initial. A case of Eichhorst's⁸ began with severe sticking pain in the side, followed by hematemesis. In others the epistaxis, or bleeding from the gums, or hematuria first attracted attention. Areas of necrosis in the mouth often bring the patient to the physician. Severe joint pains, subcutaneous hemorrhages, fever and glandular swellings have all been reported as initial symptoms.

The most constant findings, exclusive of the blood changes, are the tendency to hemorrhage, focal necrosis, fever, lymphatic and splenic enlargement. Although with few exceptions the acute leukemia is of the lymphatic type, from the standpoint of the predominating cell, a glandular enlargement is by no means constant. Fussell, Jopson, and Taylor,⁹ report glandular enlargement in only 41% of the cases. McCrae,¹⁰ in a review of the cases in children, found glandular enlargement in 4 out of 13 cases; cervical glandular enlargement alone in 5; no enlargement in 2, and no reference in 2. Several writers, Hirschlaff,¹¹ Kormoczy,¹² Pappenheim,¹³ Meland,¹⁴ Dennig,¹⁵ Reed,¹⁶ have reported cases in adults without glandular enlargement. Certain groups of glands only may be involved, as in several cases the retroperitoneal or mediastinal glands have been very much enlarged, the superficial glands normal. In our case there was a very marked enlargement of the retroperitoneal glands, but only slight of the superficial groups. When only one group of superficial glands suffers it is usually the cervical. The enlarged glands are soft, not tender, and may show marked fluctuation in size; sometimes, at least temporarily, entirely disappearing. They do not tend to suppurate.

The spleen is palpable in about 65% of the cases and is usually only moderately enlarged thus differing from the chronic leukemia. The splenic tumor is generally of the acute type; in the few cases in which a very large hard spleen has been reported the question arises whether they are not cases of chronic leukemia with acute exacerbation. Absence of splenic tumor may be associated with normal lymphatic glands as in Dennig's case. Rupture of an acute leukemic spleen has never been reported until the present case; although in acute disease with enlarged spleen it is not infrequent, especially in malaria, as Playfair is reported to have seen 20 cases in 2½ years in the East Indies.

The thymus was enlarged in 15% of cases reviewed by Fussell, Jopson and Taylor, and in 1 case a mediastinal tumor is reported, its exact nature not being determined. The tonsils are quite uniformly enlarged and frequently the seat of necrotic processes. The liver is usually enlarged, chiefly the result of lymphoid infiltration.

Hemorrhage is a quite constant symptom present in about 70% of the cases, most frequently in the form of petechias or ecchymoses, but it may occur in any of the tissue or body cavities. Hematuria, hematemesis, epistaxis, hemorrhagic pleurisy, hemorrhage into the sheath of the facial nerve with consequent paralysis, retinal and cerebral hemorrhage, and a case with Ménière's symptom-complex from hemorrhage into the labyrinth have been reported.

Partly due to the subcutaneous or submucous hemor-

rhage, partly the result of lymphoid infiltration, necrosis is liable to occur. Necrosis and ulceration are chiefly confined to the digestive tract and are frequently the cause of hemorrhage from these parts. The mouth, on account of its liability to slight trauma and its abundant bacterial flora, is especially liable to necrotic foci. The stomach, and small and large intestine may also show extensive ulceration. Stewart¹⁷ reported ragged ulcers in the large intestine and appendix. Ulceration of the skin is infrequent and confined to those parts subject to pressure or exposed to trauma.

Fever is present in about 60% of the cases, is either of the continuous or septic type, and is usually of moderate degree, although a temperature of 103.5° F. has been reported. Secondary infection, especially in the mouth, is responsible probably for the temperature in many cases, in others no focus of secondary infection can be detected. The temperature may be present during the entire course of the disease, or develop only during the terminal stage.

The blood findings in this disease are characteristic and must always be the determining factor in the diagnosis. A leukocytosis is always present, as a rule not of such high degree as in the chronic type of the disease. McCrae reports 26,000; Dennig, 20,000; Müller,¹⁸ 6,800. These are cases with exceptionally low counts; as types of the other extreme are the cases of Kormoczy, 550,000; Pineles, 420,000; Müller, 350,000; Riernans, 362,000. Marked rapid fluctuation in the number of leukocytes is often observed. As in chronic leukemia, acute infections may cause a rapid reduction. In many cases a marked reduction occurs as the disease approaches its termination. Müller's patient, on January 30, had 109,600 leukocytes; February 1, 93,800; February 2, 46,000; February 3, just previous to death, 6,800. Fraenkel reports a reduction from 220,000 to 1,200 previous to death. In our case there was a marked increase before the fatal termination, which may have been due in part to a posthemorrhagic leukocytosis. The leukocytosis is in the majority of the cases due to an increase in the lymphocytes, and chiefly the large mononuclear cells. Strauss and Melland report cases in which extensive search failed to show a single granular cell. Of all cells present, 98% may be of large mononuclear type; these may be identical in appearance with the large lymphocytes in normal blood, others are larger and show a nucleus irregular and lobulated in outline. In a smaller percent of the cases the small mononuclear cells predominate: Fussell, Jopson, and Taylor, 88.8%; McCrae, 87%; Kuhnau, 85%. The eosinophile cells in the mononuclear type of acute leukemia are usually under 1%. Myelocytes may be absent, or at most only present in small number. Dennig reports a case in which within 6 weeks the character of the lymphocytes changed; in the beginning the large cells predominated; before death, the small cells. In Müller's case, referred to above, in which the leukocytes fell from 109,600 to 6,800, the large mononuclears predominated in the beginning; just before death the polymorphonuclear cells. Fraenkel, Müller, and Eisenlohr report cases in which during an acute infection the polymorphonuclear cells were increased until almost the normal percentage was reached.

In the past there has been some difference of opinion as to whether there was any form of acute leukemia except the lymphatic type. The blood-examinations in many of the reported cases are very incomplete, partly the result of inexperience and partly due to the work having been done before blood staining had reached its present high degree of perfection. Eichhorst reports a case in which the hematoxylin and eosin were employed, and in which the polymorphonuclear cells predominated. Others have reported large numbers of myelocytes present, many nongranular or with few granules. These are probably the same cells as others have looked upon as large mononuclear lymphocytes, although from their

appearance, the occasional presence of a granule, and their presence in the red marrow to the exclusion of almost all other cells, make it probable that there are bone-marrow cells which, as a result of imperfect formation or degeneration, are nongranular. Capps¹⁹ has recently reported a case of undoubted acute leukemia of the myelogenic type, and has collected several cases from the literature. The lymphatic type certainly predominates, but is not the only form of the disease.

Smears from the bone marrow in all the cases show almost complete absence of granular cells and the presence of a cell resembling in every respect the large mononuclear cell found in the circulating blood. These findings combined with not infrequent absence of lymphatic enlargement, support the recent tendency of pathologists to look upon all cases of leukemia of probable myelogenic origin.

The number of red corpuscles varies from almost normal to 1,000,000 depending largely upon the degree of hemorrhage. Other changes in the red corpuscle are dependent upon the degree of anemia. Nucleated cells, when present, are chiefly of normoblastic type, although in very rapid cases megaloblasts may predominate. The anemia is usually of secondary type the color index being low. In very rapid cases a high color index has been reported.

The chief diagnostic points are the hemorrhagic tendency, rapid anemia, fever, ulceration in the mouth, moderate glandular and splenic enlargement with the characteristic blood findings; and of all these the blood changes are most important and must be relied upon for the diagnosis. On account of the moderate leukocytosis which may exist in patients presenting the above symptom-complex, stained specimens should be made and a differential count will soon determine a marked disturbance of the normal proportion of various cells present or the appearance of myelocytes in large numbers if a leukemia exists. A failure to make a differential count has been responsible for the delayed diagnosis in many cases. Next in importance to the blood changes is the hemorrhagic tendency and mouth changes, and as these are found in other conditions, careful blood-examination should be made in patients presenting these symptoms. The following diseases are especially liable to be confounded with the acute leukemia.

Chronic Leukemia.—The blood changes may be identical. Onset gradual, no fever, slight hemorrhagic tendency, chronic course, enlarged glands if present, of greater consistency, hard splenic tumor. Acute exacerbation of chronic leukemia is much more difficult to differentiate as fever may be present and large mononuclear cells predominate. The history of the case and the nature of the splenic tumor are of great diagnostic value in these cases.

Purpura Haemorrhagica.—Moderate fever, splenic tumor not constant, joint pains often marked, glandular enlargement absent except in the neighborhood of infected ecchymoses. Inflammatory leukocytosis often present. Ewing²⁰ reports 56,000; Carrier and Gilbert²¹ 126,000, chiefly polymorphonuclear forms. Ewing speaks of an idiopathic purpura haemorrhagica without leukocytosis but with a large percent of lymphocytes (90% Engel, 80% Ehrlich, 75% Billings.)

Scurvy.—Splenic tumor occasionally present. History of insufficient or improper food. Glands only in neighborhood of infected ecchymoses, characteristic changes in mouth, the buccal mucous membrane escaping as a rule. Leukocytosis not constant and of inflammatory or posthemorrhagic type. Improvement under diet.

Pseudoleukemia.—Gradual onset; chronic course. A few cases of acute onset and rapid course have been reported. Enlargement of glands, higher degree, may be either soft or hard. Spleen large and firm. Slight tendency to hemorrhage or ulceration. Absence of fever, or if present, of "rückfall" type. Moderate, to

high degree of secondary anemia. Leukocytes may be diminished, normal or moderately increased, never however beyond the limits of inflammatory leukocytosis. At times relative lymphocytosis is reported. Several cases of pseudoleukemia which terminated as acute leukemia are reported.

Ulcerative Stomatitis.—Poorly nourished individuals. Process confined to gums. No subcutaneous hemorrhages. Local glandular swelling. Absence of or small splenic tumor. Inflammatory leukocytosis.

Sepsis.—More irregular fever with chills. Tendency to development of endocarditis, pericarditis, etc. Splenic tumor and often glandular swelling. May have tendency to hemorrhage. Finding of bacteria in blood. Absence of mouth changes. Inflammatory leukocytosis.

Our case resembled in many respects a tuberculous peritonitis, but the presence of general glandular swelling, hemorrhagic tendency, and blood changes allowed of a differentiation being readily made.

Course of the Disease.—With the single exception of a case reported by Mixa, the course of the disease is one of rapid and continuous progression to a fatal termination. In Mixa's case there was a remission of 3 weeks, during which time the symptoms all disappeared. The duration is from 4 days (Guttman²²) to 16 weeks (Fraenkel²³). The average duration of cases collected by Fussell, Jopson, and Taylor was 39 days. Litten would restrict the duration of acute leukemia to 6 weeks. But more important than the duration is the acuteness of onset and severity of symptoms, especially hemorrhages. Hemorrhage and complications as a result of secondary infection are the most frequent causes of death.

The various therapeutic measures employed in chronic leukemia and pseudoleukemia, arsenic, thyroid, bone-marrow, spermin transfusion, etc., have been employed without producing any appreciable change. The treatment must be directed toward the care of the mouth, prevention of bedsores, and protection from injury on account of danger of hemorrhage and ulceration.

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DIPHTHERIA OF THE VAGINA WITH SECONDARY INVOLVEMENT OF THE MOUTH, RECTUM AND SKIN.

BY

THOMAS W. SALMON, M.D.

Assistant Surgeon, U. S. Public Health and Marine-Hospital Service.
Formerly Bacteriologist, New York State Hospitals.

This case, in which 3 uncommon forms of diphtheria existed, occurred during an epidemic at the Willard State Hospital. I am greatly indebted for the facts in the clinical history to Dr. Erving Holley, in whose charge the patient came, at the isolation hospital for diphtheria cases.

The patient, E. B., a married woman of 55, was admitted to the institution February 9, 1902, with acute melancholia. Her

physical condition was poor. She was thin and anemic and was also suffering from a mild attack of acute bronchitis. During the 6 weeks following her admission her health deteriorated.

As cases of diphtheria had occurred in the building in which she resided, she received an immunizing dose of 500 units of antitoxin March 4.

March 26, in the course of a gynecologic examination, 2 small, white patches were noticed on the labia minora and several near the meatus. There was no zone of inflammation about them and, as the patient presented none of the constitutional symptoms of diphtheria and her temperature was normal, the real nature of the patches was not suspected. On the same day that this examination was made she began to have diarrhea, and this continued until her death.

On March 27 the weakness accompanying the diarrhea obliged her to remain in bed, but on the following day she was up and about the ward.

April 2, in the course of the routine search for infected well persons, which was one of the measures employed in the management of the epidemic of diphtheria, a culture was taken from her throat and diphtheria bacilli were found.

April 3 she complained of a sore mouth and of pain in swallowing. An examination showed several discrete patches of membrane on the lips, the tongue, and the hard palate. A patch existed on the mucous lining of the cheek. Although she had no fever and no constitutional disturbance she was given 2,000 units of antitoxin and transferred to the isolation hospital.

April 4, a dense, white membrane was found, which completely covered the vulva to the mucocutaneous junction, the vagina, and the visible mucous membrane of the rectum. There was very little swelling and only a scanty seropurulent discharge. The membrane extended to the cervix the next day, but thereafter, until April 8, when there was considerable sloughing in the vagina, it neither increased in extent nor showed a tendency to become disintegrated. The membrane in the mouth extended to the tonsils. An abrasion on her left cheek which had existed before her admission to the isolation hospital became covered with a typical pseudomembrane which formed again after being forcibly detached.

When she was admitted to the isolation hospital she was greatly prostrated and it was then, 8 days after the appearance of the patches in the vagina, that her initial rise in temperature occurred. She experienced very little pain in the vagina and rectum, but complained bitterly when douches were given. Her mouth was intensely sore and swallowing was painful and difficult. The diarrhea, which had been only moderate before her admission to the isolation hospital, became profuse. The stools were small, watery, greenish in color, and offensive, but they contained no blood or mucus. Four days later shreds of membrane were present in the stools.

April 5. The patient's condition remained much the same. She took a fair amount of nourishment and the stools were a little less frequent.

April 6. There was no change in her condition. The diarrhea continued and no improvement followed the large doses of antitoxin which had been given.

During the next 2 days her prostration increased and the action of the heart became weak and irregular. Stimulation did not perceptibly improve it. She complained of great thirst and of nausea.

April 10. The patient's condition had become critical. There was no response to stimulation. Her exhaustion was increased by vomiting. Great thirst continued.

The patient lived through the following day in spite of increasing irregularity in the action of the heart. Thirst continued and everything but water was refused. There was no laryngeal stenosis, no evidences of bronchopneumonia and nothing to indicate inflammation of the uterus or the bladder. She died the next day, April 12, at 6 a. m. An autopsy was not permitted.

The patient's temperature on her admission to the isolation hospital was 102°. After that it only varied a fraction of a degree from 100°.

She received 21,000 units of antitoxin during the eight days preceding her death. A distinct reaction did not occur at any time.

The first culture was taken from her throat March 19, before she had shown any evidences of illness. No diphtheria bacilli were present. The next culture, April 2, was taken as a routine procedure and the presence of diphtheria bacilli revealed the true nature of the patches observed a week before upon the vulva. A culture taken from the throat the next day was negative, while diphtheria bacilli were present in nearly pure culture in one taken at the same time from one of the small patches of membrane on the lip. April 6, many barred and granular forms were present in the culture from the mouth. A culture from the vagina showed numerous very typical diphtheria bacilli resembling the forms present in the culture from the mouth. A culture from the rectum showed both diphtheria bacilli and streptococci, with many thick, evenly-stained bacilli. The diphtheria bacilli were very typical barred forms. April 7, a culture from the membrane present on the abrasion on the cheek showed many barred and solid diphtheria bacilli with streptococci. Cultures from the rectum showed both diphtheria bacilli and streptococci. Cultures taken the next day from the vagina, the rectum and the membrane on the cheek

all showed typical diphtheria bacilli. A nearly pure culture was obtained from the vagina, the types "A" and "D" of Webber predominating. A culture from the cervix April 9, contained fairly numerous diphtheria bacilli and many streptococci. The virulence of none of these cultures was tested by inoculating animals.

A Jacobi, in his "Treatise on Diphtheria," in 1880, reported several cases of diphtheria of the genitals but, writing in 1898, he said that these "do not bear perhaps the test of bacteriologic diagnosis."¹ It is exceedingly likely that this is true of most of the cases of diphtheria of the genitals and of wounds which were rather frequently mentioned some years ago. There is another test, however, and that is the occurrence of paralysis. The true nature of not a few of the cases reported before the days of bacteriologic examinations was revealed by the evidences of nerve degeneration which followed them. Marked improvement after the administration of antitoxin, in those cases in which a characteristic membrane accompanied the constitutional symptoms of diphtheria, must be regarded as very good proof of the nature of the disease.

During the last 10 years, cases of diphtheria of the male and female genitals have been reported from time to time in which the diagnosis was confirmed by cultures. In the brief abstracts which follow are included all the cases I was able to find in which the membrane present in the genitals was characteristic of diphtheria, or in which diphtheria bacilli were present in cultures.

The frequency with which this form of diphtheria occurs should not be estimated by the small number of cases collected in this summary, for doubtless others have been reported, and from the occasional mention of cases by physicians, it is certain that many which occur in private practice never find a place in the literature of the subject:

Coldstream² reported a case in a girl of 12. Her illness commenced with no local symptoms, but with a temperature of 102°. On the second day her temperature was 103°, and she complained of some pain in the genitals. The vulva was swollen, and there was a slight discharge. On the third day, 3 small, discrete patches of membrane appeared on the labia. Bleeding followed their removal. They disappeared on the sixth day, but a culture taken on the twelfth day showed the presence of diphtheria bacilli. No paralysis followed her recovery.

Biggs³ reported a case in a woman who was admitted to the Bellevue Hospital with alcoholic neuritis. Three days after her admission, the nurse noticed an offensive vaginal discharge, and an examination showed that the entire vagina was covered with a yellowish membrane, which extended to the internal os. There was no sloughing or ulceration. The constitutional symptoms were severe, her temperature reaching 105°. Her death, which occurred on the eleventh day after her admission, was preceded by a profuse diarrhea. The autopsy showed that the lower part of the rectum was the seat of a diphtheric membrane, but that the uterus and appendages were normal.

Bumm⁴ reported a case in which the entire vagina was covered with a dense, fibrinous membrane. He was so certain that it had resulted from streptococcus infection that he refused to administer antitoxin until the true nature of the case was shown by the presence of diphtheria bacilli in a culture.

Brinkmann⁵ reported 2 cases, both occurring in the puerperium. One of the women took a child who had diphtheria into bed with her on the third day after her confinement. Two days later her vagina and vulva were covered with a typical diphtheric membrane. Diphtheria bacilli were found in cultures from the throat of the child, but no cultures were taken from the mother. Both mother and child recovered after the use of antitoxin.

Brinkmann's second patient was delivered by a midwife. The woman got up 2 days after labor, but was compelled to return to bed because of high fever. A membrane was found in the vagina. The uterus and Douglas' pouch were exceedingly tender. The membrane disappeared the next day after antitoxin was used, but the fever continued, and she died on the fifteenth day after her confinement. Diphtheria bacilli were absent in cultures. This fact makes the diagnosis rather doubtful, even though improvement seemed to follow the use of antitoxin.

Nisot⁶ reported 2 cases in puerperal women in which membrane was present in the vagina and in the uterus, and in which typical diphtheria bacilli were found in cultures. Both were treated with antitoxin, and both recovered.

Munn⁷ reported 3 cases of diphtheria of the penis following circumcision. The first was in a boy, aged 5. Primary union had

taken place, but on the tenth day a grayish membrane covered the site of the wound. When the membrane was detached a bleeding surface was left, and a new membrane was speedily formed. There was considerable sloughing of the prepuce and brawny inflammation of the entire penis and scrotum. The constitutional symptoms were severe. On the sixteenth day after the operation the membrane disappeared, leaving a raw sore. No cultures were taken. No other cases of diphtheria occurred in the family.

The second case was in a baby of 9 months. The membrane appeared on the ninth day, and resembled that in the preceding case. Improvement followed the use of antitoxin, but in spite of a second injection, the membrane and ulceration extended across the perineum to the rectum, there was profuse hemorrhage from the bowel, and the child died.

Munn's third case was in a baby of 3 months. Three weeks after he was circumcised, his mother and a brother had diphtheria, the Klebs-Loeffler bacillus being found in cultures. A thin but typical membrane appeared on the child's prepuce, and cultures showed the presence of diphtheria bacilli. Two days later there were some tiny spots of membrane on the tonsils. There was no extension of the membrane on the prepuce, and in 3 days it had disappeared.

Williams⁸ reported a case following confinement, in a woman aged 20. She got up on the fifth day, and did well during the next week. On the twelfth day she had pain and a sensation of swelling in the vulva. On the fifteenth day the vulva was covered with a membrane. There was difficulty in urinating, and slight fever, with rapid pulse. No change occurred in her condition during the next week. A few days after she noticed the first symptoms, her 2 children became ill with diphtheria and died. Williams saw her on the eighth day after the appearance of membrane on the vulva, and found her suffering from little constitutional disturbance, and with normal temperature. Both labia majora and minora were covered with a grayish-white membrane, about 1.5 mm. in thickness. It was firmly adherent, and left a raw surface when detached. The vagina was normal. Cultures from the membrane showed diphtheria bacilli in nearly pure culture. Rapid improvement resulted from the use of antitoxin, and in 10 days all signs of the disease were gone. Several weeks later there was paralysis of both legs.

Courtney⁹ reported a case in a man of 47, in which pseudotubercles followed a suspicious ulceration of the penis. No cultures were taken, however, and as the condition persisted 6 weeks, and was succeeded by an exactly similar ulceration of a finger, which lasted the same length of time, the diagnosis may be regarded as somewhat doubtful.

Le Clerc¹⁰ reported 3 cases of diphtheria of the scrotum in which no membrane existed elsewhere. All the patients had the constitutional symptoms of diphtheria, and all recovered after the use of antitoxin. In one of the cases great sloughing, which necessitated a plastic operation, followed.

Coues¹¹ reported 2 cases of diphtheria of the vulva in children under 2 years. The membrane in each was very characteristic, and was on the labia majora. In one of them there was swelling of the vulva, and not in the other. One was primary and the other, which was fatal, was secondary to diphtheria of the pharynx. The author saw another case during the same year which led him to believe that the condition was not uncommon. The diagnosis in each was confirmed by cultures.

Gregory¹² reported a case in a young man in which a small patch of membrane appeared on the meatus. The first membrane was seen on the tonsils and uvula. It next extended to the nose, coming last on the penis. The constitutional symptoms of diphtheria were present, and rapid improvement followed the use of antitoxin. Some time after the membrane had disappeared cultures were taken from the nose and throat, but diphtheria bacilli were absent. No paralysis resulted.

Stahl¹³ reported a case of diphtheria of the uterus in a young woman. The perineum had been lacerated during labor and repaired. Fever, which reached 105° on the third day, followed, and the lochial discharge became offensive and watery, and contained yellowish membranous specks. The cervix was covered with a yellowish membrane and a culture taken from it showed the presence of diphtheria bacilli. The woman died on the eleventh day after delivery.

Ware¹⁴ reported a case in a child of 4. For 5 days before her admission urination had been accompanied by great pain and frequent stoppages, which led to the suspicion that stone might be the cause of the trouble. She had fever and accelerated pulse. The vulva was red and swollen. Three days after her admission 2 white patches appeared in the vulva—one on the nymphæ and one on the vestibule. Diphtheria bacilli were present in cultures. Paralysis of the fauces followed recovery, although there had been no membrane in the throat or in the nose.

Millard¹⁵ reported a case in which a membranous exudate appeared in the vagina and in the fauces during the third week of an attack of scarlet fever. The child recovered after the use of antitoxin, but as cultures showed only an abundant growth of *Staphylococcus pyogenes aureus*, it is doubtful if the condition was due to the diphtheria bacillus.

Mosler¹⁶ reported a case in a child, aged 10, who appeared at his clinic with membrane on the labia majora. There was, as in two of the preceding cases, great pain in urinating. Throat

symptoms appeared later, and the diagnosis was confirmed by cultures. A cousin, who was a playmate, had a similar condition at the same time.

Buccal diphtheria is somewhat rare, except in those severe cases of pharyngeal diphtheria in which the cheeks are involved by direct extension from the fauces.

I have been unable to find mention of a case in which membrane existed only in the rectum.

It is interesting to notice that of the 15 cases abstracted in which diphtheric membrane existed in the vagina or vulva, seven were in children and seven followed child-birth. It is a well-accepted fact that an abraded or abnormal mucous membrane is more frequently the seat of diphtheric membrane than a normal one, and it is difficult to conceive of any more vulnerable than the bruised and torn mucous membrane of the vagina after delivery.

The statement has been made that the uncommon manifestations of diphtheria have usually occurred in institutions, but, as a matter of fact, all but one of these cases (not including the one at the Willard State Hospital) occurred in private or dispensary practice.

The diagnosis of these conditions is of much importance, as they undoubtedly afford a greater opportunity for the spread of the disease than pharyngeal cases, and their insidious onset makes their early detection more difficult. The color of the membrane seems not to be always characteristic. The cases of Biggs and Stahl presented yellowish membranes, in the case at the Willard State Hospital it was pearly-white, and in several other of the cases reported it was the characteristic grayish-white, so familiar in cases of pharyngeal diphtheria. Swelling and discharge were not always present, and it is exceedingly important to know that a case so severe as to be followed by extensive paralysis could exist with normal temperature. As in doubtful exudates in the throat, culture taking is the one conclusive test and should always be employed.

The prognosis is apparently not more unfavorable when the membrane is limited to the genitals than in the more common forms of diphtheria. In 19 of the cases abstracted there can be no doubt of the diagnosis. Four of these patients died. One of the fatal cases was complicated with alcoholic neuritis, one was in a baby 9 months old, 1 patient was less than 2 years old, and one was a woman in the puerperium.

The treatment of such patients does not differ from that employed in ordinary cases of diphtheria. Antitoxin should be given in large doses at frequent intervals until convalescence is established. Local treatment can be carried out with greater satisfaction than when the pseudomembrane is in the throat. Irrigation with solutions of mercuric chlorid or carbolic acid may be used or, as Jacobi suggests, antiseptic ointments may be employed instead.

Unless carefully managed, these cases may be a prolific source of the spread of diphtheria. The urine and feces are almost certain to contain diphtheria bacilli and should be thoroughly disinfected. The vessels used by the patient, the bedding and the clothing should be regarded as infected and treated accordingly. A perineal pad or diaper of gauze impregnated with mercuric chlorid would serve to lessen somewhat the chance of infecting clothing. When one thinks of the possibility of a person who has recovered from diphtheria of the genitals distributing diphtheria bacilli on closet seats, on toilet-paper racks, and by means of the family wash for months after entire recovery, it seems reasonable to make an adequate number of negative cultures from the affected part an essential for the release of quarantine, or, when the objections to this cannot be overcome, to have the patient fully realize the necessity of the precautions which will suggest themselves.

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THE DIAGNOSIS AND TREATMENT OF CONGENITAL MISPLACEMENT OF THE HIP IN INFANCY.*

BY

ALBERT H. FREIBERG, M.D.,

of Cincinnati, Ohio.

Professor of Orthopedic Surgery, University of Cincinnati.

Congenital dislocation of the hip has been made the subject of popular and professional discussion to such an extent within the past 2 years, that its recognition in typical cases and after the development of the limp is almost certain to occur. The general practitioner has indeed become so eager for the prompt treatment of these patients that in some instances his error has been made on the other side. The limp or waddle, so characteristic of typical and well-developed cases, has been made the principal or even the only diagnostic sign in the minds of many, so that in young children at least, rachitic bends of the femoral neck or even rachitic lordosis have been falsely looked upon as luxations. That these conditions frequently produce a limp very similar to that of luxation needs only to be known, their recognition then follows easily by considering the constitutional and local conditions.

A fact which is not so widely known as it should be, however, is that congenital luxation need not be accompanied by any but the slightest limp within the first 2½ years of life; that the shortening and ascent of the trochanter above Nélaton's line may at this time be so slight that in fat babies, particularly, they may be impossible of recognition by the ordinary clinical methods. General acquaintance with these facts has been prevented by two things. The notion that the luxation was primarily upward and backward as in the common traumatic form was the first of these. This has been disproved by Külliker, Hoffa, Schede, and others, who have shown that as a rule the primary movement of the femoral head is upward and outward, a direction more compatible with the indefinite physical signs to which I have referred. It was furthermore held by many, and for quite a time, that the replacement of these hips was not practicable before the children had acquired cleanly habits of person. This made it appear less necessary to recognize the existence of the abnormality before the end of the second year of life.

That with the advance of age and the exercise of the weight-bearing function of the limb, the difficulty of replacement increases greatly is acknowledged by all. The results reported by those most experienced, Lorenz, Schede, Mikulicz, and Wolff, show moreover that the proportion of anatomic cures after bloodless replacement is below 50%. This refers to such cases only in which a true replacement was supposed to have occurred. In a large part of those anatomic cures great abnormality of head or acetabulum must explain the failure.

It is doubted by no one that the abnormality in the shape and size of the head and acetabulum increases steadily during the period elapsing before reposition is accomplished. For these reasons the earliest possible replacement must be considered an important desideratum. Within the past 3 years it has also been shown clinically that in not a few cases children are born, not

with luxation of the hip, but only with the predisposition to it, consisting of disparity between the size and shape of femoral head and acetabulum respectively, or the abnormal development of either of these alone.

The examination of 150 radiograms in Hoffa's clinic of luxation cases, showed that in 25% of undoubted unilateral luxations, abnormalities were present in the supposedly normal hip, usually in the form of a too oblique acetabular roof or a socket which was too wide for the head. The importance of this observation is emphasized by the paper of Walter.¹ Of especial interest is the case of his own child. On account of a limp a radiogram was made at the age of 2½ years; this was believed to indicate rachitic coxa vara. Treatment by massage was followed by improvement. This was afterward lost, and a shortening of 1.5 cm. appeared. A radiogram taken at the age of 4½ years now showed distinctly beginning luxation. Two additional cases of similar character are reported by him in children of 2 and 3 years. A number of similar cases have been reported by Schede,² Heusner,³ and others. From these cases it would appear that in some instances at least, the head may remain in contact with the socket for a variable length of time even in the case of imperfectly developed joints. The greatest factor in breaking this contact must be the act of walking. It remains for us to determine in what manner and to what extent the existence of such conditions can be established, and having done this, to ascertain the practical value of such diagnosis.

In consideration of the fact that shortening of appreciable extent appears with the development of the weight-bearing function only, and that in a considerable proportion of cases head and acetabulum are in imperfect contact up to this time, it is unlikely that recognition of the deformity will be possible during the first year of life. The length of the limbs is practically equal under these circumstances. Vertical mobility of the femoral head of slight degree is frequently present in infancy for no better reason than laxity of capsule and amplitude of acetabulum. Measurements of children at this age are difficult, particularly as concerns the position of the trochanters. Bade⁴ has reported a case in which attention was attracted by the transverse creases in the skin on the mesial aspect of the thigh. Normally these are two in number—one above, near the adductor fold, and one lower down near the knee. When the child is placed supine with pelvis level and both knees firmly held in the same plane these creases should be symmetric. In Bade's case, and in the one presently to be reported, the crease was higher than on the normal side. I recently examined a child of 13 with unilateral luxation, whose mother declared without suggestion from me that she had observed this in her child during its infancy, and had even requested the physician to determine its cause. Naturally, 12 years ago such a request was not seriously entertained. The value of this sign has not yet been definitely established, and in bilateral cases would, of course, not avail; nevertheless, it should receive attention and should indicate further investigation.

Although the number of histories at my disposal is limited, I have been able to ascertain that in several cases children with congenital misplacement of the hip, have been late in walking. It is a common experience in mild grades of rachitis that children are late in walking. The usual age of 16 months is passed by and the rachitic child not only fails to walk, but is usually also unwilling to stand. I have been able to ascertain in several cases and to observe in one, that children with congenital luxation stand readily at the usual age for walking, and especially if allowed to support themselves by holding to some object. It is only when independent effort at ambulation is urged that the child shows its timidity, and refuses to make the attempt as a normal child will. This period is, of course, gone through by every normal child, but in some cases its long continu-

* Read before the Southern Surgical and Gynecological Association at Atlanta, Ga., December 15, 1903.

ance may be attributed to congenital luxation. The length of this period in luxation cases, too, varies greatly, but in every case is finally determined by the child's learning to walk with more or less limping, at which time the diagnosis is usually made and is of no further interest in this connection. In some few instances mothers observe these things, and possibly also that the apparent breadth of pelvis and perineum is unusually great. It is therefore urged that in the presence of any of these signs which have been referred to, attention be paid to the possibility of congenital luxation, and that in the event of any doubt the röntgen ray be resorted to as a final means of precision.

The question of the value of radiography in determining the condition of the hip-joints at this early age possesses considerable interest. In view of the fact that both femur and acetabulum are at this time largely made up of cartilage, a material casting but little shadow under the röntgen ray, it is not to be expected that an exact idea of the condition of the joint is given by radiography. Indeed, it is possible that in some

acetabular part of the joint, the shadow of the head appears normally separated from that of the socket about three-sixteenths of an inch. Under normal circumstances, a line drawn through the epiphyseal hiatus of both acetabulums, in the radiograms, will be tangent to the upper margin of the shadow of the femoral head. To determine definitely the relation of the head to the acetabulum it is necessary to photograph the joint both in internal and external rotation. The appearance of the iliac portion of the acetabulum is most important. Normally, this "roof" of the joint should be almost horizontal. In luxation cases it is invariably quite oblique. A slant of 45° is quite common, and it may be so oblique as to convey the impression that in the event of reduction the femur would find no purchase at all. This impression is, however, apt to be erroneous, since it ignores the existence of cartilaginous material sufficient to hold the femur in place, reduction having been accomplished. The value of the obliquity of the acetabular roof lies in its drawing attention to the malformation of the joint; valuable confirmatory evidence,

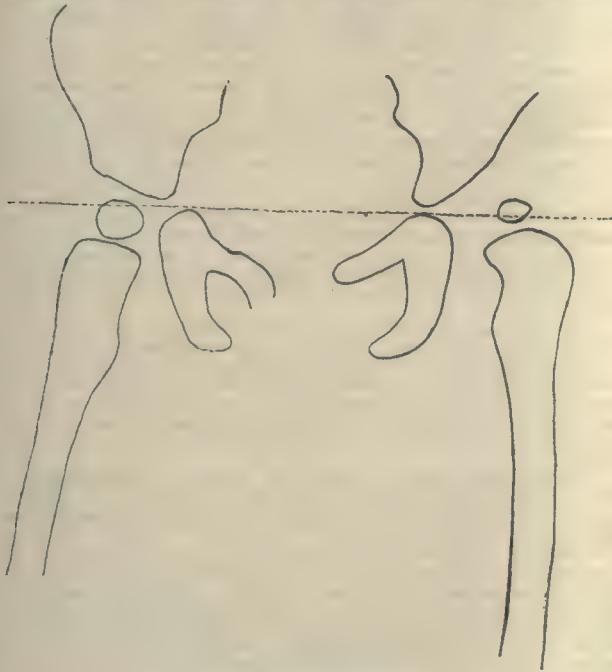


Fig. 1.—Before reposition.

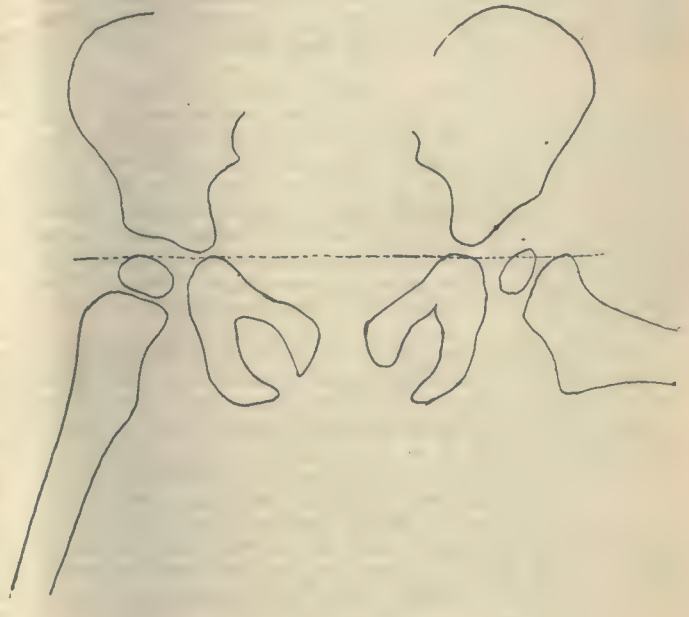


Fig. 2.—After removal of first dressing.

instances our conclusions drawn from radiography alone would be entirely erroneous. This is shown by a case reported by Gourdon⁵ in which the skiagram appeared to indicate the absence of any articular connection between femur and pelvis, but in which by other means a normal joint was proved to exist. There is no doubt, however, that a satisfactory radiogram is the most certain means of recognizing congenital luxation in infancy, and if for any reason its existence is suspected, resort should be had to it. Radiography is naturally somewhat difficult at this age, as the cooperation of the child must be dispensed with. I have found this difficulty to be easily surmounted, however. Having arranged all details regarding the position of tube and plate, and the working of the apparatus, a few whiffs of ethyl chlorid or even chloroform will suffice to hold the little patient still. It is best to make 2 exposures to avoid the possible necessity of repeating this slightly disagreeable procedure.

In studying the radiograms of the hips of infants under 2 years, it must be remembered that the bony center of the femoral head is small in comparison with its cartilaginous covering. On this account, and also because of the large amount of cartilage composing the

especially at this age, and in the case of incomplete luxation.

In view of the foregoing considerations, it will be seen that valuable as is the radiogram in the diagnosis of luxation and subluxation, the appearances there found cannot be used with accuracy in determining the prognosis after reduction. This is to be drawn from the behavior of the joint under manipulation upon the operating-table; stability of reduction here argues for the success of the operation, and *vice versa*.

In discussing the treatment of malpositions of the hip in infants of under 2 years, it is not proposed to consider the technic of the operation or the subsequent plaster dressing. The proposition is simply advanced that experience has abundantly shown the feasibility of the procedure after the age of 1 year, and that the results amply justify the great additional care which is necessary to prevent the dressings from becoming soiled, in patients so young. Differing in no essential detail from the operation upon children a year older, the maneuver is likely to astonish one by the ease with which reduction is accomplished and by the stability of the femur in its new position even when the limb is adducted.

Tracings from radiograms of a case before and after

reduction are offered in evidence of the statements just made.

The child, a girl, was brought for examination at the age of 17 months, because it would make no attempt to walk. The child was unusually heavy, but from its birth perfectly healthy. It was born after a perfectly normal pregnancy and labor, the latter requiring no assisting manipulation whatever. At the end of the first year the child began to stand with support, but could not be made to attempt walking, up to the time I was consulted. At this time the child's physical condition seemed perfect with the exception of the left lower extremity, which appeared something less than $\frac{1}{2}$ inch shorter than the right. There seemed to be slight vertical motion in the left hip, but not in the right. The position of the trochanter and the relation of the femoral head to the femoral artery could not be made out on account of the great amount of fat. The radiogram (Fig. 1) showed defective formation of the acetabulum, a capital epiphysis smaller than on the right side and situated upward and outward from the normal position.

The reposition was exceedingly easy and occurred with a snap so violent that the onlookers thought the femur must have been broken. In the ease and stability of reposition it was like a traumatic luxation. The plaster dressing was applied in the usual manner especial care being taken to protect the plaster by draw towels and rubber protective. The recovery was uneventful and the child made its first attempts at walking 3 weeks after operation. Ten weeks after this the child was chloroformed after removal of the plaster and a radiogram made without disturbing the position of the limb. Figure 2 is a tracing made from this and shows, I believe, a perfectly satisfactory position. The second plaster dressing was applied after reducing the abduction more than half.

It is as yet too early to speak of the ultimate result in this case and it is offered only as evidence of the ease and stability of reduction when done early, and the feasibility of maintaining it in very young children. It seems, moreover, fair to presume that if in this case another year had been allowed to elapse without reposition the difficulty of accomplishing it would have been greatly increased. It is more than possible that in this time, also, alterations in both hard and soft parts would have occurred sufficient to render an anatomic cure impossible.

Having discovered that imperfect formation of the hip-joint exists before the contact of femur and acetabulum has been markedly disturbed it should be possible to prevent the further progress of luxation and to favor the development of a secure joint. This would be accomplished by maintaining the limb in decided abduction, say of 25° , during the act of walking. The plaster spica worn for a period of about 6 months in this position should rightfully be considered the best means of attaining this end. A brace might doubtless be made to act similarly though with less certainty and constancy.

NOTE.—Since the foregoing was written, the last plaster dressing has been removed from this patient. The radiogram shows a perfectly satisfactory position of the femur. The acetabulum has developed considerably so that the difference in slant of the joint roof of the two sides is now only 10 degrees. The limbs are now of equal length and the child walks without the slightest limp.

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- ² Schede: Atlas d. norm. u. path. Anatomie in typischen Röntgenbildern, No. 3, Hamburg, 1900.
- ³ Heusner: Zeitschr. f. Orthop. Chir., Bd. x, p. 588, et seq.
- ⁴ Bade: Mün. med. Woch., 1902, No. 34, p. 1415.
- ⁵ Gourdon: Abstr. Zeit. f. Orthop. Chir., Bd. xi, p. 681.

Smoke Ordinance Reported.—After more than a year of discussion, Councils' Committee on Boiler Inspection has agreed to report favorably an ordinance to mitigate the smoke nuisance. According to the terms of the bill, 2 color scales are to be the standards for the density of smoke to be permitted at various establishments, but between 4 and 7 o'clock in the morning there is to be no restriction. Another exception to the general requirements is in the case of locomotives and river craft, in continuous transit through or across the city, or entering into or departing therefrom. No fumes of obnoxious odor are to be permitted to escape from any foundry or furnace within the built-up section of the city. A penalty of \$25 for violation of the terms of the ordinance is provided.

AN ORIGINAL OPERATION FOR COMPLETE LACERATION OF THE FEMALE PERINEUM.¹

BY

C. E. RISTINE, M.D.,

of Knoxville, Tenn.

On February 20, 1897, in an operation upon a female patient for complete laceration of the perineum, I devised and carried into effect a procedure with such a degree of success that I reported the case in detail in a paper read before the Knox County Medical Society at its stated meeting, May 11, 1897. Later, upon invitation, I sent an article for publication to *The American Journal of Obstetrics and Diseases of Women and Children*, describing the various steps in the operation. The publishers very kindly reproduced some pencil sketches I made which, although not perfect, illustrate the procedure very well (see March number, 1900).

The basic principle of this operation is inverting into the rectum a frill of mucous and cicatricial tissue which is dissected from the vagina. In describing the successive steps of the operation I shall quote freely from my original and also my published article.

1. An outline incision is made which varies in shape and length to conform somewhat to the extent of the laceration, with special reference to the rectal tear. If the laceration extends up the vagina into the sulci, I begin the outline incision above the apex of said tear, making sure to have an abundance of tissue, so that when dissected off as far as the apex of the rectovaginal tear and inverted into the rectum, it will reach well below the anal orifice. From this initial point I direct the outline incisions outward and downward to points I have selected for the lower border of the future vulva and upper border of the perineum, then extending the incisions down from this point on a line with the torn edge of the perineum to the outside of the pits marking the retracted ends of the sphincter ani muscle.

2. Following the outline incision, I begin denuding the mucous membrane and cicatricial tissue included in the outline from the highest point in the vagina, and carefully dissect—without buttonholing—down to the apex of the rectal tear, and laterally from the incisions down to the margin of the rectal tear, being particular not to disturb its connection here. These lateral incisions should expose the ends of the sphincter muscle.

3. Now invert the frill into the rectum, and draw it well down below the anal margin with tissue forceps, which should be left attached for further traction if required when adjusting vaginal or perineal sutures.

4. At this stage of the operation, draw out and freshen the ends of the sphincter muscle, through which pass a chromicized or cumolized catgut suture near its ends; gentle traction on this suture will approximate, but will not place the ends in apposition; now, while the traction is continued, pass a silkwormgut suture back of the catgut suture through skin and muscle, taking a deeper hold of the muscle; when traction is made on this reinforcing suture, the ends of the sphincter can be brought in contact. This suture also passes through the frill between the dissected surface and the mucous membrane, for the purpose of preventing the frill from retracting above the anal margin. Those sutures passed first are tied last.

The remaining steps in the operation are the same as those in incomplete laceration, and require no further description, as we have practically converted a complete into an incomplete tear.

The advantages of this operation over all others for this purpose are obvious. The rectum is shut off completely from the denuded area by the inverted frill, with its mucous surface forming the anterior wall of this organ, giving an unbroken rectal mucous lining. There are no stitches in the rectum to carry infection, or requiring removal. The frill supplies tissue to the rectum that has been destroyed by sloughing, retraction, and atrophy.

In my published article describing this operation, I make mention of 3 patients successfully operated upon, since which time I have had only 1 case of this nature, and I operated upon this patient in 1902 with satisfactory result.

In my first case I used silkwormgut and silver wire for vaginal and perineal sutures, which for some cause tore out on the third day; on the following day I

¹ Read before the Knox County Medical Society, October 29, 1903.

removed all stitches, freshened the denuded area with a sharp curet, reintroduced sutures, catgut for the vagina and silkwormgut for the perineum, with a successful result.

I do not use a dressing of any nature over the sutured area, the nurse is instructed to throw a stream of mercuric chlorid solution (1-2,000) over the labia after urination whether the act be accomplished with or without the aid of a catheter. After the lapse of 5 or 6 days a vaginal douche is given every 24 hours, using some mild antiseptic such as boric acid or normal salt solution. As soon after the operation as the patient's stomach will tolerate it, I order the administration of a tablespoonful of compound liquorice powder in a half or two-thirds of a tumbler of water, and repeat it often enough to insure 2 soft free actions from the bowels every 24 hours. The diet should be limited to such articles as furnish the greatest amount of nourishment with the smallest amount of fecal matter. Failing to appreciate the necessity of tying the legs together, as most of the textbooks tell us, I allow free use of the limbs while in the recumbent position, as there is absolutely no motion made by the leg or thigh which will in any manner disturb the recently adjusted parts. I do not use a self-retaining catheter for good reasons. The perineal stitches of silkwormgut are not removed until after the eighth day.

Since the publication of my paper in 1900, this operation has been performed by some of our best surgeons in the larger cities with such gratifying success that they pronounce it ideal.

Dr. E. E. Montgomery, Professor of Gynecology, Jefferson Medical College, Philadelphia, has done me the honor of mentioning my operation in his very excellent textbook, "Practical Gynecology," second edition, 1903.

ENURESIS.*

BY

GEORGE E. BEILBY, M.D.,

of Rochester, N. Y.

Resident Physician, State Industrial School, Rochester, N. Y.

Although this is a subject which has received the attention of the profession for generations and upon which much has been written, yet one has only to look over the literature and textbooks and note the vaunted nostrums and specifics, all of which are equally worthless, to realize fully that the treatment of enuresis is oftentimes very disappointing and the underlying etiologic factors in many cases not clearly determined. Enuresis is usually considered a disease of childhood proper, most common between the third and tenth years of life and affecting both sexes about equally. But, I think you will agree with me that often the largest number of cases is seen among the adolescent in asylums and institutions, where they are gathered in large numbers, and that these are the cases which present the greatest difficulties in management, and that the majority of such cases occur among males.

It is of this institution variety that I wish to speak in this paper, as my observations have all been made during the last 3 years at the State Industrial School in Rochester, an institution receiving children of both sexes between the ages of 10 and 21 years, committed from all types of society, from the best to the degraded and degenerate. We have a population varying from 800 to 900, of which about 100 are girls. Of this entire number my records of these cases taken from month to month show variously from 30 to 70 or 80 cases of enuresis, or 4% to 10% of the population. Other similar institutions report even a larger percentage, 18 to 20 in one instance. Compared with children of like ages under normal conditions, that is, outside of institutions,

the proportion is extremely high, and here arises the question: How can we account for this vast difference? Let us first consider the potent causes of enuresis, and here we will eliminate those cases due to malformation of the genital tract and those caused by organic diseases of the central nervous system as not applying in this paper and simply consider the ordinary form of childhood which is usually termed a neurosis.

In infancy the act of micturition is simply a reflex involuntary one. An impulse is sent up from the nerves of the bladder to the lumbar center which produces simultaneously a relaxation of the sphincter and a contraction of the other muscles of the bladder, expelling its contents. Normally, after the second or third year, cerebral control is exercised over this center. Incontinence therefore may be due to (1) lack of development of the cerebral center and continuance of the infantile condition; (2) to irritability of the terminal nerve filaments in the bladder or surrounding parts; (3) to irritability of the spinal center.

Out of a total of about 250 cases, the entire number in the institution in 3 years, I have had under treatment in our hospital 75 patients, and have kept complete histories and records of their cases. They were in no way selected, excepting that they were those in which the condition was the most pronounced, and to which my attention was called from time to time. But 2 of these patients were imbeciles, and in only 7 were there well-marked physical signs of degeneracy, though many were the offspring of more or less defective parentage. Thus it is fair to suppose that in 73 of the cases there was no lack of cerebral control. Examination of the urine never revealed marked abnormalities, nor were there signs of vesical calculus or rectal irritation, and in only a few of the cases sufficient phimosis to cause the condition. So that, with the exception of these few cases, I believe none could be assigned to this category, which is commonly believed to be one of the most frequent causes of enuresis. By exclusion, therefore, we arrive at the third cause, irritability of the spinal center, by which to explain the majority of the cases. The histories might be summarized as follows: Seventy-one were in males, 4 in females. The ages ranged from 10 to 21 years: 1, 10 years; 6, 11 years; 14 each 12 and 13 years; 16, 14 years; 11, 15 years; 4, 16; 5, 17; 3, 18; and 1, 21 years. Sixty suffered from nocturnal enuresis only, 2 from diurnal only, while 13 were both nocturnal and diurnal, and 6 had incontinence of feces, as well as urine. As regards the length of time which the condition had existed, it varied from a few weeks or months to several years, or perhaps as long as the patient could remember, and some were of such moderate severity that they only wet the beds now and then a night, while others would invariably do so two or three times. Many of these patients were known to be chronic and excessive masturbators. By careful questioning and close observation, a positive history of such habit was determined in 71 of the cases, leaving only four doubtful. Some were very reluctant in admitting the practice, and might deny it absolutely. These were carefully watched by night-guards, and almost invariably our suspicions were corroborated. It is surprising to what excess and for what length of time it was practised in many cases. For instance, one lad of 13 stated that for 2 or 3 years he had practised the act once or twice every night, and sometimes days also. Once a night, or every other night, is about the average, and extending over periods of 2, 3, and even 5 or 6 years, if they were truthful in giving their histories. These cases clearly showed a direct ratio between cause and effect, the worst cases of self-abuse being the most troublesome ones of enuresis.

As to the *modus operandi*, there may be some difference of opinion. But in these cases I think it is clearly demonstrated, as I shall show later, that there existed a hyperexcitability or hypersensitiveness of the center for

* Read before the annual meeting of the Medical Society of the State of New York, Albany, N. Y., January 26, 27, and 28, 1904.

erection in the cord, caused by repeated and prolonged stimulation, and that this condition, whether it amounted to an actual congestion or not, extended to the adjacent centers of micturition and defecation, and that the same condition obtained here. While the exact location of these centers has, I believe, never been clearly determined, yet most authorities, as Halliburton,¹ Starr,² Howell,³ and Peterson,⁴ all place them in the lumbar enlargement of the cord, also the center for ejaculation. I am not prepared to state that the abnormal condition present in these reflex centers in the lumbar cord is an actual congestion, but that such might be the case seems very probable. To quote from Gowers,⁵ "An active congestion which may be termed secondary, seems to result from prolonged and violent action of the nerve elements of the spinal cord. Thus local dilation and distention of vessels, migration of leukocytes into the sheath and into the adjacent tissue, and even small extravasations, are found in some cases of hydrophobia, tetanus, and of strychnin poisoning, and it is probable that a similar congestion attends all violent physiologic activity, violent and continued muscular exertion, coitus, etc. Coitus several times repeated has been known to cause hemorrhage within the cord, which must be preceded by an intense congestion. Vascular dilation with an increased blood supply is the physiologic attendant of functional activity in all organs, and doubtless also in the cord, but is morbid only when excessive."

That in these cases this condition of enuresis is due to an irritation of the reflex center rather than to a peripheral irritation seems to be clearly borne out by certain very interesting phenomena which only recently have come to my attention in the examination of these cases, and which seem to indicate, moreover, that this irritative or congestive condition extends further, and involves other reflex centers in the lumbar cord; that is, the cremasteric gluteal and tendon-reflexes of the lower extremities, as shown by the result of the examination of 25 of the recent cases, or a third of this series.

The first symptom which attracted attention was the frequent complaint of a dull aching or an actual pain referred to the lower dorsal or lumbar region and the presence of tenderness on palpation. This symptom of tenderness was present in 10 cases, very marked in 3, and absent in 12, the exact location being most frequently over the second, third or fourth lumbar vertebrae, and extending out over the nerve endings of the posterior division of the spinal nerves arising from these regions.

Examination of the reflexes gave the following results:

Cremasteric.—This was found to be greatly exaggerated in 9, exaggerated in 8, brisk in 4, and normal in 4.

Patellar, greatly exaggerated in 11, exaggerated in 7, brisk in 4, and normal in 3.

Gluteal, greatly exaggerated in none, exaggerated in 3, brisk in 2, and normal in 20.

Achilles, greatly exaggerated in 3, exaggerated in 13, and normal in 9. Tendency to ankle-clonus of short duration in 2 cases.

Plantar reflex normal in 12, diminished in 13.

Upper Extremities.—(a) Triceps, greatly exaggerated in none, exaggerated in 2, brisk in 7, normal in 9, and sluggish in 8. (b) Biceps, greatly exaggerated in none, exaggerated in 2, brisk in 4, normal in 9, and sluggish in 10.

Wrist.—(a) Flexors exaggerated in 1, perceptible in 7, not perceptible in 17. (b) Extensors exaggerated in 1, perceptible in 3, not perceptible in 21.

In making these tests I was assisted by Dr. Robert G. Cook, so that there can be no doubt as to their accuracy.

Here is the condition. How, if not in the manner indicated, can it be explained? An almost uniform exaggeration of the muscular and tendon-reflexes of the lower extremities, together with the bladder and rectal

symptoms, with no exaggeration of the reflexes of the upper extremities, with the exception of 2 cases. In one of the latter the condition of incontinence was very slight, and yet all the reflexes of both upper and lower extremities were very greatly exaggerated and the tendency to ankle-clonus was present. I can offer no explanation in this case. The other lad was decidedly a psychoneurotic, and this might account for the condition of his reflexes. It might be asked if all these cases did not exhibit the so-called neuropathic taint. This was true in only 1 out of the 25 cases, which is the case already mentioned. None of the others exhibited and of the "stigmata" of hysteria or neurasthenia, any in only three were marked physical signs of degeneracy.

Very little literature has been available on this subject. Jacobi,⁶ as long ago as 1876, called the attention of the profession to masturbation as being a very frequent cause of enuresis, and again in 1890, in "Keating's Cyclopaedia of Diseases of Children," he states his belief that it is a more common cause than is generally considered (and that it is due to the constant irritation of the prostatic portion of the urethra and neck of the bladder by frequent erections). This may be the explanation in some instances, but in my series of cases it would seem very positive that there existed an abnormal increase of irritability in the lumbar enlargement of the cord, which would account for the exaggerated condition of the reflexes of the lower extremities, as well as the incontinence of urine and feces. Prendergast⁷ reports 80 cases of enuresis in an orphanage, out of a total population of 485, the ages ranging from 6 to 12 years. He, excluding idiocy and imbecility and the general neurotic state, is inclined toward the belief that it is "downright laziness" in the majority of cases which causes the condition. I should hesitate in accepting this as a cause in so large a number of cases, and especially when restricted diet and punishment did not tend to correct the condition. Of the 80 cases, he reports 75 cures, and improvement in the remaining 5, during 8 months of treatment with cold spinal douching. The success of his treatment I should attribute not alone to the strong mental impression caused by the cold douche, but to its tonic and sedative effect upon the reflex centers in the lumbar cord.

Proof may be lacking in some instances, but it is my earnest belief that at least 90% of all cases of enuresis occurring among the youth and adolescent in institutions are caused by self-abuse. The class of children gathered in asylums and institutions is very prone to indulge in this habit, but it is the direct teaching one to another that gives us our large number of cases. It has been my experience that the great majority of boys coming from orphan asylums and houses of shelter are addicted to the practice of self-abuse, and a certain percentage of these always suffer from incontinence. Seclusion, intimate association, and lack of diversion in mind and bodies weakened by ancestral immorality, offer a ready explanation. I might mention in this connection that 20 of my 75 patients had previously lived in asylums or institutions.

Treatment in these cases is usually attended with good results, if the condition is not of too long standing. It should be directed along two lines: First, by appealing to the moral sense and warning the child of the dangers of evil practices. Second, by improving the physical condition and attempting to relieve the congestive or irritative condition of the lumbar cord. Circumcision was performed in these cases, almost as a routine, not because there was a phimosis, for as I have said in only a few cases was this condition present, but for its mental impression alone, in tending to prevent the practice of masturbation, and this I consider a very important feature in the treatment. At times also it will be necessary to follow this by electricity, cold spinal douching or counterirritants over the region of the lumbar cord.

Then the systemic and nerve tonics are indicated, and antispasmodics, of which bromid and belladonna excel.

Following out these general lines of treatment, improvement or what seems to be in many cases a cure, results; but the fact remains that the habit of self-abuse has become so firmly grounded that, unless every case is followed up with considerable earnestness, they drift back to their former condition.

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- ⁴ Nervous Diseases by American Authors.
- ⁵ Gower's Diseases of Nervous System.
- ⁶ American Journal of Obstetrics and Diseases of Women and Children: Vol. III, page 38.
- ⁷ New York Medical Journal, July 11, 1896.

SIX MONTHS' WORK IN A DISPENSARY FOR DISEASES OF THE LUNGS.

BY

THOMAS H. A. STITES, M.D.,

of Scranton, Pa.

The "Free Dispensary for Diseases of the Lungs" was opened for work under the auspices of the Scranton Society for the Prevention and Cure of Consumption, on January 1, 1903, by Drs. J. M. Wainwright and L. B. Woodcock, who were succeeded on July 1, 1903, by Dr. William F. Bennett and myself, and it is of the methods pursued and the patients treated subsequent to the latter date that I intend to speak. We found the dispensary stocked with a small, but very serviceable, supply of drugs principally in tablet form; a sufficient number of cardboard sputum cups for supplying every case in which they were needed; a few instruments for examination of nose and throat; a considerable amount of reading matter for the guidance and information of patients and their friends, and tickets for milk to be distributed to those too poor to pay for that article so important in the diet of the tuberculous. Our methods were simple, and, as was to be expected, the simpler the more successful. After obtaining the social and personal history of each applicant as thoroughly as possible, a thorough physical examination was made of heart and lungs. We then entered upon the treatment indicated by history and examination, which, in the majority of cases, consisted of a tonic tablet of iron, quinin, and strychnin; frequently a sedative expectorant tablet of terpin hydrate and heroin; at times a bronchitis mixture of Dover's powder, ipecac, belladonna, and quinin in tablet form. In many cases dyspnea seemed the most troublesome symptom, and was dealt with very satisfactorily with what we called "emphysema mixture," which consisted of a small amount of morphin, some potassium iodid, tincture of belladonna, and Hoffman's anodyne in syrup of wild cherry. A dose of this mixture given 3 times a day produced some very happy results. In cases in which gastrointestinal disturbances were manifest we found a tablet of pepsin and pancreatin moderately successful. When constipation existed, we dispensed a compound aloin and cascara tablet which so far as reported never failed to relieve. In cases in which there were throat complications we dispensed a gargle of one of the creasote preparations. At times when more powerful expectorants were called for we had recourse to the old ammonium chlorid and brown mixture tablet, which we found of great value, especially when followed by small doses of heroin or codein. When special symptoms demanded drugs outside this list, prescriptions were given, and in worthy cases these were filled at the expense of the society; probably the most frequent prescription being for atropin to control the night-sweats. Each patient was carefully instructed as to the great—indeed, the absolute—necessity of being in the open air as much as possible, some were even persuaded

to swing hammocks and sleep there. The diet was not neglected, and the articles most advised were eggs, milk, and meat—especially the first. Stress was laid upon the danger of infection of other members of the household and the community at large. Paper sputum cups were furnished and their use explained, and patients were told that a new supply could be obtained at any time. Advice was given concerning the disposition and care of bedding, clothing, handkerchiefs, table furniture, etc., and the importance of care was emphasized at every opportunity, both verbally and by means of the printed pamphlets supplied by the society, and distributed to every patient. We deemed this distribution of information quite as much one of our objects as the treatment of patients. When it seemed advisable the society's visiting nurse was notified, and she called at the houses of the patients to help as best she could. In some of the cases which came under my observation the services of this nurse were of the greatest value.

When late in the summer the society opened its West Mountain Sanatorium, patients whose cases proved to be tuberculosis, and who were not too far advanced, were urged to apply for treatment there, and a falling off in the attendance of such patients at the dispensary was at once noticed. Many, however, seemed to fear the open-air life at the sanatorium, and it was with no little urging that some of them were persuaded to apply; some few persisted in their refusal despite all that could be said. It was interesting to note the incredulity upon the faces of some when we told them that a widely opened window in their bed-rooms would be of great value, and some, I fear, set us down as cranks and unworthy of confidence.

Our results in the pulmonary cases were, considering the lack of control over our patients, very satisfactory. We are not ready to claim any cures, for it seems to us that the period of time covered is altogether too brief to permit of any such claim, but we do claim—and our case histories support the assertion—that many patients were markedly benefited; some, we have reason to hope, permanently, and that few applied to us who did not obtain great relief.

Altogether, during the 6 months, we admitted 72 new patients; of these 47 had pulmonary complaints, and of these at least 26 were tuberculous. The remaining cases were diagnosed as bronchitis, subacute and chronic; and in a number of these it was impossible to eliminate entirely the suspicion of tuberculosis. Eight cases proved to be endocarditis, and the remainder were of various complaints—catarrh, tonsillitis, adenoids, laryngitis, syphilis, cystitis, and neurasthenia.

To consider more particularly the tuberculous cases—it was wonderful to observe the almost immediate improvement, the gain in weight, the lessened dyspnea, the alleviation of cough, the gain in strength, in some cases the return of a healthy color to the cheeks, which followed the observance of our advice and the use of the simple preparations we dispensed. To the best of our ability we strove to enforce upon each patient the fact that his or her case was not hopeless—that the danger was great we never denied—and that the patient was engaged in a hard, long, tedious fight for life, for health, and for strength, in which we, the physicians, could only guide and direct; that the work was not for us to accomplish, but for the patient, while we were always at hand with medicine or advice. In most patients this seemed to breed a fighting mood, and a sense of responsibility, and a readiness to follow advice; and it is to this mood and the cheerfulness that comes with it that I ascribe much of the favorable result of our treatment. Some there were who declined to help themselves, and with these we had difficulty, but after persuading them to try our methods a little gain was noted, and usually that was sufficient inducement to continue the fight with more courage. Unfortunately, as is so often the case

with the tuberculous, the improvement, remarkable as it seemed, was in a number of instances but temporary, and it must be confessed that our efforts served but to stay for a time the inroads of the disease, and that death will, after a shorter or longer period, end the fight. Still it is something even to check such a course, and to have given relief to suffering. Further, there were cases, some of them pronounced, in which the patient's condition was far better after 6 months than it was when they first applied to us for help. Several showed by examination marked improvement, and in these the subjective symptoms had almost disappeared, and one cannot but feel that a process of real improvement had been begun. The case of a boy of 9, admitted a few days before we took charge, and who was seen at intervals during the whole 6 months, is worthy of remark. There were rales and dulness all over one apex, there was history of a cough, of progressive loss of flesh, strength, and spirits, little appetite; in fact, fully enough to give base for diagnosis, despite the lack of bacteriologic confirmation—due to the persistent refusal of the boy to collect sputum for us to examine. We instituted at once a regime of outdoor exercise, nutritious food, a tonic, the iron, quinin, and strychnin before mentioned, and at once there began to be manifest a gradual improvement, which continued steadily, until at the final examination, just before handing over the work to our successors, we could find no abnormality of the percussion note of either side, there were no rales to be distinguished even with the aid of such instruments as the phonendoscope and Bowles' stethoscope; the cough had entirely disappeared, while the father positively complained of the boy's appetite. He was strong, and stouter than most boys of his age. Of course, it must be admitted that the lack of bacteriologic confirmation of the diagnosis leaves an element of doubt in this case, but the signs were very positive, and sufficient for a diagnosis. In reviewing the 6 months' work, one cannot help wondering whether in selected cases, in which the patient can and will cooperate in the fight, the home is not as good a place for treatment as a sanatorium or hospital; at all events, it is worth trial. Another lesson borne in upon us is the fact that the less expensive remedies are of great value, for in the operation of a charity such as this, having slender resources, it was important to avoid, so far as possible, the use of expensive preparations.

A discouraging feature was the fact that so many patients disappeared from observation before we could come to any decision as to the success of our efforts. Some went to our own sanatorium, some to other institutions, some were lost to sight entirely. The patients admitted to the West Mountain Sanatorium are reported doing well.

Consideration of the occupation of the patients suffering from pulmonary and cardiac complaints reveals at once the predominance of those which expose the individual to dust. Of the 55 cases we find that 17 were in women engaged in the duties of their homes. Twelve were in men connected with the mines. Six were in people employed about machinery. Among the remaining 20 patients we find 2 were clerks, 2 bakers, 3 carpenters, 5 school-children, a mason, a plasterer, a hatter, a mill hand, a butcher, a governess, and a seamstress. In a large proportion of the tuberculous the family history was negative. It is rather startling to find such a large percentage among those most liable to convey contagion to their families, the women engaged in household duties. It was to them that we gave the most careful instructions as to how to care for the safety of their families and associates.

One handicap under which we have labored incident to this class of work and which it is feared can hardly be avoided, is the fact that most of the patients applying for treatment do so only after the disease has obtained a firm hold upon them. A very frequent statement was that there had been a cough growing more and

more severe for a period seldom less than 6 months, frequently 2 years, and in 1 or 2 cases as long as 6 years. It seems to me that while avoiding so far as possible all unnecessary alarms and "yellow journal" methods, a continual effort must be made to influence people to seek early treatment for coughs and cold. One cannot help believing after seeing the immediate and marked benefit of treatment in even the advanced cases that the same care and methods instituted early would have wonderful results—results every whit as favorable as those claimed by the extreme advocates of the treatment. It is not an easy thing to tell a patient, the mother of a family of young children, or the father upon whose labor depends their support, that he or she is in the toils, and that the outlook is bad; it is not an easy thing to tell such a one that there is even a suspicion of the disease; but it is a heart-breaking thing to be forced, in answer to the question, spoken or unspoken, to say that there is not much hope. For my part, I prefer to start an alarm a bit earlier than that, even to give an occasional unnecessary alarm, while I can still tell my patient that the chances are in favor of a cure. In most of the cases that have fallen to my lot it has seemed best to practise frankness, to tell the patient the truth without exaggeration, and at the same time hold out hope to nerve him or her to the fight. The mental condition has a great effect upon the physical condition, and a fighting spirit once raised is of no little assistance. It has been my constant effort to combine conservatism and truth, and thus far experience has confirmed my allegiance to such a course.

Another thing which struck us forcibly was the percentage of patients applying who were proved beyond doubt to be tuberculous. Our patients were drawn from the poorest class of a population of a little over 100,000, in a vicinity noted for its healthfulness. Yet out of 72 patients admitted to treatment 26 were found tuberculous, and the diagnosis was founded not alone upon physical signs but in at least 24 cases upon the evidence of the microscope as well. Many have been inclined to ridicule and decry as exaggeration the warnings and statements of the tuberculosis agitators, but here is some actual, tangible proof of the existence of a number of such cases, an exhibit which is the more remarkable when it is remembered that we did not in any way encounter those who apply to their own physicians for aid and advice. It is a startling revelation of disease, and were the work of our dispensary but one of warning and education it seems to me that its existence has been more than justified. Scranton and its vicinity is no exception to the general condition of all urban and suburban localities, indeed in many respects conditions here are better than the average, and it is an encouraging sign that at least two other cities of this State, Pittsburgh and Wilkesbarre, are joining the crusade, while Philadelphia is already deep in the fight.

I do not think that the abuses of our dispensary have been such as to interfere seriously with the prosperity of any practitioner and we have been able to relieve materially much distress, and to distribute information which we believe will tend to protect many from infection by the tubercle bacillus.

Adulterated Foods.—A very large proportion of the lemon extracts offered for sale are inferior products containing but little lemon oil. Many brands contain no lemon oil whatever and are but weak alcoholic solutions, colored with coal-tar dyes and having but a suggestion of the flavor of lemon. Of the 10 brands examined, 7 were fraudulent in character and but 3 contained the required 5% of lemon oil. The manufacturer of one of these high-grade extracts went to the unnecessary expense of coloring his product with anilin dye and thus adulterating what was otherwise an excellent article. The 4 brands of sausage examined have all contained boric acid. One of these brands was supplied by the manufacturer, who supposed it to be pure. It appeared that he was using a "sausage filler," consisting largely of starch, for rendering the sausage less fat. Upon analysis this sausage filler was found to contain considerable boric acid.—[*N. H. Sanitary Bulletin.*]

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

February 27, 1904. [Vol. XLII, No. 9.]

1. The Classification and Diagnostic Guides of Intestinal Obstruction. H. TUHOLSKE.
2. Report on Two of the Children Operated on by Lorenz. HARRY M. SHERMAN.
3. Table Wines. Are Their Uses to be Encouraged? HENRY O. MARCY.
4. The Decapsulation of the Kidney, with Reference to the Concomitant Intraocular Complications in the Chronic Forms of Nephritis. GEORGE F. SUKER.
5. Some Remarks Concerning the Ocular and Aural Requirements of Railroad Employes. FRANK ALLPORT.
6. The Blue Light Treatment in Diseases of the Skin. LOUIS E. SCHMIDT.
7. Strangulated Femoral Hernia Containing Appendix: Report of Two Cases. J. HENRY BARBAT.

1.—Classification and Diagnostic Guides of Intestinal Obstruction.—H. Tuholske speaks first of congenital and acquired ileus and divides the latter into dynamic or paralytic and mechanical ileus. Dynamic ileus may be due to inflammation, mechanical or chemic irritation, infection causing gas accumulation, embolism of the superior mesenteric, changes in the central nervous system. Mechanical ileus is divided into cases due to strangulation and obturation. Strangulation may come from peritoneal adhesions, obturation from gallstones, intestinal concretions, foreign bodies, fecal impactions, strictures, sarcoma, intussusception. In dynamic ileus peritonitis opens the scene, in other forms it closes it. The diagnosis of obstruction is not so difficult as the finding of the underlying anatomic conditions and site. The writer discusses the differentiations in a detail which does not lend itself to abstracting. [H.M.]

2.—Two Children Operated on by Lorenz.—H. M. Sherman removed the splints in the presence of other surgeons, and radiographs were made immediately. These he presents. In the first case the head was in a subcutaneous position in the outer part of Scarpa's triangle, while the trochanter was somewhere behind and internal to it. The condition was not favorable to stable support, and a cutting operation was agreed to. The head was found thrust through the torn capsule and lying among the muscles. The trochanter had been crowded nearly into the acetabulum. The latter was shallow, but the head was put easily into it. Little capsule was left in front of the head. It is impossible to avoid the conclusion that manipulation that weakens the capsule is a detriment. No condition exposed by this incision could have been counted on to prevent backward movement. If the movement took place, the head entangled in the rent would not move so fast as the trochanter, and an outward rotation of the limb would occur. The rent in the capsule being on the distal side of the constriction, all crowding of the head through the latter and into the acetabulum is lost. If the head is now put in the acetabulum, it is wasted effort, for the proximal part of the capsule is stretched over the cavity and not only closes it, but makes it still more shallow. In the second case, still unopened, the head points forward above the acetabulum and the trochanter backward and behind the latter. [H.M.]

3.—Table Wines.—H. O. Marcy discusses the separation of water from wines by crystallizing out at low temperatures, leaving the alcoholic and essential qualities. Fruit juices can be concentrated in the same way, making many additions to our table delicacies. Beverages which many think preferable to costly wines can thus be manufactured and preserved. He reviews the objections to alcoholic drinks and believes these fruit juices will ultimately supplant them. [H.M.]

4.—See *American Medicine*, Vol. V, No. 20, p. 784.

5.—The Ocular and Aural Requirements of Railroad Employes.—F. Allport gives the total of personal accidents in one year as 51,743, and of these 7,123 were killed. A majority of these were probably preventable, due to carelessness or physical defect. Inquiries sent to 244 railroads elicited the fact that 77 require systematic eye and ear examination; 26 roads require perfection and allow no concessions to old employes; 41 require perfection from new employes and allow various concessions to old employes. No road allows new employes to wear glasses; 74 allow old employes to wear glasses for distance. The writer gives the report of the Committee of the Section on

Ophthalmology, with the remodeled resolutions passed by the House of Delegates. He does not endorse the idea of testing with both eyes open and of ignoring the condition of the worst eye. He increasingly feels that liberal concessions should be made to old employes, and the utmost paucity of vision consistent with safety be liberally computed. Experience and good judgment compensate for physical defects. Perfection should be required in the beginning, with not more than 1½ D. of apparent hypermetropia. [H.M.]

6.—Blue Light in Skin Diseases.—L. E. Schmidt contrasts the red and blue rays, the latter having a soothing effect just opposite to the action of the former. He uses an arc lamp with a reflector which concentrates light on a blue glass screen. Large surfaces may be treated, and it is not necessary to protect healthy parts. Distance from the screen varies from a few inches to a foot, time, from a few minutes to a half hour. Treatments may be given once or twice daily. The actinic action accompanying blue rays is much less than those accompanying ultraviolet rays. Freedom from heat rays is regulated by the distance of the reflector, and the patient from the screen. The blue light has been successful in a number of cases in which röntgen rays in his hands failed. Its advantages are simplicity in application, large and small surfaces may be treated, there are no untoward effects, the results are favorable, and the apparatus inexpensive. [H.M.]

7.—Strangulated Femoral Hernia Containing Appendix.—J. H. Barbat has come across 100 cases in which the appendix was found in femoral hernia, but in only a few of these was it the sole occupant, and in only one or two has a primary strangulation occurred. In order that it may pass through the hernial ring it must be free and possess a mesoappendix sufficiently long. No case has been reported in which the appendix was found in a left femoral hernia. In 1 of the 2 cases he reports the strangulation was secondary to swelling, which followed appendicitis. It would take little swelling to cut off circulation and produce necrosis. [H.M.]

Medical Record.

February 27, 1904. [Vol. 65, No. 9.]

1. The Surgical Treatment of Facial Palsy with the Technic of Faciohypoglossal Nerve Anastomosis. ALFRED S. TAYLOR and L. PIERCE CLARK.
2. Questions of Urinalysis Bearing upon the Diagnosis of Contracted Kidney. BEVERLEY ROBINSON.
3. The Hot Full-bath. FRIEDRICH GHOSSE.
4. The Ordinary Röntgen and Ultraviolet Rays in the Treatment of Tuberculosis. J. B. RANSOM.
5. Antistreptococcus Serum in Pernicious Anemia. JAMES J. WALSH.
6. Hematoma of the Sternocleidomastoid Muscle: A Study of three Cases. THERON WENDELL KILMER.

1.—Faciohypoglossal Nerve Anastomosis.—A. S. Taylor and L. P. Clark report having performed this anastomosis on 3 patients. In none of these had the operation been performed sufficiently long to determine what the result would be, though a favorable prognosis is given in each instance. Their conclusions are: 1. The best results follow when the cause of the paralysis has been a traumatic division of the nerve. Less hopeful of complete recovery are those cases due to neuritis, especially when caused by suppurative mastoiditis. 2. The longer the time between the paralysis and the anastomosis, the slower and less complete is apt to be the recovery. In traumatic paralysis, anastomosis should be immediate. In interstitial neuritis it is necessary to wait a few months for signs of spontaneous recovery, which so often occur. At the end of 3 months to 6 months of treatment the neurologist can decide the propriety of operating. In the suppurative forms operation should be done as soon as the danger of infection of the wound is passed, as there is small likelihood of spontaneous recovery. 3. The condition of the paralyzed muscles, flaccidity, contracture, spasm, changes in electric reaction, and, most particularly, the degree of atrophy, is important. The more atrophy the less hope. Therefore, massage and electricity must be systematically used from the onset of the paralysis. 4. The technic must be precise and delicate. The nerves must not be pinched nor unduly handled, the sutures must be fine, and involve only the nerve sheaths. The degree and duration of operative appearance of temporary interference with the functions of the hypoglossal nerve, were directly proportionate to

the traumatism inflicted during operation. There must be the least possible amount of scar tissue. 5. The first degree of recovery consists in symmetry of the face during quiescence, but without volitional muscle control. The next consists in the return of volitional muscle control, but with the paralyzed side of the face uninfluenced by the emotions. The third and complete degree consists in the return of emotional control of the face. [A.B.C.]

2.—Urinary Analysis and its Bearing upon the Diagnosis of Contracted Kidney.—Beverley Robinson states that this analysis is related to 3 classes of patients: (1) Patients whom we believe are suffering from complicated contracted kidney; (2) patients whom we suspect of having contracted kidney, in addition to neurasthenia or other disease; (3) patients, particularly women, whose urinary analysis shows no other evidence of contracted kidney than continued low specific gravity and deficient excretion of urea. In certain instances urinary analysis alone will not enable us to make an exact diagnosis, and in every case it is desirable to consider all other clinical signs and symptoms, and even then at times we shall find it difficult or impossible to pronounce ourselves in exact and positive terms about a given case. Not infrequently the primary form and the arteriosclerotic form of contracted kidney described by authors are essentially one and the same anatomically, and satisfactory explanation of different urinary signs at various stages of the disease remains to be given. [A.B.C.]

3.—The Hot Full-Bath.—F. Grosse calls attention to the indiscriminate use of the terms warm and hot and its harmfulness. Baths from 98° to 102° may be of moderately long duration before inducing heart troubles, but one of 106° or 107° should not last longer than 15 minutes, and those above not longer than 10 minutes. Those from 98° to 102° are sedative and warm, those above 106° are exciting and hot. The limit of endurance with us seems to be 109° or 110°, with a duration of 6 to 10 minutes. The patient should enter slowly, 1 or 2 minutes elapsing before full immersion. The hot bath is indicated to increase metabolism, to eliminate toxic substances, to remove exudations and stagnations in internal organs, to cure rhinitis, laryngitis, bronchitis, bronchopneumonia, pseudocroup, asthma, emphysema, dry pleurisy, kidney troubles, rheumatism—especially the chronic form, chlorosis, osteomalacia, pelvic diseases, syphilis, obstinate skin diseases, scrofulous corneal affections, iritis, neuritis, and neuralgia. It is contraindicated in maladies of the central nervous system, marasmus, uncompensated heart troubles, nervous irritation with atheroma, with presence of fetid masses in the intestines, or in cases of pus collections anywhere in the body. [H.M.]

4.—Röntgen and Ultraviolet Rays in the Treatment of Tuberculosis.—J. B. Ransom reports 40 instances in which tuberculosis in various parts of the body was treated by means of the röntgen rays, and refers to certain cases reported by Finsen as having been treated with ultraviolet light. He states that röntgen and ultraviolet rays are especially adapted to the treatment of superficial tuberculous lesions. As to deep-seated pulmonary lesions, the number of cases treated is too small and the time elapsing too short to estimate fully the results, but he is impressed with the efficiency of these therapeutic agents so far as they have been tried. The röntgen rays relieve pain, permit sleep, stimulate local circulation, and materially lessen the expectoration. In hemorrhagic cases, he had 3 slight hemorrhages immediately following exposures in cases in which hemorrhages had been of recent origin. As to how the röntgen ray produces its results in the relief of tuberculous conditions we do not know. It is believed by many to be due to the development of nascent oxygen in the tissues, or ozone, and their effect in setting up interchemic action. [A.B.C.]

6.—Hematoma of the Sternomastoid Muscles.—T. Wendell Kilmer reports 3 cases. He says: "Hematoma of the sternomastoid is invariably caused by injury to that muscle during the birth of the child. It is more frequently seen in breech than in vertex cases, although any undue traction exerted on the presenting head may also cause a hematoma. A partial asphyxia of the infant greatly increases the danger of this injury on account of the atonicity of the muscle and the

weakened bloodvessel wall. The hemorrhage takes place into the sheath of the sternocleidomastoid muscle. Hematoma of the sternomastoid is not usually noticed by the mother or nurse until long after the injury has taken place." The diagnosis is comparatively easy and the hematoma is differentiated from tuberculous node by the fact that it is in the substance of the sternomastoid muscle. The treatment is gentle massage and manipulation until the tumor subsides. Surgical interference is rarely necessary. [A.B.C.]

New York Medical Journal.

February 20, 1904. [Vol. LXXIX, No. 8.]

1. The Clinical Importance of Aerophagia. HEINRICH STERN.
2. Some of the More Unusual Results of Movable Kidney. CHARLES P. NOBLE.
3. Sex Differentiation and Education. WILLIAM LEE HOWARD.
4. Osteomyelitis. HOWARD J. WILLIAMS.
5. Artificial Fluorescence of Living Tissue in Relation to Disease. WILLIAM JAMES MORTON. (Concluded.)
6. Röntgen Rays in the Treatment of Pruritus Ani. J. RAWSON PENNINGTON.

1.—Aerophagia.—Heinrich Stern says this condition may be of hysteric or nonhysteric origin. During the presence of gas within the stomach the patient may exhibit pronounced anxiety, shortness of respiration, impending suffocation, cardiac palpitation, cephalalgia, and vertigo. Anorexia and vomiting are of frequent occurrence; weakness, emaciation, irritability, and nervous phenomena of varying degree are the further natural results. Extensive work in the open air and overindulgence in outdoor sports are frequently responsible for the production of aerophagia. The air may be transmitted to the duodenum and other parts of the intestinal tract. The treatment should be primarily of a prophylactic nature. When the condition is of hysteric origin the best treatment is rest and sleep, which latter, if necessary, should be induced artificially. When the condition is acute, the stomach-tube should be employed to facilitate the exit of the air. This may be followed by irrigation with large quantities of water of about 43° C., to which has been added chloroform water (about 10 cc. per liter). If necessary, a teaspoonful of the following prescription may be given every 3 hours for the next day or two: Bismuthi salicylatis, 15 gm. (225 gr.); mentholi, 1 gm. (15 gr.); mucilaginis acaciae, sufficient quantity to make 90 gm. (3 oz.). In cases accompanied by severe pain, opium or its preparations have to be resorted to. Castor oil is of decided benefit in ameliorating the pronounced intestinal tympany following aerophagia. [C.A.O.]

2.—See American Medicine, Vol. VI, No. 14, p. 578.

4.—Osteomyelitis.—H. J. Williams presents the records of 17 cases of osteomyelitis and reviews the literature of the subject. Fifteen of the cases were in children under 16, 2 were in adults over 25; the youngest patient was 2 months old, and the oldest 56 years. The disease was present in the upper extremity in 5 patients; in the lower limb in 8, in the lower jaw in 4; the humerus, the femur, and the lower jaw were most frequently involved. Eight of the cases were seen early enough to do conservative operations; in the remainder, late operations were necessary. No deaths occurred. Williams says that the condition is the result of the migrations of any of the pus-producing organisms. Of the 17 cases, staphylococci were present in 5, once streptococci alone, and once streptococci and staphylococci existed together, in the same infection. This septic process is almost exclusively a disease of the period of bone development and growth, beginning, with but few exceptions, in the growing tissues in the end of the diaphysis near the epiphyseal cartilage on the side remote from the joint in childhood. The disease is generally a secondary process in a purely bacterial form of pyemia. The diseases most frequently mistaken for osteomyelitis are deep-seated cellular abscess, erysipelas, typhoid fever, and acute rheumatism. Almost every case that is recognized immediately and treated promptly by surgical methods can be saved from disfigurement and permanent disability. [C.A.O.]

5.—Artificial Fluorescence of Living Tissue.—W. J. Morton reports several cases in which this method has been successfully used. The procedure involves 2 distinct factors: 1. The safe introduction of solutions or mixtures capable of fluorescence or phosphorescence. 2. The employment of an

agency, externally or internally, capable of exciting fluorescence in the introduced solutions, mixtures and substances. The administration of the fluorescible materials, solutions and medicines may be by the mouth, by introduction in bulk within cavities, by hypodermic injections into the circulation, or locally into a tumor, by cataphoresis, or by simple topical applications of washes and ointments. The agency for excitation is preferably radium but the röntgen radiation may less preferably be used in the usual manner from the outside; or any of the various forms of arc lights used in the Finsen ray treatment, or simply (in illuminating cavities) an ordinary electric light or any source of artificial light which can conveniently give its light locally. Solutions of quinin bisulfate and of esculin may be used. Other solutions whose desirability may be considered are fluorescein, resorcin, orcin, eosin, fraxin, uranin, rhodamin and petrolatum jelly. The method is capable of general application, and is not restricted in its usefulness to any specific disease. The first diseases which suggest themselves as suited for treatment by this means are tuberculosis, carcinoma, chronic malarial affections, Hodgkin's disease, and all those affections which are associated with the presence of a specific microbe; also nervous diseases, like epilepsy and insanity, as well as diseases of the skin. [C.A.O.]

6.—See *American Medicine*, Vol. V, No. 23, p. 906.

Medical News.

February 27, 1904. [Vol. 84, No. 9.]

1. The Economic Value of Medical Science. W. GILMAN THOMPSON.
2. Etiology of Rachitis. P. WM. NATHAN.
3. Splint for Treatment of Fracture of the Inferior Maxilla. CLINTON B. KNAPP.
4. Thrush. H. ILLOWAY.
5. The Internal Treatment of Diseases of the Bladder. LOUIS STERN.
6. Chloroform in Labor. EDWIN RICKETTS.

1.—**Economic Value of Medical Science.**—W. G. Thompson notes the economic benefit derived from the public having been taught not to run from epidemics, thus paralyzing all commercial interests, but to combat them intelligently. He calls attention to the great reduction in mortality from yellow fever, bubonic plague, the practical extermination in many countries of typhus and leprosy, the promising outlook as to the extermination of malaria, typhoid, and epidemic dysentery, the reduction in smallpox cases, and in some places of tuberculosis. Not least among important aspects of medical science is the large capital invested in buildings and appliances, such as schools, hospitals, and asylums. There are other millions invested exclusively in medical products. Studies in psychopathology have had many practical results in criminology, and the treatment of the insane. In the department of hygiene and sanitation, medical science has newly established a wide field of industry. Its purely commercial value makes a national medical department desirable. No municipality should be permitted to conceal for its own profit a local epidemic. No State should be allowed to pollute with typhoid a stream flowing into another State. Governments are realizing that the practical applications of medical science are as essential as proficiency in fighting to the preservation of their armies and navies. It is not generally appreciated that medical science is revolutionizing applied botany and agriculture, through the discoveries as to parasites, etc. The science of biology had its origin in that of medicine. Meteorology owes its inception to the observations of army surgeons. Medicine has opened a new occupation to women as physicians and nurses. It has developed a voluminous literature involving large financial interests. It has prolonged life. [H.M.]

2.—**Etiology of Rachitis.**—P. W. Nathan believes the defective calcification of the bones is due to a constitutional vice. The amount of calcium in ordinary foods is always ample. The insoluble calcium salts in milk curd can be redissolved only by an acid and it depends on the quantity of HCl whether a sufficient amount of calcium is made soluble. Deficiency of HCl is said to be due to deficient NaCl and this to excess of K in the food, but there is always enough NaCl to prevent NaCl starvation. Only a very small amount of calcium

is necessary for the organism and it is certain that its absence from food is not the ordinary cause of rachitis. Even in the severest forms of the disease, soluble calcium is absorbed in the same proportion as in health. Improvement is no more frequent when it is administered therapeutically than when nothing at all is given. He therefore concludes that deficiency in quantity or faulty absorption of the calcium ingested is not the cause of rachitis. [H.M.]

3.—**Splint for Fracture of the Mandible.**—C. B. Knapp states that he has devised a new splint in the treatment of fracture of the mandible, the merit of which consists in preventing the anterior fragment being pulled downward and backward by the muscles of the hyoid bone and the posterior fragment being displaced in the opposite direction by the pterygoid, masseter, and temporal muscles. To accomplish this he takes a strip of tin, turns up one end to form a gutter, carries the strip from the forehead over the vertex and well under the occipital protuberance. This is made secure by a plaster bandage. Strips of adhesive plaster from the under surface of the chin to the gutter of the splint give the desired upward and forward traction. He has treated 2 patients with this splint, the results being entirely satisfactory. [A.B.C.]

4.—**Thrush.**—H. Illoway reminds us that this disease, due to filth, may develop in an infant otherwise healthy, and that since better knowledge as to the care of infants has become more widespread, the disease has become of rather rare occurrence. The parasite is always introduced from without. The infant will not or cannot nurse, and inanition soon sets in. He reviews the usual remedies, which are not certain and rapid enough in their action in grave cases. He has found one thorough application of tincture of iodine, 2 gm. ($\frac{1}{2}$ fl. oz.) in glycerin 14 gm. ($3\frac{1}{2}$ fl. oz.) sufficient to remove the parasite even in the worst cases. [H.M.]

5.—**Internal Treatment of the Bladder.**—Louis Stern states that since the majority of vesicle, urethral, and prostatic troubles have, of late years, been recognized as of bacterial origin, internal treatment of these affections has largely given way to local treatment. He advocates internal treatment, especially for many vesicle affections, and advises the use of helmitol or hexamethylenetetramin anhydromethylene citrate. This is a derivative of hexamethylenetetramin or urotropin. The latter drug has heretofore been extensively used for vesicle inflammations, but in certain instances it produced renal irritation and albuminuria, and in strongly ammoniac urine urotropin is not decomposed, and its formaldehyd is consequently not given off to act as the antiseptic agent. Stern has used helmitol in a number of cases during the past 6 months, and thinks it superior to urotropin. He quotes from Müller, of Zurich, who states that helmitol has a much more pronounced antibacterial action than urotropin. A series of cases is reported. [A.B.C.]

6.—**Chloroform in Labor.**—E. Ricketts thinks the importance of conserving the maternal force during the puerperal state—and especially during delivery—has not been sufficiently emphasized. Chloroform during delivery is the remedy that is faithfully to conserve the energy of the patient. Lacerations and contusions resulting from childbirth are far more frequent following so-called normal labor than those carefully delivered under chloroform. The exhaustion of the pregnant uterus by unsuccessful effort at delivery in prolonged labor may be the cause of postpartum hemorrhage after final delivery under anesthesia. He quotes Simpson's rules with approval as follows: 1. Begin the inhalation of chloroform when the patient complains of much pain, generally toward the end of the first stage. 2. Always inculcate perfect quietness around the patient, particularly when commencing to give the chloroform. 3. Only give it during the pains, and withdraw it during the intervals. 4. When given during this stage the anesthesia need not be deep, unless the suffering be great or the system of anesthesia disagreeable. 5. As the second stage progresses make the anesthesia so complete as to destroy all sensibility. 6. Do not allow the urinary bladder to become overdistended. 7. Do not restrain the patient to one position. 8. Be sure to remove the chloroform as soon as the child is born. 9. Do not awake the patient artificially. [W.K.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

The etiology of leprosy is still a chaotic question. Its origin from the eating of fish is a thesis still vigorously defended by its original apostle, Mr. Jonathan Hutchinson, of London. Strong opposition does not appear to have disposed him to abate one jot or one tittle of his claim to the discovery and promulgation of an illuminating source of scientific light. Still the unprejudiced (and discriminating) observer who has been assured on good authority that Cashmere, in Asia, and Kaffirland, in Africa, whose inhabitants habitually *eat no fish*, display an unusually large proportion of lepers, will find some difficulty in accepting the absolute dictum of the eminent English surgeon. The difficulty will not be diminished by recollecting the undoubted fact that the poor inhabitants of the coasts of Ireland subsist very largely upon fish—in all the most objectionable forms of preservation and cookery, and yet a case of leprosy is never heard of among them. Mr. Hutchinson has endeavored to prove that a certain proportion of fish eating actually does go on in the Asiatic and African regions referred to, and that the existing plague, so far as it goes, may thus be satisfactorily accounted for. But the immunity of the Emerald Isle calls for a special item of explanation. Did St. Patrick banish the *Bacillus lepræ* on the memorable occasion on which he expelled all poisonous reptiles from the borders of the “*Insula Sanctorum et Doctorum*?”

Leprosy and Emigration.—M. Jeanselme has recently given an interesting account—historic, geographic, and ethnologic—of the relationship between the currents of emigration and the dissemination of leprosy in modern times. At the dawn of the modern era, the principal endemic foci of leprosy were found in Africa (west coast), India, and China (southern). One of the many malignant influences on the New World with which the Spaniards have been credited is the introduction of leprosy. The grounds for this accusation have, it is almost unnecessary to say, been disputed. But it is a historic fact that Cortez found it necessary to open a leper's house in Mexico as soon as he had established himself there. And in the parts of this continent where the aboriginal race “*a été refoulée, mais non pas détruite, aux Guyanes par exemple*,” it is still noticeable that the inhabitants possess their old immunity from the loathsome disease. The Chinese fought and emigrated southward, and carried the infection into Annam, Burmah, Cochin-China, etc. The city of Singapore is still a veritable Chinese colony. And in that part of the great eastern continent there is a deplorable prevalence of leprosy. The Chinese have disseminated leprosy in all directions of their emigration. The torrent of Celestials which was attracted by the discovery of Australian gold in 1851 accounts for the infection of the junior continent. It is worthy of note, too, that the importation of negro slaves to America in the preemancipation times was largely instrumental in the dissemination of leprosy in our own part of this continent.

REVIEW OF LITERATURE

The Origin of Pulmonary Tuberculosis and the Combat against Tuberculosis.—Behring¹ says that everyone is somewhat tuberculous and that this disease is produced only by the tubercle bacilli. This bacillus may vary slightly as to form and shape, and considerably as to virulence, but with it all there is but one variety of tubercle bacilli even though Koch maintains the type variety of the bovine and human bacillus. Naegali examined the cadavers in the postmortem room at Zurich and found practically all above 30 to be tuberculous; 96% of the individuals between 18 and 30, 50% of those between

14 and 18, 33% of those between 5 and 14, 17% of those between 1 and 5, contained tuberculous foci. Infants less than 12 months old were usually found uninfected. It is difficult to diagnose the condition in the living being unless by means of the tuberculin test. This reaction is induced by coagulation and agglutination, when tuberculin comes in contact with the otherwise soluble antibody produced in the tissues of the body by the action of the tubercle bacilli. Franz, of Budapest, employing this test in doses of from 1 mg. to 5 mg., found that of soldiers in their first year of service 61%, in their second year 68%, reacted positively; using 10 mg., 96% reacted. Berend employed the same dose in 96 infants with absolutely negative results. By means of Jousset's inocscopy, tubercle bacilli were discovered in many cases of doubtful exudative disease. These figures prove the uselessness of quarantining against tuberculosis in densely populated places, the difference between tuberculous infection and “consumption,” and the spontaneous curability of the disease in many people. He says the light infections are usually cured while the grave infections lead to a fatal termination. Our aim should be to prevent the latter cases in particular, and to do this we must be well-informed about their etiology. Behring does not believe in the importance of infection by traumatism, direct contact, inhalation, or heredity; the latter does not exist as more than a disposition, although a few authentic cases of placental infection exist. Most all cases arise after birth and, according to Behring, the milk fed to infants is the chief source of tuberculosis, thus emphasizing the infection of milk before ingestion. A postnatal heredity may be spoken of, as the milk fed to children in tuberculous families is more likely to be infected than in nontuberculous. The reason why infants using infected milk are more likely to contract the disease is, that their digestive apparatus, just as among lower animals, is devoid of a continuous epithelial lining, the gaps allowing the passage of albumin and bacteria like any porous filter. He quotes and discusses his numerous experiments which have established those facts. The first signs of the infection are usually seen about the glands of the neck, the lungs being affected secondarily. Another proof of the danger of the milk is seen in the comparative mortality statistics of bottle-fed and breast-fed infants. A point of importance, therefore, in the combat against tuberculosis is a method of preservation of milk; it should be pasteurized at its place of production and not only after it reaches its point of distribution. Infants and coughing consumptives should be kept at respectful distance from each other, but the same rules hold good in the cases of older people, whose digestive apparatus may be suspected of having epithelial defects as in gastric diseases, after fevers, etc. Tuberculous infection may remain latent for years or even for life, but under predisposing conditions it may develop into pulmonary tuberculosis, which is thus traced to infection in infancy. Once the disease is developed, such patients should be given the benefits of climatic and dietetic treatment; they should be taught so as to prevent their state from becoming worse and worse. The ideal treatment, however, is not the cure of tuberculosis, but the prevention of it, and Behring does this successfully now in bovines by means of his tuberculosis vaccine. He reviews fully the brilliant results which he has achieved in the immunization of cattle throughout Germany. He has been doing this by means of injections thus far, but hopes to achieve the same results by feeding calves his virus by mouth; if so, he thinks the method could also be utilized for infants. Much more promising is the antitoxin method; the milk of highly immunized cows must certainly contain protective substances, which can be conveyed successfully to man, the only thing necessary is to discover something which will conserve these immune bodies. The immunity produced by these antibodies, which would naturally be of short duration, could be prolonged by combining the living virus with the antibodies. He ends his article by disproving Koch's contention concerning the difference between human and bovine tubercle bacilli. Koch bases his argument on 3 points: Human bacilli will not produce “*perlsucht*” in cattle. This fact proves, according to Behring, that they are the same. Human bacilli will immunize cattle against the disease, just as vaccine immunizes against smallpox; no one says vaccine bacilli and smallpox bacilli differ. The absence of danger

¹ Deutsche medicinische Wochenschrift, 1903, xxix, No. 39.

of bovine tuberculosis (Koch's second argument) is a statistical and not experimental deduction, and has been disproved repeatedly. The logical deduction of his first 2 arguments (the superfluity of sanitary laws and regulations against food products from infected bovines) is considered absolutely wrong by Behring, so far at least as infants are concerned, when the anatomic structure of their gastrointestinal tract is taken into consideration. [E.L.]

Bloody Vomit in Peritonitis.—W. P. Gerassimoritch¹ reports a series of cases with bloody vomiting in the course of peritonitis. The patients were all children, early life being an acknowledged predisposing factor. One of the first to observe bloody vomiting in appendicitis was Dieulafoy, who explained the phenomenon by toxic action. Our author does not agree with the assertion that bloody vomit is due to appendicitis. He ascribes it to peritonitis of a purulent nature. The exit of blood is due primarily to diapedesis. Though small erosions are often found, they are a secondary factor. The minute hemorrhages per diapedesis are brought about by toxic vessel-changes, by vasomotor paralysis, by local stasis, and by heightened blood-pressure acting in unison. Bloody vomiting has an ominous prognostic meaning. [L.J.]

Sudden Heart Failure in Toxemic Conditions.—Arthur Stanley² discusses this subject particularly with reference to the toxemia of infectious diseases with especial reference to diphtheria and beriberi. His conclusions are: 1. That beriberi and diphtheria have a marked degenerative action on the heart muscle, which frequently causes fatal circulatory failure. 2. In this respect beriberi and diphtheria resemble other toxemias, such as influenza, alcohol and arsenic poisoning, which often cause peripheral neuritis and also toxemic diseases, such as typhoid, plague, and acute rheumatism. 3. Beriberi and diphtheria are the diseases par excellence in which sudden heart failure occurs. 4. The heart muscle degeneration is not a second result of neuritis of the vagus. 5. The heart muscle degeneration takes place as a rule before skeletal muscle degeneration, and is the result probably of direct action of the toxin and not a secondary result of nerve change. 6. Sudden heart failure does not indicate a sudden lesion, but rather is the result of a gradual increasing heart weakness from cardiac muscle degeneration which may be precipitated by any sudden exhaustion, and more frequently is the result of the principle of "all or nothing," the transition of "all to nothing" being necessarily rapid. 7. The cardiac physical signs in beriberi closely resemble those found in diphtheria, and are of prominent importance in prognosis and treatment. [A.B.C.]

Immunization of Cattle against Tuberculosis.—F. Neufeld³ reports concerning the successful immunization tests against tuberculosis made in Koch's laboratory. Goats, asses, and bovines were made immune to the disease. The degree of immunity and the agglutinating power which the blood-serum of these animals possessed seemed in direct relation as pointed out by Koch; the greater the agglutinating power, the higher their immunity. Immunization was brought about by first injecting cultures of dead bacteria; this was followed by gradually increased doses of living organism, first of the human types, and later of the bovine variety; it was his aim to reach as large a dose as possible. Some variations from this general plan were tried several times and with success. The immunized animals could stand doses of bovine tuberculosis agent, which proved fatal invariably to control animals. When dead cultures alone preceded bovine bacilli, immunization was not attained. In some cases, where living organisms were injected after dead cultures, acute poisoning developed, leading to a speedy death. This was in no case due to tuberculosis, but to intoxication. The dose producing this intoxication varied in different animals; a smaller dose of bovine tubercle bacilli produced it than of human organisms. Dead cultures alone, even in large doses, never produced this intoxication. This is the more remarkable, as dead tubercle bacilli have the same power as living cultures to induce local toxic action; that is, the formation of nodules. In some of the animals chronic intoxication

developed after very large doses. Thus immunization was sometimes difficult to produce. Intravenous injections were found to be more powerful and certain in action than subcutaneous. [E.L.]

New Signs of Tetany.—R. A. Peters¹ says a curious new sign of the affection is elicited by passing a current in such manner that the anode is on the sternum while the cathode is over the lower cervical vertebrae. When the circuit is closed, convulsive jerks are seen in the arms and hands, very similar to the movements of a toy clown when the string is pulled. This sign, according to the author, indicates a pathologic state of affairs in the roots of the spinal nerves. Another noteworthy feature of tetany is the increased production of cerebrospinal fluid, as demonstrated by the author. This excess bears a direct ratio to the duration and severity of the disease and is also presumably indicative of spinal involvement. It is the author's conviction that tetany is essentially a disease of the spinal cord and its adjacent structures (meninges, muscles, bones). He cannot agree with the view that eclampsia infantum and so-called latent tetany are related conditions. [L.J.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Surgical Treatment of Perforation in Typhoid Fever.

—M. Cazin² makes a strong plea for surgical intervention in every case of typhoid perforation, believing that this offers in almost all cases the only chance of recovery. He reviews the successive steps in the development of this phase of surgical practice. Carefully compiled statistics show a recovery in 27.63% of cases treated by operation, the mortality including many cases where the operation was delayed until the patient was in *extremis*. Hesitation on the part of the surgeon is frequently due to difficulties of diagnosis. Perforation is characterized by a more or less acute pain, coming on suddenly, and being well localized in the lower median or right section of the abdomen. Muscular resistance frequently develops, and is a valuable sign. Leukocytosis is of little value diagnostically. Operation should be performed as soon as possible after making the diagnosis. It is not advisable to wait for recovery from the shock of the perforation, as the danger of generalized peritonitis is too great. Operation should be performed in all cases even when it seems too late to be of benefit. General anesthesia is to be preferred over local. Some surgeons employ the median, and others the lateral incision. In the intestine the Lembert suture is to be preferred, using silk, and placing the suture some distance from the friable edge of the perforation. The abdominal cavity should always be thoroughly flushed, and efficient drainage provided for. [B.K.]

Intestinal Perforation in Typhoid Fever.—Richard Hart and Astley P. C. Ashhurst³ have compiled all the previously reported cases, which now number 362. Early in the operative treatment of this affection the mortality was 90%, while in the period from 1894 to 1898, inclusive, it was reduced to 70%, which the authors believe is about the present death-rate. The male sex is more liable than the female in the proportion of 4 to 1. Of 279 cases in which the age is known, over 12% occurred in patients under 15, and over 54% between 15 and 30; 33% over 30. Of 286 cases in which is known the stage of disease when perforation occurred, 6 happened in the first week; 162, or 56%, in the second and third weeks, and 42% in the third week. The site is mentioned in 190 cases, and in 140, or 73%, the lesion was found within 12 inches of the cecum, and in only 4, or 2%, was it more than 3 feet from the ileocecal valve. Meckel's diverticulum was perforated 3 times, and the appendix 8 times. In only 5 instances did the patient die before the conclusion of the operation. Of the whole number, 26% finally left the surgeon's hands well. In the average case anesthetization by ether is considered best; drainage was

¹ Russki Vrach, November 15, 1903.

² British Medical Journal, December 26, 1903.

³ Deutsche medicinische Wochenschrift, 1903, xxix, No. 37.

¹ Russki Vrach, November 1, 1903.

² La Semaine Médicale, January 6, 1904.

³ Annals of Surgery, January, 1904.

necessary in nearly every case. The authors now prefer gauze to tube drainage. Of 26 exploratory laparotomies wherein no perforation was found, 10 died, a mortality of 38.5%; only 3 of these, however, died in less than 12 hours after the operation. [A.B.C.]

Partial Enterocoele.—Lucius W. Hotchkiss¹ defines this condition as one in which a portion of the gut wall is pushed into the hernial sac, the latter in these cases is generally small; it contains a portion of intestinal wall, and in some instances omentum. In some cases a preexisting hernia has been present. Usually after some strain a small swelling develops at the site of one of the hernial openings, becomes painful, and is found to be a pressure enterocoele. Adhesions between the gut and neck of the sac protect the general peritoneum from infection for a time, but finally this barrier is overcome and a general peritonitis develops; the condition is analogous to strangulated hernia, and resection of the gut, in most instances, must be resorted to. He reports 6 cases, under the following captions: (1) Strangulated inguinal hernia (partial enterocoele), general peritonitis, death; (2) strangulated inguinal hernia (right partial enterocoele), gangrene of gut, resection, Murphy button, pneumonia, thrombosis of left saphenous vein, recovery; (3) strangulated partial enterocoele, operation, reduction, general peritonitis, secondary operation, death; (4) strangulated partial enterocoele, gangrene of gut, perforation, resection, end-to-end anastomosis by Maunsell's method, death; (5) strangulated right partial enterocoele, resection, Murphy button, recovery; (6) strangulated Littre hernia, gangrene, resection of gut, anastomosis by the Murphy button, recovery. [A.B.C.]

Suprapubic Prostatectomy.—Sir Thornley Stoker² reports 3 cases and comments at length upon the operation, stating that mere removal of the gland is usually a more simple matter than the after-treatment of the cases. He holds that if the prostate is essentially enlarged, or if a nodular condition of the gland due to separate capsulated tumors of an adenomatous or myomatous nature exists, the entire gland should be removed. He does not believe that the so-called middle lobe exists, but rather that the outgrowth of a separate adenoma or myoma is what is usually so christened. He employs the suprapubic route, insisting that the operator should snip with scissors well into the substance of the prostate before enucleation is attempted. In this way he is sure to get within the capsule of the pelvic fascia and beyond the vascular region. Records seem to show that cases do just as well in which the prostatic urethra has been removed as in those in which it is preserved. The chief source of hemorrhage is from the veins between the bladder and the fascial capsule or between the latter and the true capsule. When enucleation is attempted hemorrhage is controlled with hot irrigation of boric solution. He no longer uses a Peterson's bag in the rectum, holding that it is useless. There are 3 conditions of senile enlargement of the prostate: (1) A true hypertrophy of the gland without any interstitial growths; (2) the existence upon and within the substance of the prostate of one or more encapsulated tumors distinct from the substance of the gland proper and either myomatous or adenomatous in structure; (3) a mixed condition of true hypertrophy and interstitial growths of the second class. This condition is much the most common, the tumors may eventually reduce the prostate to a state of pressure atrophy or cause it to become a mere capsule for adventitious growths. It is the latter condition which has, in all probability, given rise to so much dispute and uncertainty as to the true pathology of the enlarged prostate. [A.B.C.]

Direct Dilation of Cicatricial Esophageal Stricture.—Joseph R. Eastman¹ pays particular reference to that form of stricture caused by the swallowing of escharotics. Occasionally such strictures obstruct the lumen with a large irregular mass, causing great dilation or sacculation before the stenosis, or the lumen may be displaced from the center of the organ and the passage of the bougie thereby rendered difficult. Under such circumstances a malleable or dirigible bougie offers a distinct advantage. He employs such an instrument, which consists of a spiral wound steel wire, filed flat and smooth, and containing

a withdrawable soft lead core; the latter is so soft as to eliminate the danger of trauma or perforation. He first introduces a filiform 15 inches long, and if this meets with obstruction additional ones are introduced until one finally passes in the lumen and through the stricture, just as in the urethra. The other filiforms are now withdrawn and the spiral-wound flexible metallic bougie attached by screwing, and thus it is guided into the esophageal lumen, the filiform curling up in the stomach. The swallowing of a weak solution of cocaine or adrenalin facilitates the introduction of the instrument. [A.B.C.]

The Treatment of Prostatic Enlargement by Freyer's Method.—Gilbert Barthling¹ reports 10 cases and comments at length upon the advantages of the suprapubic route. He holds that the prostate has its own proper capsule just as has the kidney or testicle; it is surrounded by a plexus of veins and these veins, together with the prostate, are enclosed in a sheath derived from the deep perineal fascia. The increase in bulk in the prostate is due to an overgrowth of any or of all the elements of which it is composed. He employs the Tredelenburg position in operating and uses the speculum after the suprapubic incision is made to determine the exact shape and size of the enlargement within the bladder and a metal bougie is passed which helps to guide the operator in enucleating the gland. With blunt scissors he divides the mucous membrane from the prostatic enlargement and enucleates one or both of the lobes with the finger. Of the 10 patients operated upon, 3 died, though in one instance death was due to malignant disease of the colon and therefore not ascribable to the operation; one died of uremia in the third week after operation and another died of angina pectoris in the sixth week. The cases are reported in detail and his conclusions are as follows: 1. It is possible to enucleate the prostate. 2. The prostatic urethra is then almost invariably, if not always, removed with the organ. 3. If the prostatic urethra were left it would necrose from want of blood-supply. 4. Stricture does not follow the damage to the urethra. 5. The operation gives excellent results, often restoring the function of the bladder to an absolutely normal condition. [A.B.C.]

Mixed Tumors of the Salivary Glands.—Francis C. Wood² completes a continued article. His conclusions are in part as follows: 1. There is a group of extremely complicated tumors occurring in the facial region containing elements from both epiblast and mesoblast. 2. The complicated structure of the stroma, containing as it does embryonic tissue, cartilage, bone, fat, lymphoid tissue and rarely muscle fibers, is explained most easily by the assumption of an embryonic misplacement of mesoblast. 3. Twenty-four percent of the tumors examined showed undoubted presence of epithelioma—the form and relationship of the cells of the parenchyma did not furnish sufficient data to justify these cells being regarded as of endothelial origin. 4. The theory of early embryonic displacement of epiblastic tissue during the formation of the parenchyma and submaxillary glands and the branchial clefts may account for the peculiarities of the cells found. 5. The mixed tumors of the salivary glands run a clinical course strikingly different from sarcoma and carcinoma in that they grow slowly and are generally benign. The region of lymph-nodes is not invaded and recurrences are likely to remain local in a considerable portion of the cases. [A.B.C.]

The After-history of Gastric Ulcer Cases.—J. W. Russell³ succeeded in tracing the after-history of 47 of these cases. The length of time over which the histories extend varies within wide limits, starting from the first hematemeses. The length of the cases is as follows: From 2 to 3 years, 12 cases; 3 to 4 years, 5 cases; 4 to 5 years, 9 cases; 5 to 6 years, 7 cases; 6 to 7 years, 3 cases; 7 to 8 years, 2 cases; 8 to 9 years, 1 case; 9 to 10 years, 3 cases; 10 to 11 years, 2 cases; and 12 to 13 years, 3 cases. The direct mortality from the disorder amounted to 2.1%, and 42.6% of cases ended in recovery so far as present history shows; 27.7% having but a single attack, whereas 14.9% recovered after one or more relapses; 44.7% were suffering from stomach symptoms of more or less severity at the time of their last report,

¹ British Medical Journal, January 30, 1904.

² Annals of Surgery, February, 1904.

³ Lancet, January 30, 1904.

¹ Annals of Surgery, February, 1904.

² British Medical Journal, January 30, 1904.

and 15% were getting repeated attacks with intervals of immunity, and 30% were suffering from almost continuous pain. On the whole, he is inclined to believe that the subsequent histories of these cases afford some justification for the plea for more frequent resort to operative interference in persistent cases of gastric ulcer. At the present time, however, more evidence is needed to justify this conclusion. [A.B.C.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

EDITORIAL COMMENT

Intratracheal Injections in Asthma.—That the symptom-complex known as "asthma" is not a nosologic entity, but may result from a number of differing pathologic conditions of different etiologic origin must be conceded. Hence, no one line of treatment is applicable in all cases. In that great group of cases in which the asthmatic paroxysm is merely one of the varying manifestations of vasomotor ataxia—an urticaria or angioneurotic edema of the bronchi—no palliative remedy can compare in efficacy with the preparations of the suprarenal gland. Any route of administration, except by the stomach, is admissible. The glycerin extract, the desiccated gland substance, the watery solution of the latter, adrenalin chlorid or suprarenalin in solid form or in solution are all useful—provided the drug be so given as to be absorbed from a mucous membrane, or the solution of active principle be injected under the skin. Hypodermic injections in animals have produced local necrosis, but in the human being no untoward result has been recorded thus far and a dose of 5 minims to 20 minims of the 1 to 1,000 solution of adrenalin chlorid or of suprarenalin seems to be safe and efficacious. Bullock and Kaplan especially have reported good results with this method. We have seen no report of intratracheal injection, but it should prove useful when less energetic measures fail. Caution will be necessary, for even free spraying of the throat and nose is not devoid of danger. The writer of this has placed on record a case of edema of the pharynx and uvula from excessive use of adrenal spray by an asthmatic patient. Slight spraying or local application by cotton to the nasal mucosa of a 1 to 1,000 solution of suprarenalin, followed by the use of tablet triturates of $\frac{1}{10}$ grain to $\frac{1}{20}$ grain of suprarenalin powder upon the tongue, repeating the dose every 15 minutes, half hour, or hour, as may be needed, is the method most generally applicable and one that is highly satisfactory in averting and controlling paroxysms. For the relief of the underlying condition, much more thorough-going treatment based upon a careful study of the metabolism and other etiologic factors, is necessary. But to this we shall not now allude further.

The cases reported by Mr. Colin Campbell, of Southport, in the Liverpool *Medico-Chirurgical Journal* for January, 1904, do not belong in this group. They are striking evidences, however, of the efficacy of the special method of treatment advocated by Mr. Campbell and, hence, are worthy of serious attention; for in no affection is it so necessary to have many strings to one's bow of treatment, as in the asthmatic syndrome. The treatment referred to is the intratracheal injection of menthol, glycerin, and gelatin; with the addition of other drugs—as, for example, the natural salicylates—in the presence of special indications. Large doses are used, at times as much as 30 grains of menthol with 2 fluid ounces of glycerin at a single sitting; 4 drams of a mixture of this strength is an ordinary dose. It is given during the paroxysm, if necessary, and is said to relieve the distress quickly. Preferably a chosen period of freedom is taken for the injection and the treatment is repeated daily, or twice daily, as may be necessary, until recovery is assured.

Since 1894, Mr. Campbell has treated twenty-two cases in this way and has had twenty-two recoveries; many of them, seemingly, instances of permanent cure. He believes that the direct application of menthol to the parts relieves bronchial spasm, while the glycerin compels the mucous membrane to secrete. With secretion comes expectoration and this terminates the attack. When asthma is superadded to chronic bronchial catarrh with dried-up inspissated mucus, the addition to the injection mixture of gelatin, which dissolves sputum, brings about a "complete and copious emptying of the tubes, with immediate relief of symptoms." The permanent result Mr. Campbell attributes, especially in cases of hay-asthma, to the destruction or expulsion of some germ that is acting as an exciting cause of the paroxysm.

We have had no experience with this method, but its reported success makes it worthy of a prominent place in this column. We shall be glad to learn from any of our readers who may see fit to try it in cases of asthma due to bronchial spasm or to chronic bronchial catarrh, whether or not, in expert hands—which alone should attempt intratracheal medication—its results are as good in America as in Great Britain.

REVIEW OF LITERATURE

Ocular Gymnastics in Insufficiency of Convergence and Exophoria.—W. L. Pyle points out¹ that one of the greatest causes of muscular asthenopia is insufficiency of the convergence, with or without accompanying exophoria. The prescription of proper glasses, temporary abstinence from near work, and general hygienic and tonic treatment will suffice in most cases to bring relief from the asthenopic symptoms. When, however, these measures do not afford relief, ocular gymnastics are indicated. For minor cases the "thumb or finger exercise" is of value. This consists in exercising the convergence by drawing the thumb or index-finger gradually toward the bridge of the nose, meanwhile trying to maintain a single image of the finger. The finger should be withdrawn immediately before diplopia results. This should be repeated a dozen times at each exercise, and the method should be used several times daily. The more important method is that by graduated rhythmic exercise in overcoming successively stronger prisms, bases out. Formerly prisms of 1° to 8° strength were employed. The following is the later method suggested by G. M. Gould for developing high adducting power by exercise with strong prisms: The amount of exophoria is noted, the abduction and adduction are then measured, followed by the measurement of the convergence-stimulus adduction. This is obtained by coaxing the patient to overcome as strong a pair of prisms as possible, with bases out. It will generally be found that a pair of 8° or 10° prisms is as much as can be overcome at first; but if the exophoria is not too great, it is seldom that, after a few trials, a patient cannot fuse the image of a candle flame at 20 feet (6 meters) with this handicap. The examiner should then prescribe a pair of prisms, bases out, suiting the strength to the indications, giving slightly less than the full amount of adduction power. It is of great importance to have the prism set in a well-adjusted interchangeable prism-frame. The patient is instructed to place himself 20 feet (6 meters) from a flame, and endeavor to fuse the double image; if, as is usual it is impossible for him to fuse at this distance, he must approach the flame until he gets the single image, then walk backward, keeping his gaze steadily fixed on the flame, until he reaches his starting-point. This is much more difficult for the patient than having some one withdraw the marked card from the near point to the flame; so that, whenever feasible, it is preferable to call in the assistance of a second person, particularly in the earlier days of the exercise. If the image is still single, the patient is told to hold it steadily so for about a quarter of a minute, then to raise the glasses and gaze at the flame with naked eyes for the same length of time, and repeat this 10 or 20 times 3 times a day. At the next visit the strength of the

¹ System of Physiologic Therapeutics, Vol. vii.

prisms is increased and the exercise continued at home, and at each succeeding visit an addition of about 5° may be prescribed until the patient can, without the slightest trouble, overcome a pair of 25° or 30° prisms. Patients may be educated to overcome a combined prism-strength of over 100°, base out. An arrangement may be effected with an optician to hire prisms and make the necessary changes for a very moderate charge, and the patient is saved the expense of buying a whole outfit of lenses that would be useless to him after a few weeks. Exercise should be continued for some time after apparent cure, to prevent relapse.

Opium in the Carditis of Children.—A. Morison¹ calls attention to the fact that effects are secondary causes, and when the primary cause cannot be reached it is rational to treat the former. The effects in carditis are seen in all the structures of the heart, and two facts are apparent, the uselessness of irritation or counterirritation, and the desirability of allaying local and general irritation. Stimulation of the rich nervous supply of the heart by interstitial myocarditis accounts for the cardiac unrest. It is questionable whether salicylates antidote rheumatic poison, but no other agent relieves the pain and indirectly calms the patient so quickly, and with his general relief, the irritability of the heart also. Ice also affects the heart through the nervous system, whether directly sedative or astringent to inflamed vessels. Leeching acts by relieving irritation of the nervous structures, for the amount of blood withdrawn can have little effect on the general circulation. However, the emotional excitement induced in many children by these measures renders their employment undesirable. Digitalis and strychnin, when uncombined with sedatives, have been found positively harmful. Among calnative agencies there is none more powerful than opium, when used with due care in view of the special susceptibility of children. The symptoms of this disease resemble in a measure the phenomena caused by agents antagonistic to opium, as belladonna. It is under these circumstances that opium is most beneficial. Morison has found that small hypodermics of morphin are well borne if antagonistic conditions are well marked. [H.M.]

The Cause of Death in Spartein Poisoning.—K. Muto and T. Ishizaka² have found that small doses of spartein, 0.04 gm. to 0.06 gm. ($\frac{1}{4}$ gr. to $\frac{1}{2}$ gr.), paralyze the terminal ends of the phrenic nerve and cause death by interfering with the action of the diaphragm. If artificial respiration is kept up, until the phrenic nerve power returns, the animal recovers. Large doses, more than 0.06 gm. ($\frac{1}{2}$ gr.), interfere first with the phrenic nerve, and paralyze secondarily the activity of the accessory respiratory muscles through depression of the respiratory center. The other motor nerves are not affected. [E.L.]

FORMULAS, ORIGINAL AND SELECTED.

Treatment of Amenorrhea.—M. Lutaud³ recommends the following in the treatment of amenorrhea:

Powdered damiana	0.26 gm. (4 gr.)
Powdered savine	0.10 gm. ($\frac{1}{2}$ gr.)
Powdered rue	0.10 gm. ($\frac{1}{2}$ gr.)
Powdered ginger	0.05 gm. ($\frac{1}{4}$ gr.)
Powdered saffron	0.10 gm. ($\frac{1}{2}$ gr.)

For 1 cachet. To be taken morning and evening to combat uterine congestion and to induce menstruation. [L.F.A.]

ORTHOPEDIC SURGERY

H. AUGUSTUS WILSON

EDITORIAL COMMENT

Flatfootedness appears to be increasing in civilization, or else it is observed with greater watchfulness in the physical examinations that are the order of the present day in schools as well as military life. The increasing disability that accompanies flat-feet has necessitated careful inspection of apparently normal feet in persons that were about to enter occupations requiring more than usual amount of walking and standing. It is a

matter of observation that motormen in trolley car service who stand for many continuous hours every day suffer almost unbearable pains in their feet, while the conductor, who is on his feet just as much and as continuously, is generally free from painful feet. The conductor does not stand, he walks almost constantly. Feet that are often classed as flat-feet are in reality not flat at all, but are pronated. The weakness of the muscles causes the foot to turn out, thus throwing the weight of the body upon the inner side of the foot. Lovett's¹ examination of 500 women about to become trained nurses found the great majority had acquired faulty positions of the feet, and the writer's experience has confirmed this observation. The tendency was, therefore, toward painful feet, often necessitating the discontinuance of the occupation of the nurses' training school. Dr. Sargent is quoted as saying that Sandow became flat-footed from lifting heavy weights, but this can have but little bearing upon the ordinary type of flat-foot. Sandow is an extraordinary person of phenomenal strength, by the use of which he has taxed the endurance of the human frame. The highest types of highly useful, perfectly formed feet can only be found among people who have not only not worn modern stiff, binding shoes, but whose occupations have been such as to develop the full muscle function of the feet. The best formed feet that the writer has ever seen were the Japanese and the American Indian. The civilization requires shoes with stiff unyielding soles, high heels, and ankle binders, all of which prevent the natural, normal action of feet, and thereby tend to the production of distortion and abnormalities. It is incongruous in view of these facts to still further diminish the free action of the feet by ankle corsets, or binders, or the use of the various forms of arch supporters. Physical culture can do much to enable the body to continue the use of fashion's crippling devices, the abandonment of which is required for normal use. Physical culture, while well adapted to the sound body, will cause serious injury in cases of soft rachitic bones, therefore judgment must be used in applying remedies appropriate to the peculiar conditions presented by each patient. The temporary use of mechanical arch supporters and other corrections and restraining appliances may be and are applicable to a very small proportion of weak feet, or in rachitic conditions. By the long-continued use of these appliances they cease to be beneficial, and become injurious. The proper time to discontinue the use of forms of fixation, or restraint, the manner in which it is gradually accomplished, and the methods of restoring or establishing full muscle function must receive careful attention from the physician, and not the mechanician.

REVIEW OF LITERATURE

Orthopedic Surgery, by Royal Whitman, 1903, has reached a second edition in 2 years, and has had 200 pages added. This gives evidence that this very latest textbook is kept fully abreast of the literature and practice of the present time. This is conspicuous in the chapter on congenital dislocation of the hip, the rewriting of which has necessitated entirely new cuts. The knowledge obtained from personally witnessing Lorenz reduce these dislocations is clearly portrayed; a chapter of 50 pages is devoted to this single topic, and is thoroughly up to date. The irregularities of omission and commission that occurred in the first edition have all been eliminated, and the second edition stands now a conscientious and reliable exposition of modern orthopedic surgery. Evidence of this is afforded by the fact that it is a recognized textbook in the majority of the American medical colleges. The subjects embraced within its pages are all well within the scope of orthopedic surgery. Congenital malformations and conditions which are apt to induce acquired deformities are carefully set forth. The most approved modern methods of treating existing deformities as

¹ Edinburgh Medical Journal, August, 1903.

² Archiv für Experimentelle Pathologie und Pharmacologie, 1903, 1, 1.

³ Bulletin General de Thérapeutique, Vol. cxlix, No. 19, 1903, p. 752.

¹ American Medicine, Vol. vi, No. 1, p. 15.

well as the prevention of their occurrence is based upon sound pathologic and physiologic basis. Withal, the reviewer finds naught to criticise and everything to commend, an unusually agreeable task.

The American Journal of Orthopedic Surgery made its first appearance in August, 1903, under the Editorial Committee composed of Drs. R. W. Lovett, of Boston, B. E. MacKensie, of Toronto, and Harry M. Sherman, of San Francisco. This will hereafter be the official publication of the American Orthopedic Association, taking the place of the former annual volume of "Transactions." The first 82 pages are devoted to the papers and discussions before the last meeting of the Association, while 26 pages are given to abstracts of orthopedic literature in foreign and domestic medical journals. The opening paper is the president's address, "The Family Physician, the Specialist, and the Patient." A single paragraph indicates the purport of Dr. L. A. Weigel's admirable address, "A judicious cooperation would inure many times to the benefit of all parties concerned." Written by a specialist the following carries conviction: "It seems to me that the doctor's position is this: that the specialist is the person who is supposed to develop an unusual amount of knowledge on a limited theme. If he is called in simply to give treatment or to aid in diagnosis on that little point, perhaps that will do; but it may do harm if he sees that one portion and overlooks the rest. He does not see justly. So I am convinced of the fact that, although young men who have settled in cities may be expected to have an unusual amount of knowledge and to be called experts, yet I am sure that in small communities the general practitioner is and always will remain the doctor."

The Correction of Deformity at the Hip, the Result of Disease: A Study of the Best Methods and Best Positions.

—Virgil P. Gibney¹ advocates subcutaneous osteotomy about the level of the lesser trochanter as the safest procedure for the correction of deformity of the hip. As to the best position of the leg after correction the concluding words of the writer are emphatic. "There are, undoubtedly, many patients who prefer a slight flexion, so that they may sit more comfortably, but these belong to the younger class. It is the opinion, therefore, of the writer of this paper that ability to sit comfortably should be sacrificed to the ability to stand and walk erect."

Subtrochanteric Osteotomy in Adults, in Adolescents, and in Young Children.—E. H. Bradford¹ says that this procedure is not to be undertaken hastily, for the dangers of non-union or delayed union would make the condition deplorable. The danger of nonunion is apparently not imminent in adults. The convalescence is slow in middle life. The danger of relapse is greater when the operation is done in childhood or in rapidly growing years. Therefore, it would seem to be better surgery to defer the operation, when possible, in young children until the period of rapid growth has been passed.

The Mechanical vs. the Operative Treatment of Rachitic Deformities, Presenting a New Osteoclast.—R. Tunstall Taylor¹ says that the new osteoclast consists of a T-shaped base, the arms of the T being 12 inches wide and the stem 36 inches long. Arising from the intersection of the arms and on the stem is an arc 12 inches high at its summit and 12 inches wide at its base. It has the great advantage of rapidity of fracture and release, which cannot be obtained with the other osteoclasts, and it can be easily taken apart for convenience of carrying.

Hip Disease among Hospital Out-patients.—Augustus Thorndyke² presents a study of undoubted cases who applied for treatment 5 to 10 years ago at the Children's Hospital, out-patient clinic. Good results are not to be expected because of lack of care at home in applying apparatus, neglect of broken splints, straps, buckles; irregular and infrequent visits; failure to instruct parents properly, and their disgust and impatience at the long course of the disease and treatment. Fifty-five selected cases were equally divided between the sexes; 17 had disease of the right hip; 38 of the left, and 2 of both sides. In 51% the disease began under 5 years of age, in 42% from 5 to 10, and in 5% from 10 to 12. Children are not

admitted older. In estimating the duration, only those were selected who had been more than 2 years without apparatus and without symptoms. Out of 17, 9 wore splints from 4½ to 7 years, and 10 from 7 to 11 years. The tendency has been toward prolonging rather than curtailing splint treatment, a gradual leaving off and careful observation for a year afterward. Various splints and methods have been employed. Abscess came in 40%, showing that a severe form of the disease was under treatment. In 20% there was no shortening; 40% had an inch or less; 23% between 1 and 2 inches; and 17% over 2 inches. In only 5 cases was permanent flexion of the hip present of more than 40°, and in 81° the amount of flexion was less than 20°, which is considered the ideal position for a stiff hip. As regards motion, 20 had less than 20° in flexion; 8 had 45°; 4 from 50° to 80°; and 10, 90° or more, while abduction was impossible in 14, poor in 3, good or almost normal in 13. A little more than half had a good walking gait. [Author's abstract.]

Hip Disease.—R. Tunstall Taylor¹ considered hip disease, with special reference to diagnosis and the combined treatment. The writer, in a second paper, lays great stress upon the value of the röntgen ray in the diagnosis, and considers it preferable to tuberculin, in that one not only obtains an immediate picture, which cannot deceive one, whereas the tuberculin reaction if positive does not locate the disease in any definite portion of the body. Further, the röntgen ray shows the extent of the tuberculous process and in a series of skiagrams of a given case one can tell whether the disease covers a wider area or not, as time goes on. Taken in conjunction with the clinical symptoms, the author uses the röntgen ray in outlining the best treatment. This "combined treatment" he uses in cases in which it is evident that the tuberculous disease is extending, despite careful, thorough mechanical treatment. In 20 cases he used the anterior incision between the tensor vaginæ femoris and gluteus medius on the outer side and sartorius and rectus on the inner side, opened the capsule, did an erosion as indicated to be necessary in the röntgen ray, disinfected with 2½% formalin solution, introduced small wick drainage, sewed fascia and skin up as tightly as possible with silver wire; withdraws wick on fourth day and sutures on the tenth; keeps child in bed 8 weeks with traction in abduction, and uses traction splint for 6 or more months. In early cases traction treatment yields good results and in neglected cases with suppurative sinuses the combined treatment is unsafe, for fear of secondary infection, and at all events should not be expected to yield brilliant results. The immediate and ultimate results of the combined treatment are most satisfactory in properly chosen cases. The writer emphasizes the importance of cases not wearing the traction splints too long, as unduly weakening the limb and tending to bone atrophy. [Author's abstract.]

Tuberculosis of the Spinal Column, Especially the Posterior Part.—J. Wieting² discusses the conservative treatment of this condition by means of plaster jackets, and maintains that the radical operative treatment deserves wider practice than it has received. There seems to be no reason why the focus of infection should not be removed, if it is possible to reach it. Hence arises the necessity for more exact localization of the disease. A classification may be made into anterior spondylitis and posterior spondylitis. The main diagnostic points of difference are: 1. In posterior spondylitis tenderness is elicited by direct pressure over the vertebral arches and processes, while in disease of the vertebral bodies pain is produced by indirect pressure *c. g.*, pressure on the top of the head. 2. Swelling and abscess formation in posterior spondylitis always manifests itself in or near the line of the spinous processes, and is limited to the neighborhood in which the inflammation arises; while in anterior spondylitis the abscess tends to wander. The prognosis in operative treatment of disease of the arches is much more favorable than in disease of the bodies. [B.K.]

Diagnosis of Bone and Joint Tuberculosis.—K. Ludloff³ has made a röntgen ray study of tuberculous and non-tuberculous bones and joints in the very young, and has found

¹ American Journal of Orthopedic Surgery, Vol. 1, No. 2, November, 1903.

² Archiv f. klin. Chirurg., Bd. lxxi, p. 479.

³ Archiv für klinische Chirurgie, 1903, lxxi, 613.

¹ Am. Jour. Orthopedic Surgery, August, 1903.

² American Jour. Orthopedic Surgery, November, 1903.

the following differences: The healthy femoral condyle has in its anterior part and reaching to the epicondyle, a lighter spot made up of very fine bony spicules, and fusing with the surrounding structure gradually. It corresponds with the place where the nourishing vessels enter the condyle, and is not a bone center. At the second year several long bony protuberances are seen at the inner part of the condyles, at the fourth, also at the outer part. There are usually four, and they are near the above mentioned epiphyseal spot. They disappear about the fifth year. In tuberculous knees the latter were smaller or entirely absent long before the fifth year; rough points were seen at the junction of bone and cartilage about the seventh year. On the under surfaces of the condyles, excrescences of bone form also. More bone than normal is found in all the neighboring epiphyses, and the epiphyseal spot is larger and lighter. He sees in these skiascopic changes evidences of tuberculosis, and thinks they can be utilized in the diagnosis, prognosis, and treatment of the disease. [E.L.]

Treatment of Infantile Spastic Paralysis.—Robert Jones¹ deals exhaustively with this subject. He says with regard to the degree of benefit derived from treatment that the parent should be given to understand that under favorable conditions in nursing and tuition, the child, aided by hands or sticks, will be able to walk varying distances in from 12 months to 2 years. Time and patient attention are very important factors in the treatment of the patient. The treatment should resolve itself into a system. Such a system involves operation, mechanical and educational stages. It cannot be separated into parts. If the surgeon is not satisfied that the case is to be under his control for 12 months, he will consult his reputation best by leaving it alone. Operation not followed by careful and prolonged future care give rise to disappointment and discredit. Merely dividing tendons to be followed by massage and electricity is futile and dispiriting. No opportunity should be lost of performing a tenotomy even in mild cases where a spastic tendon is felt. [A.B.C.]

Transplantation of Tendons of the Thigh.—O. Vulpus² finds transplantation of tendons in cases of quadriceps paralysis necessary only when contractures of the flexor muscles exist, thus making the erect posture difficult or impossible. Tendon transplantation in such cases assures a strong extensor muscle without weakening the flexors. The best muscle for the purpose is the sartorius, which usually escapes paralysis; sometimes it may be necessary to use one or more of the flexors or adductors. The muscles are sewed to the periosteum of the patella in preference to the tubercle of the tibia, as their attachment to the former gives them a more natural pull than when fastened to the latter. The details of 4 operations with very happy results are related at the end of the paper. [E.L.]

Sixty Tendon Transplantations.—Reichard³ reports concerning 60 tendon transplantations which he performed for infantile spinal and cerebral paralysis, Little's disease, hemiplegia, congenital and acquired deformities. He discusses his results at some length. [E.L.]

Congenital Dislocation of the Hip, and Lorenz's Method of Treating It.—J. Jackson Clarke⁴ gives a very complete account of history of methods of treatment of congenital dislocation of the hip. On page 10 an explanatory paragraph occurs that has direct bearing upon all previous reports and discussions of the Lorenz method: "The subject of the treatment of congenital dislocation of the hip, including Lorenz's method, was brought prominently before the British Medical Association in 1901. It is to be regretted that Professor Lorenz was not at that time invited to demonstrate his method at the meeting; for it is evident to those who have seen Lorenz operate that the surgeon who introduced the subject at the meeting had never really performed Lorenz's actual operation at all, and hence, though many interesting details of his experience in performing the open operation were communicated by Mr. Burghard, all his criticisms and disappointments with regard to Lorenz's treatment are of no account. For another reason the missed opportunity of introducing Lorenz's work to

the profession in this country is to be regretted; it would have forestalled and nullified the distasteful outpourings of the lay press, which were inevitable consequences of Lorenz being summoned to cross the Atlantic for the purpose of operating on the only child of a very wealthy American citizen. I am convinced that to no one can this newspaper activity have been more distasteful than it was to Lorenz, whose work was distorted and misrepresented by it." The illustrations are clear, and add very much to the description of the cases and their progress. Emphasis is given to the need of experience upon the part of the surgeon and his assistant in the selection of suitable cases, and in the feeling that yielding muscles and fascias give rise to during safe manipulation, as well as to the maneuvers that lead to reduction. Jackson Clarke, in summing up, says: "Lorenz's method of treating congenital dislocation of the hip is based on correct anatomic and physiologic grounds; it is the outcome of an exceptional experience both of open and subcutaneous; in a considerable proportion of cases it gives a perfect anatomic and physiologic result (i. e., it cures a condition hitherto deemed incurable)."

A Discussion on Congenital Dislocation of the Hip.—F. F. Burghard¹ gives a very thorough review of the above subject up to date. He says that in his own experience he has tried Lorenz's bloodless method in 30 cases; in only one of them was a perfect cure obtained, and this case was a child under 3 years of age. In the remaining 29, some were submitted later to an operation, but all of those who for any reason were not, were very much improved as to gait and general usefulness, two or three of them being so much improved that they would, in the absence of radiography, have easily passed for cured. Burghard has not followed closely either the Hoffa or the Lorenz cutting operation, but has made modifications. He has thus operated upon 13 cases. In nine the cure has been perfect, and the children are now walking about quite well; in three the head of the bone has escaped and has formed a new acetabulum above and behind the old, but the joints are quite stable. In no case has there been a complete failure. Burghard's conclusions are: 1. That all cases should be checked by radiography, and that no "cure" should be spoken of that is not a true anatomic cure. 2. That all cases of congenital dislocation in patients under 14 years should be submitted to treatment. In the great majority improvement will result, while in some a true anatomic cure is brought about. 3. That in all these cases Lorenz manipulations should be tried in the first instance. Even should they fail to effect reduction, they facilitate any subsequent procedures. 4. That the prospect of a cure by Lorenz's "bloodless method" is in direct proportion to the youth of the child, and that after the age of 4 years there is little hope of a true cure by its means. 5. That in any case the chances of a true cure by the "bloodless method" are not very great. 6. That an open operation should be done whenever a radiograph shows that the "bloodless method" has failed to reduce the dislocation, except, perhaps, in the case of a very young child—under 3 years—in whom the manipulations may be repeated. 7. That with the open operation no fear need be entertained of shock, bleeding, or sepsis. 8. That under no circumstances should the joint surfaces be remodelled. 9. That an open operation is more calculated to result in a cure, as it enables the surgeon to ascertain beyond a doubt when the head of the bone is really in the acetabulum. 10. That the open operation is especially suited for cases over 4 years of age, and for those of bilateral dislocation. 11. That after the operation the limb should be put up in the position of maximum stability; in the majority of cases this will be similar to Lorenz's position. The limb should be put up in plaster-of-paris immediately, and the casing should take in the flexed knee; this is essential in order to secure stability of the head of the bone. 12. That all tense structures should be stretched or tenotomized as a preliminary measure a week or so previous to the open operation. The after-treatment is practically identical with that of the Lorenz method. Noble Smith said in the discussion that he felt personally much indebted to Dr. Lorenz, because since seeing him operate he found he had succeeded far more satisfactorily than he had done when dependent upon Lorenz's written description. Robert Jones said until the visit

¹ Annals of Surgery, March, 1903.

² Wiener klin. Rundschau, 1903, xvii, 257.

³ Deut. med. Woch., 1903, No. 25.

⁴ Practitioner, March, 1903.

¹ British Medical Journal, August 29, 1903, p. 457.

of Lorenz he had no idea of the thoroughness of his manipulations, and he at once saw why so many failures had occurred in England. Since Lorenz's visit Jones has operated on 38 cases, 34 of which were reduced, as confirmed by palpation and by the röntgen ray. The statistics of the open and the bloodless methods are in the hands of the two greatest authorities, Lorenz and Hoffa, about 50% of cures. This is sufficient proof that there is considerable overlapping, and that the majority of cases operated upon by Hoffa would be simply manipulated by Lorenz. In view of the diverse opinions, Jones says he intends to persevere with the Lorenz method as a routine, operating only in the exceptional case, and after a sufficient lapse of time shall form his own conclusions with regard to the final results.

Congenital Dislocation of the Shoulder.—C. G. Cumston¹ gives a historical sketch of this affection, considers its etiology, and enters into an elaborate discussion of the differential diagnosis. The various methods of operative treatment are compared, Cumston preferring that of Duplay. He believes that excision of the head of the humerus in most cases is an unnecessary addition because the joint cavity and the head of the bone are not sufficiently changed to demand it. The capsule is practically always elongated and it is proper to resect enough of it so that when stitched together it will cover the head of the bone in a physiologic manner. A case occurring in a boy of 5 is reported. The incision recommended by Phelps was employed but was entirely unsatisfactory, the posterior incision not rendering the parts so accessible as does the anterior. The dislocation was readily reduced and the ultimate result was very gratifying. [A.G.E.]

Improvements in Extension Apparatus.—Several improvements in extension appliances in private practice are described by G. E. Gorham.² Four uprights, an inch square and 35 inches long are mortised together with cross pieces 6 inches long to form a frame not unlike an umbrella rack. To 2 of the uprights are fastened large screw hooks the position of which can be changed. These are for hanging the frame to the bed. In the 2 opposite posts are a number of holes for a pin carrying the pulley. A special foot-piece or spreader is also described. An interesting point mentioned by Gorham is that he tested the friction of the ordinary pulley and found that with an 8-pound weight the traction varied from 3 to 13 pounds, according as the leg was sliding down in bed or efforts were being made to pull it up. These figures were the average of a large number of pulleys. The point is an important one, especially in tuberculous cases where uniform traction is necessary. To eliminate this uncertainty the writer has had a simple, almost frictionless pulley constructed. [A.G.E.]

Herpes Progenitalis and Pain in the Pelvic Region Resulting from Flat-foot.—S. Ehrmann³ believes the pelvic pain in flat-foot is due to the abduction and rotation of the hip. This results in the stretching of the accessory ligaments which are inserted in the horizontal ramus of the pubis (ligamentum pubofemorale). By the rotation of the femur that part of the capsular ligament which is inserted near the ligamentum spinosum sacrum over which passes the pubic nerve becomes stretched. A hyperemia develops, and also a slight inflammation which extends to the ligamentum spinosum sacrum, and these either cause pressure on the pubic nerve or bring about an irritation of the nerve by the hyperemia of its vessels which in turn causes the herpes progenitalis. [J.H.W.R.]

Chronic Villous Arthritis, with Special Reference to Its Etiology and Pathology.—Charles F. Painter and William G. Erving⁴ report conclusions based on the clinical and pathologic study of 33 operative cases of so-called dry or hyperemic joints. The condition is always associated with hypertrophied normal synovial villi, which have undergone chronic inflammatory and degenerative changes in varying degree. It may follow joint-strain or trauma, an infectious process in the joint, especially tuberculosis and gonorrhea, or general diathetic disease, such as rheumatoid arthritis, and less often, osteoarthritis. The knee is the joint most affected. The condition is usually chronic, associated with recurrent synovitis and mild

joint swelling; relief by rest, and lacking the symptoms of an acute arthritis, pain is not common. There is tenderness localized over the fringes, and a sensation of instability of the joint on use. Conservative treatment consists of strapping the joint, correction of flat-foot or other causes of joint-strain, local stimulating bathing, and general tonics; these failing, removal of the fringes to be considered. The arthrotomy should clearly expose the interior of the joint—best in the knee by 2 incisions parallel to the patella tendon—and the fringes should be dissected out as far as possible, trusting to subsequent scar formation to prevent recurrence. Drainage usually unnecessary; complete or partial fixation until removal of stitches should be immediately followed by active and passive motion, fomentations, etc. The prognosis in uncomplicated local conditions is excellent; when part of a general condition, such as rheumatoid, treatment is at best but palliative. [Author's abstract.]

The Foot of the American Negro.—Albert H. Freiburg and J. Henry Schroeder.¹ Herz and Muskat, having shown that flatness of the plantar arches of the aboriginal negro is not a racial characteristic, 88 feet of adult negroes and 40 of children were examined. Conclusions: (1) Flattening of the arch is much more frequent in the American negro than in his white neighbor; (2) the same is true of hallux valgus; (3) the well-arched foot occurs in the American negro with sufficient frequency, however, to establish it as the normal; (4) normal feet preponderate decidedly in negro children, although flattening is more common than in the white; (5) the flat-foot of the adult negro has, therefore, developed after childhood in the greater number of cases; (6) the deforming effects of foot wear are much more evident than in the white of the same class; (7) The length of the negroes heel and the width of his forefoot may explain the deforming action of foot gear designed primarily for the feet of whites. [Author's abstract.]

Treatment of Hallux Valgus.—W. Thomas² describes what he calls the "tomato splint," which has proved of great value in his hands. It is made of dentists' vulcanite, aluminum, wood, brass, celluloid, or any other nonirritating material. The posterior border is concave and rests against the heads of the metatarsal bones. The upper surface has 3 grooves for the middle toes, and 2 half grooves for the great and little toes. Between the grooves are septums, the one between the great and the next being higher than the others. The septums are pierced so as to allow the strapping by which the splint is fixed to pass through. It may be worn at night inside a stocking; in a slipper or loose shoe during the day. Properly applied, and regularly worn it brings some of the most distorted toes to the normal condition. [H.M.]

Polydactylism of the Feet.—H. Haberer³ reports a case of this anomaly occurring in a boy 17 years old. Beside the normal 4 toes on the right foot there were, in the place of the big toe, 2 toes united by a web, which articulated with a common metatarsal bone. Beside this double toe there was on the inner side of the foot a supernumerary toe with 3 phalanges, 1 metatarsal bone, and 2 toe-nails. There was also a scar on the median surface of the toe showing where a supernumerary toe had been removed when the patient was 7 years old. The paper is illustrated with röntgen ray photographs. [J.H.W.R.]

The Pathology and Treatment of Hallux Rigidus, Hallux Flexus, and Hallux Extensus.—A. H. Tubby⁴ believes that one cause underlies all of the above conditions—namely, an osteoarthritic condition of its first metatarsophalangeal joint. In moderately painful cases attention to the size and shape of shoes. In severely painful cases excision of the head of the metatarsal bone is required. It is preferable to interfere as little as possible with the base of the first phalanx.

Phelps' Operation for Club-foot.—E. Muirhead Little⁵ speaks of 2 classes of cases of club-foot in which he has tried Phelps' operation: 1. Those of such severe deformity that careful and persistent treatment by milder methods has failed to effect a complete cure, despite all the care of the surgeon and the patient's friends. These I would call cases of necessity. 2.

¹ American Journal of the Medical Sciences, June, 1903.

² Albany Medical Annals, July, 1903.

³ Wien. klin. Woch., 1903, No. 34, p. 965.

⁴ American Jour. Orthopedic Surgery, November, 1903.

¹ American Jour. Orthopedic Surgery, November, 1903.

² Medical Press and Circular, May 6, 1903.

³ Wien. klin. Woch., 1903, No. 20, 587.

⁴ British Medical Journal, October 18, 1903, p. 976.

⁵ British Medical Journal, October 17, 1903, p. 977.

Cases chiefly in hospital practice, which, owing to the poverty or indifference of the friends, are neglected as regards after-treatment and relapse again and again. These I would call cases of expediency. Little has used Phelps' operation in 27 cases, and gives illustrations of the results. He has adopted a modification which he believes to be of advantage in dividing tendo-achillis last, and in the manner of making the skin flap, after the suggestion of Harding Frieland. He refers to the fact that unknown to each other, and at about the same time, Dr. Jonas, of Omaha, had recommended the wedge-shape skin flap. Little does not put the foot in plaster cast immediately after the operation, but waits until the oozing has ceased. Twenty-seven operations were performed on 20 patients. The ages ran from 2½ years to 16 years. Only 3 were under 5 years. The immediate results have been in all cases good, and the later results, as far as ascertainable, were most satisfactory to the patients. The form of the foot has in many cases not been ideal.

The Substitution of Temporary and Absorbable for Permanent and Unabsorbable Sutures in the Operation on Bone.—R. H. Anglin Whitelocke¹ says metallic sutures are more likely to cut their way out. In many cases the system of wiring is an over-elaborate and unnecessary detail. The use of ordinary catgut or kangaroo tendon has been most satisfactory. The favorable results obtained by these absorbable sutures should increase the number of cures of bone injury that are treated by free incision and suture.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended February 26, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	San Francisco.....Feb. 7-14.....	5	
District of Columbia:	Washington.....Feb. 13-20.....	6	
Florida:	Jacksonville.....Feb. 13-20.....	5	
Georgia:	Liberty County.....Feb. 12.....		7
Illinois:	Danville.....Feb. 13-20.....	3	
Louisiana:	New Orleans.....Feb. 13-20.....	1	
Maine:	Calais.....Feb. 18.....	5	
Maryland:	Baltimore.....Feb. 13-20.....	1	
Michigan:	Detroit.....Feb. 13-20.....	2	1
Missouri:	St. Louis.....Feb. 13-20.....	5	
New Hampshire:	Manchester.....Feb. 13-20.....	1	
New Jersey:	Trenton.....Feb. 13-20.....	7	
New York:	New York.....Feb. 13-20.....	3	1
	Niagara Falls.....Feb. 13-20.....	5	
Ohio:	Cleveland.....Feb. 12-19.....	1	
Pennsylvania:	Butler.....Feb. 6-13.....	1	
	Carbondale.....Feb. 14-21.....	1	
	Johnstown.....Feb. 13-20.....	4	
	Philadelphia.....Feb. 13-20.....	49	13
	Pittsburg.....Feb. 13-20.....	2	1
	Titusville.....Feb. 13-20.....	1	
	Williamsport.....Feb. 6-13.....	1	
Tennessee:	Memphis.....Feb. 13-20.....	31	
	Nashville.....Feb. 13-20.....	7	
Utah:	Salt Lake City.....Feb. 6-13.....	1	
Virginia:	Danville.....Feb. 6-13.....	2	
Wisconsin:	Milwaukee.....Feb. 13-20.....	11	
SMALLPOX—INSULAR.			
Hawaii:	Honolulu.....Feb. 4.....	1	
	On U. S. A. Transport Logan.		
SMALLPOX—FOREIGN.			
Austria:	Prague.....Jan. 23-30.....	8	
Brazil:	Pernambuco.....Jan. 1-15.....		39
	Rio de Janeiro.....Jan. 17-24.....	24	27
Canada:	Quebec.....Feb. 6-13.....	1	
	Tower Hill, N. B.....Feb. 15.....	2	
Colombia:	Barranquilla.....Jan. 27-Feb. 2.....		5
France:	Marselles.....Jan. 1-31.....		29
	Paris.....Jan. 30-Feb. 6.....	31	2
Great Britain:	Edinburgh.....Jan. 30-Feb. 6.....	17	
	Glasgow.....Feb. 5-12.....	46	2
	Hull.....Jan. 20-Feb. 6.....	3	
	London.....Jan. 23-30.....	4	
	Manchester.....Jan. 30-Feb. 6.....	3	
	Newcastle-on-Tyne.....Jan. 30-Feb. 6.....	2	1
	Nottingham.....Jan. 30-Feb. 6.....	11	
	Sheffield.....Jan. 23-Feb. 6.....	3	
	South Shields.....Jan. 30-Feb. 6.....	1	
	Sunderland.....Jan. 30-Feb. 6.....	1	
India:	Bombay.....Jan. 19-26.....		7
	Karachi.....Jan. 17-24.....	2	1
Mexico:	City of Mexico.....Jan. 31-Feb. 7.....	4	3
Netherlands:	Amsterdam.....Jan. 30-Feb. 6.....	3	

¹ British Medical Journal, October 17, 1903, p. 983.

Russia:	Moscow.....Jan. 16-23.....	5	4
	St. Petersburg.....Jan. 23-30.....	11	3
Spain:	Santander.....Feb. 1-8.....	5	
Turkey:	Smyrna.....Jan. 17-31.....		5

YELLOW FEVER.

Brazil:	Rio de Janeiro.....Jan. 17-24.....	3	1
Cuba:	On Norwegian bark Eugen from La Gualra, wrecked on South coast Feb. 16.....	7	5
Mexico:	Merida.....Jan. 31-Feb. 13.....	1	4
	Progreso.....Jan. 31-Feb. 13.....	1	
	Vera Cruz.....Feb. 6-13.....	1	1

CHOLERA—INSULAR.

Philippine Islands:	Manila.....Jan. 2-9.....	4	4
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CHOLERA—FOREIGN.

India:	Calcutta.....Jan. 8-23.....		38
Turkey in Asia:	Diarbekir.....Jan. 9.....		1
	Kerbela.....Jan. 11-12.....	5	5

PLAGUE—UNITED STATES.

California:	San Francisco.....Feb. 12-14.....		2
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PLAGUE—FOREIGN.

Brazil:	Pernambuco.....Jan. 1-15.....		1
	Rio de Janeiro.....Jan. 17-24.....	8	6
India:	Bombay.....Jan. 18-26.....		231
	Calcutta.....Jan. 8-23.....		23
	Karachi.....Jan. 17-24.....	8	7
	Madras.....Jan. 16-22.....		1
Peru:	San Pedro.....Feb. 20.....	A few cases.	
Russia:	Cronstadt.....Jan. 20.....		1

Laboratory case.

Changes in the Medical Corps of the U. S. Army for the week ended February 27, 1904:

HUGHES, LEONARD S., contract surgeon, leave granted October 22 is extended one month.

MCANDREW, First Lieutenant PATRICK H., assistant surgeon, now on temporary duty at Fort Des Moines, Ia., will join his proper station, Jefferson Barracks.

GIRARD, Colonel ALFRED C., assistant surgeon-general, having reported his arrival at San Francisco, Cal., will report to the commanding general, department of California, for duty as chief surgeon of that department, to relieve Lieutenant-Colonel George H. Torney, deputy surgeon-general. Lieutenant-Colonel Torney will report to the commanding general, department of California, for assignment to the command of the United States General Hospital, Presidio, to relieve Major William P. Kendall, surgeon. Major Kendall will proceed to Ord Barracks, Cal., for duty.

WATERHOUSE, First Lieutenant SAMUEL M., assistant surgeon, is relieved from duty on the transport Logan and from further duty in the Philippine Division, and will proceed from San Francisco, Cal., to Fort Worden, Wash., for duty.

VOORHIES, HUGH G., contract dental surgeon, now on temporary duty at Plattsburg Barracks, is relieved from further duty at San Juan, P. R., and will report for duty at Fort Hancock.

PATTON, First Lieutenant IRVINE W., assistant surgeon, leave granted January 21 is extended one month.

NICODEMUS, FRANK O., sergeant first class, Fort Sheridan, will proceed to Manila, P. I., about March 1.

GWINN, ARTHUR C., sergeant first class, upon arrival at Fort Sheridan with the Twenty-seventh Infantry, will report for duty at that post.

PATTON, First Lieutenant IRVINE W., assistant surgeon, now on leave at Huntsville, Ala., is relieved from further duty at Fort Hamilton, and will proceed from Huntsville to New York City and report for duty as surgeon on the transport McClellan.

WATERHOUSE, First Lieutenant SAMUEL M., assistant surgeon, is granted leave for two months.

GREENE, EARL F., sergeant first class, Army General Hospital, Washington Barracks, will proceed to New York City and report for duty aboard the transport McClellan.

Changes in the Public Health and Marine-Hospital Service for the week ended February 25, 1904:

STONER, G. W., surgeon, four days' leave of absence from February 24, 1904, under paragraph 189 of the regulations.

ANDERSON, J. F., passed assistant surgeon, granted leave of absence for two days from February 18, on account of sickness—February 24, 1904.

STANSFIELD, H. A., assistant surgeon, to report to chairman of examining board at Washington, D. C., March 9, 1904, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—February 25, 1904.

McCLINTIC, T. B., assistant surgeon, to report to chairman of examining board at Washington, D. C., March 9, 1904, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—February 25, 1904.

BERRY, T. D., assistant surgeon, directed to rejoin station at Louisville, Ky., upon return of Surgeon G. M. Guiteras—February 19, 1904.

HERTY, F. J., pharmacist, granted leave of absence for four days from February 14, 1904, under paragraph 191 of the regulations.

Promotions.

Passed Assistant Surgeon H. D. Geddings commissioned as surgeon, to rank as such from November 23, 1903—February 12, 1904.

Passed Assistant Surgeon C. P. Wertenbaker commissioned as surgeon—February 16, 1904.

American Medicine

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The criminal use of physicians' names is becoming more and more common. Koch has been compelled to warn even the medical profession of America that the use of his name by firms of charlatans in many of our larger cities was of course unauthorized, and in spite of all the attempts of himself and friends to prevent it legally. Recently a wellknown physician found that a chemical manufacturing firm was using his name for the wide exploitation of a method of cure advertised as if backed by the scientific ability and reputation of the physician. Even if the legal injunction will be at last successful, there is the delay, the harm to the reputation, and the expense, for which there is no reparation. A similar wrong is the unauthorized republication of the papers, clinical reports, etc., of physicians by manufacturers of drugs, makers of instruments, etc., all in a manner to deceive the incautious reader and make him think the original writer has permitted the use of his name in this way. To such proportions have these abuses grown that the profession must be on the alert to meet the criminals with the law. One would suppose that the terms of the statutes already enacted against such plain intent to deceive would be sufficient; but if not we should secure the passage of such specific laws as will prevent repetitions of the offense.

The Breaking-up of the Long Winter.—The reports from all northern large cities of the United States show an alarming increase in the number of deaths from pneumonia. In New York all pneumonia death records for a decade are shown to be broken by the Health Department report for last week, which recorded 1,800 deaths, 460 of which were attributed to pneumonia. For the corresponding week of last year there were 1,479 deaths, 303 due to pneumonia. The increasing prevalence of the deathrate from infectious pneumonia is recognized also by the State Health Department in its monthly bulletin by the announcement that hereafter it will be given a separate column in the bulletin and be the subject of distinct notice. The total number of deaths from pneumonia in the State during January is given at 1,510. The long contention of the Chicago Health Commissioner is being substantiated, and his suggestions heeded. Not only is the pneumonia deathrate increasing, but the general deathrate also, due to the greater prevalence of small-

pox, typhoid fever, and other infectious diseases. Is this due to the long, severe winter, with the resultant lessening of vitality, and the closer herding together of the poor for warmth? Vast quantities of filth have been gathered in cities, and as Spring breaks and ice and snow melt and are being washed away, may we not expect a still greater mortality? Health Boards should exercise redoubled vigilance to prevent the calamity, and the cooperation of every householder and citizen is of the greatest importance.

The blessing of anesthesia is commonly thought to concern only the patient. To free him utterly from the awful agony of a major surgical operation was, of course, the chief and striking glory of the discoverers of anesthetics. But one is likely to forget that there are other results of more real benefit to the world which follow inevitably though more indirectly. The first of these is the vast progress anesthesia has made possible in laboratory research. Operations and experiments on living animals would not have been possible in the olden times that are common now, men could not have been found in sufficient number and with the requisite insensitiveness to carry on the experiments necessary without anesthesia. The present freedom of animals from suffering would enable even the mythical fiend of the antivivisection's imagination to do his work more easily and better. In the second place, anesthesia during surgical operations has been a not negligible cause of the establishment of the nursing profession. Women could not have been found to help the surgeon under the old conditions. Thirdly, anesthesia has enabled the profession to do away with the former absolute necessity of the utmost quickness in operation. The result was a haste that made the best operations impossible. The mortality of anesthetic operations must be a hundred times better than when the patient writhed and begged for mercy.

Errors in the diagnosis of smallpox, as all physicians know, are too easily made even when the best knowledge exists and the best precautions are insured. But when such knowledge and care are replaced by ignorance and thoughtlessness, sometimes wilful, and perhaps even malicious, the prevention and detection of the disease become all the more doubtful. The spreading of the germs by tramps, by traveling workmen, by

those with nitric acid scars, the herding together of laborers by public works contractors—all aided by the ease of intercommunication which today exists—these and many such causes tend to make fresh outbreaks a matter of daily record: There is also a lukewarmness of belief on the part of some medical sects, as to the value of vaccination, which is really a greater danger to the community than the stupid malevolence of the hordes of the antivaccinationists. Hospital physicians should be especially alert not to make errors of diagnosis. In last Tuesday's *Ledger* occurs the following paragraph:

Blanche Smith, a nurse in St. Luke's Homeopathic Hospital, who, with Barbara Frey, another nurse, contracted the disease after nursing Thomas Wilson, a boy, who was suffering from smallpox, but whose illness had been diagnosed as typhoid fever, died yesterday in the Municipal Hospital. Mrs. Lizzie Wilson, the mother of the boy, who contracted the disease after the death of her son in St. Luke's Hospital, died on Sunday at her home, 2630 Bancroft street.

State Responsibility in the Protection of Water-supplies.—It would seem that public effort can only be enlisted in the protection of human life by the periodic recurrence of great disasters. It is the old story of the stolen horse and the careful barring of the empty stable. The history of the two terrible outbreaks of typhoid fever during the past eight months has left an indelible impression on the memories of some; to others it is a mere haze upon a horizon of indifferentism. Before it is entirely gone, however, let us see what is the probability of its repetition.

Most States of our union have found it necessary to make some definite provision against these terrible scourges, and where the idea of prophylaxis has been conscientiously carried out remarkable results in the way of immunity have been obtained. And let us say that while typhoid fever is the type of disease most commonly occurring as a result of the ingestion of impure water, there are other diseases quite as derivable from this source, though less noticeable because they are more sporadic and less epidemic in natural characteristics. According to Mr. C. C. Brown, a prominent engineering expert, Indiana has the most defective laws of any State as regards the control of a pure water-supply. The lower courts of that commonwealth have decided that natural bodies of water are the natural recipients of sewage, and it would seem that the higher courts have acquiesced in that opinion. The Secretary of the Indiana State Board of Health is doing all he can to get proper legislation in the matter, and he has established a series of lectures upon health subjects to be given before the authorities by men of experience; and it was in this capacity that Mr. Brown made his assertion. Streams in the State are absolutely without protection; small watersheds are bordered by scattered houses, sewage from which is pretty sure to reach the water-supply; and the drainage of the city of Indianapolis into the West Fork of White river is actually so noxious that no fish can live in it. We are not told whether any drinking water comes from White river, presumably not, for good fortune would hardly be so propitious as to grant the remarkable immunity from epidemics that Indiana now seems to enjoy were that the case.

In Pennsylvania there is some control, but it is said to be less than that of New York State, and also that existing laws are less in force than is the rule there. However this may be, there was certainly a lack of the executive power at Ithaca, for it has been proved that the epidemic among the students and townspeople there was due to a careless and accidental pollution of the immediate watershed of the city reservoir. According to Engineer C. C. Vermeule, if our neighbors in New Jersey succeed in putting through their gigantic sewer into Newark Bay, New York City will suffer, and suffer horribly for her generosity in allowing it. This opinion was maintained, in spite of no end of contrary evidence furnished by those who wished to make our confines a dumping-ground for the accumulations of filth from a neighboring city.

The means of getting pure water are two in number. One is to keep it pure, the other is to pollute it and then purify. In the language of Professor Geddes of Glasgow: "At first we try to purify the river, but later it dawns upon the authorities that it would be simpler and even cheaper to stop polluting it." Of course everybody knows that it is impossible to establish or to maintain bacterial purity in any large reservoir and if pathogenic germs are excluded it is certainly unnecessary; but care should be taken in this regard to find out what kind of germs we have to deal with. Filtration is an old and in some respects an inadequate method, especially if relied on too implicitly. In Paris they are purifying the waters of the Seine by electricity. Air is ozonized between two rapidly revolving electric cylinders and is then mixed with the impure water, thus quickly oxidizing all organic matter. It is said that "the water comes away more sparkling and purer than that from a mountain spring." But many things are possible in Paris that Americans have not been able to equal. In regard to the fixation of responsibility upon State officers *Municipal Engineering* says: "The occurrences at Ithaca and Butler show negligence which, in the former case at least, in face of the possibilities of control, was almost criminal, and show that good laws are of no avail without intelligent supervision of their enforcement by the responsible local authorities." There is no doubt that a time will come, when through intelligent prevention, epidemics of every sort will be unknown throughout the entire United States. It seems unfortunate, though, that the millennium is so slow in coming when it is so badly needed.

Hospitals for Chronic Diseases.—It is a remarkable circumstance that while donations are bestowed to equip hospitals for general and special diseases, nobody seems to have given a thought to the necessity for hospitals for chronic diseases. There certainly are homes for chronic invalids, there are institutions for incurables, and every large city has a dumping place for outcasts, but there are no hospitals for the cure of chronic affections, with the exception of those for tuberculosis and cancer, which latter are by no means the most important cases from a medical point of view. On the other hand, it can easily be understood that hos-

pitals for chronic diseases could not very well have been established at a very early period, considering that in former times our pathologic and therapeutic knowledge was so limited that many of the chronic affections were looked upon as incurable, and also considering that in former times the social and humanitarian education of the people did not particularly favor the establishment of hospitals, and finally that the financial conditions were not nearly as favorable as they are at the present time. All this is changed then for the better, and circumstances have assumed such a totally different aspect that the establishment and endowment of hospitals for chronic diseases might well be thought of. Attempts have been made to overcome the lack of such accommodation by providing sanatoriums, but these are generally situated outside the cities, and at the best are only available for the financially favored. The physician is positively at a loss where to send his poorer patients who suffer, let us say, from a chronic renal disease or a chronic disorder of the stomach. They will find no room in any of our hospitals, unless an acute exacerbation happens to supervene simultaneously, but as soon as the acute condition is cured, the patient will have to quit the hospital, even though he may be unable to work. The very nurses get tired of chronic patients, nor is there any training of nurses for the care of chronic patients. Even if the patient is transferred to a "home," he will have little or no chance of enlightened medical treatment. It is also a deplorable fact that in these so-called "homes" there is hardly ever any rational medical treatment, and thus it is easily understood that the case of a patient who once enters one of these homes is synonymous with "incurable." Every big city, or at least every State, ought to have a hospital endowed by public funds or private charity, in which all chronic, noncommunicable, but curable diseases should be rationally treated. There is plenty of provision made for typhoid fever and appendicitis, and it is time that we should direct our attention to the rational hospital treatment of diseases, more or less chronic in character.

Dress Reform for Men.—The question of reforming men's dress may be looked upon from at least four different sides. There is the humorous side, the practical side, the ethical side, and last, but not least—the hygienic side. The humorous fiber has been well supplied recently by the Dressmakers' Association of the United States, which solemnly conclave at Atlantic City under the auspices of the Merchant Tailors' Association. The dames demanded that men should wear nice lace collars and ruffles and fancy buckles and silk breeches, in fact, that they should dress up as people did in the times of Schiller and Goethe. A plea with these ladies on the part of a mere male member of the assembly that, after having appropriated everything else from the horrid sex, they might at least leave them their trousers, went unheeded. The ethical aspect of men's dress may, in these practical and enlightened times, be relegated to a well-deserved back seat. Let common sense come first. Schiller and Goethe are dead anyway, and let us hope that the men who liked to dress in feminine bau-

bles are dead also. Perhaps they did not even like it, and had to give way to some forerunner of the Dressmakers' Association of the United States. But as dead men tell no tales, there is no knowing. That a dress reform for men from a practical and hygienic point of view is badly needed, there is no doubt. What can be more ridiculous than cutting the front of vest and coat away and thus expose chest, lungs, throat, etc., to the inclemency of the weather, giving rise to serious illness? What sense is there in constructing the back of a vest with a mere, thin lining? Do tailors imagine that the spine requires less protection than any other part of the body? What practical use is there in wearing collars high enough to outshade the old-fashioned "father-murders," collars that prevent the free movement of head and neck, and tight enough to seriously interfere with the proper function of several organs? It is ignorance, pure and simple, and it is one of the physician's duties to enlighten the public on the necessity of considering their health before fashion, ignorance, and folly. Wherein male attire fails is the even distribution of protective warmth. One part of the body should be as warm as the other. But not enough that the present style of dress makes this an impossibility, to flatter men's vanity (presumably), tailors have acquired a habit of padding the coats "to improve the figure," and thereby introduce another element of unequal distribution of protection. As a proof of how little men care about this "improvement," it may safely be stated that nine men out of ten do not know where their coats are padded, or that they are padded at all, and then they wonder why in a biting wind they should feel cold in one shoulder and not in the other. If physicians called the serious attention of men to these anomalies in their clothing and inculcated in them correct hygienic principles of dressing, they would take a great step in the direction of preventing disease.

Physicians and the Commonwealth.—It is a matter of public concern to analyze the presumable public conduct of an aspirant for political honors, and, as a rule, that forecast will not be far wrong if it is gauged by the leading business principles which are known to guide such aspirant in the pursuit of his daily vocation, or, as Sterne has it, "Inward sincerity will influence the outward deportment; but where the one is wanting, there is great reason to suspect the absence of the latter." That is the part of the life of the individual which comes in contact with the outer world, and it is but fair to assume that a merchant or lawyer who is in the habit of conducting his business in a fair and straightforward manner, will be actuated by the same principles when entering upon a responsible, public career. From this point of view it is of importance that the medical profession in all parts of the country should scrutinize the contents of newspapers whose editors or publishers nourish high political ambitions, but whose business morality is not of the highest order, newspapers that often play the role of seducers rather than of teachers and educators of their readers in regard to matters of health and medical treatment. The medical profession should take these "latter-day saints"

seriously to task; the following is a letter which a New York physician recently addressed to the editor-publisher of four or five newspapers whose specialty it appears to be to contradict by the paid advertisements what he is advocating in the editorials, thus illustrating the bewailable, modern tendency of "not doing what you preach." But let the letter speak for itself:

NEW YORK, November 12, 1903.

Dear Sir:—I have read with great interest a number of editorials in the ———, particularly those which pertain to the sociologic, philosophic and national problems. Their pervading spirit seems sound and plausible, means progress, tends to the enlightenment of the masses, and is certainly far superior to that of any other daily newspaper in this or any other country.

However, if you wish to be a great moral teacher, if you wish to be the exponent of social morals, and if you entertain the pardonable ambition of sitting in the Presidential Chair in Washington, you will in common decency—to say the least—have to turn your attention to the advertising columns of your papers, for the high spirit expressed in your editorials is certainly not reflected at all in the space devoted to the announcements. Your journals, on account of their superior editorial matter, reach homes, and the advertisements which reach those homes simultaneously must certainly call forth embarrassment and indignation. If you want to be a great moral teacher and the liberator of the lower classes from preconceived notions, you must see that advertisements which bear the stamp of deceit, humbug and immorality, be excluded from your publications. The restoring of lost manhood, the curing of venereal diseases in 10 days, the sure production of the monthly flow, the providing of a retreat for ladies in interesting circumstances, are certainly not the domain or the office of a moral reformer. Not only are advertisements of this kind objectionable in themselves, but they are productive of great moral harm by acquainting innocent young girls, for instance, with the fact that there are people who make it their business to remove incipient gestation. If some other paper lays itself out for announcements of this description, that paper will be known accordingly, and men will take good care to bar its way into their homes. You, however, are not on the same level with them; you stand upon a public platform, aspiring to high honors, and you cannot afford, therefore, to be the means of carrying immorality into decent families. Nor can I assume that the small financial gain would prompt you to continue the insertion of these objectionable announcements, especially as there are other papers which rigidly exclude them.

To this letter no answer was received; comment superfluous.

New Hospital at San Juan.—Information, under date of February 27, says the First Presbyterian Hospital on the island was opened today with appropriate ceremonies. The hospital cost \$20,000, which was raised in New York. Governor Hunt delivered an address.

Foreign Bodies in the Abdomen.—An exchange comments editorially as follows: A case of this kind has provided one of the latest sensations in Italy, where, for the third time in the history of the Parliament, the Senate has been sitting as a High Court of Justice to try one of its members on a criminal charge. The accused is a wellknown surgeon and Senator, Professor Dantona, who is charged with culpable homicide in having caused the death of a patient by negligence. The victim, a certain Signor Jammurino, was operated on by Professor Dantona for an internal complaint. A month later, after his return to his family, Signor Jammurino suffered a sudden relapse and died. A local physician made a postmortem examination, and declares that he found in the body a large piece of gauze, presumably left accidentally in the wound, which was responsible for the formation of the abscess which was the immediate cause of death. Professor Dantona, in his defense, declares either that the gauze was not found as the prosecution asserts, or that if it was found, its presence must have been due to the dressing of the wound subsequent to his own attendance on the patient, and to the carelessness of some subordinate.

AMERICAN NEWS AND NOTES.

GENERAL.

The Cystoscope.—March 9 was the twenty-fifth anniversary of the first demonstration of the cystoscope by Prof. Max Nitze, of Berlin. On that day the admirers of Prof. Nitze, in Germany, celebrated the event, and a number of American physicians, through a committee in New York, sent a congratulatory telegram to Prof. Nitze. It read as follows: "Prof. Max Nitze, Berlin. Your colleagues and pupils congratulate themselves and the profession on the twenty-fifth anniversary of the demonstration of the cystoscope."

The National Association for the Study of Epilepsy held its third annual meeting in Philadelphia in November, 1903, and on March 1, 1904, issued a memorandum setting forth the purposes of the Association. This in part says: At the Philadelphia meeting the Association discussed its inability, for the lack of money, to do more valuable work in the way of disseminating literature bearing upon the public care of the epileptic and the study of his disease, and after full discussion, it was unanimously decided to require a membership fee of \$5, annually. The Association is exceedingly anxious to help secure public care in some form for the epileptic, in every State in the Union. At present 7 States only have made such provision. They are: New York, Massachusetts, Ohio, Pennsylvania, New Jersey, Kansas and Texas.

A New Poisonous Drug.—A more powerful poison than any heretofore known is now being investigated. Mr. Lascellus Scott, of England, has recently published some startling facts about cyanid of cacodyl. It is a white powder, melting at 33° and boiling at 140°, which when exposed to air gives off a slight vapor, to inhale which is death. Its effect is so powerful that Mr. Scott states that he has seen one-millionth part of a grain of the drug instantly kill 4 dogs when they were introduced into an air-tight cage with it. While but little known, it was made many years ago by a noted French chemist, Cadet. He combined potassium acetate with white arsenic, producing a fuming liquid, oxid of cacodyl. This, when combined with cyanogen, a radical of prussic acid, produces cyanid of cacodyl, thousands of times more poisonous than the pure prussic acid. —[*Albany Medical Annals.*]

Study of Leprosy.—From Honolulu comes the news that Surgeon-General Wyman, of the United States Marine-Hospital service, has invited Dr. Charles B. Cooper, of the Board of Health of Hawaii, to become chairman of a committee to undertake an exhaustive investigation and study of leprosy. The other members of the proposed committee are Dr. J. F. Smith, secretary of the Superior Board of Health of San Juan, Porto Rico, and Dr. J. C. Nolte, of the State Board of Health of Louisiana. This committee is to suggest lines of investigation to competent observers willing to undertake the work. The committee is also to collate the results of experiments and observations made in connection with its work, and to report at suitable times on the advance in knowledge in regard to leprosy. The Board of Health of Hawaii some time ago formulated a plan for the systematic study of leprosy at the settlement of Molokai. The plan included a request for an appropriation from Congress for a suitable provision for a bacteriologic laboratory at the leper settlement, and for residences for investigators. The Territory of Hawaii would provide maintenance and assistance, and an invitation would be sent to the leading institutions and societies in the world which provide for original research into such subjects, to send capable investigators. By this means, it was thought, the best field in the world for the study of leprosy would be made available for scientific study.

Education of the Public against Spitting.—The Bulletin of Chicago's Health Department, for the week ended February 27, quotes from a leaflet, on the restriction and prevention of pneumonia, recently issued by the Michigan State Board of Health, as follows: "Legal measures it is obvious can be used only against the person spitting in public places. The person who contaminates the air of his home with his saliva is largely beyond the reach of such measures. Public opinion is necessary to sustain the enforcement of any law. It is especially necessary where it is sought to enforce a law depriving citizens of a privilege they have long enjoyed and can see no reason why they should not continue to possess. Education of the people concerning the importance of destroying or disinfecting all sputa must, therefore, precede forcible measures. This education should be such as to induce every intelligent person to destroy or disinfect the sputa or saliva he or she ejects, and to insist that the careless and the ignorant be compelled to do likewise. It is to be hoped that such education will result in the formation of public opinion so that it will demand that the law shall not only reach the public spitter, but he, also, who contaminates his own home, thus not only endangering his own family, but also endangering the lives of all who may enter such a home. The press, the teachers in our public schools, the preachers in our pulpits, and all others who in any degree mold public opinion should urge the most important sanitary reform."

Achievements of American Medical Men.—Dr. Roosa, in a recent address in New York City, at which he was the guest of honor, summed up briefly the important discoveries of American physicians. In part he said: In the Massachusetts General Hospital was first found out an anesthetic to quiet the pains of women in their most agonizing period of existence; of men and children suffering under the knife. In America the first great operation upon a hitherto incurable disease of the female sex was first successfully adopted by a Kentucky surgeon, and in America the first exact knowledge of that disease which carries off so many men was first made known by a New York surgeon. And in America, first of all, another large class of cases, passed from the irremediable to those that were perfectly cured, and the statue of the man who did all this stands behind a new library on Bryant Park—a man who began work in Alabama, and expanded it in New York. The lifegiving method of intubation was first taught by a New York post-graduate professor.

Miscellaneous.—**Colorado Springs, Col.:** Dr. William C. Sturgis, formerly mycologist of the Connecticut Agricultural Experiment Station, has been appointed lecturer on botany at Colorado College, Colorado Springs.—**Cambridge, Mass.:** Dr. Charles S. Minot, of Harvard Medical School, and Dr. Franklin P. Mall, of Johns Hopkins University, have been made members of the commission for Neurological Research, appointed by the International Association of Academies.—**Foreign:** Edinburgh University will confer the honorary LL.D. on Dr. Alexander Macalister, professor of anatomy at Cambridge, and on Dr. Hannis Taylor, professor of constitutional and international law at Columbian University; St. Andrews University will confer the degree of LL.D. on Dr. J. N. Langley, professor of physiology at Cambridge University; The French Geographical Society has awarded its great gold medal for 1904 to Sven Hedin, the Swedish explorer; The new Laboratory of Hygiene in the University of Jena was dedicated on January 24.—**Chicago:** Dr. Nicholas Senn, of Chicago, has been elected a member of the Swedish Medical Association.

NEW YORK.

New Home for Nurses.—The Bellevue Training School for Nurses has bought, for about \$50,000, property and will erect thereon a six or seven story building, to be used as a training school and nurses' home. The school heretofore has been quartered in some three and four story buildings on Twenty-sixth street, immediately at the rear of the site just purchased. These old structures will be used in connection with the new building, and it is said that the latter may eventually be extended over the entire property.

Would License Optometry.—There is a bill now before the Legislature of New York, which, if passed, will legalize optometry in its application by laymen as well as physicians. It is required, however, before one can practise the art of fitting glasses, that he shall pass an examination by a regularly appointed board of optometry under State supervision. Many physicians in the State are enlisted in a fight against the bill. A similar measure was advocated 8 years ago. In the former instance, however, the bill did not make provisions for a State Board of Optometry, as does the present proposed law.

Night Dispensary Service.—The New York *Sun*, commenting upon this subject, editorially, says in part: "On this account the trustees and medical staff of the New York Polyclinic Hospital, at 214 East Thirty-fourth street, have instituted a night dispensary service for the benefit of those who are not able to pay physicians, and who by reason of their employment during the day are prevented from seeking relief at the various day clinics. In inaugurating this service it is especially the intention to aid the large number of deserving young women employed in the various department stores and manufactories, who otherwise would be unable to secure needed medical attention.

New St. Francis Hospital.—The Sisters of the Poor of St. Francis, who for 38 years have conducted St. Francis' Hospital, are erecting a new hospital directly opposite St. Joseph's Hospital for Consumptives. There will be 19 large wards, giving space for 304 beds, and 40 small wards, a number of which will be used for private patients. In addition, there will be constructed a house for the sisters, 120 by 54 feet, the lower floors of which will contain the kitchens and storerooms and a handsome chapel, 48 by 80 feet. There will also be a garden for the patients. The hospital will be practically free to all patients, and as the expense of its erection is great, the help of the public is invoked to aid in the undertaking.

Changes in Albany Hospital Staff.—Among the changes recently made in the staff of the Albany Hospital of special note is the appointment of Dr. Albert VanderVeer as surgeon-in-chief. This is a new position created by the Board of Governors in order to retain the services of Dr. VanderVeer in the general management of the hospital while acceding to his wish to retire as attending surgeon. The appointment is a commendable recognition of a long and honorable service to the hospital. Dr. William Hailes has resigned as attending surgeon and has been transferred to the consulting staff. Drs. Edgar

VanderVeer and Arthur Elting have been made attending surgeons, and Dr. Arthur Sautter assistant attending physician in the department of diseases of the skin.

Newspaper Objects.—According to a New York exchange, a bill recently introduced by an assemblyman will, if it becomes a law, prohibit after May 31 next the publication by any newspaper or other public periodical, except medical or surgical journals, of "any picture, device, or representation of one or more man, woman, or child, or of the features or any part or parts of the human body in connection with or as part of any advertisement of any patented medicine, drug, or surgical instrument." "This," says the exchange, "is a particularly nonsensical and absurd piece of lawmaking, if it is not something worse, and for it there seems to be nothing that even remotely approaches a necessity. Legal protection already exists against the unauthorized use of personal portraits that results in measurable damage to reputation, and if people who think they have been benefited by heterodox medication are willing, out of gratitude or for a consideration, to let the makers of the preparation publish their pictures in an advertisement, there is no obvious reason why the medical papers should monopolize the business." It is very obvious that the newspaper in question is viewing the matter only from the "pecuniary" standpoint.

PHILADELPHIA, PENNSYLVANIA, ETC.

Nurses Start for Japan.—Dr. Anita Newcomb McGee and eight other Red Cross nurses left recently for Japan, where, at the instance of the Philadelphia Red Cross Society, they will serve the Japanese Government.

Typhoid Increases.—Typhoid fever and pneumonia prevail to an alarming extent, according to the official health report. It shows 195 cases of typhoid fever for last week, which is an increase of 47 cases over the preceding 7 days. There were 116 deaths from pneumonia. Physicians say pneumonia is in every ward in the city, while typhoid fever cases are reported from 39 out of the 42 wards. Deaths from all causes numbered 628, a decrease of 65 compared with the previous week. In view of the present increase, the officers of the Board of Health express a fear that an epidemic of typhoid fever in the city is imminent.

Cancer Hospital in Need of Aid.—The Cancer Annex of the Philadelphia Home for Incurables has become entirely inadequate for the demands which are made upon it. This is the only place of its kind in the State for such sufferers above the pauper class, and men who are unable to gain admittance to it are compelled to remain in their own homes for treatment. The managers of the institution have determined to erect an additional building for men who are afflicted with cancer, and they have sent out an appeal for funds wherewith to make the improvement. The Philadelphia Home for Incurables is not a rich institution. Without aid from the State and with a very small endowment fund, there is great need of additional income. The place is always full and the waiting list is large.

Hospital Cars for Pennsylvania Railroad.—Officials of the Pennsylvania Railroad Company have authorized the construction of 4 hospital cars for the company's use in the event of accidents. The hospital cars will be stationed at division terminals, and in case of a wreck will be hurried to the scene and take care of the injured. The cars will be fitted up with beds and all the necessary instruments and appliances for treating patients. They will be kept in readiness for service at any time during the day and night, and when dispatched to the scene of accident will be accompanied by trained nurses and physicians to whatever number will be required. Recently the company authorized the installation of first aid to the injured boxes to be placed on all the cars and in the various stations and shops. The boxes contain bandages and such medical supplies as are necessary for emergency cases, with printed directions showing the employees how to use them. The trainmen will also be instructed by the medical officers in the proper use of the different articles.

Birth Certificates Should be Supplied by Parents of School Children.—Acting upon a suggestion to the Committee of Compulsory Education by Captain William Thornton, chief of the bureau, the Board of Education will probably decide that parents, when entering their children in school for the first time, will also present a certificate telling the date and place of the child's birth. This certificate, it is suggested, must follow the child through its school career, the same as a certificate of vaccination. The result will be that there will be less inclination on the part of parents to make false statements concerning the age of the child in case they desire it should go to work before it reaches the age required by law. During the year there were 1,203 parents notified of the requirements of the law concerning their children. Of 103 parents prosecuted, two refused to pay the fine and were sent to prison. The attendance officers reported and investigated 42,115 cases from schools during the year and their census of school children between the ages of 6 and 16 years showed the number to be 212,308.—[Philadelphia Press.]

Births Not Reported.—Commenting upon the recent activity of the coroner and police authorities in discovering a band of criminals engaged in "baby farming," the *Philadelphia Press* says, editorially: Nothing will ever be accomplished until the lax laws now existing in regard to the registration of births, private lying-in hospitals, the care of babies and their disposition are replaced by adequate legislation. Today it is altogether probable that from 5,000 to 8,000 births are nowhere recorded. In 1892 it was 29,826. In 1902, the last year for which reports are published, the births were 29,841. In 10 years, according to these ridiculous and misleading figures, the births in a year in this city had grown only 15. The population had grown some 450,000. The number of married women in this city in 1890 was 188,326. The number of married women in 1900 was 238,258. Here is an increase in the decade of 49,932 women living in marriage. Yet births had grown only 15 from 1892 to 1902, and in 1900 the registration division of the city Health Bureau reported only 29,105 births, against 29,764 births in 1890. The population in these 10 years had grown from census year to census year 446,527, and the married women 49,932, as already shown, but the registration division of this city could only find 659 less births in 1900 than in 1890. This disparity has but one explanation—the births are not registered. For a dozen years their number has been stationary. Down to about 1890 the number grew with population. In 1882 the births were 21,237. They increased normally, though undoubtedly deficient, for all the years until the city came to pass a population of 700,000 or 800,000. The vast human jungle grew big enough for concealment. From 100 to 200 births a week pass without registry.

SOUTHERN STATES.

Gulf Boards of Health to Combat Yellow Fever.—A Gulf States conference, composed of the Presidents of the Boards of Health of the Gulf States, will probably be the outcome of the recent tour of inspection of Mexico by the Presidents of the Boards of Health of Mississippi, Alabama, Louisiana, and Texas. Dr. Arthur Nolte of the Louisiana board said that this is what would probably be done, though it had not been definitely settled.

For Hospital at Hagerstown, Md.—It is reported that 4 bills have been drafted to be introduced in the Legislature providing for the granting of a charter to the Washington County Hospital Association for an annual appropriation from the State of \$6,000, and to enable the County commissioners and mayor and council of Hagerstown to levy annually for certain sums for the support of a hospital to be constructed. The affairs of the hospital are to be conducted by a board of not more than 11 trustees, to serve without pay.

WESTERN STATES.

Trained Nurses Desire a Protecting Law.—According to the Illinois State Association of Graduate Nurses, amateur nurses, dressed in the costume of the graduates, are imposing on persons who require such services. The State organization is working for the enactment of a statute that will provide for the registration and examination of all graduate nurses. Sister Ignatius Penny of the Mercy Hospital, the recording secretary of the association, said recently that last year the registration bill was passed, but at the last moment was vetoed by the Governor.

Smallpox among the Indians of the Northwest.—Information from Manitoba, under date of March 2, says: A terrible scourge of smallpox has nearly wiped out the Indians of the Isle of Lacrosse district, 60 victims being numbered within 2 days. The epidemic, according to the latest reports, has extended to Portage LaRoché, and the natives, fleeing from the danger, are spreading the disease. The Roman Catholic mission at Lacrosse, under Father Simeonin, is making heroic efforts to cope with the situation. An expedition provided with medical comforts and escorted by a body of Northwest mounted police, has been dispatched to the scene.

Medical Legislation in Colorado.—Some months since, intelligent physicians of Colorado, regardless of the school to which each belonged, recognizing the need of medical legislation, selected committees representing the regular, eclectic, and homeopathic schools, and these conferred as to the best means of securing the much needed legislation. In *Colorado Medicine* for February, appears a report from Dr. S. D. Van Meter, chairman of the combined committees, with certain recommendations. It is in part as follows: After careful study of the existing Colorado Medical statute, and due consideration of the several futile attempts made in the past to replace it by something better, we, as a joint committee composed of the chairmen of the Legislative Committees from the Colorado State Medical Society, the Colorado Homeopathic Society, and the Colorado State Eclectic Medical Association, have concluded that amending the defective parts of the present law, is the most expedient, the most practical, and the most probable attainable legislation. We, as a joint committee sustained by each and every member of the 3 committees, have harmoniously agreed upon the necessary amendments, an epitome of which is as follows: 1. The repeal of the "Ten Year" clause. 2. The adoption of an amendment increasing the fee for registration on diploma to \$10, and by examination to \$25, and further, provid-

ing for the maintenance of the State Board of Medical Examiners from fees received, instead of by appropriation. 3. The adoption of a clear, broad, legal definition of what constitutes the practice of medicine. 4. The adoption of an amendment empowering the State Board of Medical Examiners to refuse and revoke licenses for immoral, dishonorable, or unprofessional conduct.

FOREIGN NEWS AND NOTES

GENERAL.

Women Live Longer Than Men.—A foreign exchange says: Women live longer than men. Taking female lives at any age you choose, it is seen from complete and authoritative tables that a woman may always look forward to a longer life than a man of her own age. Accidents will occur to upset the truth in individual cases, but as a whole the fact remains. Although in the British Isles more boys than girls are born, baby boys die in so great a proportion that girls are presently in a majority. On the day of his birth a boy has a natural right to expect a life of 41 years, 4 months and 1 week, whereas a girl, according to experience, is likely to live for 44 years, 7 months and a fortnight. Those of either sex who reach the age of 5 have a still greater prospect of living long and usefully than they had before they were 1 year old. Up to that point of time they may be said to be growing younger, in the statistical sense, instead of older; because each year brings them the promise of others in excess of years past. But at the age of 6 their expectation begins to diminish year by year. At 21 the boy is doomed by average to die 38 years and 8 months later, and the girl at a few days short of age 62. The softer sex retains its advantage all the way, and even centenarian women may look forward to living a day or two longer than if they had been centenarian men. Moreover, the women aged 100 will be more than twice, and nearly thrice, the number of equally aged men.

Unsanitary Conditions at Panama and Colon.—Recent information states that Surgeon J. C. Perry, of the Public Health and Marine-Hospital Service, who has been at Colon making a special study of the sanitary conditions on the Isthmus, has submitted an exhaustive preliminary report to Surgeon-General Wyman. He describes the present condition of Colon as unsanitary and unhealthy, and says that its redemption will be an immense task. The climate at the camps along the route of the canal he describes as far superior to that of Colon and Panama, and he says that with proper sanitary regulations the health of their occupants should remain good. "The most common and fatal disease in Colon is malarial fever," says the report, "especially the pernicious forms. This disease exists throughout the year, but is more prevalent and severe during the rainy season. All types of malarial fever are more frequent in Colon than Panama, and the pernicious forms more prevalent. The question now naturally arises: Can Colon be made a healthy town? I think this can be answered in the affirmative; that is, a healthy tropical city. Briefly mentioned, it means filling in the entire island on which the town is built, the installation of a good supply of water and sewerage system, the destruction of the greater number of the buildings now occupied by the negro population and the construction of new houses on sanitary principles and the enforcement of sanitary regulations."

Changed Views on Suicide.—Bentham, writing in the earlier half of the nineteenth century, complained that juries were constantly guilty of perjury when they declared a suicide to have been *non compos* at the time of his decease. The recent verdict upon Whitaker Wright would have seemed to the great jurist to mark a return to ancient candor, however much the announcement that a man had a motive for suicide and died in his senses may startle people today. The verdict of the jury and the coroner's remarks at the inquest on the body of Whitaker Wright should, indeed, serve as a reminder that the law does not necessarily regard suicide as the result of insanity, and that even where it seems to admit insanity, it isolates it in a manner quite contrary to scientific ideas of causation. In cases, for instance, where suicide has closely followed the making of a will, the law has repeatedly refused to invalidate the testament because the testator took his own life shortly after writing it. The notion that a man is out of his senses when he commits suicide really dates from the day when the Church insisted that suicides, as persons guilty of self-murder, should be buried with the utmost ignominy. Lay jurymen in those days, to save their fellow creatures' bodies from disgrace, preferred to suppose that a suicide was insane at the time of death, and therefore irresponsible. The plea of insanity in early times was frankly put forward as a legal fiction, actuated by kindness, and as such was probably freely accepted by individual priests. It is difficult to say exactly when what now seems to be a firmly rooted belief began to prevail that a suicide is out of his senses at the time he puts an end to himself. In the eighteenth century a connection between abnormal mental conditions and suicide appears gradually to have arisen, and in 1788 "self-destruction" and "phrenzy" occur in the same book title as though the one connoted the other.—*The Lancet*.

OBITUARIES.

Franklin Staples, at his home in Winona, Minn., February 22, aged 70; a graduate of the College of Physicians and Surgeons, New York, in 1862; a charter member of the Minnesota State Medical Society, and one time its president. A member of the American Medical Association and vice-president of the Association in 1877. In 1874 he became a member of the State Board of Health of Minnesota and in 1899 was elected its president, in which office he continued to the time of his death. In 1883 he was elected professor of medicine in the medical department of the University of Minnesota, which position he held for some years. He was widely and favorably known in the Northwest.

Ogden Curtis Ludlow, at his home in New York, March 2, from typhoid fever. He was born on Staten Island, and was a graduate from the New York University and the College of the City of New York. He was a member of his County Medical Society, the State Medical Association of New York, and the American Medical Association. He was a member of the Alumni Association of St. Luke's Hospital, and was attending physician to St. Joseph Hospital. He was a Founder of *American Medicine*.

James Madison Laird, at his home in Fayette county, W. Va., February 16, aged 51; a graduate from the University of the City of New York. According to a correspondent, who writes touchingly of the life and character of Dr. Laird, he was truly a doctor of the "Old School," practised widely in the country districts, gave much to charity and was correspondingly loved and revered.

Theodore Yound Kinne, at his home in Paterson, N. J., March 4, of heart disease, aged 64; a graduate of Albany Medical College in 1862. During the latter year he was appointed assistant surgeon of the New York Volunteers. He was twice president of the Paterson Board of Health and widely known in that vicinity.

Howard C. Russell, at the Marine Hospital at Stapleton, Staten Island, March 2; a graduate of the University of Pennsylvania. He was appointed to the Marine-Hospital Service July 1, 1897, and served at different hospitals in the South and on the lake coasts until 1902, when he was transferred to Staten Island.

William Alfred McCorm, at his home in Long Island City, N. Y., February 18; a graduate of the University of Buffalo in 1882. He was formerly superintendent of the Elizabeth, New Jersey, General Hospital.

Clinton Toy, at his home in Mineral, Texas, February 24, aged 38; a graduate of the Memphis Medical College in 1897. For a young man Dr. Toy was widely and favorably known in the community in which he lived.

John M. Minnich, at his home in Wichita, Kan., February 22, aged 62; a graduate of the Cincinnati College of Medicine and Surgery in 1877. A member of the Kansas State Board of Health for a number of years.

Henry Rosenstock, at his home in Philadelphia, February 23, from Bright's disease; a graduate of Jefferson Medical College, Philadelphia, in 1896. He had recently practised in Scranton, Pa.

Adolph Opperman, at his home in Cordell, Okla., February 18, aged 61; a graduate from a German medical school in 1881, and a well-known practitioner in the vicinity in which he lived.

John Dickinson, at his home in Cleveland, Ohio, February 19, aged 70; a graduate of Cleveland Medical College in 1867. He was an army surgeon during the Civil war.

William G. Taylor, at his home in Columbia, Lancaster county, Pa., March 4, aged 58; a graduate of Hahnemann Medical College, Philadelphia, in 1870.

Peterson Bryson Wood, at his home in Baltimore, February 19, aged 44; a graduate of the Columbian University, Washington, D. C., in 1883.

Moses D. Knight, at his home in Clinton, N. J., March 7, of heart disease, aged 71; a graduate of the University of Pennsylvania in 1861.

Thomas Nicholson Drake, at his home in Wilson, N. C., February 13, aged 74; a graduate of the University of Pennsylvania in 1856.

True M. Gould, at his home in Raymond, N. H., February 15, aged 72; a graduate of the Dartmouth Medical College in 1855.

A. L. Pattison, at his home in Plattsburg, N. Y., March 3, aged 76. He was widely and favorably known in northern New York.

E. Graves Kittson, at his home in Hamilton, Ontario, February 4, aged 52; a graduate of McGill University, Montreal, in 1873.

Andre L. Cowles, at his home in Spartansburg, Pa., February 18, aged 60; a graduate of the University of Buffalo in 1892.

Albert A. Hanna, at his home in Baltimore, February 5; a graduate of the University of Maryland, Baltimore, in 1875.

Charles P. Pillsbury, at his home in Duluth, Minn., March 2; a graduate of Hahnemann Medical College, Chicago.

Whipple W. Clark, at his home in Old Fort, N. C., February 15; a graduate of Jefferson Medical College in 1882.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

EXTRAUTERINE PREGNANCY: AN INTERSTITIAL CASE: RUPTURE BY EXAMINATION.

BY

W. L. WALLACE, M.D.,

of Syracuse, N. Y.

Mrs. D., aged 24. I first saw the patient January 5, 1904.

History.—She has one child 3 years old and one 13 months, which nursed until 7 months old, August, 1903, when the mother's breasts dried up. The patient menstruated regularly from the second month, the last time October 30, when the baby was 10 months old; no blood or other discharge since. December 1 she passed over her menstrual time, had much nausea, and thought herself pregnant; she had occasional pains after December 1, and on Christmas day had quite hard pain for a short time, but no tenderness. On December 28, at 5 p.m., there was sudden severe pain located around the navel; this lasted all night, no faintness, patient screamed. A doctor was called, but could find nothing, and concluded that an abortion was threatened. Patient was confined to bed a week by pain and tenderness, but gradually improved. No chill and no bladder or bowel symptoms.

January 5, the patient had been up around the house 2 or 3 days. At 3 a.m. she was awakened by severe pain, which lasted an hour, and was again severe at 7 a.m., and continued so all day.

Her physician saw her during the forenoon, and found general abdominal pain and tenderness; no distention. Temperature, 99°; pulse 80.

At 5 p.m. her physician found great pain, tenderness, and considerable distention. The bowels had moved the previous day. Patient had had much nausea and vomiting all day. Temperature, 99.2°; pulse, 100.

Examination.—I saw the patient at 8 p.m., January 5, 1904, in consultation with Dr. Chaffee.

Her pallor was striking, so that the first thought was hemorrhage from extrauterine pregnancy; however, any prejudice in this direction was dispelled by finding the pulse 80, temperature 98.2°. The abdomen was not distended, and not very tender. A watery discharge was squeezed from the nipples. There was no vaginal discharge.

The uterus was very low, culdesac bulging and very tender. I could feel no mass, and the extreme tenderness fortunately prevented any satisfactory examination.

Diagnosis.—Probable extrauterine pregnancy, in spite of the fact that there had been no irregular bloody vaginal discharge. The patient was sent at once to the Good Shepherd Hospital, in an ambulance, at 9 p.m., for further observation.

January 6, temperature 99° to 100°, pulse 80 to 90. Leukocyte count 10,400. Considerable pain and much tenderness.

January 7, no improvement in the patient's condition, and she was therefore taken to the operating-room at 9.15 a.m. for examination under ether. The uterus was found to be enlarged to the size of a 4 to 6 weeks' pregnancy; no mass could be felt at the side or posteriorly. The uterus was retroverted and at the left.

I replaced the uterus easily, and not finding a mass concluded that we were dealing with an incarcerated pregnant uterus and threatened abortion.

At 9.30 a.m., the patient left the operating-room, pulse 120. At 9.45 a.m., I was called. Pulse was 180, patient perfectly conscious. I watched the patient for 5 minutes while the operating-room was being prepared. The pulse dropped to 140 and therefore I waited 5 minutes longer for preparation of instruments. The pulse became poorer and poorer, but somewhat slower; there was great pallor and air hunger.

At 10 a.m., as the patient was being placed on the table, apparently dead, I punctured the culdesac, as I could not believe that the pulse could keep getting slower with a fatal hemorrhage. Fresh blood gushed from the puncture.

I now rapidly opened the abdomen, without stopping for an anesthetic. Patient was unconscious, and gave no sign of life. The abdomen was full of bright red blood. The hemorrhage was stopped, the abdomen washed out with hot saline solution and while the abdomen was being closed intravenous saline solution was administered. As soon as the hemorrhage was stopped and the hot saline solution started, the pulse returned, and the patient commenced to show signs of pain. A few whiffs of chloroform were then given. Half an hour later the pulse was 140 and it soon fell to 128.

The temperature and pulse stayed high for 3 days, and the patient had headache. The wound healed by first intention, and by the end of a week the patient was in excellent condition.

Now, to return to the conditions found at the operation. There were no adhesions, and no clots were present.

I reached in and pulled up the right tube and ovary. They were normal, and were dropped back. I then reached the left tube and ovary, and was surprised, as they also were normal.

Dropping the left tube and ovary, I reached the uterus and pulled it up into the incision. It was enlarged, as if about 6 weeks pregnant. A ragged rent was found in the right cornu of the uterus, large enough to hold a horse-chestnut. Chorionic villi could be seen in this cavity. The tube itself looked perfectly normal, and was entirely separated from the uterus. An artery coming up at the side of the uterus was pumping a large stream with great force. This artery was tied, and the opening in the uterus was closed, after the ragged edges had been cut out, by an incision which extended down to the uterine mucosa, including an oval 2 in. by 1 in., and nearly 1 in. deep. The fetus was found floating in the blood. It was about 1½ inches long. The uterus was larger than in any other extrauterine case I have seen, and may contain another fetus. This would account for the unusual fact that there was no external hemorrhage before or after the operation.

BOARDS OF HEALTH.¹

BY

G. W. WAGONER, M.D.,

of Johnstown, Pa.

The conservation of the public health is the highest function of municipal government. Trained and educated men are required to pass judgment upon questions bearing upon health. Taken in the rough, a Board of Health might consider its duty performed when it issues edicts concerning the disposal of garbage and the cleaning of back yards, alleys, and waste places. If it compelled the enforcement of its laws relating to filth and looked about upon a tidy city it might feel it was a model board. Yet the mortality of the city might not have been reduced nor infectious diseases prevented.

Board of Health operations are frequently not of the positive value to the public that the extreme importance of the matter demands. And perhaps it will always be so until public opinion and health laws permit an official to enter into the sacred privacy of a home and the still more sacred privileges of a man's habits, in the absence of a distinctively infectious disease, to investigate, condemn, and compel the observance of sanitary laws. Within these individual preserves the seeds of all infectious diseases find the richest soil for development. Until suspected disease can be brought under the law effectively, the people educated to a belief in the necessity of its discovery; and the laws then executed by trained officials, there can be no ideal Board of Health.

Open and exposed filth is offensive to good taste, and indirectly prejudicial to good health, but in the presence of the sun and the air, the great disinfectors and destroyers, it is disarmed of much of its power for harm. It is the secret household, and personal filths which are the factors in disease and these cannot be reached except by education, advanced legislation, rigid enforcement, and trained men of brains to execute the laws.

A Board of Health should be composed of scientific men, or the majority should be such, and the remainder men of broad views, good practical sense and able to see the far-reaching effects of scientific methods of prevention and sanitation. When I say scientific men I mean men of liberal education and special training in all the branches of science which have grown into prominence since the germ theory of disease has been established. Such a board should have no connection directly or indirectly with politics. The terms of office should be long; the object being to make it as nearly permanent as possible. For the needs of each locality would require study and treatment. The health officer, or the executive officer of the board, should be a physician, who, to his medical education, has added special training in hygiene in its broadest sense. He should be paid a sufficient salary to justify him in devoting his entire time to the duties of his office. He should have assistants to attend to the gross duties of the board while his attention is directed to the more serious questions of the discovery of dangerous conditions which might surround localities, houses, or individuals; the prevention of diseases; the collection and classification of statistics, and the preparation of instructions, both to individuals and the general public, how to

prevent diseases and manage the hereditary defects of individuals.

The management of external filth and gross nuisances are merely a question of executive detail. The laws now in force are sufficient to cover almost every case of ordinary nuisance. The powers to isolate and quarantine infectious diseases are ample for a courageous board and health officer, but not distinct enough for weak-kneed officials. The ideal health officer, with a comprehensive knowledge of health regulation can meet all these questions with certainty. But some of the questions, which, in their examination and settlement, encroach upon the personal rights of the individual have not yet been settled by any general law. Take pulmonary tuberculosis for example. This great "White Plague" must be considered an infectious disease. The victim is a source of danger to the public from almost the inception of the disease until its termination in death. What shall be done by a Board of Health to protect the public from danger? Shall the diseased ones be isolated? If so, many of the individuals in civilized communities must be rigorously excluded from society. They must not be allowed to transmit their fatal taint. The healthy ones must be charged with their maintenance. Such an undertaking carried out to its last detail would be impracticable, and beyond the power to enforce of any government based upon the popular will.

Syphilis is another disease the poison of which is disseminated by the unlawful gratification of the irresistible instinct which peoples the earth. This poison vitiates the fountain of life at its source and fastens a curse upon generation after generation. The propositions to control or limit in the slightest degree the spread of this taint are received with horror and contempt by almost all classes of citizens, and yet there is no household so pure that it may not enter therein, no person so saintly that the poison may not be instilled into his veins. The fatal temptation is presented to all, but successful resistance does not protect. The unclean are everywhere and victims are made by the proper association of individuals. Here, too, the ideal Board of Health should stand as an insurmountable barrier to the propagation of this disease, but he is a dream indeed, who thinks for an instant that any power could prevent all the calamities incident to the passions which have for the object the preservation of the species.

In the matter of fighting smallpox and attempting to stamp it out of a community it may be stated as a fact which cannot be controverted: When the methods used by a Board of Health are not in strict accordance with scientific truth, proved and demonstrated in countless investigations and experiments, such methods are deceptive, useless, expensive, creating a false sense of security and are discreditable to the community.

What are the doctrines of science in relation to smallpox? It is unquestionably the chief one of all the infectious diseases. The characteristics of infectious diseases are more highly accentuated in it than in any other. It is intensely infectious. The morbid germ enters the organism from without. This means something more than contagion, when one comes in more or less close contact with a person sick with the infectious disease, and contracts the disease by reason of that contact. It may be that many people think they cannot "take" smallpox unless they come in contact with a smallpox patient. This is one of those mistakes of belief which are almost crimes. The germs of smallpox may, by ignorance and stupidity, be scattered far and wide, and by reason of their persistent vitality be a source of danger for years. They are clinging to any substance. They are volatile and may be wafted through the air for definite distances. It is the failure to recognize these vital points that causes the mysterious development of so many cases of smallpox. The fact of the intensely infectious character of the disease is the central one upon which successful efforts at prevention and suppression must be founded.

The first law is, therefore, evolved: "The poison germ of smallpox must not be removed to another place." Another fact that history has made painfully evident, is that the human race when unprotected is certainly susceptible to smallpox. The exceptions are so few and uncertain that they need not

¹ Read before the Cambria County Medical Society, December, 1908.

considered. In 1766, Dr. Brooke, an old-time medical authority of England, wrote: "Smallpox has been for ages, and continues to be, the terror and destroyer of a great part of mankind. In the ordinary course and duration of human life scarce one in a thousand escapes the smallpox." But science has demonstrated to the satisfaction of normal minds that by the practice of proper vaccination the susceptibility of any individual to smallpox may be positively destroyed.

It is not my purpose to argue the question of vaccination. I am striving only to state facts. The second law is, therefore, laid down by science.

"By vaccination and revaccination the predisposition to smallpox in the human race may be again and again destroyed."

Upon the recognition and enforcement of these 2 laws depends the control of this most loathsome and dangerous disease.

Isolation of those having the disease and also of those suspected of having it is the first step in the fulfilment of the first law.

Isolation that is complete, certain and continuous for both classes.

Isolation cannot be complete, certain and continuous in the houses of smallpox patients. There are so many opportunities—so many chances to break through the imaginary wall of isolation, that the inmates of the house will violate the law. All means so far tried of isolating patients in their homes have been failures. If the Board of Health undertaking the supervision of the isolation is perfunctory in its methods the attempt is ridiculous, costly, and often beneath the contempt of scientific men.

Isolation should be carried out in a properly constructed municipal hospital having accommodations for all classes of people, and under scientific control. To such a hospital all cases, without exception, should be taken. The safety of the community is of more importance than the personal pride or feelings of any individual. All patients should remain until absolutely free from poison germs and until repeatedly disinfecting, whether that time be 1, 2, or 3 months.

The suspected cases should also be taken to a department of the hospital away from the danger of smallpox, where they can be safely kept, observed and treated until the nature of the case is determined, when they may be released or transferred to the smallpox wards if necessary.

If these 2 classes of patients were promptly removed from their home surroundings, and those remaining in the house were immediately vaccinated and revaccinated, a quarantine under guard established for a period of safety, and the house then thoroughly cleaned and disinfected, the foci of infection would be speedily destroyed. As to disinfection it should be understood that the simple evolution of an indefinite quantity of formaldehyd gas and the closure of the room for a few hours is a delusion and a farce. Such disinfection destroys nothing—purifies nothing. When we read of the disinfection of a room one evening and its occupancy the next morning, we laugh at the silly blunders made in the name of science.

Cleansing and disinfecting a room or a house is a serious matter, and should not be left to the immature judgment of a novice.

I do not propose to describe the proper technic of disinfecting rooms and houses further than to say the vapors of chlorin, sulfur or formalin must be retained in the apartments for at least 24 hours; after fumigation the rooms should be exposed to the air and sunlight for 3 or 4 days. The wall paper should be removed and replaced, or the walls and ceilings rubbed off, and then painted or papered; the floor, woodwork, and furniture washed down with hot carbolic acid solution. All the debris from the rooms burned, and all closets, chests, and dark corners opened up, cleaned out, disinfected, and aired. All this means intelligent work, but by such work the community is protected.

In fulfilment of the second law vaccination and revaccination should be compulsory in the most comprehensive meaning of the term.

In the light of these principles I ask, Are we safeguarding the public against smallpox? I answer, No. I say this in dis-

tinctive condemnation of no one or of no methods used; for those striving to control the situation are evidently working up to the limits of their resources. If condemnation is due any one, it justly falls upon the scientific physicians of any city, who, knowing these facts, have failed to proclaim them to the people and thereby develop such a public sentiment as would compel the adoption of scientific methods in the management of the filthy disease. I appeal to you all, that you do proclaim and defend the truths of your science until money and power are forthcoming for the preservation of the public health. With these essentials gained the execution of scientific sanitary methods will immediately follow, and the disgraceful disease be driven from us.

If the government is to regulate the public health and suppress disease, the examples cited will indicate what an enormous job it has undertaken. They also indicate that the power of a Board of Health should only be limited by the laws of science and the intelligent discretion of the board in matters of public health and hygiene.

For a Board of Health to be efficient, practical, and able to accomplish the work for which it is organized it should not depend upon the direct cooperation of any one. I mean that it should be so well organized, have such resources at its command, and employes at its disposal, that all the work could be done by its own people.

The practice of depending upon physicians to report all infectious diseases and other matters coming under the authority of the board, is not a good one, for the reason that the results are very imperfect. While physicians may appreciate the necessity of making such reports there are many reasons operating to cause them to neglect the duty. As a consequence, a small proportion of the milder type of infectious diseases is not reported, and such cases are most dangerous to the public. The duty of reporting cases should not be imposed upon medical men alone. The information is wanted for the public, and the public should provide means to get it at its own expense. I think the health officer should be charged with the duty of getting all the facts concerning each case of infectious disease, and not the physician. All that should be required of the physician should be a statement that, in a particular house there is a case of infectious disease, giving the diagnosis, then the health officer should ascertain the facts and attend to all details that concern the public interests. He should be required to visit each physician at short intervals to receive reports and other proper information. By such a plan the responsibility and authority would be concentrated in the Board of Health where they belong, and the physician freed from an annoyance which he should not be compelled to endure.

A board working upon such a basis and with all the duties and authority concentrated in it instead of being diffused over an indefinite number of persons could control epidemics and gather material for statistics and conclusions which would be valuable. Under the present system such statistics are without value and cannot be taken as the final factors in determining the origin, development, and progress of a disease.

This plan may be elaborated to meet all the conditions under which a modern Board of Health could act, and I believe it would increase its usefulness. It would entail an increased cost for maintenance, but the results shown in public health, cleanliness, decency, and the stamping out of infectious diseases would justify the increased expenditure of money and the conferring of unlimited power, within well-defined limits, upon a scientific Board of Health.

Paraphrasing the old motto, I present the following as the rule of action for Boards of Health:

"Eternal inspection is the price of Public Health!"

REFERENCES.

Varicella, Varicella, etc.: Nothnagel's Encyclopedia of Practical Medicine.
Principles of Sanitary Science and the Public Health: Sedgwick.

Beneficence from Private Sources.—Mr. J. Ogden Armour has given \$250,000 to the Armour Institute of Technology for an athletic field. Mr. John A. Creighton has given a further sum of about \$250,000 to Creighton University, a Catholic institution at Omaha, Neb. Lord Strathcona has given \$20,000 to Manitoba University to extend its scientific work.

A NOTE ON CEREBROSPINAL SYMPTOMS IN INFECTIOUS DISEASES APROPOS OF A CASE OF TYPHOID FEVER.¹

BY

ALFRED GORDON, M.D.,

of Philadelphia.

Instructor in Nervous Diseases, Jefferson Medical College; Assistant Visiting Neurologist to Philadelphia Hospital; Neurologist to Douglass Memorial Hospital.

During a very long time there was a belief that each organ lived separately from the rest of the body and that the suffering of one organ had no influence on others. An entirely different view is held now; there is a unity and solidarity among various parts of the living organisms; when one organ is affected, the entire system suffers. A bacillus, typhoid for example, produces a local focus of infection in the intestines, but the toxins circulating in the vascular system will have an influence on the whole economy by means of their chemic combinations with Ehrlich's lateral chains of the cells. The characteristic feature of toxic agents is that each has a special affinity for certain protoplasmic molecules and cells of certain organs. An infectious agent will attack by preference a certain organ primarily, but the poisons secreted by it will show their secondary effect throughout the entire system.

The nervous system, generally speaking, presents a feeble organic resistance to toxic products. It is, therefore, very frequently affected in infectious diseases, but the character of the involvement of the nervous system is not always the same. While in some cases the infectious agent or its toxins produce profound and unalterable changes, in others its effect shows itself only in *transient* circulatory changes. The latter may, however, be sufficiently pronounced to present clinical phenomena indicating disturbed functions of certain centers. Owing to the fact that the changes of the nervous system are dependent upon the localization of the infectious element, it is readily understood that all possible forms of cerebral or spinal diseases are met. There are, however, certain forms which are frequent, and others that are very rare. General symptoms pointing to an involvement of the meninges of the brain are of frequent occurrence. Delirium, stupor, and general prostration also belong to the frequent complications. The peripheral neuron in whole, or in part, suffers not infrequently in infectious diseases; anterior poliomyelitis, transverse myelitis, and multiple neuritis are the forms we meet now and then. Hemiplegia, however, occurs mostly in childhood, more rarely in adults. Symptoms pointing to an involvement of cerebral ganglions or of special centers of the brain are not frequent. Such cases have been reported, but they are comparatively few.

It is difficult to find the proper reason for the fact that while symptoms of organic diseases of the brain are rare, symptoms of involvement of the meninges are frequent. A still greater difficulty one finds when an explanation is sought to determine the cause of *transient* forms of organic diseases of the cerebrospinal system. That an infectious agent or its products are liable to injure permanently a certain portion of the cerebrospinal system and produce secondary degenerative processes is a matter easily conceived; but the disappearance of a genuine hemiplegia or other paralysis without any consequences is certainly unusual and difficult to explain. However, the conception of a localized meningitis is sufficient most of the time to explain the nervous phenomena observed in infectious diseases. The absence, postmortem, of inflammatory processes in centers of the nervous system in those cases which presented *ad vitam*, *transient* symptoms of nervous diseases, does not exclude the possibility of a localized meningitis in a great many cases. The existence of serous meningitis and of curable meningitis is proved beyond doubt.

The most recent investigations of the nature and of the chemic composition of the cerebrospinal fluid in meningitis are of very great importance for diagnostic purposes. The studies of this fluid, and especially its cytology, have shown

conclusively that between the very favorable cases and the fatal ones there are various degrees of meningitis. This circumstance gives us a key to understand why in some cases the nervous phenomena are multiple and at the same time transitory in character.

The case I am about to report offers a peculiarity from the latter standpoint. The symptoms were multiple, and pointed to a grave involvement of both the brain and the spinal cord. The association of the symptoms was quite unusual, as in the literature at my disposal I could not find a similar case. Finally, the peculiarity of the case lies in the transitory character of the apparently grave symptoms.

The history of the case is as follows:

G. W., colored, aged 17, was admitted to the Douglass Memorial Hospital, November 17, 1902. The data regarding the onset of his illness before his admission, the examination on admission and the subsequent course of the disease corroborated by a positive Widal test, proved that he was suffering from a typical, but uncomplicated case of typhoid fever. On the day of his admission his temperature was 102° F. A few days before he was brought to the hospital, the relatives said that he lost suddenly his speech and was unable to stand and walk. The patient came under my observation 10 days after admission, and these are the symptoms I found: Total motor aphasia, agraphia, and word-blindness, but no aphonia; right hemiplegia, including the face, but the motor paralysis was not much pronounced; slight hyperesthesia of all forms of sensations on the same side; rigidity in both lower extremities with ankle-clonus, greatly exaggerated patellar tendon-reflexes and Babinski sign on both sides. The patient was unable to stand unsupported or to walk. There was also incontinence of urine and feces. The total absence of hysteric stigmata and the previous history of the patient made me reject the possibility of a functional nervous disturbance.

At the time the examination was made the patient entered into convalescence of his original disease. In view of the multiplicity of the symptoms out of proportion with the patient's general condition, I made a favorable prognosis. The patient gradually improved and made an uneventful recovery. He left the hospital in perfect health.

The case appeared to me to be of sufficient interest to warrant me reporting it. The great number of symptoms pointing to grave cerebral and spinal lesions developed in the course of typhoid fever, and having disappeared with the recovery from the latter disease, appear to me to be very instructive for the following reasons:

1. An apparently mild case of typhoid fever without any complication in other viscera may affect the whole cerebrospinal system simultaneously.
2. The nervous symptoms may be very much pronounced and multiple in spite of the mildness of the original disease.
3. These multiple and marked organic nervous symptoms may be out of proportion with the general conditions of the patient, as generally speaking, we know that the more the infectious disease is pronounced in its course, the more profound is the toxemia and the more symptoms of complications may be expected.
4. The prognosis is usually favorable in cases in which this *disproportion* is present, as these apparently alarming symptoms are only transitory in character.

The case is also unusual from this point of view, that if aphasia and hemiplegia in the course of typhoid fever were rarely observed, agraphia and word-blindness to my knowledge were not reported.

Contract Surgeons in the U. S. Army to be Abolished.—A bill which has been recently introduced in Congress, and which will probably become a law, provides that in place of the body of contract surgeons, a "medical reserve corps" shall be created. The President is authorized to issue commissions as first lieutenants in this corps to graduates of reputable schools of medicine, who are properly qualified. Contract surgeons now in the military service, if recommended by the surgeon-general, are eligible without further examination. The holder of a commission in the medical reserve corps is to have the authority, rights and privileges of a commissioned officer of the same grade in the regular medical corps, except as regards promotions, during the time he is actually called into active duty. The pay and allowances of first lieutenants of the medical corps shall be given to them for the same period. The system is made flexible by a clause providing that no officer of the medical reserve corps shall be ordered into active duty, if he is unwilling to accept such service, and by another clause which permits such officers to serve with the militia or volunteers, or in any other capacity under the national Government.

¹ Read before the Philadelphia County Medical Society, February 24, 1904.

ORIGINAL ARTICLES

THE MODERN PHARMACOLOGY OF IRON.¹

BY

REYNOLD WEBB WILCOX, M.D., LL.D.,

of New York City.

Professor of Medicine at the New York Postgraduate Medical School and Hospital; Physician to St. Mark's Hospital.

The modern pharmacology of iron dates from the time when the questions of source, form, absorption and disposal were studied under the auspices of scientific methods of research. Since this metal is essential to the life of many, and probably of all, forms of protoplasm, the question is important. To be sure, in the vertebrates, most of the iron is contained in the hemoglobin of the blood, yet it is by no means confined to the red blood cells, for in 1886 St. Szcz. Zaleski discovered iron-bearing bodies in the tissues of the body. This statement was confirmed by Woltering and Spitzer, who showed the existence of these bodies in the testicles and spleen. Later, iron-bearing bodies were isolated by Schmiedeberg from the liver, and by Bunge from the yolk of an egg. To Dartre and Floresco belong the credit of showing that the iron in the food and the iron in the tissues were interchangeable. Inasmuch as under ordinary circumstances the growing vertebrate obtains sufficient iron from his food for the rapid increase in the bulk of his blood and the proportionate augmentation of his hemoglobin, this result was *a priori* the expected one. In great measure, confirmatory of this was the observation of Leichtenstern that iron-bearing food caused an increase of iron in both the blood and the tissues of the human being. About the time of Zaleski's report, Naunyn and Minkowski showed that iron is retained in the liver in the form of iron-bearing pigments and proteids. The practical contributions to iron therapy were based on the statement of Hammarsten, that the addition of iron to the food exercised a great influence upon the number of red blood cells and their hemoglobin content, and the studies of Quincke and Hochhaus, who showed the exact course of iron after its absorption from the duodenum. Practically all authoritative opinion is voiced by Schmiedeberg, who states that iron as it exists in the food is undoubtedly the blood-forming combination.

The next step was to determine in what form iron exists in the food. Practical investigations demonstrate that inorganic iron when it comes into contact with the hydrochloric acid of the gastric juice is converted into iron chlorid, which, by coagulating the superficial layer of the gastric mucous membranes, produces dyspeptic symptoms. Such conditions experimentally produced show on microscopic examination a congestion and swelling of the mucous membrane with its surface covered by a coagulum composed of necrosed cells and inflammatory exudate. Among the reasons for the avoidance of inorganic iron to supply the iron for the hemoglobin of the red blood cells, it is not necessary to include Bunge's now long-ago exploded hypothesis. Schmiedeberg presents the consensus of opinion of workers in experimental therapeutics when he states that inorganic iron is not only inadequately absorbed to meet the demands of the body for iron in disease, but that the disturbances of digestion resulting from irritation to the gastric mucous membrane from prolonged use counterindicate it.

Evidently, modern iron therapy is based on the administration of an iron compound which shall be chemically identical with that existing in the food, namely, an organic iron. Here the term "organic" is used in a special significance. It does not refer to the combination to which the iron is attached, but rather to

the method of attachment. For instance, iron acetate must be considered an inorganic iron because it can be dissociated and the iron precipitated by ammonium sulfid. In the modern use of the term as applied to iron, "organic" should be considered obsolete and "masked" substituted.

At first sight hemoglobin, when administered by the mouth, would seem to be a proper organic iron for exhibition in anemia and allied conditions. As a matter of fact, Cloetta as early as 1896 showed that it is not absorbed as such, but is destroyed so soon as it enters the stomach. With this the theory of the advantage of blood, or products made from blood, for oral administration, falls. The crucial test for the actual organic or masked iron preparation, is that advanced by MacCallum. Briefly, a small quantity of $\frac{1}{2}$ of 1% solution of hematoxylin is added to the iron compound to be tested. If the iron is inorganic, a characteristic blue-black color is produced; if the iron is organic or masked, no color reaction results. That many so-called organic iron compounds are practically only combinations of iron salts with albuminoids is readily demonstrated by the addition to them of a few drops of a silver nitrate solution, which will cause a precipitation of these albuminoids. Gottlieb claims for organic iron that it is not astringent, does not disturb digestion, is more easily assimilated, and is in the complex form required by the blood and tissues. In determining the form of masked or organic iron for oral administration, one should be selected which (1) should be of definite chemie composition; (2) does not precipitate with a silver nitrate solution; (3) does not give the blue-black color with MacCallum's test; (4) is not decomposed by the hydrochloric acid of the gastric juice; and (5) it must show definite results in (a) an increase in the number of red blood-corpuscles and (b) in the amount of contained hemoglobin. These requirements are evidently the most rigorous which can be devised, and in meeting them modern iron therapy will be placed upon a secure foundation.

ALOPECIA AREATA.¹

BY

FREDERICK H. DILLINGHAM, A.M., M.D.,

of New York City.

Adjunct Professor of Dermatology, New York Polyclinic; late Assistant Sanitary Superintendent, Department of Health, City of New York.

The term alopecia areata should only be used to designate a disease, in which the hair falls out in one or more patches which increase in size by spreading at the periphery and leave a perfectly bald area, without any apparent inflammation of the skin. It is one of the less frequent diseases and is met in all walks of life; both sexes and all ages are affected, but it is not so common before 5 or after 40.

Those in perfect health are usually attacked; it may begin insidiously or suddenly, and is confined to the scalp in a majority of cases, although the beard, eyebrows, axilla, pubes, and other hairy parts of the body may be involved. In a few cases, there is a slight burning or itching when the hair begins to fall but, as a rule, a bald spot is noticed on the scalp, without any warning or premonitory symptoms; at first there is usually only one spot, and it may have existed several days before it was large enough to be noticed. Sometimes the hair will fall suddenly, and in the morning a handful of loose hair will be found on the pillow, or it will come out while it is being combed. The patches vary in size, from $\frac{1}{2}$ inch to 2 inches and larger, and are round or oval in shape, but may be irregular, from several patches coalescing or because the disease has stopped spreading in one part.

¹ Read before the Medical Society of the State of New York at its ninety-eighth annual session at Albany, January 26, 27, and 28, 1904.

¹ Read before the Clinical Society of the New York Polyclinic Medical School and Hospital, November 2, 1903.

The hair often falls out rapidly at first and then more slowly, but the patch always increases in size by spreading at the periphery. After a while the hairs may stop falling and the patch remain stationary for some time, then new hairs may appear or the baldness continue; sometimes, however, the hair will commence falling again.

New hairs may appear at the margin, or small fine lanugo hairs will be seen in the patch; these last will often grow to a half inch in length and then fall out, and the process may be repeated several times; again, they will grow stronger and become pigmented, or be replaced by larger hairs with the normal pigment.

The hair sometimes comes in gray and may remain so, but usually becomes pigmented. While this process is going on, new patches are usually appearing and they may coalesce so that finally the whole scalp is devoid of hair.

A few months ago I saw a girl of 8, on whose scalp not a hair was to be seen, except a small tuft about 1½ inches in diameter on the occipital region. Her mother said the disease commenced suddenly, without any premonitory symptoms; first one spot was noticed, then others, all of which increased in size by spreading at the periphery and coalescing until the condition described, which had lasted 6 months, resulted.

Chrysarobin, 2.6 gm. (40 gr.) to 32 gm. (1 oz.) of vaselin, was rubbed in thoroughly every night for 2 weeks; as the alopecia covered so large an area it was applied only to half the scalp one night and to the other half the next. After the chrysarobin was discontinued, precipitated sulfur, 4 gm. (1 dr.), to 32 gm. (1 oz.) of vaselin was rubbed in both night and morning. During the 5 months she was under treatment it was found necessary to repeat the use of the chrysarobin for 4 or 5 periods of a week each in certain areas.

At first, fine white lanugo hairs appeared; these, as a rule, fell out, and were replaced by hairs with the proper pigment.

Recovery was complete, but slow on account of the length of time the disease had lasted before beginning proper treatment. The last time I saw her, no one would know that she had ever suffered from the disease.

In very favorable cases the disease stops after 2 or 3 patches are formed, and new hairs appear either at the margin, or in the bald area; other cases proceed very slowly, taking months before the scalp is denuded; or it extends rapidly over the whole body, so that in a very short time all the hair falls out.

When the disease is progressing, the hair at the margin is thinner, loose, and falls out with atrophied shrunken roots, which Crocker describes as "exclamation points." In some cases there are a few scanty or straggling hairs in the patch affected, but they soon fall out; sometimes a few loose broken-off hairs, resembling those seen in ringworm, may be seen at the margin.

The skin shows no signs of inflammation, and is smooth, shiny, thinner and whiter than normal, slightly depressed, and free from desquamation. If the disease has lasted some time the follicles are to a great extent shrunken so they are scarcely noticed. In recent cases the depression is due to the absence of hair and diminished blood supply, and not to loss of fat, as believed by Michelson; later in the disease, however, there is destruction of sebaceous glands and hair follicles. New spots will often be seen when the disease is apparently disappearing or cured.

A less frequent variety of the disease is when the hair falls out around the border of the scalp, forming a band, which in adults is apt to be more stubborn in responding to treatment.

I expected to be able to show an example of this with this paper, when read.

The woman, aged 34, noticed 3 months ago that the hair commenced to fall out in several spots near the margin of the hair; these spots increased in size by spreading at the periphery; they coalesced, and finally formed a band which extended around the entire border of the scalp.

While this process was going on, 3 small patches appeared on top of the head; there were no premonitory symptoms, and the alopecia was the first thing noticed.

When she was first seen all the spots were smooth, white, shiny, slightly depressed, and not a single hair was apparent; the hairs at the margin were loose, and could be easily extracted.

She was given 2.6 gm. (40 gr.) of chrysarobin to 32 gm. (1 oz.) of vaselin to rub in both night and morning for a week, when the skin became a light mahogany color; it was then discontinued, and a preparation consisting of 4 gm. (1 dr.) of precipitated sulfur to 32 gm. (1 oz.) of vaselin used.

After 10 days it was found that the hair at the margin of part of the area was still falling out, although fine lanugo hairs were appearing in the patches; the chrysarobin was continued for another week, and then the sulfur used. The last time I saw her the disease had stopped spreading, and new hairs were present in all the areas of the alopecia.

The man whom I present to you shows that the disease does not always appear first on the scalp. Six months ago he noticed the hair had entirely fallen out in a small spot on the left side of his beard, and later 3 or 4 other spots appeared; these increased in size by spreading at the periphery, until all the hairs of his beard had fallen out, with the exception of a small tuft ½ in. by ½ in. near the right angle of the mouth. There were no premonitory symptoms.

While this was progressing a small spot was noticed on the scalp over the right parietal bone, which increased in size until it was about 2 inches in diameter; there is another patch, a little smaller, close to this.

Two months ago, when he began treatment, all these spots were white, shiny, apparently slightly depressed, without any signs of inflammation, and entirely devoid of hair.

The small spot about a half inch in diameter over the left parietal bone appeared since he has been under treatment.

On the scalp the hair has stopped falling out, and fine lanugo hairs are present in all the patches. The same condition is seen on the face, except that there are no hairs on an area in the left side of the face about a half inch in diameter.

Particular attention must be paid to the treatment of this area, and there is no doubt but that we can promise him a complete cure.

On the scalp chrysarobin 2 gm. (30 gr.) to 32 gm. (1 oz.) of vaselin was rubbed in thoroughly twice a day; but it had to be gradually increased to 6 gm. (90 gr.) before the desired dermatitis resulted, and the disease stopped progressing. He is now using 4 gm. (1 dr.) of precipitated sulfur to 32 gm. (1 oz.) of vaselin.

On the face it was not advisable to use chrysarobin, and he was given 1 gm. (1½ gr.) of mercuric chlorid in 30 cc. (1 oz.) of alcohol to rub in every night and morning.

There has been a great difference of opinion as to the etiology, some claiming it to be a trophoneurosis, and others parasitic, and again differing as to whether it is contagious or not.

Twenty years ago it was pretty generally considered a trophoneurosis, but gradually the opinion has been changing, and now the majority believe it parasitic, although the other theory still has some strong supporters.

One difficulty has been that the fact has been ignored that patches of baldness may occur with many conditions of the skin, and simply because an area is devoid of hair it should not be called alopecia areata.

Those who claim the disease to be a neurosis, lay stress on the experiments of Max Josephs, who produced baldness in patches upon the ears of rabbits and cats by section of the second cervical nerve near the intervertebral ganglion.

Samuel repeated the experiments and produced an area of baldness, but found there was always an infiltration about the wound, and the hair began to grow when the infiltration subsided. Similar experiments have been made by others with varying results.

There is no question but that there are a number of cases of alopecia occurring as the result of shock or injury to a nerve, but the patches, as a rule, are irregular in shape, and there is not the definite clinical history that we should have in alopecia areata, although they are diagnosed as such by most dermatologists. If these cases were eliminated, as they should be, and classed as "alopecia neurotica," the etiology would not be so much in dispute.

From the clinical evidence there is no question in my opinion but that the disease is parasitic and slightly contagious under favorable circumstances.

If it were neurotic, it would be more common, and would not be so likely to occur principally among those who are strong and healthy and do not show any other neurosis.

The manner of spreading at the periphery, the inflammatory process in the corium, the fact that the loss of

hair does not follow a nerve distribution, and the number of epidemics reported, are decidedly in favor of its parasitic origin. Beside, a portion of a patch may be treated locally and the disease will stop in that area, while it continues to progress in the part not treated.

Although the theory that the disease is parasitic is now pretty generally accepted, there are still some who doubt that it is contagious, although it is generally so recognized in France, and the belief is spreading in other countries.

Many epidemics have been reported, especially in France, occurring in regiments, schools, etc., which in many cases have been ascribed to the use of brushes and hair clippers; also to hat bands, when the same hats have been worn indiscriminately. A number of cases have also been reported in which there is strong evidence that the disease has been communicated.

Hillier reports an epidemic in a parochial school of 1,100 boys and girls; 1 girl had the disease for some time, and then 43 girls, ranging from 7 to 19 years of age, who were associated with her, were suddenly affected.

Ehrenhaft reports an epidemic in an asylum, and Eichoff had 10 patients who were customers of the same barber.

Crocker had 3 cases in which the disease was attributed to wearing hired masks in theatricals; and Feulard, a patient who developed the disease after wearing a mask which a brother suffering from the disease had worn; Morrow, the case of a woman who wore for some time the cap of her brother, who had the disease, and she became affected with it.

Crocker had 8 children in one family with the disease, and after some time the governess noted three bald spots in her hair and consulted her physician, who made a diagnosis of alopecia areata, but told her it was not contagious. She slept with an adult sister, who also contracted the disease. Montgomery had a boy suffering with alopecia areata, and later three younger members of the family were attacked.

Feulard reported, at the Dermatological Congress of 1902, that during the 10 months ending May, 1902, there was an average of 3.3 men affected with alopecia areata out of every 1,000 in the army, and that the number was greater in the larger centers, being 10.6 in Paris. In this country very few epidemics have been reported. Bowen reported an epidemic in which 63 out of 69 girls in a school in Boston were affected.

In some of the reported cases the question may be asked if the diagnosis was correct, but there cannot be much doubt in most of them, if made by skilled dermatologists and the patients carefully examined.

A number of different organisms have been found, but so far none of them has been proved to be the cause of the disease, and all have failed to reproduce it.

There is opportunity to mention only a few. Bazin, in 1862, attributed the disease to an organism, which he called *Microsporon decalvans*.

T. Fox, in 1874, described a fungus composed of very delicate, waxy, mycelial threads. Thin, in 1881, described another fungus, as minute, round or elongated bodies arranged in pairs in the long axis of the hair, which he called *Bacterium decalvans*. Von Sehlen, in 1883, found micrococci in the hair follicle, which were usually seen just above the mouth of the sebaceous gland, although in a few instances, as far down as the papillas.

Robinson, who has made one of the most exhaustive studies of the subject, found cocci in masses and rows, chiefly in the lymph spaces of the corium and in the walls of a few of the bloodvessels; also in the root sheaths of the hair around the affected area. Most of them were present in the middle part of the corium and a few in the papillas.

Sabouraud claims that it is the same bacillus that is found in seborrhea; but the same organism is also found in comedones acne, and although it may be present, it is

no proof that it causes the disease; if so, the disease ought to be much more common. Beside, he claims that it only occurs after puberty, a theory that does not explain the many cases among children.

Crocker believes the disease is related to ringworm, and Hutchinson claims that it is a sort of modified ringworm, in adults occurring subsequent to an attack of ringworm in childhood.

We have many cases of alopecia following ringworm, which are not cases of alopecia areata, and beside, ringworm is such a common disease that if it should occur, it is no proof that it is the cause. We should remember that ringworm and alopecia areata may exist on the scalp at the same time.

Vaillard and Vincent investigated cases from an epidemic affecting 41 soldiers and found micrococci which were closely allied with pyogenic *Staphylococcus albus*.

Roberts suggests that we have 3 organisms: 1. Bacillary alopecia (Sabouraud). 2. Coccogenous alopecia (Robinson, Vaillard, and Vincent). 3. Tricophylic alopecia (Crocker, Hutchinson).

Pathology.—According to Robinson and others, there is an inflammatory process affecting the corium and only slightly the papillary layer, with a round-cell infiltration principally confined to the perivascular system, and an increase in the connective tissue corpuscles of the part. In recent cases only the hair follicles are affected, but in the older ones there is a degeneration, and sometimes entire destruction, of the sebaceous glands. There is a coagulation of lymph in a number of the lymph vessels, and coagulated fibrin in some of the arteries, with thickening of the bloodvessel walls in the more advanced cases. Some of the arteries contain thrombi. Instead of the normal death of the hair, there is a sudden arrest of nutrition which causes the atrophy.

The disease with which it is most likely to be confused is ringworm of the scalp, in which the skin is inflamed, and in old cases there is more or less desquamation; the baldness is not complete, and the follicular openings are rather prominent, instead of being less conspicuous than normal, beside there are the characteristic short broken-off hairs with split ends; the attack is not so sudden, it spreads more slowly, and the scalp is rarely affected in adults.

In doubtful cases the microscope will decide, as in alopecia areata there are distinct signs of atrophy of the hair, and the ringworm fungus is not found.

The bald type of ringworm will give more difficulty, but the microscope and history of the case will usually settle the question.

In favus the history, characteristic odor, and yellowish crusts, incomplete baldness, inflammatory symptoms, irregular patch, and its atrophic character when the crust is removed, should obviate trouble in the diagnosis. The microscope will show the favus fungus in the scabs, crusts, and hairs.

Folliculitis decalvans spreads in an irregular manner, and there are signs of folliculitis with scar tissue.

In lupus erythematosus there is a cicatricial follicular destruction, and a slight inflammatory process.

Alopecia following seborrheal eczema shows signs of that disease, and there is not the smooth bald surface seen in alopecia areata, beside the history will aid in the diagnosis.

Syphilis causes a general thinning of the hair, and there will be other signs of the disease beside the history.

Vitiligo is an affection of the pigment without loss of hair.

Alopecia from röntgen rays: the diagnosis can be made from the history.

Bald areas on the scalp following abscesses should not occasion trouble.

The prognosis is almost always good, provided the disease has not lasted long enough to destroy the hair follicles; it is not as favorable, however, in a patient over

45. If there are only a few patches, and the disease has not progressed rapidly, it is better than when more extensive, especially if it has extended to other parts of the body.

When the occipital portion of the scalp is affected, recovery is slower, and the result is apt to be not so good, as the hair follicles are smaller. One of the patients which I show to you illustrates this:

The boy aged 11, noticed 5 months ago a small area of alopecia on the occipital portion of the scalp, which increased in size until it was about 2 by 2½ inches, a little later another appeared over the left parietal region, which is a little smaller. There were no premonitory symptoms, and when he came under treatment about 2 months ago, there were the characteristic signs of alopecia areata.

Chrysarobin 2 gm. (30 gr.) to 32 gm. (1 oz.) of vaselin was prescribed, but the desired effect was not produced until it was increased to 6 gm. (90 gr.) and this was rubbed in thoroughly every night for a week. It was then discontinued, and precipitated sulf. 4 gm. (1 dr.) to 32 gm. (1 oz.) of vaselin prescribed. After a short time it was found necessary to use the chrysarobin again for a week, when the hair ceased to fall out, and fine lanugo hairs can be seen over both patches, those over the occipital portion not being so strong. He is now using the sulfur preparation, and there is no reason why he should not have a perfect result.

The time the disease has lasted, and the number of downy hairs that have appeared, should be considered.

If a patient has been properly treated for 2 months, and there are no lanugo hairs, the chances are that the hair follicles have been destroyed, and there will be permanent alopecia. It is not unusual to have a recurrence of the disease.

Those, who believe in the neurotic origin of the disease, rely to a great extent upon constitutional treatment, and a number of drugs have been recommended. Duhring and others speak very highly of arsenic, but I have never seen any benefit from its use.

As we consider it parasitic, we depend upon external treatment; however if there is any defective condition of the general health, it should be corrected as in any other skin disease; but aside from this, internal treatment is useless.

The patient should have his own towel, brush and comb. Shaving the head is advocated by some, but the patient is apt to object, and the only advantage is, that it may enable us sooner to discover new lesions; if however, there are a number of patches and the disease is spreading rapidly it is often advisable to cut the hair short.

The loose hairs at the margin should be extracted, as they will fall out anyway, and application can then be better made to the part where the disease is most active. This can be done by taking the hair between the fingers and pulling gently, the loose hairs will come out without causing any pain, leaving the healthy ones.

It is always well to explain to the patient on commencing treatment that the hair will fall out more rapidly at first, as a number of atrophied hairs will come out sooner than if left to themselves.

The skin in the affected patch will stand a stronger application than the surrounding area, and the application should be made beyond what appears to be affected.

Among the large number of drugs that have been recommended are chrysarobin, croton oil, oil of turpentine, oil of cinnamon, carbolic acid, sulfur, pilocarpin, mercury, and lactic acid.

Röntgen rays, Finnsen rays, and radium, have been used, and in many cases have given good results, but the length of time required for the treatment and the cost to the patient are serious objections.

Chrysarobin will give the best results in most of the cases. The patient must be cautioned not to get it in the eyes and it should not be used on the face or over too large a surface at one time. One objection is the discoloration of the skin produced, which extends outside the area to which it is applied. This can be modified by dissolving the chrysarobin in liq. gutta perchæ and then painting on the

patch, but the results are not so good as when used with vaselin. The strength varies from 1.3 gm. (20 gr.) to 8 gm. (2 dr.) to 32 gm. (1 oz.), and depends on the age of the patient and the sensibility of the skin. Children and light complexioned persons require a weaker preparation, and it is well not to use it too strong at first.

The different preparations of chrysarobin vary in strength, so it is necessary to depend on the result obtained, which should be a mild dermatitis, in order to get the benefit of the emigration of the white blood-corpuscles into the lymphatics and destruction of the organisms.

The preparation should be rubbed in thoroughly with considerable friction every night for a week and then discontinued in order to ascertain whether the disease is still progressing.

In chronic cases it may be necessary to use 25% or 50% of croton oil with olive oil, or the surface may be painted with pure carbolic acid, as recommended by Bulkley.

After the disease has stopped spreading, precipitated sulfur 4 gm. to 8 gm. (1 dr. to 2 dr.) to 32 gm. (1 oz.) of vaselin may be rubbed in, and the scalp watched to see whether new patches appear or the hair falls out again in the old ones. If it does or new hairs do not appear, the chrysarobin should be again applied and the same process repeated.

On the face chrysarobin should not be used and in many cases ungt. hydrarg. ammon. or hydrarg. bichlor. .065 gm. to .13 gm. (1 gr. to 2 gr.) to 30 cc. of alcohol gives very good results.

One of the following prescriptions may be rubbed in thoroughly once or twice daily to bring an increased blood supply to the part, which will aid in the nutrition and growth of the new hairs.

Tincture nux vomica	} of each 15 cc. (½ oz.)
Tincture capsicum	
Tincture cantharides	
Castor-oil	7.5 cc. (2 dr.)
Rectified spirits of wine	add 120 cc. (4 oz.)
Oil of lavender	3.75 cc. (1 dr.)
Oil of cloves	15 drops
Aromatic spirits of ammonia	15 cc. (½ oz.)
Rectified spirits of wine	add 235 cc. (8 oz.)
Precipitated sulfur	8 gm. (2 dr.)
Beta naphthol	2 gm. (½ dr.)
Lanolin	8 gm. (2 dr.)
Vaselin	add 32 gm. (1 oz.)

Many of the cases require a good deal of patience on the part of the physician, as well as the patient, but if they are seen early enough one can usually promise a complete recovery.

THE ETIOLOGY AND PATHOLOGY OF ARTERIOSCLEROSIS.¹

BY

H. B. ANDERSON, M.D., L.R.C.P. (LOND.), M.R.C.S. (ENG.),
of Toronto, Can.

Professor of Clinical Pathology and Associate Professor of Clinical Medicine, Toronto University.

In the discussion of arteriosclerosis we will exclude any conditions in which there are changes in the walls of the bloodvessels with narrowing of their lumina, notwithstanding the fact that to some extent they may produce similar clinical phenomena to that disease, but which differ from it in etiology, distribution, morbid anatomy, and clinical course, and confine ourselves to the consideration of the chronic, progressive, systemic disease variously termed arteriosclerosis, arteritis deformans, chronic endarteritis, arteriocapillary fibrosis, and including atheroma. Among the diseases so excluded are the obliterative arteritis of Friedlander, syphilitic

¹ Discussion on Arteriosclerosis, Ontario Medical Association, June, 1903.

arteritis with gummatous infiltration of the vessel walls, periarteritis nodosa, tuberculous arteritis, etc.

Morbid changes in the vessel walls have long since attracted the attention of investigators. Senac (1682-1770), and Morgagni (1693-1770), the father of pathologic anatomy, described such alterations, regarding them as of inflammatory origin. Later, Lobstein (1777-1835), dealt with the subject, and to him we owe the term arteriosclerosis. Rokitsansky, with his almost unlimited supply of postmortem material, examined with great care and detail the alterations throughout the whole vascular system, and his descriptions of the gross appearances presented, stand as the solid foundation on which our present knowledge is based. In his work on "Pathological Anatomy," published in 1846, he expresses the view that the primary condition in arteriosclerosis is an inflammation of the adventitia and media of the vessels, the thickening of the intima being secondary and due to deposition from the blood. Virchow also dealt with the subject, considering the disease to be a chronic arteritis, and pointed out the similarity between it and the slow inflammatory process occurring in the viscera termed fibrosis. On the contrary, Traube (1818-1876), and others, considered the sclerotic changes as secondary to an increased blood-pressure, due to persistent contraction of the arterioles from the presence of certain irritant substances in the blood stream. Traube's ideas received wide acceptance, and continue to be held to some extent at the present day. In this brief historic summary of the development of our knowledge of the disease, the work of Gull and Sutton (1872) is deserving of special notice. These investigators demonstrated the relationship between chronic interstitial nephritis and general arterial sclerosis, emphasizing the fact that the former is frequently but a local manifestation of a systemic disease, affecting both arteries and capillaries throughout the body, to which they applied the term arteriocapillary fibrosis. While these pioneers in this field of research cleared the way for future work, the conception of the pathogenesis of arteriosclerosis generally held at the present time, we owe to the experimental researches and observations of Thoma and his associates. Thoma regards the disease as a morbid process involving the whole vascular system—arteries, veins, and capillaries, to designate which he proposes the term angiosclerosis. According to him, the primary change in the development of the disease is a weakening of the muscular and elastic tissues of the media of the vessels, due to the action upon them of certain general conditions with consequent yielding of the vessel wall to the pressure of the blood. As the amount of blood passing through an artery in a given time is determined, among other things, by the condition of the capillaries, and as these are dilated to a lesser extent than the arteries, the widening of the latter produces only a moderate increase in the amount of blood which passes through them, consequently the rapidity of the blood stream is lessened. This retardation of the blood stream is followed by an increase of connective tissue in the intima of the vessels so as to strengthen their walls, narrow their lumina and thus attempt to restore the normal relation between the caliber of the vessels and their contents. The sequence of events in the development of arteriosclerosis is, therefore, (1) a weakening of the media; (2) dilation of the vessels and slowing of the blood stream, and (3) a compensatory sclerosis of the intima. The increased resistance to the passage of blood through the narrowed vessels may lead to secondary hypertrophy of the heart, in order to overcome this resistance and thus maintain the circulation. It is important to bear in mind that these stages in the process do not occur consecutively in the different parts of the vascular system, but that the weakening and compensation proceed hand in hand, especially in the early stages of the disease.

If, therefore, we accept Thoma's teaching we must regard the thickening of the intima as a compensatory

process, and not the result of inflammation. This conception is of great practical importance because it follows that, being a compensatory process, the sclerosis *per se* is a permanent condition, and therefore uninfluenced by treatment. Moreover, for the same reason, it would be unwise to attempt to remove it even if we had the power. The degeneration and weakening of the vessels with the antecedent causative factors, are the points to be kept in view, the sclerosis is the attempt at repair.

While angiosclerosis is a condition affecting the whole vascular system, still the stress of the causative factors in different cases falls upon different parts, producing much diversity as to the frequency and degree with which particular vessels are affected. For this reason arteriosclerosis is of much more frequent occurrence and shows much more advanced lesions than phlebosclerosis. The latter, however, was recognized by Rokitsansky, and if looked for, will be found to be by no means uncommon. Phlebosclerosis is not only less frequent and less extensive, but especially as the veins do not bear the same essential relation to the nutrition of the tissues that the arteries do, nor are they subjected to as high degrees of blood-pressure, consequently changes in their walls are not followed by correspondingly important clinical and pathologic phenomena.

As to the relative frequency of involvement of different parts of the arterial system, Rokitsansky places first the ascending portion of the arch, then the abdominal and thoracic portions of the aorta. Next in order follow the splenic, the femoral, the internal iliac, the coronaries, the cerebral, the uterine, the brachial and the subclavian. The mesenteric, gastric, and hepatic arteries are seldom affected, even to a slight degree. Sclerosis is also rare in the pulmonary arteries and its branches, and when present is usually associated with long-continued mitral stenosis, emphysema or other conditions with consequent high pressure in the pulmonary system.

Sach, from the microscopic examination of the arteries in 100 autopsies, found sclerosis most common in the arteries of the limbs, and the anterior tibial most frequently affected of all.

It is very instructive to trace the relationship between the various etiologic factors and the relative frequency and extent of arterial involvement. Thus, continuous high tension, increased by mechanical stress, explains the involvement of the aorta and its branches as the coronaries; strain and variations in pressure from muscular action account for the tendency to the disease in the upper extremities of manual laborers; and for similar reasons, as well as from the fact that the vessels of the lower extremities have to support not only the hydrodynamic but also the hydrostatic pressure of the blood, they are especially prone to involvement, the liability increasing, as one would expect, toward their peripheral distribution. On account of variations in pressure associated with digestion, the splenic artery is likewise exposed to the disease. The frequency of the disease in the cerebral vessels is related to the functional requirements of a well-maintained blood supply, increased by occupations attended by long-continued mental effort and worry. The vessels of the kidney, on the other hand are especially exposed to the causes of the disease from the fact that they are brought in contact with toxic substances in process of excretion.

The effects of mechanical strain, etc., are often modified by the selective action which certain poisons appear to have for certain vessels. Thus the toxins of syphilis act especially upon the vessels of the brain, and often of the heart, while lead and alcohol, as well as the toxic products of gout and certain infections, attack particularly the vessels of the kidney.

It is interesting to note, that while mechanical strain seems so potent in its influence to cause angiosclerosis in man, according to Bollinger, horses, dogs, and oxen used

for traction purposes do not develop the disease. A Russian investigator, Ischigajew, who studied the blood-pressure in peasants during the summer months when they were engaged at continuous, laborious work, and during the winter when they were at rest, found that when at work the pressure was increased, but returned to the normal during the period of rest. He compared these results with his observations upon foundry laborers, whose hard work continued throughout the year. In the latter he found permanently high pressure and thickening of the arteries, due to sclerosis. These observations are of importance, as showing the influence of a period of rest in allowing of a return to the normal. The etiologic relation of heredity to arteriosclerosis is well established. Many families show a tendency to arterial degenerations at an early age quite apart from the immediate causes to which they are exposed, "a tendency," as Osler aptly says, "only to be explained by the fact that in the makeup of the machine, poor material was used for the tubing."

From the nature of the causative factors, the tendency to angiosclerosis and the incidence of the disease increase with advancing years. It may, however, develop early in life. In this connection I may refer to a case in a boy

companies, for it is from this class that the largest policies are usually obtained. During the past few years I have examined the urine for a number of companies in cases in which policies of \$10,000 and over were being negotiated, the applicants being men of the class just referred to. They were, as a rule, men considered to be in the best of health and apparently excellent risks. The results are so interesting that I have tabulated the main features in the examination of 30 selected cases (see table).

The coincidence of a high specific gravity, often hyperacidity, a faint trace of albumin, a few hyaline or granular casts or mucous cylindroids, occasionally a few red blood-corpuscles, frequently a deposit of uric acid or oxalate of lime, often excess of indican and commonly a decrease in phosphates, is so frequent as to merit very careful consideration. One might regard the uric acid and oxalates, associated with excess of indican, as suggestive of perverted digestive metabolism, with resulting autointoxication, the casts, cylindroids and occasionally the red blood-corpuscles, being the expression of the deleterious influence of these substances on the kidneys in process of excretion. One may not attach importance to any one of these signs by itself, but the association

	Specific Gravity.	Reaction.	Albumin.	Casts.	Cylindroids.	Deposit.	Indican.	Phosphates.	Pus or blood.
1	1021	Amphoteric.	Trace.	Few granular.	None.	Oxalates and amorphous phosphates.	Excess.	Reduced.	.....
2	1024	Acid.	"	None.	Few.	None.	"	$\frac{3}{4}$ normal.	Few reds.
3	1023	"	"	"	"	Uric acid.	"	"	.....
4	1020	"	"	"	"	"	"	"	Few reds.
5	1034	"	"	"	Cylindroids.	Amorphous urates.	Excess.	$\frac{5}{8}$ normal.	None.
6	1020	"	"	"	"	None.	Normal.	$\frac{3}{4}$ normal.	"
7	1032	Very acid.	"	None.	"	Oxalates and urates.	Excess.	Normal.	"
8	1025	Amphoteric.	"	"	Cylindroids.	None.	"	"	.....
9	1021	Acid.	"	"	"	Oxalates.	Normal.	"	.....
10	1020	"	"	Hyaline.	"	Oxalates and uric acid.	"	$\frac{7}{8}$ normal.	Reds.
11	1035	"	"	Granular.	Cylindroids.	Uric acid.	"	Normal.	"
12	1023	"	"	"	"	Oxalates.	"	Reduced.	.....
13	1022	"	"	"	"	Urates.	Excess.	"	.....
14	1037	"	"	"	Cylindroids	Uric acid.	Normal.	Normal.	.....
15	1024	Amphoteric.	"	Granular.	None.	None.	Excess.	$\frac{1}{2}$ normal.	.....
16	1030	Acid.	"	Hyaline.	Cylindroids	Uric acid.	Normal.	Reduced.	.....
17	1026	"	"	"	"	Oxalates.	"	Normal.	.....
18	1027	"	None.	None.	None.	"	"	None.	.....
19	1021	"	Trace.	"	Cylindroids.	"	"	$\frac{1}{2}$ normal.	.....
20	1026	"	$\frac{5}{8}$.	"	"	"	"	"	Reds.
21	1023	"	Trace.	"	Cylindroids	"	"	$\frac{1}{4}$ normal.	.....
22	1029	"	"	Hyaline.	"	"	"	$\frac{3}{4}$ normal.	.....
23	1023	"	"	"	"	Oxalates and phosphates.	Increase	"	.....
24	1034	"	"	Granular.	None.	Oxalates.	"	"	.....
25	1022	"	"	"	"	"	Normal.	Normal.	Reds and whites.
26	1024	"	"	Hyaline.	Cylindroids	"	Excess.	$\frac{5}{8}$ normal.	.....
27	1017	"	"	None.	"	"	Normal.	Normal.	.....
28	1026	"	None.	"	Cylindroids.	"	"	"	.....
29	1034	"	Trace.	Few hyaline.	"	None.	Excess.	$\frac{5}{8}$ normal.	Few reds.
30	1022	"	"	None.	None.	"	"	Normal.	None.

of 11, who was treated in the Hospital for Sick Children, Toronto.

Clinically, the child presented all the features of an advanced arteriosclerosis. At autopsy there was found the most advanced and widely distributed general arteriosclerosis with chronic interstitial nephritis. There was no history of syphilis, the only previous illness from which the patient had suffered having been scarlet fever.

The records of a number of such cases appear in the literature. In another case reported to the Toronto Pathological Society by Dr. W. J. Greig, a young woman of 23 had died suddenly. At autopsy the coronary arteries were found so sclerosed that they were practically occluded. No involvement of other vessels was noted.

The strenuous life of financial and business men, particularly stock brokers, men with large interests at stake, with its overwork, worry, prolonged mental and nervous strain, and especially when associated, as it often is, with overeating, alcoholic excess, and with insufficient exercise, furnishes a combination of circumstances that tells particularly upon the vessels, so that it is not surprising that our captains of finance and industry frequently fall victims to conditions associated with arterial degenerations. This fact is of especial interest to insurance

shown by these cases is too striking and too frequent not to have serious significance. It is well known that men of this class are particularly prone to angiosclerosis. Are not these urinary signs, appearing at a time when these persons to outward appearances are in excellent health, signals of danger ahead? They may not indicate a definite angiosclerosis, but I believe they do indicate a systemic condition, which, continued over a number of years, will eventually terminate in that disease. Angiosclerosis is so insidious in its onset, so difficult of early recognition and when once developed, so uninfluenced by treatment, that it is important to take advantage of any means by which it may be possible to recognize cases at a time when prophylactic measures may be successfully employed to ward off or delay an otherwise certain termination.

Just here I should like to refer to the view commonly held by clinicians that a rise of blood-pressure is the earliest indication of the development of angiosclerosis. This is evidently due to Traube's teaching, but apparently is supported on insufficient grounds. A high blood-pressure occurs under two very different conditions in relation to this disease, first as a cause of a certain proportion of the cases, when it will antedate the weakening of the media, the dilation of the vessels and the com-

pensatory thickening. Here a high pressure indicates the existence of a condition that will produce the disease, not the disease itself. In the second condition, *after* the compensatory sclerosis has occurred with narrowing of the lumina of the vessels, and cardiac hypertrophy, there will be an increased blood-pressure, which in this case will indicate the actual existence of the disease. The first condition is remediable, and prophylactic measures are indicated; the second condition is irremediable so far as removal of the sclerosis is concerned. But it is important to bear in mind that other causes beside high pressure may produce weakening of the media and in these cases a high pressure does not necessarily occur *before* the dilation of the vessels and *after* that occurs, the tendency would be for the pressure to be lowered before the onset of the compensatory sclerosis. The early reduction in the quantity of urine is suggestive of a lowered pressure. It is therefore evident that a high pressure is only an indication of the existence of the disease in the stage of sclerosis, a time when permanent changes have already occurred, while it is all important that a diagnosis should be made at the earlier period. Herein lies the importance of the urinary signs mentioned. In the *Lancet* of March 7, 1903, Allbutt refers to this matter as follows: "In sufferers from arterial sclerosis, exorbitant pressures are often but by no means constantly found. Between disease of the arterial tree and blood-pressure there is no direct relation, for even in the extreme degrees of it, normal or relatively low pressures are commonly observed." On this point further observations are required, but it is plain that we are not warranted in looking to a rise of pressure as the first indication of the disease.

The forms in which arteriosclerosis manifests itself have been divided by Councilman into the nodular, the diffuse, and the senile. In the senile form there is atrophy of the liver and kidneys, and in half the cases there is no hypertrophy of the heart.

The diffuse form is met especially in strongly built, middle-aged men. The disease is widely spread throughout the aorta and systemic vessels. Nodular sclerosis is often associated with this form. The kidneys are sclerosed, their surface granular, and the capsule adherent; these organs are often small, but sometimes increased in size. The heart is usually greatly hypertrophied, but from the fact that the coronary arteries are generally involved, the heart muscle shows interstitial myocarditis, and fatty or other degenerative changes. This fact has an important bearing on the ability of the heart to maintain the circulation against the increased blood-pressure. This variety of arteriosclerosis really corresponds with the arteriocapillary fibrosis of Gull and Sutton.

The nodular form is seen especially in the aorta, and, as mentioned before, when advanced in degree, is always associated with more or less diffuse sclerosis. Mott believes that the nodular distribution of the disease is due to a thickening or obliteration of the *arteria arteriarum*, leading to interference with the nutrition and consequent degenerative changes in the parts of the media corresponding to the distribution of the diseased nutrient vessels, with the secondary compensatory fibrosis in the underlying intima. Thoma has shown that these patches do not form projecting buttons during life as they appear postmortem, but merely fill up the weakened spaces in the media. He demonstrated this experimentally by injecting paraffin into atheromatous aortas under pressure equal to that of the normal blood and allowing it to solidify. On removal the surface of the paraffin was perfectly smooth. This is strongly corroborative of his view that the sclerotic changes in the intima are compensatory to a weakening in the media. From deficient nutrition, the sclerotic patches tend to undergo fatty degeneration and softening, beginning in the subendothelial tissue. Subsequently calcification often occurs or the covering endothelium may be shed and an atheromatous ulcer thus form. Thrombi may deposit on the roughened

surfaces thus produced, with subsequent danger of embolism, or the blood may make its way between the coats of the vessel, producing a dissecting aneurysm. It is well to bear in mind that the seriousness of sclerosis is not necessarily in proportion to the extent of the disease. This point is well exemplified in Greig's case previously referred to, in which the sclerosis to gross examination was limited to the coronary arteries. A single plaque involving the orifice of a coronary vessel may be of much more serious import than extensive disease, which does not involve such an essential nutrient vessel. This will also remind us that the condition of the peripheral is no reliable guide as to the absence of disease in the internal vessels.

As to the frequency with which angiosclerosis is found at autopsy, in 1,600 cases at Charing Cross Hospital, it occurred in 380, or about 25%. Bollinger, on the other hand, found it only 136 times in 1,800 autopsies of all ages. In 142 autopsies recently made by me in Toronto, including patients at all ages, I found evidences of angiosclerosis in 83, or about 58.5%. In 49 of these, however, the sclerosis was very slight. Excluding these, sclerosis of a moderate or severe grade was present 34 times, or in nearly 40%. The high percentage of cases of sclerosis in my list is probably explained by the fact that the average age of those in whom it was found was nearly 54 years. It is of practical importance to note the frequent occurrence of emphysema with angiosclerosis. Thus, in 61 cases, Lancereaux found emphysema present 21 times, or in about 34%. In 35 cases of emphysema on the other hand, Gull and Sutton found interstitial nephritis in 21, or 60%. In my cases more or less emphysema was noted in 31%. Of other associate lesions, more or less interstitial nephritis was present in 70%. Hypertrophy of the heart in 43.5% of all the cases, or in 64% of the cases with interstitial nephritis. The coronaries were involved in 41%.

The importance of arteriosclerosis is difficult to overestimate. The dictum that a man is as old as his arteries is fully established by autopsy records.

Longevity, as Osler says, is a vascular question. The more closely we consider the matter, the more clearly we will see how absolutely dependent is the nutrition and function of every organ and tissue of the body upon a proper blood supply. This has been provided by the development of a vascular supply proportioned to the importance and functional activity of the parts. Thus we have arteries, in number and size proportioned to the needs and activity of the part, the caliber regulated by the muscular tissue in their walls, and presided over by the vasomotor system so as to adapt their size to varying requirements; elastic walls to provide a continuous and even flow; capillaries to bring the blood into immediate contact with the cells of the part; and a double system of channels, veins, and lymphatics to return the impure fluids from the tissues. The great force in maintaining the circulation through the system of tubes is the heart. When we consider that in angiosclerosis every one of these provisions for a proper supply is interfered with, we see how far-reaching are the effects of the disease. Thus the heart is hypertrophied and degenerated, the muscular wall of the vessel weakened, the elasticity lost, the lumen narrowed, and the vessel rigid; the capillaries are thickened, degenerated, and more permeable, and added to this, we have the inefficiency of the kidneys to excrete, with resulting toxemia. There must consequently follow a gradual failure of the general nutrition and impaired functional activity in all the organs proportioned to the degree of interference with the blood supply. Merely to enumerate the morbid conditions arising out of or associated with angiosclerosis sufficiently impresses one with the far-reaching importance of the disease. Many conditions commonly recognized clinically as distinct maladies are really manifestations of this protean disease. One may mention fibroid heart, many cases of fatty degeneration

of the heart, chronic Bright's disease, cerebral softening, many cases of cerebral hemorrhage, senile dementia, angina pectoris, Stokes-Adams' disease, senile gangrene, etc. Other conditions closely associated with it are aneurysm, dissecting aneurysm, miliary aneurysm on the vessels of the brain, atheromatous ulcers with thrombosis on the roughened patches, and secondary embolism.

These are all very well-established clinical and pathologic entities, but I wish particularly to emphasize the importance of general nutritional disturbances, the symptoms varying with the seat, extent, and distribution of the vascular lesions, so that an endless variety of clinical phenomena is possible, according as the blood supply to this or that part is chiefly affected.

The occurrence of edemas during angiosclerosis, either spontaneously or from trifling exciting causes, is frequently observed. This is due to the increased permeability of the capillary walls, and to the hydremic condition of the blood found in the disease. Thoma found that he could inject 17 liters of normal salt solution into the normal femoral artery in 192 seconds, before edema developed in the foot, leg, and thigh. In a case of marked angiosclerosis, on the other hand, the same degree of edema occurred after the injection of 4 liters, which, however, took 277 seconds. These experiments would indicate the greatly increased resistance to be overcome in angiosclerosis, and the increased permeability of the capillaries. The occurrence of unexplained edemas should, therefore, suggest the necessity of excluding this disease. For the same reason, spontaneous hemorrhages frequently occur, so that the occurrence of epistaxis or menorrhagia may at times be symptomatic of the condition.

It is also well to remember that in angiosclerosis there is a progressive lessening of the germicidal power of the blood. The subjects of the disease are, therefore, peculiarly susceptible to infections, to which they offer poor resistance, and which consequently frequently terminate the case.

THE DIAGNOSIS OF METAPNEUMONIC EMPYEMA IN INFANCY AND EARLY CHILDHOOD.

BY

JOHN LOVETT MORSE, A.M., M.D.,
of Boston, Mass.

Instructor in Pediatrics, Harvard Medical School; Assistant Physician at the Children's Hospital and at the Infants' Hospital, Boston.

In adult life the signs of pleural effusion conform pretty closely, as a rule, to well-recognized physical laws. The diagnosis of effusion at this age, therefore, is usually not difficult. In infancy and early childhood, however, the physical signs of effusion, especially if purulent, are rarely as characteristic as in adults, and frequently give rise to confusion and errors in diagnosis. A fairly extensive experience has taught me that the physical signs of pleural effusion in infancy and early childhood differ materially from those met in adults, and that the relative value of the various signs is very different at the two ages. Experience has also taught me that unless these differences, which may almost be called normal, are kept constantly in mind, and the diagnosis based on them rather than on the usual signs of adult life, mistakes will constantly occur. I am inclined to think, moreover, that these differences in the physical signs of pleural effusion in early and adult life are not as well recognized as they should be by the profession as a whole.

A pleural effusion following pneumonia in infancy and early childhood is almost invariably purulent. A serous effusion is extremely rare, and if it occurs, almost always becomes purulent later. The physical signs are the same in both serous and purulent effusions, and a

diagnosis between them is impossible without exploratory puncture. The white count is of little use in differential diagnosis in these cases, as both are caused by the pneumococcus, and, therefore, show a hyperleukocytosis. A marked leukocytosis in a case of long duration points, however, to a purulent rather than to a serous effusion. In this article it is taken for granted that the effusion is always purulent.

Onset.—Empyema may develop either during the course of a pneumonia or at some time after the crisis. In the former instance the temperature never falls, while in the latter it rises again after the crisis. In these cases the rise in temperature is usually the first indication of further trouble. In two-thirds of the cases in which I have complete records the temperature never fell, but remained moderately and usually irregularly elevated. In the others it usually rose again within 24 or 48 hours after the crisis. The longest interval after the crisis was 13 days. In the cases in which the temperature never fell, signs suggestive of fluid were found in from 8 to 13 days from the onset of the pneumonia. These were usually not marked enough to justify exploration, however, until several days later. It must be remembered, that the temperature may continue elevated for some time in uncomplicated pneumonia in infancy. In 22 of 61 cases of uncomplicated pneumonia in infants under 2 years of age treated at the Infants' Hospital, the temperature remained elevated more than 8 days—in one staying up as long as 18 days. In these cases, moreover, there was no extension of the process to other lobes. While, therefore, continuation of the fever after the seventh or eighth day should always suggest the onset of an empyema, it is more often, perhaps, due to some other cause, usually located in the lung itself. Acute inflammation of the middle ear also frequently causes a continuance of fever, and should always be kept in mind. In those of my cases of empyema in which the temperature rose again after the crisis, well-marked signs of fluid were almost always present in 4 or 5 days.

Symptoms.—There is nothing characteristic about the symptoms of empyema developing during the course of pneumonia. There is merely a persistence, or possibly an exaggeration, of the symptoms of the pneumonia. They differ in no way from those present when the pneumonia runs an unusually long course; nor is there anything characteristic in the symptoms of empyema developing shortly after pneumonia. They are simply those of any serious pulmonary affection.

The symptoms in cases of long duration, judging from a considerable number of neglected or unrecognized cases seen in out-patient departments or in consultation are, however, to a certain extent, rather characteristic. In all there was, of course, a certain amount of fever, usually irregular and not very high. None of the patients had chills, and none of them sweating. The fact that chills and sweating were absent in these cases is rather an important point and differs from the usual teaching. In fact, in several of these cases, the attending physician had excluded empyema because there were no chills and no sweating. All the patients had some dyspnea, but in many it caused little or no discomfort. Cough was usually complained of, but was rarely very troublesome. The most constant and striking symptoms in all the cases of long duration were excessive loss of weight and marked pallor.

Physical Signs; Inspection.—Inspection of the chest almost always showed marked diminution of the respiratory excursion on the affected side. This point is of little value in diagnosis, however, as the respiratory excursion is also diminished when there is solidification of the lung. Marked diminution is, nevertheless, suggestive of effusion. Evident enlargement of the affected side was comparatively common and is a point of considerable importance in differential diagnosis. Flattening or bulging of the intercostal spaces was unusual and was noted only in the older children. These observa-

tions corroborate, therefore, the generally accepted view that enlargement of the affected side as a whole is more common in infancy than flattening or bulging of the intercostal spaces. The explanation probably lies in the flexibility of the infant's chest, the chest wall in them yielding as a whole instead of remaining rigid and allowing bulging of the spaces as in adults.

Percussion.—In most of my cases percussion showed the usual signs of fluid; marked dulness or flatness on the affected side, often combined with tympany at the apex or at the root of the lung. In several cases, however, there was flatness over the whole side, except at the base, where there was tympany. This occurred in right-sided as well as in left-sided effusions, and once or twice led the physicians in charge of the patients to erroneous conclusions. The tympanitic note is, of course, transmitted from the abdomen, the transmission being favored by the small size of the parts and probably also by the peculiar elasticity of the infantile thorax.

Flatness in Traube's space in left-sided effusions, even when of considerable size, was not nearly as constant as in adults, and was often replaced by tympany. In infancy, therefore, the presence of tympany in this space does not rule out an effusion.

The most constant sign on percussion in these cases was the presence of a marked sense of resistance on the affected side, providing the effusion was of any size. This sign was almost never absent and is, in my opinion, one of the most valuable, if not the most valuable, physical sign in differentiating between pneumonia and effusions. I have never met this marked sense of resistance in pneumonia, and consider it most characteristic of empyema. It is best obtained by striking the chest directly with the fingers or hand.

Auscultation; Respiration.—The respiratory sound was modified in every case but one. In almost all the others it was purely bronchial in character. In only 1 case was the respiratory sound entirely absent. In about two-thirds of the cases it was more or less diminished in intensity, while in a little more than a third it was loud and like that heard over a solid lung. It is a wellknown fact, of course, that loud bronchial respiration may be heard in cases of effusion, especially in early life. I find, however, that this fact is often forgotten or not duly appreciated. In my experience, while the absence or marked diminution of the respiratory sound is important evidence in favor of an effusion, the presence of loud, bronchial respiration counts very little, if at all, against it.

Vocal Resonance.—It is impossible, of course, in young infants to study the vocal resonance from the spoken voice. It must be estimated from the grunts or cries. These have, however, always given me less satisfactory results than the spoken voice. In a general way the vocal resonance varied both in intensity and character with the respiration. There were, however, many exceptions to this rule. Vocal resonance of normal character was not uncommon, and loud, bronchial resonance was even more common than was loud, bronchial respiration. In my opinion, the vocal resonance is of very little importance in the diagnosis of effusion in infancy and early childhood.

Rales.—Rales, usually high-pitched, were occasionally heard through considerable amounts of fluid. The presence of rales does not, therefore, rule out effusion.

Palpation.—What has been said regarding the difficulty of estimating the vocal resonance in infancy applies equally well to the vocal fremitus. In every case in which anything could be made out of the vocal fremitus, however, it was either diminished or absent. The vocal fremitus, if it can be determined, seems, therefore, to be of value in the diagnosis of effusion. It is certainly far more useful than the vocal resonance, and when definite results are obtained, they can be relied on.

Dislocation of Organs; Heart.—Displacement of the heart was present in all but 3 cases. In 1 of these

the affected side was the smaller, and operation showed very marked thickening of the pleura with a comparatively small amount of pus. The heart had probably been pulled back into position by the contraction of the newly-formed tissues. In the others it was presumably held by adhesions. Displacement of the heart was present even when the effusion was comparatively small and was marked in most of those cases in which the effusion was large. The location of the greatest intensity of the heart-sounds changed with the position of the heart, especially in left-sided effusions, and furnished valuable corroborative evidence of the displacement shown by percussion. It seems to me, from the study of these cases, that next to the marked sense of resistance, displacement of the heart is the most valuable sign in the diagnosis of empyema in infancy and early life. Its absence, although it does not positively rule out effusion, is very strong evidence against it; its presence, providing it was not displaced before, is sure proof of effusion in counterdistinction to solidification of the lung, and gives evidence which must never be disregarded.

Liver.—The liver was displaced downward in a considerable proportion of the cases of right-sided effusion. This displacement seemed proportionally greater than that which usually takes place in adults. Before concluding that the liver is displaced downward in infants, it must be remembered that the liver normally extends below the ribs at this age, and that it is frequently enlarged in infancy as the result of disturbances of nutrition. Displacement of the liver, although not as important as displacement of the heart, is very valuable evidence of right-sided effusion.

Spleen.—In 2 cases of left-sided effusion the spleen was palpable. As splenic enlargement is not at all uncommon in infancy, it is very probable that these were enlarged, rather than displaced, spleens. At any rate, splenic enlargement is so common in infancy that very little reliance can be placed on palpation of the spleen in the diagnosis of left-sided effusions.

CONCLUSIONS.

Metapneumonic empyema usually develops during the last days of the pneumonia or during the first days after the crisis, but in rare instances may develop in the early days of the pneumonia, or later during the convalescence. Persistence of the fever and other symptoms after the time of the expected crisis or their recurrence after the crisis should always suggest the possibility of an empyema. There is nothing characteristic about the symptoms of empyema, which are those common to all severe pulmonary affections. Rapid emaciation and progressive pallor are the most constant symptoms in neglected cases, while chills and sweating are unusual. Enlargement of the affected side as a whole is more common than flattening or bulging of the intercostal spaces. Flatness in Traube's space is less constant in left-sided effusions in infants and children than in adults. The most constant and characteristic sign of effusion is a marked sense of resistance on the affected side. Displacement of the heart almost always occurs, and next to the sense of resistance is the most important sign. These 2 signs justify the diagnosis of effusion even if all the other physical signs are inconsistent. Dulness or flatness is almost always present but may be replaced by tympany. The respiratory sound is almost invariably bronchial or bronchovesicular in character, and, as a rule, diminished in intensity. Loud, bronchial respiration is, however, not uncommon, even with large effusions, and counts very little, if at all, against the presence of fluid. The vocal resonance is very variable both in character and in intensity and is of little value in diagnosis. It is very difficult to determine the vocal fremitus satisfactorily. Its absence is, however, an important diagnostic sign. Rales may be transmitted through large amounts of fluid. Their presence does not rule out an effusion.

PURE OLIVE OIL AND ITS USE IN THE TREATMENT OF CHRONIC DYSENTERY AND ALLIED CONDITIONS.

BY

HENRY H. RUTHERFORD, M.D.,

of Fort Mackenzie, Wyo.

Medical Department, U. S. Army.

Pure olive oil is produced as follows: Olives just short of full ripeness, are selected for their soundness and healthfulness, and a moderately rapid and a moderately complete expression made of them. This is done with the utmost regard for cleanliness in every detail. The oily fluid driven away is collected in broad, shallow vats, capable of absolute cleanliness, and is exposed to an even, dry air until all moisture is evaporated. Such a product is pure virgin oil, so-called, a very rare article. If this process is scrupulously carried out with olives grown on foot-hill soil, such as certain districts in middle California, in Italy, and Spain, an oil is produced which for flavor, taste, and color, is most superior of all. This quality of oil, in my opinion, is most easily and reliably obtained from California.

The therapy of olive oil, as given in textbooks, is usually a matter of few words which amount to the facts that it is a good emollient, a slight laxative, and a nutritive, and that it is sometimes given in gallstone disease and is said to act favorably, though it is not well settled by what means it acts. Of recent years, however, a number of observers have advanced theories, founded upon facts, which make the olive oil treatment of certain cases of gallstones, physiologically and therapeutically, a rational remedy. The experiments of Rosenberg have lent most elucidation to the internal action of olive oil, and especially as concerns its effect in the treatment of gallstones. Rosenberg's findings were, in effect, that the oil, which is chemically, in the main, the combined glycerids of oleic, palmitic, and arachic acids, is in part broken up into the original glycerin and acids, together with slight traces of cholesterol, etc., in the small intestines. There the glycerin is taken up and, through the portal system of vessels, reaches the liver and stimulates that organ to throw off increased quantities of a bile which is more watery and solvent of the cholesterol of gallstones. The acids are readily saponified by the alkaline juices of the smaller intestines, and with any remaining neutral oil, absorbed as nutrition. It is along these lines that Dr. McCourt, of New York, Professor Jean Beaumetz, Brockbank, William H. Thompson, and others, have advocated so enthusiastically the olive oil treatment in gallstone disease.

The rationale of this treatment for gallstone disease first suggested to me a trial of olive oil in treating chronic dysentery, sprue, and chronic enterocolitis of tropical origin. The analogy of these conditions and that of gallstone disease may seem far fetched, but on closer consideration it is found that in chronic gallstone disease there is frequently chronic hypertrophy of the liver; in chronic dysentery, etc., there is either a hyperemia or an atrophy of the same organ. These pathologic conditions, moreover, are brought on, in some measure at least, by identical causes—namely, fermentation and putrefaction in the gastrointestinal tract, the absorption of the products of the same, and their conduction through the portal system to the liver, where chronic irritation is caused. More than this, it is a notable fact that in chronic gallstone disease a frequent complicating condition is a catarrhal enteritis caused from long continued lack of bile and the consequent increased degree of fermentation and putrefaction which is thereby made possible. In chronic dysentery the essential and fundamental lesions are chronic ulcerations and necrosis of the mucosa and abscesses of the submucosa of the lower two-thirds of the colon, variable degrees of chronic in-

flammation far up the lining membrane of the small intestines, and in the so-called condition of sprue there is superadded extreme atrophy of the glands and of the muscular walls of the entire gastrointestinal tract, with an apparent denudation of the epithelium throughout. Beside the amebic and bacillary infections of the intestinal tract and their lesions in these chronic wasting conditions, we have to deal with a greatly impoverished general economy, chief features of which are an intestinal digestion and assimilation which is practically nil, an abnormally functioning liver, and frequently chronically diseased kidneys. It is not my intention to attempt a modification of the present accepted etiology of chronic dysentery, but rather to emphasize the importance of having in mind each bit of interdependent pathology when considering treatment, and with this view of the subject favorable results were hoped for from the use of olive oil in chronic dysentery, etc. Accordingly, in April, 1903, permission was obtained from the commanding officer of the United States Army, General Hospital, Presidio, of San Francisco, Cal., and the treatment begun on 10 patients selected for the chronic and intractable nature of their conditions—the majority of them, men who had been lingering in the hospital, undergoing the various routine treatments for upward of 6 months. The method of procedure determined upon and carried out was, for the first 10 days' observation, to make but 1 change in the previous treatments (of these patients), viz., substitution of moderate doses of the purest obtainable olive oil for all other medicines. Hence patients were continued in bed or otherwise, as before, and their diets were not changed, but all previous medicines were discontinued, and instead 30 cc. of olive oil in a half glass of hot milk was given 3 times daily on the empty stomach. At the end of 5 days the dose of oil was doubled in such cases as the quantity could be tolerated, and later still, each individual patient was given increased dosage when it became possible, so that at the end of the first 10 days a number of these patients were taking 90 cc. at the dose. After this 10 days of probation the treatment appearing to warrant further trial, it was decided to continue its use for another week without material change in any particular. At the end of this time there appeared to be no doubt as to the merit of olive oil in this class of cases, and at this hospital the treatment has grown in favor to the practical exclusion of all other medicinal agents formerly in vogue for dysentery, etc.

The special therapy of olive oil as applied to the cure of these chronic conditions is best demonstrated by giving actual case pictures, and in this connection the following cases deemed typical and suitable (for all purposes) are given:

CASE I.—Private M., Irish birth, aged about 24, about 6 feet of stature, and proportionately well developed. His history previous to his present illness is irrelevant. He was originally admitted to sick report with the present trouble on August 7, 1902, and was admitted to the U. S. A. General Hospital, Presidio of San Francisco, California, by transfer from the Philippine Islands, on October 18, 1902. His condition has been diagnosed chronic catarrhal dysentery; complication, chronic parenchymatous nephritis, and on April 14, 1903, was about as follows: Extreme emaciation—weight, 90½ pounds; slight anemia (red cells 3,500,000); complaints of great weakness; constant pain and tenderness throughout abdomen, and bloating and discomfort after taking even small quantities of food. His tongue was heavily coated, his lungs slightly congested from hypostasis, liver dulness was enlarged and distinct, the abdomen distended and tympanitic. The daily bowel movements numbered from 5 to 15, were very disagreeable in odor, liquid and semisolid in consistence and contained large quantities of mucus and muscle fibers. Urine was diminished in quantity, and contained numerous casts, both hyaline and granular. This patient's previous treatment—during the six months, October 13, 1902, to April 14, 1903—had been enemas of 1 to 5,000 quinin solution, 2% H₂O₂ injection, increased daily up to 10%, 1 to 1,000 silver nitrate injection, ipecacuanha and various internal treatments, including tonics. These treatments were tried successively during the period mentioned, each for a month or more, and under what was considered the most favorable circumstances of nursing and hygiene. The

negative result is shown by the following clinical note made on April 14, 1903. Condition has gradually failed since October 14, weight has decreased from 116 to 90½ pounds, and bowel movements numbering as high as 15 in 24 hours, are very disagreeable in odor and contain much mucus and necrotic tissue. On beginning the new treatment this patient was unable to retain more than a teaspoonful of olive oil at one dose, but at the end of 3 days he was taking the full 30 cc. and felt improved. The first positive change was a decrease in the number of daily bowel movements, less pain and tenderness, and a decrease of flatulence. The following clinical note was taken on June 30, 1903: "This patient was placed on the olive oil treatment April 14, 1903. Improvement in his general condition could be noticed in 3 days, and in a week his stools began to form. Since this treatment his recovery has been phenomenal, and in the 2½ months his weight has increased 69 pounds, the character and number of defecations have been absolutely normal since June 6, and he is able to take exercise, and looks the picture of health."

CASE II.—Private R., American birth, aged about 24, about 5 feet 6 inches of stature, and well developed. Previous history is of no importance. He was originally admitted to the U. S. A. General Hospital, Presidio, of San Francisco, Cal., October 13, 1902, by transfer from the Philippine Islands. His condition has been diagnosed chronic amebic dysentery, amebas having been demonstrated in the feces. Condition on April 14, 1902, was about as follows: Markedly emaciated, weight 102 pounds, pale cadaveric facies, slight anemia, complaints of weakness, pain and discomfort throughout the abdomen, the thin walls of which are greatly distended from gas formation. His tongue is thin, narrow and moderately furrowed, with bright red edges. Liver dullness markedly increased. The daily bowel movements number from 5 to 7, are copious, pale gray, of very foul odor and contain necrosed tissue having the appearance of mucus. Intestinal epithelium, muscle fibers, leukocytes, red blood cells and amebas are present. This patient's previous treatment and the results therefrom are set forth in a clinical note taken June 30, 1903, which is as follows: "During the period October 13, 1902, to January 10, 1903, patient lost 14 pounds on the following treatments: Hydrogen dioxide in 2% to 10% rectal irrigations, 1 to 1000 silver nitrate irrigations, quinin enemata of 1 to 500 strength, bismuth subnitrate and bismuth, salol and pepsin. (These treatments were given in separate periods of time.) On January 10, 1903, the patient was put on quinin enemata and, internally, astringent pills. During this treatment he gained 9 pounds, but for 2 or 3 weeks prior to April 14 his condition had been stationary. The oil treatment was instituted April 14, 1903, and since that date he has gained 28½ pounds. His general health and condition are greatly improved, and his feces are normal—becoming so on June 11—although from time to time small quantities of thick, pure mucus are passed at stool."

It has been stated that the curative effect of the oil in the treatment of the conditions of chronic dysentery, etc., is best demonstrated by the case method. This, it would seem, must be supplemented by some theoretic explanation based upon what is known of the physiologic action of pure olive oil and the properties of normal bile, as well as upon clinical observations made in the cases in which the treatment was instituted. Of prime significance are the following facts, which have been learned by experimentation:—

1. The internal administration of olive oil largely increases the flow of watery bile.

2. The normal liquid bile possesses certain physiologic properties: (a) Its presence in the intestine favors the absorption of fats; (b) it stimulates intestinal peristalsis; (c) it acts as an intestinal antiseptic, both directly and indirectly. "Quite recently a further function of the bile has been discovered, namely: That of dissolving very readily certain specific bacteria of a pathogenic character" (Herter). It is still further contended for bile that it has the property of reinforcing the ferment action of the pancreatic juice.

In this connection it is of quite equal importance that following upon the internal administration of olive oil, typical cases of chronic dysentery, practically without exception, show changes in their condition as follows:

1. Positive evidence of increased quantities of bile in the feces.

2. Decrease in the number of daily bowel movements and marked improvement in the character of the same.

3. Gradual cessation of signs of fermentation and putrefaction along the gastrointestinal tract and consequent subsidence of pain and tenderness.

4. General systemic improvement—gain in appetite,

repair of digestive facilities, symptoms of improved nervous system, and rapid gain in weight and strength.

5. Apparent positive cure after an average time of 2 months and upward, with few recurrences up to date.

Is it not fair to infer that olive oil of this pure variety is cleansing, protecting, and soothing to inflamed mucous membranes; that it restores the liver, which is almost functionless in the chronic wasting diseases, to its normal activity as an excretory organ; that the improved quantity and quality of bile which reaches the duodenum¹ produce directly or indirectly a more or less specific effect, not only upon the local pathologic conditions, but upon the general systemic pathology in these cases? And aside from all these worthy hypotheses, must it not be granted that, in the digested oil, we have a most highly desirable heat-producing nutritive for such class of patients? In this connection it would seem pertinent to quote from a review of the researches and observations of Charrin, "On the Multiplicity and Complexity of the Soluble Products Developed During the Course of Infections," in which it is stated that "a characteristic of recent progress in medical sciences is the growing importance accorded to the organism itself, the rôle de l'économie, in the genesis of pathologic conditions. We have already partially restored the 'soil' to its old predominant place in the etiology of disease. We recognize the predisposition afforded by getting chilled, overexertion, inanition, etc., and the organism is coming into its own in this respect more and more every day. For instance, in very young infants, the disturbances consecutive to chronic gastroenteritis are due, in certain cases, to the insufficiency of the intestinal defenses. During the acute stage the numbers or the virulence of the poisons engendered in the digestive tract are responsible for the symptoms observed, but in many cases, after this stage is past, the poisons are found to be no more active than those elaborated in the normal infantile intestine. This peculiarly deleterious action is due to the lack of protection against them. The direct or indirect action of the tissues and of the physiologic apparatus in the mechanism of morbid phenomena is becoming more manifest every day. Cellular pathology is resuming its rights, not altogether Virchow's old cellular pathology, but a conception singularly enlarged. The idea that a microbe engenders disease by the action of its toxin is being shown up more and more to be altogether too limited and inadequate to conform to what we are learning in regard to the multiplicity and complexity of the soluble products elaborated during the course of an infection by the interaction of bacteria and the cells of the organism. Immunity is only a special phase of nutrition, the consequence of these interactions."

Upward of 75 patients in all have been treated by olive oil in the service of the United States Army General Hospital, Presidio of San Francisco, Cal., and from this experience the system of the treatment evolved is as follows:

First Period.—The patient is given 30 cc. of oil three times per day, for the first 3 days, when the quantity is increased to 60 cc. three times daily, and on the sixth day is again increased to this quantity four times in 24 hours. During the first half of this period the patient is to be given only a milk diet. The latter half he will have added 1 to 3 ounces of scraped beef or its equivalent of egg albumen daily.

It will be found during this period that the patient's system gradually comes to a tolerance of the oil; individual cases varying according to their peculiarities and the gravity of their conditions. Quite frequently during this period, patients lose in weight, but this is a temporary incident, due to the obvious causes of restricted diet and anorexia at beginning of treatment.

Second Period.—Oil can now be given in greater quantities (not less than 90 cc. three times daily, without discomfort to the patient) and must be kept up for a length of time as *res necessitante*, in severe and extremely chronic cases, perhaps for 2 months or more, during which period convalescence will have

been fully established, and the patient regained his normal weight.

Third Period.—During this, the getting up period, the patient is gradually restored to a full diet, and the oil is given in gradually decreasing doses, until it is insured the pathologic conditions have been obliterated (ulcers fully and permanently healed), and a recurrence is not liable.

During all of the first period, and a greater part of the second, the patient should be kept strictly in bed, and required to use the bed-pan until stools have reached a solid consistency.

It is found, in most cases, in giving oil, that until a patient acquires a tolerance for it, it is best taken with about equal quantities of hot milk. Cold oil and hot milk, being about the same specific gravity, will for a short time (a half minute) mix so perfectly as practically to form an emulsion. Later on, without an exception, it is found that the patients acquire a relish for and can take oil in any reasonable quantities at least four times a day. The oil is given about an hour before meals, so as to get the maximum effect on the empty stomach, intestines and liver. The oil must be pure virgin olive oil.

For assistance, during the experimental stage of this treatment, I am under obligations to Major W. P. Kendall, Surgeon, U. S. Army, commanding officer of the hospital; Captain J. W. Kennedy, assistant surgeon, U. S. Army; First Lieutenant R. B. Grubbs, assistant surgeon, U. S. Army; and Miss Sibbie Wilson, Army Nurse Corps, U. S. Army.

The first 24 cases recorded as treated were in the service of Dr. Grubbs.

To the Commanding Officer, U. S. A. General Hospital, Presidio of San Francisco, California: I have the honor to report as follows on the article referred to me relative to the olive oil treatment of dysentery. After a careful review of the first 28 completed cases of olive oil treatment to come under my observation, I find the results to be as follows:

Returned to duty, 17 patients. These, with 2 exceptions, had every appearance of good health, and laboratory reports for a month previous to discharge, showed nothing abnormal in the condition of stools. One having 4 stools to 5 stools, was returned to duty to accompany his regiment east; another had, at times, traces of blood and mucus in his stools. Three left the hospital by reason of expiration of service, one in good condition, the other two having from 2 stools to 5 stools per day, one of these still showing amebas present, although about 3 months under treatment. Seven were discharged on surgeon's certificate of disability. One of these patients had but 2 months' treatment, the remaining six from 3 months' to 6 months'. At the time of discharge, all were having from 3 stools to 6 stools during 24 hours. One patient, supposed to have been cured, developed appendicitis, and during convalescence from the operation, had a recurrent attack of dysentery.

Private R., mentioned in the paper, was discharged September 24, on surgeon's certificate of disability, having 3 stools to 5 stools per day, frequently fluid. Amebas were last found July 8, which would indicate that there had been a relapse. This patient was on the oil treatment for 5½ months.

Of the patients mentioned, six had rectal irrigations in connection with the oil treatment. All had a tonic, usually the elixir ferri, quinin, and strychnin.

In considering the value of the treatment, it must be taken into consideration that many of the cases were of long standing, and had reacted poorly to the established line of treatment, and were transferred to the ward for the purpose of testing the oil treatment.

The statement that the number of bowel movements is immediately decreased, while true in the majority of cases, is not, in my judgment, due so much to the specific action of the oil, as to the fact that the patient is put to bed and given a suitable diet.

The fifth statement, as to the "apparent positive cure, after an average time of two months and upward, with no recurrence up to date," would, in my opinion, seem a little premature, as I think it is generally admitted that recurrent attacks are frequent a year or more after an apparent cure in cases that have advanced to an ulcerative stage in the bowel.

Even with this adverse criticism, I heartily approve of the oil treatment, but I believe the benefit derived from it to be principally due to the fact that it is an easily assimilated food. It is not unusual for patients to gain 30, or even more, pounds per month, and with this increase of weight there is a proportionate gain of strength and general vitality. It stands to reason, that as nutrition is improved, the system is better prepared to combat with the degenerative changes occurring in the alimentary tract. I consider the oil treatment, combined with quinin irrigations, if amebas are found, or silver nitrate when ulceration exists in the large bowel, to be the most satisfactory that I have tried. At present I am treating about 35 patients

with dysentery with oil and irrigations, with very satisfactory results, but do not think we should claim positive cures in any case of amebic dysentery in which the pathologic condition in the intestine has progressed to the ulcerative stage, until the cases have been followed from 1 to 2 years' time after apparent cure, as it is a well established fact that recurrences after long intervals of good health are frequent in these conditions.

G. PARKER DILLON,
Contract Surgeon, U. S. Army.

THE MIND AS A CAUSATIVE AND THERAPEUTIC FACTOR IN MEDICINE.¹

BY

BITTLE C. KEISTER, A.M., M.D.,
of Roanoke, Va.

In this age of scientific progress the attention of the medical profession seems so enthusiastically engrossed in microscopic pursuit of the wicked bacillus, the absolute and immediate excommunication of the appendix vermiformis, and the mechanical adjustment of bone deformities by the Lorenz method, that the mental factor in medicine has become almost obscure and obsolete.

Strange as it may seem, but few of our modern textbook writers on therapeutics make any mention of the mental side of medicine, yet every other possible, and I may add, impossible, aid to therapeutics is gravely discussed at length—including obscure organic extracts from nearly every glandular organ of the body of both man and beast; also the various and peculiar forms of exercise of the muscular and glandular systems, under the names of mechanotherapy, massage, calisthenics, Swedish movement, mountain climbing, mud baths, foot-racing, etc.; also every variety of light, heat, and röntgen ray; and also patent foods of every conceivable formula and trademark—while scarcely one line is devoted to psychotherapy.

If we turn from the textbook to the class-room or hospital, we find the same result. Students listen with rapt attention to the latest methods in antiseptics, the culture of microorganisms, the use of antitoxins; they study the powers of many well-advertised drugs; they discuss keenly the rival merits of the diverse forms of splints, sutures, forceps, inhalers, anesthetics, and various instruments of precision, and the best methods of diagnosis. All these necessary and important factors in therapeutics are thoroughly exhausted, while at the same time the omnipresent mental factor is almost universally ignored.

We may attend clinics on functional nerve diseases in which the mental factor is predominant both in cause and cure, and though listening for an hour to the physical signs established by tendon and skin reflexes, with trained and systematic observation, fail to hear one thing to show that the disease has had other than a purely physical origin, or that it can be cured by other than purely physical means.

Turning from the teaching to the practice, we cannot fail to see the natural result. That which is ignored in physiology is not likely to be admitted in pathology; what is never taught in the clinic is not often practised in the sick-room.

While the influence of the mind over the body, as well as mind over mind, is everywhere seen and felt, it is at the same time neglected and ignored in hospital wards, in consulting-rooms, and by sick beds, and hence the amazing spectacle so constantly seen of men laboriously trained in all the medical wisdom of the twentieth century, patiently investigating the causes of diseases, or earnestly considering methods of cure without a thought of the ever present mental factor; and sometimes hardly realizing that the case is that of a suffering human being, but regarding the patient more as an object similar to a

¹ Read at the fifty fourth annual meeting of the American Medical Association, held at New Orleans, La., May 5 to 8, 1903.

machine that is out of order and in need of a mechanical engineer to adjust or arrange the machinery.

It is becoming quite common in medical literature to forget that a man as such still exists, while it is perfectly obvious that whole lives apparently center round the appendix, the posterior nares, and the ubiquitous mosquito. Sir James Paget well said: "A physician's exclusive duty should be to study men as men, to master the marvelous intricacies and dependencies of spirit, soul, and body, and to be sufficiently skilled to know when and how to call on the one to help the other, and with such men the profession would be complete."

Dr. Alfred T. Schofield, of England, says: "The mind is the most important factor in any or all diseases to be considered," therefore the practitioner should remember this factor when dealing with obscure cases of dyspepsia, malassimilation, flatulency, gastralgia, nausea, dyspnea, syncope, etc.

In spite of the general apathy of which I have complained, the psychologic side of disease is recognized by some of the ablest writers and foremost leaders of the profession, among whom I may mention such men as Clouston, Gardinier, Tuke, Schofield, Gowers, Church, Brower, Mann, and S. Weir Mitchell.

Sir Benjamin Brodie remarked: "It is the business of every practitioner of medicine to study, not only the influence of the mind on the body, but also that of the body on the mind." A debilitated condition of the body may produce a weakened state of the intellect.

Dr. Lockhart Roberson points out "that all who are engaged in the healing art must sooner or later learn to search out and understand the mental and moral, as well as the material causes of disease."

Sir James Brown says: "Medical psychology belongs to our whole medical profession, and no medical practitioner can afford to ignore the fact."

Among the many causes of mental and nervous diseases, and their increasing prevalence over all other diseases of this age, may be cited the increasing demands made on the brain powers in the effort to achieve fame and fortune, regardless of the pathologic effects on the brain centers. Another prolific cause of brain disease, intellectual weakness, and nervous prostration may be traced to the high pressure process of our public school systems, the effect of which may not become manifest or even noticeable until later in life.

Neurotic affections of both children and adults are rapidly increasing and multiplying with our civilization. The increasing nervousness of this age is most clearly evinced by the connection with, and influence of, the nervous system on other diseases of the body, not properly nervous in their character. In diabetes, for instance, the nervous system is in intimate relation, and this disease is often induced by mental anxiety and distress, or by sudden fear or shock. This disease, also Bright's disease, nephritis, granular kidney, cancer and heart disease are all on the increase in the ratio of the increase of nervous diseases. The sympathetic system, which is largely controlled and influenced by mental emotion, causes functional diseases of all the parts, inflammations, many organic diseases, edema, exophthalmic goiter, angina pectoris, headache, jaundice, and neuroses of the various organs.

Dr. Sansom, in the "Twentieth Century Practice," says: "Mental shock and protracted anxiety are prolific causes of morbid conditions of the arteries, producing arteriosclerosis, a disease that has become very common of late years among doctors, politicians, and financiers. The emotion of anger is capable of increasing the blood-pressure from 14 cm. to 21 cm., and the corpuscles from 3,000,000 to 4,500,000 per mm."

Dr. Jno. Hunter remarked that atheroma, apoplexy, and angina pectoris have long been known to be caused by emotional excitement.

The intellect can influence and produce indirectly hyperesthesia, anesthesia, paresthesia, and all varieties

of special sensation. It can contract and relax muscles and cause both voluntary and involuntary movements. Dr. Murchison said "he was utterly surprised to find so many cases of primary cancer of the liver, uterus, breast and other organs, caused by prolonged grief and anxiety." Dr. Bennett tells of the increased growth of fibroid tumors following constant worry. The mind is a potent factor in contracting infectious diseases. It is a well-known fact that physicians owe their immunity far more to this fact than to any special care they take of their persons toward warding off these diseases. Professor Rolliston points out the wellknown fact that after a defeat in battle, an army of healthy soldiers readily succumbs to dysentery, scurvy, malarial fever, etc.

Sir James Paget tells of a young man who had hemoptysis on his birthday for 9 consecutive years, being quite free during the intervals, but who died of rapid pulmonary tuberculosis after the tenth anniversary. We might continue narrating instances in which the mind is the causative factor in disease, both functional and organic. We might also show how our civilization and modern modes of living are producing mental and physical weakness by the various agencies at work under the sanction of law. The conditions of modern life which act on our complex and excitable nervous systems have much to do in bringing about phenomena that perplex the physician in reaching a diagnosis and formulating a suitable course of treatment.

As previously mentioned, our modern systems of education are also influential in promoting nervousness and in contributing to the increase of mental diseases. The general tendency of modern education on the young is to increase the activity and susceptibility of the nervous system by modifying the nutrition of the brain centers and overstimulating their growth; and in fragile, sickly, or badly-nourished children inducing brain exhaustion, cerebral anemia, hysteria, and finally organic diseases. Growth must precede function, and if while the child is so young or delicate and the functional activity still feeble, we apply undue exercise or stimulation, the brain powers will never be brought to their highest degree of development. The whole future complexion of mental life is, in great part, determined by the impressions made on the sensory centers of the brain when they are undergoing development.

From a therapeutic standpoint we must aim in our systems of education at a harmonious development of body, brain, and mind alike, and we shall then attain progress and health combined. After careful study and a thorough analysis of all these important facts, with their pathologic bearing toward bodily ailments, we can readily see why the mind is in such intimate relation to the body.

Psychotherapeutics is an important branch of medical science, and is apparently in its infancy. Its power for good in the hands of the educated physician was never more pressing than at present. There can be no doubt that if the mental factor in medicine had been properly recognized, studied, and taught by our predecessors in medicine, quackery, witchcraft, faith cures, osteopathy, eddyism, etc., would never have attained the position they hold today.

The modern doctor must understand the pathology and hygiene of the intellect if he would be successful in his cases of neurasthenia, hysteria, and the many other functional nerve diseases.

The neglect of the mental factor in medicine is a source of unpardonable weakness on the part of the medical profession. Our failure to appreciate this important fact in the past has been the one prolific cause of so much skepticism on the part of the laity, and has driven millions of our good paying and intelligent patrons to seek relief at the hands of uneducated fanatics and quacks, who play their role under the guise of Christian science, osteopathy, faith cures, etc. We must take a full share of blame for this state of affairs, and endeavor

to make amends in the future for our neglect in the past.

If it is possible or even probable that such persons as Mrs. Mary Baker Eddy and Mr. Alexander Dowie, and others of less repute of their kind, can cure disease through the influence of the mind, why should not educated physicians make use of this mental factor in medicine?

There have been undoubted cures of both functional and organic diseases wrought through the mind by these so-called religious fanatics. If there had been no cures, their theory and so-called science would long ago have died and been buried in oblivion. Instead of this, however, Mrs. Eddy boasts of a clientele of over 2,000,000 Americans, and an equal number of English. In New York City Mrs. Eddy has a church that cost over \$100,000, and it is crowded every Sabbath with an educated class of people, who pay both homage and money to their apostolic healers to be cured of their bodily ailments.

Chicago has been turned almost upside down by one of these spiritualistic fanatics, who has the walls of one of the largest halls in the city decorated with crutches, canes, and splints presented him by cured patients and patrons.

These wonderful and mystifying cures are vouched for by the healed in every section of the country, and while they cannot be explained by physiology, yet they are nevertheless true. Eddyism shows plainly how the mental factor can be utilized by charlatans, who continue to reap golden harvests from their followers, while the educated physician, with all the scientific training and modern equipment that can be afforded him, stands off in silent amazement, exclaiming "what fools they are!" Dr. Schofield says: "While most men are fools, still cures are effected by not only respectable quacks, but the most arrant knaves, and testified to by respectable people, including the clergy." Many of these cures are not lasting, many are trivial, but many are complete. We have distinguished men and professors in the medical profession, such as Charcot, of France, and many of honor and repute in our own country, who testify to cures of all sorts and kinds without medicine or physical means. All this may appear to some as a "riddle" of the most perplexing kind, and when the last echo of the laughter of derision and the last curve of the smile of contempt have died away, there remains much to make the conscientious physician of this age ponder, think, and act.

In my judgment, every recognized medical school in this country should have a chair on psychotherapy, including under this head psychophysiology and psychopathology.

Until this is done we need not expect to attain to the full function of our noble calling, nor obtain the honor that rightly belongs to medical science.

Lay Sentiment on Physicians' Charges.—With regard to the enormous fees sometimes charged for attendance on wealthy people, to which so much exception is taken by persons who have nothing whatever to do with the matter, we can see no good reason for finding fault with them. Suppose the patient is a millionaire, who spends hundreds of thousands yearly on the mere pleasures and luxuries of life, and who cannot possibly get more out of existence than he does. When illness attacks him all the delight of life vanishes and his money is powerless to help him. With death staring him in the face he would gladly give half his wealth to any one whose skill could avert death and restore him to health; but no physician drives such a bargain with him in his dire extremity; and, after all, the largest bill ever yet sent in, is small compared to what the patient would pay to a lawyer for gaining a suit, or expend on one or other of his costly pleasures when he is in health. To the honor of the profession, be it said, there are very few instances on record of large fees being charged to those whom the doctors knew to be in such circumstances that it would be difficult for them to pay them; while hundreds of instances are known of the most generous treatment of patients in poor circumstances by men who are in the habit of receiving large sums for everything they do.—[*Charleston (S. C.) News and Courier.*]

SPECIAL ARTICLES

A COMPARATIVE STUDY OF ANIMAL BLOOD.

BY

EDWARD T. WILLIAMS, M.D.,
of Boston, Mass.

The first scientific classification of the animal kingdom was that of Aristotle (384-322 B. C.),¹ who divided the animals into 2 classes, the blooded and the bloodless. It was subsequently ascertained that the so-called bloodless animals had colorless blood, which led to the substitution of the terms red-blooded and white-blooded in place of the original nomenclature of Aristotle. Still later it was discovered that annelid worms (leeches, bristle-worms and earth-worms) were possessed of red blood, which led to the entire abandonment of the old classification and the adoption of the words vertebrate and invertebrate.² But this change of names did not alter the general truth that the blood of the vertebrates was for the most part red, while that of the invertebrates was white. Finally Cuvier³ subdivided the invertebrates into 3 sub-kingdoms, articulates, mollusks and radiates, to which modern zoologists have been compelled to add 1 more, the protozoans. It has also been ascertained that there are no hard and fast lines between any of these groups; intermediate and transitional forms occurring everywhere as connecting links between the various classes.

In the lowest animals, the protozoa, we find nothing which can properly be called blood. The one-celled organisms, like the ameba, absorb nutriment and disgorge the waste products by the simple process of imbibition and exudation. Yet the contents of the cell are frequently seen to be in motion, often of a rotary character. In the many-celled organisms the nutritive juices are passed on from cell to cell, like the sap of plants.

The radiates are more doubtful. Most of them, like the sea-slugs (holothuria), sea-urchins (echini), and star-fishes (asteriades), are permeated with water-vessels, generally connected with the intestinal canal, through which the products of digestion (chyme), mingled with sea-water, are carried to all parts of the body. They are supposed to perform the double function of supplying the tissues with nutritive elements and oxygen, and of carrying off excretory products. So far as I can learn, there are no clear evidences of a blood system in radiates.

We now come to certain marine worms which seem to form a connecting link between the protozoa on the one hand and the articulates, mollusks, and vertebrates on the other. Some of these forms are distinctly segmented like the annelids, others have shells like the brachiopods (lamp-shells), while the ascidians (sea-squirts), whose anatomy and development have been particularly studied by Kowalevsky and Kupffer are possessed of a true notochord, which unmistakably connects them with the lower vertebrates.⁴ Nearly all these worms have a heart, a closed system of blood-vessels and a true blood, which in all except the annelids, is colorless, and contains ameboid corpuscles precisely resembling the vertebrate leukocytes. The blood of the annelids is red, but this is simply its natural color, and not due to the presence of red corpuscles as in the vertebrates.⁵

The mollusks, I believe without exception, have hearts and bloodvessels, and a white blood with ameboid corpuscles.

The articulates vary. The marine forms, like lobsters and crabs (crustacea), have a well-developed heart and bloodvessels, and a white blood with ameboid corpuscles, like the mollusks.

In the insects the blood system is comparatively rudimentary, while the breathing apparatus is enormously developed. The body is completely permeated with air tubes communicating with a system of dilatable air sacs, which not only furnish the tissues with oxygen but give lightness and buoyancy to the frame.

The last of the series is the lancelet (amphioxus), which though always classed as a vertebrate, has no backbone whatever. Its place is supplied by a cellular notochord, like that of the ascidian, or the young vertebrate embryo. The blood, moreover, is white, and contains white corpuscles.

The true vertebrates have 2 kinds of blood, white and red. The white blood, which is strictly homologous to that of the invertebrate animals, consists of lymph and chyle, with their peculiar cells. These fluids contain albumin, fibrin, and salts in the same relative proportions as the red blood. The red blood is simply lymph, enriched with vast numbers of red and white cells from the spleen and bone marrow.

This conception of the blood is by no means new. It is clearly foreshadowed by numerous authors, among whom I may include Carpenter⁵ and Chauveau.⁶ It would seem, however, to be completely ignored by the new school hematologists.

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THE SCIENTIFIC BASIS OF MIND CURE.

BY

SELWYN A. RUSSELL, M.D.,

of Poughkeepsie, N. Y.

"Thoughtless people contradict as readily the statement of perceptions as of opinions, for they do not distinguish between perception and opinion. They fancy that I choose to see this thing or that thing. But perception is not whimsical, but fatal. If I see a trait, my children will see it after me, and in course of time all mankind, though it may chance that no one has seen it before me. For my perception of it is as much a fact as the sun."—Emerson.

Being a patron of *American Medicine*, I have from the first felt a deep interest in its pages, and especially have the editorial columns had an attraction for me, for in them I see the editor and become acquainted with his personality, and learn his views upon the various questions of interest to the medical man. I have noticed, however, not without a degree of amusement, the effect on this most excellent journal of the literature (save the mark!) emanating from alleged mind cure sources, an effect somewhat like that of a red rag shaken at a bad-tempered bull! For, according to the editorial comments, there is in it not only no good, but it is an evil unmixed and unmitigated. Much of this alleged literature is indeed off-color, and though not exactly yellow, nor precisely blue, it may be said to combine the two.

This so-called New Thought literature really has in it much that well might excite to wrath, laughter or tears, according to the reader's point of view. Surely the ignorance so often displayed is pitiful, the assumption ridiculous, the occasional mountebankery offensive. That most of these misguided folk are for the most part moved by good intentions cannot be doubted (it is the pretenders who are objectionably blatant), but good intentions are not enough; knowledge is as necessary as integrity. The persons who write on this subject are generally such as have been cured of some disease by mental treatment, and this single fact generally is the only one which entitles them to a hearing. They usually have made no study of the subject, properly speaking, and too often they are not students in any sense. Hence, it is not strange that they see this single fact altogether out of focus, nor that they should have extravagant notions of its importance. Being men of one idea, that single idea is in a measure wrong, for it is not correlated with other ideas, and therefore there is no perspective, no means of estimating its relative and therefore its proper value. But we must accept the initial fact of cure, the alleged facts and illogical inferences must often be either rejected or accepted with great caution. Although we are bound to reject what is false, we are under the same bonds to accept what is true, which applies as much to Christian science as to the other forms of mind cure.

Assuming, for the sake of argument, that these folk though evidently misguided are generally honest, we may at least accept their statement as to the fact that they have been cured of something, though it may not be what they say or in the

manner they describe; but these two possible errors may be due (1) to their ignorance of disease: (2) ignorance of psychology, and (3) ignorance of therapeutics. Admitting that they have been cured of something, if their explanations do not convince us of their truth we may investigate for ourselves. Their ignorance of pathology and therapeutics is more excusable than their ignorance of the English language, but at neither of these need we feel surprise or offense.

Even their alleged facts show great carelessness of observation, classification and recording, so that what they really have experienced is often most difficult to get at. But they have seen something; they have had a vision, and this vision has been to them a sort of "revelation." They regard it in that way, which is especially true of Mrs. Eddy. This "perception" of something "is as much a fact as the sun;" their whims and notions do not invade here. They have seen a fact in nature, and not being able to classify it, it has classified them. But partial as they are, they are perhaps not more so than the specialist in medicine who sees in one organ the cause and cure of all the ills that flesh is heir to.

Seeing disease actually cured by mental means is a great and significant mystery to them, is really miraculous, and they are consequently led into all sorts of extravagant and ridiculous statements. But we must handle the fact with care, and reverently, and try to discover exactly what it is and where it belongs. For facts are stubborn things, and must be reckoned with, and it matters not so much where found or how much mixed with error, it is the duty of the man of science to rescue them from bad company. As the diamond is still precious though found in the gutter, so a fact is still a divine thing, regardless of any possibly bad associations, and it is, therefore possible that even Christian science and other forms of mind cure may still have in their bushels of chaff some grains of genuine wheat.

It is the truth we want, and though it may be difficult to sift it out, it is not impossible, and the task may have its compensating rewards; and the task will be all the easier if we approach it without prejudice or prepossession, but with the determination to see exactly what it reveals, and to recognize and accept it notwithstanding its besmirched appearance or its seeming inconsistency with previous ideas. Truth survives all sorts of bad usage, and its best feature is that it only shines the brighter because of it. We are not in sympathy with our orthodox friends who seem to think it sacrilegious to subject what they denominate revealed truth to any test of accuracy, as if any truth were too sacred for examination or criticism. Truth may be bandied about in the most irreverent manner, or even flung away as worthless or positively harmful, but it not only survives such treatment, but seems all the more brilliant for such misuse.

"Truth crushed to earth shall rise again;
The eternal years of God are hers."

And so we come at last to have a great reverence and love for the truth, indeed, the honest man feels that he can safely worship at no other shrine. This love of truth makes him very jealous of it, and begets in him a desire above all things to see it justified, that it may have its deserts and prevail.

Fully aware of these general truths, and with all due deference, may we not reverently rake over what has been irreverently called the "rubbish" of Christian science in the hope of finding some compensation for our trouble? The Christian science folk very wrongly claim that their cures are positive proof of the correctness of their theories, and all their theories. But with the same sort of reasoning we should have to admit that the cures wrought by the various other forms of mind cure (faith cure, divine science, animal magnetism, osteopathy, the water of Lourdes, etc.) are equally positive proof of the theories given in explanation of them. For all these have cures as certain and theories as positive. The scientific man, quite willing to accept the fact of cures, is equally unwilling to accept the explanations. Even Christian science itself, while claiming the correctness of its own theories, at the same time denies the correctness of the others' theories, arrived at by the same process of reasoning. But most of the theories formulated to explain the facts are manifestly impossible. Not-

withstanding this, is there not some underlying fact or factor, unrecognized by these partialists, persons of one idea, which may rationally account for the cures? Without doubt there is.

There are several points of view from which mental treatment appears not only rational, but inevitably necessary; also from which it is equally clear that medical treatment is not only irrational, but doomed to failure. It should be possible to make these points so clear as to leave no doubt that mind cure stands for a truth easily demonstrated by facts. If such demonstration is not possible, mind cure is without scientific basis and unworthy the study of thoughtful men.

Plato has been called great because he saw that every question has two sides, and although the present plea is for the admission of mental conditions as factors in the cause and cure of disease, I disclaim any wish to ignore physical causes or minimize their importance. Excess of skepticism is as bad as excess of credulity, and the aim of this writing is to show that it is just as necessary to admit facts in the domain of mind as in that of matter. While we are not yet able to get on without medicines, which seem still to have a limited use, the more study we give to the origin of disease the more potent and far-reaching seem mental influences. The mind is the first fact and must lead, the body is secondary and must follow. Trouble begins when this order is reversed and the body is allowed to dominate. But with a sound body, perfectly obedient to the laws of nature and subject to a mind free and independent, one might naturally expect perfection of health, which means, of course, the absence of disease, and were it not for disease there would be no need of medicines.

1. Prominent among the causes of disease is that negative one, lack of resistance, and modern research teaches no more important lesson than that disease of any sort, germ diseases like others, occurs in the same measure as this resistance is lacking. It is well known that this lack is often caused primarily by mental depression and its consequent physical depression, the one being an exact measure of the other; and the general health being thus reduced, it is perfectly natural for the most vulnerable part (the point of least resistance) to show the first signs of failure. It is the weakest link which gives way first in a chain subjected to general strain. And so with the organs of the body—which for the purpose of comparison may be considered as links of a chain—it is the weakest which first shows signs of disorder during any stress on the general system. In short, mental depression causes physical depression, and physical depression means lack of natural resisting power, or *susceptibility*. So mental depression is remotely the cause and equivalent of susceptibility. The first cause, the cause of causes, is thus seen to be mental in these cases.

2. The effect of the mind on the body may be seen to good advantage in the delicate sensitiveness of the individual constituent cells forming the different organs, for we know that whatever affects the single cell may affect the whole organ; that is, the organ through the cell, not the cell through the organ. No one can read Prof. Mosso's book on "Fear" without arriving at the conviction that at least this emotion (fear) produces changes in the circulation and cell-nutrition that are most remarkable. A moment's reflection will make it clear how fine and delicate the influences might be, mental or physical, to operate for or against this minute organism. Bathed as it is by the fluids of the body (itself the product of these same cells), it depends on the normal condition of these same fluids for its maintenance, growth and healthy action. Many and various are the delicate causes, in the mental sphere, of disturbed relations of these parts, which disturbance means want of harmony, and want of harmony means more or less dis-ease. And these minute organisms, according to Mosso, are affected alike by mental and by physical means.

3. An important group of mental cases are those in which certain emotions produce in the system substances of apparently poisonous nature. For example, a nursing mother, affected by violent anger, may develop in the milk secretion poisons which cause vomiting, convulsions, or actual death of the child. Medical literature gives many instances of this sort. If the milk secretion is thus affected by emotion, is it not a legitimate and necessary inference that other secretions (perhaps also excretions) are similarly affected? This has been

shown by actual experiment. This being true, would not careful examination show that different organs produce different baneful substances, according to the violence of the emotion, its character, duration, etc., substances which might act injuriously on the person secreting them, causing disorder and finally disease? The inference is wholly logical and legitimate. In such cases it is evident that only mental treatment is indicated.

4. A fourth class of cases is seen in the functional disorders of different organs caused by depressing emotions, the more violent the emotion the more acute and severe the disorder. Among these emotions may be mentioned grief, fear, fright, anger, hatred, jealousy, envy, etc. How often, for example, is loss of appetite caused by violent emotion, or impairment of digestion, nausea, vomiting, perhaps diarrhea. Insomnia is a frequent result; the hair may be rendered harsh and dry, perhaps turned gray; the perspiration increased or diminished, or the saliva affected in the same way; the temperature raised (fever) or lowered (chill); headache is a common consequence; there may be palpitation of the heart, difficult breathing, etc.; the urinary secretion is often affected, and so forth. If such emotions are allowed to control the mind indefinitely, these disorders tend to become fixed, and finally result in actual disease. These emotions, with the consequent physical disorder, are so frequent and familiar illustrations of the effect of the mind on the body that it is remarkable that the far-reaching significance and the necessary inferences have not been more generally recognized, especially by medical men, who appear to have almost wholly neglected them. For it is readily seen that chronic disease may be due, and due only, to long-continued mental depression of this sort. One needs only to look about among acquaintances to discover many such cases. The patient, and too often the physician, failing to see any connection between the immaterial cause and the material effect, ascribe the disorder to something else, and therefore what might be got at and perhaps easily removed is allowed to remain, a monument to the ignorance and consequent inadequate treatment of the medical man. Very many ailments, often of chronic character, belong to this class.

5. A fifth cause is more profound and one that affects the moral nature or the character itself, and though it may seem to some that there is no relation between moral soundness and physical soundness, it is the verdict of the ages that there is an unalterably fixed relation. But the age in which we live is given up to materialism, a devotion to material things and interests, the neglect of spiritual for physical needs and considerations. The effect of moral character on the physical health must be looked for, however, only among such as would be guided by conscience, and therefore with the idealists. To define the limits of this influence is not an easy task, and I cannot claim the qualifications necessary to do more than point out what seem the most conspicuous facts.

The soul being the first and most important fact, the care of it rightly demands one's first attention and best efforts. This is the theory, to which there are very few dissenting voices among thoughtful and well-informed men anywhere. But conviction is worthless till it converts itself into conduct and character. If a man is convinced that the soul is supreme and should govern the body and the senses, and not be governed by them, may we not naturally expect disorder and disaster first, last, middle, and all the time, when the poor soul is driven into a corner, dethroned and silenced? The question naturally occurs, is not man to a large extent misdirecting his energies and striving day and night continually for that which profiteth not? Is it not a fundamental mistake to ignore the injunction of the world's greatest Teacher—"Seek ye first the Kingdom of God, and all other things shall be added?" If man is not heeding this grand injunction, and still feels the imperative necessity of doing so, is not here a source of eternal discord and dis-ease? Is he not consciously working at cross purposes by thus yielding obedience to the senses and silencing the voice of conscience? "The ingenuity of man has always been dedicated to the solution of one problem—how to detach the sensual sweet from the moral sweet, the sensual fair from the moral fair—to get a *one end* without the *other end*. The soul says, eat; the body would feast. The soul says, the man and woman shall be one flesh and one soul; the body would join the flesh only. The soul

strives amain to live and work through all things. It would be the only fact. All things shall be added unto it—power, pleasure, knowledge, beauty.”

It seems to me that the pith and essence of the Christian science doctrine is its idealism; if one word may be used to define it. To be sure, it is a blind and ill-advised attempt to realize the ideal. But it seeks to enthrone the soul, to make it and not the body the final arbiter. And the man who has abandoned himself to this guide, and feels himself in the grip of this imminent and invincible force, has faith in it and trusts himself to it, bending himself in loving obedience to all its dictates, is in possession of, or is possessed by, a power for good that is great beyond comparison. Above all, is it a source of self-reliance and self-confidence, and consequently of health, strength, and vigor almost without limit. It acquaints man with himself and his own resources, serves to put him on his own feet, allies him with nature which, by keeping its laws, he is able to command. Everyone knows the great value of this self-confidence—coming from an infinite faith and a perfect trust in this indwelling force—which goes far toward making the man invincible.

It is not necessary here to refer to the many erroneous beliefs and the consequent absurd practices of our Christian science friends, but aside from these and back of them is this residuum of truth which is sufficient to account for the healing of disease done by them—and to them miraculous and positive proof, as they claim, of the general correctness of their theories; but to one acquainted with psychology, neither the one nor the other. Both Christian science and mind cure (which, unlike Christian science, is, at its best, thoroughly rational and scientific) have too many apologists of the unscientific sort, men who evidently are not used to dealing with ideas (except in bad English), who have, most unfortunately, but one idea, and who, therefore, say many things that are both untrue and absurd. But they have had a vision—have seen a fact in Nature—but as they do not understand it, they, of course, cannot rationally explain it. Hence so many extravagant claims and so many statements practically false, though made with the firm belief that they are true. What these men need is not ridicule, but information, and other ideas to balance and correct the single idea which now so overwhelms them. Not being able to classify their fact, they must submit to the mortification of being classified by it. But some allowance should be made for them. They have seen a truth at first hand, and its significance they cannot measure, so they claim everything for it, as it is easier to believe than to judge. Inclined to mysticism, they believe because they cannot understand. The greater the mystery the stronger the attraction.

On the Delphian temple were inscribed the words, “Know thyself,” and no other knowledge is comparable with this. But in these days, who teaches man this knowledge? Surely not the schools, nor the church. But he learns it, if he learns at all, in God's dear school of experience, and too often learns so late in life that he can put his knowledge to little use in the betterment of himself or of others.

Finally, mental science, in its best sense, undertakes no less a task than the regeneration of the soul, for this is the necessary fundamental work. It aims to teach the man how to think, and, therefore, how to act—in short—to know himself. It braces the will (the man), teaches self-reliance and self-confidence; endeavors to unmask adversity, and to show that it is really but the prosperity of the great; that calamities are but divine instruments of training; that the ills of life may be, and should be, our schoolmasters, that they are disciplinary and educational; that depressing emotions, such as anger, hatred, envy, etc., are not to be indulged in, for the reason that they are even more harmful, both in mind and body, to the one influenced by them than to the one they are aimed against. It is a rational and logical system of getting at the springs of action, and, therefore, whether in disorder of the mind or of the body, it seeks the cause—the first cause—and when the cause is removed the effect ceases of itself—the only reasonable mode of curing anything. It not only aims to put the man on his own feet, give him possession of himself, and acquaint him with his own sufficient resources, but also to show him how he may be able to cope with the various requirements of life. It teaches

that “man is a born subject, and the service of God is perfect liberty;” that character counts, not wealth nor station; that the soul is supreme, and, therefore, in matters of doubt is the sole arbiter.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

March 5, 1904. [Vol. XLII, No. 10.]

1. The Present Status of the Medical Expert. ALGERNON T. BRISTOW.
2. Chronic Adhesive Sclerosing Peritonitis, or Plastic Peritoneal Sclerosis. HORACE G. WETHERILL.
3. A Study of Gout. JAMES D. MORGAN.
4. A Study of a Case of Green Urine, Resulting from the Administration of Methylene-blue in a Proprietary Remedy. JAMES M. COOPER.
5. A Report of Ten Cases of Pneumothorax Occurring in Pulmonary Tuberculosis. J. W. TRASK.
6. Headache from Nonsuppurative Inflammation of the Accessory Sinuses of the Nose. CHARLES M. ROBERTSON.
7. Hospital Experience Necessary for Licensure: A Suggestion in Medical Education. LAWRENCE E. HOLMES.
8. The Plastic Surgery in the University Maternity for the Year 1903. BARTON COOKE HIRST.

2.—Chronic Adhesive Sclerosing Peritonitis.—H. G. Wetherill finds that this disease has escaped recognition in most American textbooks. It may occur at one or many points in the peritoneal cavity as a consequence of chronic inflammation, the thickening finally leading to shrinking. Many cases have no acute stage, and are without definite cause for onset. Chronic constipation often results from the adhesions. It is not primarily a peritonitis, but a distinct affection of the sub-peritoneal and visceral connective tissue, the feature of adhesive peritonitis supervening as a result of traumatism, operation, or transmigration of intestinal bacteria. Might it not better be called plastic peritoneal sclerosis? He reports a case, the points of interest being rareness, failure to generally recognize it, its exhibition of the pathognomonic sign, inability to unite a shrinking peritoneum when once divided during operation, the chronicity of the case, the importance of covering all denuded surfaces to prevent adhesions, the characteristic hyperplasia, the shrinking, the possible significance of a similar process in the skin coincident with unaccounted for gastrointestinal symptoms, the diagnostic value of this syndrome, the danger of serious sequels incident to surgical treatment. [H.M.]

3.—Gout.—J. D. Morgan illustrates his articles with cuts, including radiographs of gouty and other conditions of the joints, showing the deposits in gout and the destruction of the bony tissue in arthritis deformans. In chronic rheumatism it is often astonishing how little the joint may be altered. He discusses the difficulty of distinguishing clinically at times between rheumatism and gout. [H.M.]

4.—Green Urine.—J. M. Cooper reviews the literature of the subject, which is scanty in America, and details the various tests applied to the urine in the case reported, these showing that the quack pills which the patient had taken contained an impure preparation of methylene-blue, the impurities probably being small amounts of basic anilin greens, either malachite or helvetia green. Practically all cases of blue or green urine reported have been due to some anilin dye. Urine is frequently green instead of blue after taking methylene-blue, especially that first voided. In this case the green may have been due to modification of a faint blue by the intense yellow of the urine noted when the pigment was removed. [H.M.]

5.—Pneumothorax in Pulmonary Tuberculosis.—J. W. Trask reports 10 cases, 5 of which were approaching the period when their tuberculosis could be considered as arrested. With 2 or 3 exceptions the accident occurred when the patient was not exerting himself, 5 attacks coming on in the night. The extent depended on the adhesions, perforations occurring where these were young and friable. Eight cases had fluid in the cavity. The symptoms of onset were intense pain in the affected side, dyspnea, distress, cyanosis, and rapid pulse. In one case there was no pain. The patient lay on the sound side till the pain subsided, and then on the affected side. The symptoms were as severe in the partial as the total cases. Pneumothorax would seem to be more common at Ft. Stanton than elsewhere, and the prognosis less hopeful, 8 of the 10

patients dying. This may possibly be due to the altitude, 8,150 feet. [H.M.]

6.—Headache from Inflammation of the Accessory Sinuses.—C. M. Robertson thinks the pain is produced by diminution of pressure, the oxygen being absorbed after closure of the opening by the swollen mucous membrane. He relieves the condition by applications of cocaine, adrenalin, etc., to the turbinates. [H.M.]

7.—Hospital Experience Necessary for Licensure.—L. E. Holmes thinks present methods for raising the standard inadequate. It will be many years before any but the best schools will require a college degree. He suggests that State boards require at least one year's hospital work as interne before a license is granted. That there are not enough hospitals for each graduate should result in cutting down the number of students now far in excess of the demand. Such a requirement is imposed in other countries. [H.M.]

8.—Plastic Surgery in the University Maternity.—B. C. Hirst for several years has repaired all the accidents to the parturient canal during the puerperium. The results have been good in every case. An operation on the cervix before the fifth day is often followed by infection of the endometrium. At the end of a week this is not the case. Operation is under anesthesia. The cervix has been repaired in 53 cases and the anterior vaginal wall in 42 cases during the year. Why should any woman be condemned to years of disability and invalidism as the result of childbirth, and finally be subjected to a secondary operation when she could be restored to a perfect physical condition during the lying-in period. [H.M.]

Boston Medical and Surgical Journal.

February 18, 1904. [Vol. CL, No. 7.]

1. Slipping or Recurrent Dislocation of the Patella; with the Report of Eleven Cases. JOEL E. GOLDTHWAIT.
2. Scientific Aspects of Moderate Drinking. FRANCIS GANO BENEDICT.
3. The Use of Obstetric Forceps. WARREN R. GILMAN.

1.—Slipping or Recurrent Dislocation of the Patella.—J. E. Goldthwait says this condition is seen almost entirely in girls or women, being due mainly to the angular pull of the quadriceps extensor muscle and often associated with flat-foot. The tendency to recurrence is increased by an abnormally long patellar tendon, knock-knee or unnatural development. In an operation the chief object is the straightening of the line of the pull of the anterior thigh muscles. This is best accomplished by transplanting the outer half of the patella tendon so that it is attached well to the inside of the tubercle of the tibia. If the tendon be too long it can be shortened. The relaxed capsule is a result of the mechanical pull and can be ignored. Eleven cases are reported and of them 7 were operated upon. Of the operated cases, 4 had the outer half of the patella tendon, and one had the entire tendon transplanted to the inside, and as 3 had both knees treated, there were 8 operations, with normally strong joints in 7, the ultimate result in the eighth being uncertain, as sufficient time has not elapsed since the operation. [A.B.C.]

2.—Moderate Drinking.—F. G. Benedict discusses the vagueness of the boundary-line between moderation and excess, and shows that neither Anstie's physiologic limit, $1\frac{1}{2}$ ounces, nor Abel's, which is about half the former are applicable to all individuals. Statements of persons habitually using alcohol as to its beneficial or deleterious effects are unreliable. Medical men are changing their views radically regarding the use of alcohol as a tonic, digestant, heart stimulant, etc. Whatever differences of opinions exist among others, the life insurance companies are agreed that drinkers belong in the class of hazardous risks. In these companies we have the best separation of heavy drinkers from moderate drinkers, and consequently can make more exact comparison between the latter and total abstainers. In one of the largest English mutual companies the average ratio of actual to expected deaths in the total abstinence section has been 24.7% less than that in the general section. The bonus was correspondingly greater. Dr. McClintock, in this country, has found a difference of 18%. These percentages are too large to be wholly attributed to habits other than that relating to the use of alcohol. The

proved effects of small doses in decreasing intellectual activity should be clearly stated to the general public, for they are important in determining a man's efficiency. In typesetting a difference of 15% has been demonstrated. The greater efficiency of American over English workmen is due largely to differences in drink habits. A railroad president writes: "All large employers establish rules which make it practically impossible for an employe who uses liquor to remain in the service." That there is 1 drunkard among every 74 males shows the danger of habit formation. The average young man, using alcohol, jeopardizes his chances of success through diminution of mental and muscular power, and antagonizing the prejudices of his employer. [H.M.]

3.—Use of Obstetric Forceps.—W. R. Gilman says the forceps being applied, traction should be made forward until the occiput clears the symphysis; then the handles are raised and the head extended over the perineum. The perineum should be dilated slowly by intermittent tractions, the head being allowed to recede between them. It is his custom to remove the forceps when the head has thoroughly dilated the perineum. With the patient on her left side, the thumb behind the anus pushes the head forward over the perineum, and delivery of the face is accomplished as in normal labor. The high forceps operation is very difficult, and, in the hands of any but the most experienced, dangerous for both mother and child. When the head floats, or the largest diameter of the head does not come through the superior strait, he much prefers version to forceps, and with the average practitioner the results are much better. If the membranes are ruptured, however, version is dangerous, if not impossible. When the head has engaged, the forceps may be applied and, if impossible to place them in perfect position, grasp the head obliquely, one blade over the temple and the other over the posterior parietal bone. As the head descends, change their position to a better one on the sides of the head. [W.K.]

Medical Record.

March 5, 1904. [Vol. 65, No. 10.]

1. The Treatment of Gunshot Wounds by British Surgeons during the War of the Revolution, 1775-1783. STEPHEN SMITH.
2. The Rationale of the Natural Arrest of Tuberculosis; a Study Explaining the Effect of Sea Voyages, Outdoor Life, Etc., on the Disease, with Suggestions as to Ideal Treatment. W. B. McLAUGHLIN.
3. Running Ear. A. C. BARDES.
4. Neuralgia Due to Dental Irritation. WILLIAM J. LEDERER.
5. The Physiology of Hunger. AXEL EMIL GIBSON.

1.—Treatment of Gunshot Wounds During the Revolutionary War.—Stephen Smith, in his article, quotes largely from H. St. John Neale, surgeon in the British Army during the Revolutionary war in America. The numerous quotations, together with comments thereon, make up an interesting article. For instance, Neale asserts that he instructed all of his noncommissioned officers in the application of the tourniquet, and each one of such officers carried a tourniquet constantly with him. Thus it appears that an elementary form of first aid to the injured was instituted at this early date. He held that gunshot wounds at that time healed kindly, but there were 4 indications to be fulfilled in order for recovery to take place. He lays much stress upon dilation of the wound in the treatment, and held that removal of the ball should not be attempted if it was attended with much laceration of the tissues. In this he asserts that he differed from most of his fellow surgeons. He asserts: "Every contusion of the skull requires the trephine, because it must be done sooner or later with disaster to the dura mater." He held that wounds of the spinal cord, stomach, intestines, pancreas, and liver were almost universally fatal, though the wounds of the lung, in many cases, were recovered from. Opium and Peruvian bark he mentions as among the definite remedies to be administered in the internal treatment of gunshot wounds. [A.B.C.]

2.—Rationale of the Arrest of Tuberculosis.—W. B. McLaughlin says that if we assume that bacilli are finally destroyed by the formation of an antitoxin within the tubercle, we also assume the impossibility of reaching them in their walled-off condition by the injection of an antitoxin into the circulation. The rapidity with which the germ is walled off is

directly proportionate to the vascularity of the tissue involved. The chronicity of the disease in the lung is due to admixture with pus cocci and constant reinfection. Success in treatment depends on the degree of completeness in preventing reinfection. Upon this depends the value of climate and mode of life. More people have tuberculous nodules in their lungs without symptoms than the number of those who die of tuberculosis. What takes place in sanatoriums is the conversion of mixed infection into pure tuberculosis, or the conversion of mixed infection into one of less virulence, consequent on less frequent reinfection; or on reinfection with attenuated pus organisms. If a patient with chronic ulcerative tuberculosis is kept in sterile air and his person as aseptic as possible, his ulcerative tuberculosis will be converted into a pure tuberculosis, or what is known as latent tuberculosis. Autopsies teach us that only 40% of latent tuberculosis cases become active. Thus we can logically expect 6 out of every 10 cases treated, to remain well, and 4 to become reinfected and return for another period of treatment. [H.M.]

3.—Running Ear.—A. C. Bardes asserts that a discharging ear is nearly always the sequel of an acute otitis media and the fact that it becomes chronic is proof of the lack of proper attention in the acute stage. In treating this condition the relation of the internal ear to the pharynx, mouth and nasal cavities must be kept constantly in mind. Formerly this disease was regarded too little and even today it does not receive proper attention; 3% of all persons suffering from a discharging ear die from the results of such aural complication. A suppurating ear may at any time burst into renewed activity and become a dangerous or even fatal condition. In the early stages of the suppurating otitis merely the connective tissues of the middle-ear are involved, but later the bony portion becomes involved and the disease often extends to the antrum and mastoid cells. Multiple perforations in the ear drum are indicative of tuberculosis; perforation high in the drum indicates increase of the ossicles. In the treatment the membrane should be incised freely and thorough drainage established. The irrigations which he has found of most value are: A weak solution of silver nitrate, zinc chlorid, carbolic acid, formalin, tincture of iodine and mercuric chlorid. [A.B.C.]

4.—Neuralgia Due to Dental Irritation.—William J. Lederer says the causes of dental neuralgia are many, but it has predisposing factors. Anything that lowers the resistance of the system will modify the conditions resulting from dental irritation, and anemia, syphilis, gout, and rheumatism predispose to neuralgia. The exciting causes are acute and chronic periodontitis, acute and chronic pulpitis, sensitive dentine, caries, pyorrhea alveolaris, foreign bodies in the gum, alveoli, or pulp chamber, and atrophy of the gum. Prognosis is favorable unless it is associated with other conditions, as malaria or syphilis, when it assumes the infective type. The acute diathesis in malaria must be looked for and treated in many of these cases. The exciting cause must be removed in all cases, constitutional treatment, when necessary, must be instituted, and mild cathartics given. Dover's powder may be useful, likewise codein, the various antipyretics, and quinin. Atrophy of the gums following removal of the teeth may be a cause of neuralgia. Impacted teeth are sometimes a cause of dental neuralgia, and these must be removed. The author has secured good results in the treatment of these neuralgias by the administration of quinin, iron, and arsenic combined, and at times nux vomica. [A.B.C.]

5.—Physiology of Hunger.—A. E. Gibson defines normal hunger as a sensation arising in consciousness whenever the balance between waste and repair is broken. It is a nervous act. When the stomach empties itself its motion ceases and the nerve terminations in its walls stimulated by the accumulated secretions of the glands, send irritations to the spinal cord and brain, which are interpreted in terms of hunger varying in intensity with the intensity of the conscious response to the stimulation. The sensation can be modified by mental effort. By refusing to entertain thoughts and images of food the gastric secretion will receive no stimulation and hunger be kept in abeyance. Demented and hysteric persons whose minds are busy with other subjective images may starve for weeks without making known any sensation of hunger. The case of

Antonio Viterbi, who chose starvation in preference to hanging for a political offense, also illustrates the power of subjective states in abolishing hunger. On the other hand, persons forced into starvation and fascinated with the imagery of a riotous appetite suffer indescribably and generally lose their reason before they lose their lives. There is a power in every individual enabling him to subdue morbid craving for food and drink. The secret of breaking a habit or passion lies in keeping the mind off the enticing subject. [H.M.]

New York Medical Journal.

February 27, 1904. [Vol. LXXIX, No. 9.]

1. Tertiary Syphilis of the Nose and Pharynx. W. SCOTT RENNER.
2. Some Points in the Care and Use of the Static Machine. THOMAS W. BROCKBANK.
3. Thrombosis of the Cavernous Sinus: With a Report of Three Cases. HENRY ROTH.
4. The Necessity of a Reliable Sign of Complete Anesthesia. CHARLES S. WHITE.
5. Frontal Sinusitis and Ophthalmoplegia Interna Partialis. H. MANNING FISH.
6. The Use of Formaldehyd as a Preservative in Urine. FRANK W. KENNEY.
7. The Comparative Digestibility of Raw, Pasteurized, and Sterilized Milk. T. M. PRICE.

3.—Thrombosis of the Cavernous Sinus.—Henry Roth discusses this condition and reports 3 cases. In the first case, a carious tooth in the upper jaw was undoubtedly the starting point for a fatal infection. In the second case, the thrombosis could be traced back to a furuncle on the nose, and in the third case, a furuncle on the upper lip, which was incised early, must be assumed as the point from which the infection spread along the venous blood-current up to the cavernous sinus. Cerebral symptoms were marked in all, but of greatest diagnostic value were the eye symptoms. The writer considers thrombosis of the cavernous sinus a very grave and fatal disease, which is usually secondary to some infection about the face or mouth. The causative agent, in the great majority of cases is *Staphylococcus aureus* or *albus* and *Streptococcus*. The infective process may spread by contiguity of tissues, but, in most instances, it is by continuity of the inner coats of the veins or the neighboring sinuses. [C.A.O.]

6.—Formaldehyd and Urine.—F.W. Kenney, after a careful investigation of the subject, says that formaldehyd, as an artificial ingredient of the urine, will lead to deceptive results in urinalysis by (1) making the urine appear albuminous when it is negative; (2) not giving a typical reaction when albumin is present. He says that the reliability of Introna's test, namely, the use of formaldehyd in albuminous urine as a reagent, is to be questioned, inasmuch as the effect of formaldehyd on negative urine is the same, though to a more marked degree, as that on albumin in solution, the difference in the color and density of the precipitate being, in his opinion, immaterial. He believes that as a factor in the production of a possible pseudoalbuminuria the therapeutic use of urotropin is a subject well worthy of extended observation and study. [C.A.O.]

Medical News.

March 5, 1904. [Vol. 84, No. 10.]

1. The Pathologic Anatomy of Shiga Bacillus Infection of the Intestines in Infants. JOHN HOWLAND.
2. The Utilization of the Lower Lip in Rhinoplasty: A New Procedure. CARL BECK.
3. A Simple and Inexpensive Rheostat to Use with the Electric Light Current. DAVID T. MARSHALL.
4. Traumatic Pyeloparaneuric Cyst. BERN B. GALLAUDET.
5. Ergot in Alcoholism, Morphism, and the General Class of Drug Habit Cases. ALFRED T. LIVINGSTON.
6. Suture of the Omentum to the Parietal Peritoneum (Epiploexy) for Ascites. JOSEPH H. BRANHAM.

1.—Pathologic Anatomy of Shiga Bacillus Infection of the Intestines in Infants.—John Howland enumerates the pathologic findings of Strong and Musgrave, Harris, Flexner, and others, and reports certain cases coming under his own observation. These are divided into 2 groups; one group comprising 5 cases, each representing the most severe changes met with and are similar to those found by Flexner and Strong. These are reported in some detail. The other group comprises 4 cases presenting a different picture. In these the mucous membrane in both large and small intestines was in a good

state of preservation, but the lymphoid elements had suffered to a marked degree. Characteristic cases are recited in detail. In conclusion he says: "If we endeavor to sum up the case as is here made out for the Shiga bacillus we shall have to say that there are comprised under the lesions associated with it, all grades and types of diarrheal disease as distinguished by clinical symptoms and pathologic findings and that it can be affirmed that no particular type is distinct from the others by a special etiologic region." [A.B.C.]

2.—Utilization of the Lower Lip in Rhinoplasty.—Carl Beck reports that a woman of 55 had suffered from epithelioma of the nose, which organ having been largely destroyed, the Indian method of rhinoplasty had been performed by swinging a triangular flap of skin from the forehead down over the nose. This resulted in a fair restoration, but a recurrence of the epithelioma again destroyed the organ. The author then operated by the Italian method, making a new nose from the tissues of the left arm. Recurrence again destroyed the improvised nasal member; again an operation was undertaken, which is herewith reported. After outlining a triangular flap, the lower lip was divided into its whole thickness from an inch from the left angle of the mouth downward to the chin. The flap-formation was finished by dissecting upward to the angle of the mouth, stopping a half inch below, in order to obtain a suitable bridge. The tip of the triangular flap was then turned around and sewed to the margins of the nasal defect, after extensive excision of the epitheliomatous area. The upper portion of the flap could be well approximated and fastened with silk sutures. A part of the flap had to be left free, as is shown by the black sphere overlying the upper lip. The results were good. [A.B.C.]

4.—Traumatic Pyeloparanephric Cyst.—B. B. Gallaudet reports that a youth of 12 was struck in the abdomen, which necessitated his being confined to bed for several days. After this his health was good for some 2 years, except for more or less continuous pain in the right side of the abdomen. He then fell, striking the abdomen with considerable force, for which he was again confined to his bed for 4 or 5 days with nausea, vomiting, and bloody urine. A month later the pain became intense, accompanied by abdominal distention; laparotomy was performed, and a quart of bloody fluid with blood clots was evacuated; the sac from which this came appeared to be connected with the kidney. The wound healed, with the exception of a sinus, from which urine was discharging. After several months there appeared attacks consisting of high temperature, delirium, and cessation of urinary flow from the sinus. Operation was again performed, and a pyeloparanephric cyst found, to which the old sinus led. Nephrectomy was performed, on account of the diseased condition of the kidney. Recovery was uneventful. He assumes (1) That the first traumatism ruptured the pelvis of the kidney and also caused a hematuria both within the pelvic cavity and in the paranephric tissue; (2) that the blood was gradually absorbed, and the thickened capsule (extrapelvic portion) of connective tissue was formed from the paranephric tissue; (3) that the second traumatism caused a fresh hematoma. [A.B.C.]

5.—Ergot in Drug Habit Cases.—A. T. Livingston does not regard the drug habitus as the subject of a specific disease with its logical sequence, irresponsibility. With forced deprivation there is intense agitation of the cerebrospinal system, with vasomotor paralysis and resultant intense hyperemia and sensation of heat to the hand. Many of the cases are due to unwise use of the narcotics by medical men, when ergot would have more surely relieved the pain, nervousness, and sleeplessness. There are several methods by which equilibrium of the circulation may be secured including cold applications, galvanization, dry cupping over the spine, massage, and hypodermics of ergot, the latter being preferred by the writer. Its most pronounced action is on such areas as are relaxed. Livingston advises immediate discontinuance of the narcotic thus demonstrating to the subject that the drug is not necessary to him, at the same time anticipating the violent reactionary stage by administering ergot from the start, with a mercurial and saline purge, and afterward easily digested nourishment every 3 hours. [H.M.]

6.—Epiptoxy for Ascites of the Liver.—Joseph H. Branham reports that a woman of 60, who had used beer freely

for a number of years, complained of poor health, abdominal distention, and indigestion. The limbs were edematous and the skin was of a yellowish muddy hue; she had never been tapped. Laparotomy was performed, 6½ gallons of slightly blood-stained fluid evacuated, and the middle portion of the omentum sutured to the abdominal wall on each side of the incision; drainage being inserted, much fluid came away. Subsequently the wound healed, and for 6 months after the operation her health was better than it had been for years, the ascites and edematous condition of the limbs having disappeared. After this time there was pleural effusion, the chest was tapped, 5 quarts of bloody serum evacuated. The case reported shows several points of especial interest: 1. The presence of the vascular adhesion showing the effort of nature to form collateral circulation. 2. The subsequent occurrence of pleural effusion with no ascites points strongly to good collateral circulation for the portal system. 3. The marked improvement in the patient's general condition shows better functioning of the liver and intestinal organs after the operation. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Digitalis: Its Nomenclature.—Digitalis still remains with us; one of the very few weapons of our therapeutic armamentarium, whose properties and powers have borne without flinching or paling the searchlight cross examination of over a century. It has been subjected to the severest scrutiny throughout the whole of the nineteenth century, the most scientific, the most skeptical, and the most progressive of all the epochs of human history. Yet it has every time left the court without a stain on its character. Whenever mischief had occurred in connection with its use, the fault was not with the weapon, but with the misguiding hand. Digitalis is one of the very few powerful therapeutic agents obtained from the vegetable kingdom, of which no definite lore or knowledge has descended to us from classic writers. Among the authorities of the period of the renaissance of botany, Columna indeed would identify digitalis with the *Ephemerum* of Dioscorides; and Dalecampius regards it as the *Calathiana viola* of the elder Pliny. But there is no conclusive proof. Its present appellation of *Digitalis* is by no means of classic origin or date. It was conferred in the sixteenth century by Leonard Fuchs, one of the fathers of modern scientific botany, whose name is embalmed for all time in that of the botanic genus *Fuchsia*. It was, of course, suggested by the resemblance of the flower to the finger of a glove. To a similar origin was due the German (popular) appellations of *Fingerhut* and *Fingerkraut*; also the French ones of *gant de Notre-Dame* and *Doigtier*, and the Dutch of *Vingercruiddt*. It is of some interest to note, for purpose of correction, the mistake which is still made by the great majority of uninquiring readers—even many medical ones—that the English name of "*Foxglove*" had a similar origin. This latter appellation is really an altered form of the Anglosaxon word *Foxesglew*—fox's music—and is an allusion to an antique musical instrument, which consisted of a bell attached to the end of a support curved in form of a bow.

The Older Therapeutics of Digitalis.—The genuine professional recognition of the therapeutic value of digitalis is essentially modern. Its use—probably extensive—in classic and medieval times appears to have been among the uneducated, and after unskilled advice. We are told by the great London herbal authority, John Parkinson (of *Paradisus-in-Sole* fame), in 1640, of the known "vertues" of digitalis at that date:

The Italians have an usual proverbe with them concerning this herbe, called by them *Aralda* which is *Aralda*, *tutte piaghe salda*: *Aralda* salveth all sores: for they use it familiarly to heale any fresh or greene wound or cut, the leaves

being but bruised and bound too, and sometimes also they use the juice in old sores to cleanse them, dry up their moisture, and heal them the more speedily, which it performeth by the bitter quality therein whereby it is found to be heating and drying, and cleansing withal; so that whensoever there is neede of a rarefying, or extenuating of thicke tough flegme and viscous humours troubling the chest or stomacke; the decoction or juice hereof made up with some Sugar or honey is available, as also to cleanse and purge the body both upwards and downwards sometimes, of tough flegme, and clammy humours, and to open the obstructions of the Liver and Spleene; and yet notwithstanding that these qualities are found to be in it, there are but few Physicians in our times that put it to these uses, but is in a manner wholly neglected: It hath beene found by late experience to be available for the King's Evil, the herbe bruised and applied to the place, or the juice made up into an ointment and used thereon: And it hath beene of later experience found also to be effectual against the Falling sickness, that divers have been cured thereby; for after the taking of the decoction of two handfulls thereof, with foure ounces of *Polli-pody*, of the oake bruised made in Ale, they that have beene troubled with that disease 26 yeares, and have fallen once in a weeke or two or three times in a moneth, have not fallen once in 14 or 15 moneths, that is untill the writing hereof, which I thinke may be said to be an absolute cure, not to be presumed that after so long stay it should returne againe.

The latter therapeutic result—of the use of a fresh decoction of digitalis leaves—does not appear to be generally known; although we have heard of its being recently tried with good effect.

General Effects of Digitalis on the Circulation.

—The development of the modern scientific therapeutics of digitalis dates from 1775—and from the city of Birmingham, the English “midland capital.” It was then and there that Withering, the friend of the famous nosologist Cullen, published his epoch-making brochure on this plant, which he called the *opium of the heart*—on account of its sedative effects on that organ, and the consequent slowing and steadying of the pulse. He also pointed out its “hydragogue” properties. Soon after this date, Solerne published the results of his experiments with digitalis on the circulation in the turkey. Schieman, in 1786, gave to the world the results of his more elaborate experiments on the dog and cat. Both those observers reported slowing of the cardiac pulsations. Beddoes, in 1801, announced that digitalis produced an increase of the blood-pressure. This effect he attributed to augmentation of the contractility of organic muscular fibers throughout the vascular system. In the same year, Kinglake sustained the thesis that digitalis acts simultaneously on the heart and the arteries. Curiously enough, even till after this date, the sedative theory of Withering was the only one generally recognized in France, owing to the great authority of Bouillaud, by whom it was introduced to the medical public of that country. Nevertheless, Beau, without appearing to be acquainted with the above history, and without having had recourse to physiologic experimentation, had already in testimony of the results of his own clinical observation, given to digitalis the appellation of “*quinin of the heart*” (*quinquina du cœur*). At the present day—after the lapse of another century, and that one more scientific and experimental than the sum total of its predecessors—we find those three (above mentioned) cardinal facts established, beyond fear of contradiction, in connection with the ingestion of digitalis: 1. Slowing of cardiac movement. 2. Increase of contractile energy of cardiac muscle. 3. Elevation of arterial pressure. But, as would be anticipated by all readers who have had a certain amount of experience of human nature in general, and of its developments in connection with physiologic investigation in particular, the theoretic explanations of these phenomena which have been hitherto advanced, still continue to display marked degrees of divergence.

The Potent Chemic Principles of Digitalis.—

Like most other plants which exert a very powerful influence upon animal life when taken into the system, digitalis owes its peculiar powers—for good and for evil—to the presence of certain definite chemic com-

pounds, which can be isolated therefrom in the crystalline form. The chemic active principle first obtained from this plant was, according to the usual form of nomenclature of organic chemistry, named *digitalin*, by its discoverers MM. Homolle and Quévenne. It came to be known as “amorphous” digitalin soon after; when M. Nativelle succeeded in separating a crystalline compound, which was regarded by its discoverer as “true” digitalin—and the real active principle of the amorphous digitalin itself. This view seemed to be borne out by the fact that the strength of the preparations of the amorphous digitalin were hopelessly unreliable; and that those of the new crystalline substance were fairly trustworthy. But, although much more uniform than the amorphous, it was soon discovered that the digitalin of Nativelle offered no safe standard. The more elaborate researches of the German pharmacologist, Schmiedeberg, soon afterward brought our knowledge of the organic chemic principles of the digitalis plant to a state of approximate accuracy. Of these there have been separated and studied: *Digitalin*: A granular, if not satisfactorily crystallizable glucosid, which possesses in high degree the characteristic action of digitalis. So much so that Kiliani and some others would name it *digitalinum verum*, and regard it as the most effective method of administering digitalis. It has all the characteristic influence on the heart, and its effects are noncumulative. *Digitalein*: An amorphous glucosid, probably a mixture. Its action on the heart is noncumulative; and it causes no local irritation when injected subcutaneously. *Digitoxin*: Regarded by some as an alkaloid—is certainly not a glucosid. It is the most active (toxic) and dangerous of all the constituents. Its effects are cumulative, although of uncertain degree. *Digitonin*: A glucosid constituent, and forming the larger part of the total constituents of this class. Has an influence on the inhibitory nervous mechanism antagonistic to that of digitalis. *Digitin*: A physiologically inert crystalline principle.

Effects of Digitalis on the Cardiovascular System.—Experimental observers have described 3 degrees of the effects of administration of digitalis—according to the dose; and 2, 3, or 4 periods of their manifestation. The 3 degrees are: Pulse slow and regular; pulse quickened; pulse slow and irregular. The safely effective therapeutic dose produces effects not surpassing the first of these degrees. In such cases 2 periods are definable: The period of action; the period of gradual return to the normal state. A dose somewhat larger realizes 3 periods: Pulse slow; pulse quickened; return to the normal state. The administration of an actually toxic dose furnishes 4 periods: Pulse slow; pulse quickened; pulse slow and irregular, followed by cessation of pulse more or less prolonged; death, or return to the normal state. According to the German authority, Schmiedeberg, the first effect of digitalis is to increase the elasticity of the heart—what is called by other observers the “activity of the diastole.” From this results the negative intraventricular pressure pointed out by Goltz and Gaule. This increase of elasticity produces the augmentation of the volume of the pulse which precedes the elevation of the blood-pressure, independently of the latter. Kaufmann has studied in succession the action on the heart, and on the arterial system. With regard to the first there occurs at the outset a fall in the number of beats per minute. The cause is stimulation of the (inhibitory) pneumogastric nerve at its bulbar origin, and at its cardiac terminations. It is not a bulbar stimulation only, as Traube thought, for after preliminary section of the vagus the slowing effect is sometimes observable. Other theories, however, account for the effect by increase of the arterial tension, direct action of the drug on the cardiac muscle, stimulation of the vagi—connected by reflex action to the increase of the cardiac pressure,

paralysis of the accelerator nerves of the heart. The last is, however, completely refuted by the fact that the period of slowing is followed by one of acceleration. The period of slowing may, however, be absent when the dose is sufficiently large. With regard to the action on the movements of the heart, there is one point which should be emphasized; it is manifested when the apex of the heart is excised and placed in a solution of digit-alin. This fact tends to show, as the intracardiac ganglia are placed toward the base, that the influence is exerted *directly* on the muscular fibers. The pulse may become dicrotic, or tricentric, with corresponding movements of the heart. With toxic doses the heart stops—tetanically—in systole; the final contraction commencing at the apex. The auricles continue to beat for a time after the ventricles have stopped.

REVIEW OF LITERATURE

Rabies.—Bozzolo¹ differs with Viana, who asserts that those affected with rabies have a tendency to bite themselves. Viana has ground for believing that the virus may be transmitted by an insect. Bozzolo reports a case whose course assumed a chronic appearance, having fever and spinal paralytic symptoms. At autopsy was found a dorsolumbar hemorrhagic state of the cord. Perroncito recalls a similar case which became cured; he believes that rabies may be acquired without paroxysmal symptoms, and proceed along lines of spinal irritation, congestion, and parenchymatous destruction. Perroncito agrees as to the probability of transmission of rabies by insect bite. He mentions a spurious form of rabies, which in dogs is brought about through *Tenia echinococcus*. Pagliani questions the origin of a modified rabies due to Pasteur injections, and asks whether the spinal symptoms noted after the disappearance of paroxysmal attacks could be the result of such treatment? Abba has noted little tendency of patients to bite themselves. [T.H.E.]

Theory of Heart Failure.—G. Hoffmann² gives a mechanical explanation of cardiac compensation. Taking mitral insufficiency as an example, he shows that, before right-sided hypertrophy occurs, the accumulation of regurgitated blood would soon lead to heart failure and death. He explains the nonoccurrence of this by the fact that a diminished amount of blood is sent through the circulation, and on its return to the heart, meets the regurgitated blood, thus making up the normal quantity for the right ventricle to pump through the lungs into the left auricle. There thus occurs merely an oscillation of the regurgitated amount of blood between the right and left sides of the heart, without putting any extra work on the right ventricle. The hypertrophy of the heart muscle is therefore not due to overwork. Hoffmann looks upon such hypertrophy as being a localization of a constitutional disease, just as the valvular lesion itself is such a localization. The process is compared to the trophic disturbances in muscles associated with diseased bones or joints. The author claims that his theory is supported by the fact that the hypertrophied heart finally degenerates; no healthy muscle, according to him, should degenerate. [B.K.]

Subdural Antitetanic Serum Injections in Cases of Tetanus.—J. A. Sicard³ reports 3 cures of grave cases of tetanus by means of lumbar injections of antitetanic serum. He combines large doses of chloral by rectum with the antitoxin. He prescribes the latter in the following manner: From 5 cc. to 10 cc. are injected into varying depths immediately around the seat of injury. From 15 cc. to 20 cc. are injected in such a manner as to come in direct contact with the peripheral nerve trunks, both large and small; especially those nerve trunks are to be taken into consideration which pass through the injured region. From 15 cc. to 20 cc. are to be injected slowly beneath the arachnoid of the lumbar cord at a temperature of from 37° to 38° C. After 48 hours all 3 methods of treatment may be repeated. He has found that relatively high doses of antitetanic serum may be injected into the sub-

arachnoid space (50 cc. and more within 10 minutes to 15 minutes) without any bad symptoms on the part of the patient. In animals he has found this method more active than subcutaneous, but less so than intracerebral, but the latter cannot be used in man on account of its dangers. [E.L.]

Anomalous Cases of Gastric Disease.—I. D. Dunham⁴ gives notes on several cases of gastric disease in which the symptoms were those usually found in connection with some lesion of that viscus other than the one actually present. Case I was in a man of 55, where anemia without emaciation, absence of lactic acid, presence of hydrochloric acid, a total acidity of 98, and dilation of the stomach, led to the diagnosis of stricture from pyloric ulcer. Rapid failure and death before operation occurred, and autopsy revealed a scirrhus carcinoma of the pylorus. Case II was in a woman of 66. Anemia, tumor in the pyloric region, absence of hydrochloric acid, low total acidity, and presence of lactic acid, led to the diagnosis of pyloric carcinoma. Operation revealed a gallstone impinging upon the stomach at the pylorus. In a third case, the subjective symptoms resembled those of hyperchlorhydria. Examination of a test-meal showed the total acidity to be zero. Treatment for achylia gastrica led to complete cure. The fourth case presented a fairly clear picture of carcinoma of the stomach, but examination of a test-meal led to a correct diagnosis of gastric ulcer. These cases are of value in emphasizing the departure from general rules that may be found in the symptom-complex of disorders of the stomach. [A.G.E.]

Epidemic Nephritis.—This occurrence is rare, and when observed is usually laid at the door of scarlatina, perhaps an abortive or atypical manifestation of the same, says Bonanome.⁵ Struempell agrees, but the author suggests a second possible causation, and admitting a paucity of recorded instances from which to generalize, calls attention to circumstances eliminating the fever mentioned as a factor in the epidemic, while the distribution of new cases is often such as to bring out the appearance of contagiousness. He details a number of cases in such a relation noted in 1898. Opinions of Baginski, and others, lead one to suspect some microorganism as an exciting cause. Cases of scarlatinous angina not accompanied by an exanthem are quoted. If these are true reports, it would be possible that the renal epithelium could suffer a limited invasion. [T.H.E.]

Therapeutic Indications in Infective Cholelithiasis.—M. A. Chauffard⁶ maintains that some cases of infective cholelithiasis should be operated on at once, on account of the severity of the symptoms. In other cases operation should be the last resort, on account of age or great obesity. In still others the medical treatment should be tried first, and frequently yields good results. The decision to operate should be the result of a careful consideration of all the symptoms. The most important ones are the type of fever (intermittent, remittent or continuous), the degree and type of leukocytosis, biliary retention, local signs of suppuration, and the general state of the patient. In the medical treatment the first indication is to reduce intestinal fermentation. This may be done by placing the patient on milk diet, or even water diet in severe cases. Locally, hot or cold applications may be employed. An attempt should be made to obtain antiseptics of the biliary passages, the means employed being some form of salicylic medication. [B.K.]

The Behavior of Typhoid Bacilli in Milk and Its Products.—R. Bassenger⁷ reports his experiments from Koch's laboratory concerning the viability of typhoid bacilli in milk and its side-products. He found that heating milk to 60° C. and keeping it there for 5 minutes is sufficient to kill all the typhoid bacilli; that earthen vessels are more suitable for this purpose than iron or agateware dishes; that typhoid bacilli are killed in uncooked milk through its acids (lactic, butyric, and formic acids, etc.) so soon as these acids are present in greater quantities than 0.3% to 0.4% and have acted for 24 hours; that they are killed in butter, buttermilk, and whey under the same conditions; that when milk is centrifugated for its cream for

¹ Cleveland Medical Journal, February, 1904.

² Il Policlinico (sez. prat.), Rome, January 9, 1904.

³ La Semaine Médicale, January 20, 1904.

⁴ Deutsche medicinische Wochenschrift, 1903, xxix, Nos. 38 and 39.

⁵ Il Policlinico (sez. prat.), Rome, January 2, 1904.

⁶ Prager med. Woch., 1903, No. 53.

⁷ Bulletin de la Société médicale de Paris, 1903, No. 30.

the purpose of churning butter, the greater number of the typhoid bacilli enter the cream and are worked up with it into butter; there they remain virulent until the above mentioned acids are formed in large enough quantities and have acted sufficiently long. They are virulent during most of the time that the butter is of good taste. [E.L.]

The Hospital Isolation of Scarlet Fever.—A. M. Fraser,¹ in a presidential address to medical officers of health, raises the question as to whether the results of hospital isolation of scarlet fever are such as to justify the large sums annually expended for that purpose. From the comparison of the mortality of scarlet fever and the amount expended annually on hospital isolation, he concludes that the expenditure is out of all proportion to the importance of the disease. Statistics are quoted to show that the advantages from hospital treatment as regards recovery are practically nil. Complications occurring in hospital patients are claimed to be far more numerous than in patients treated at their homes. From these statements the conclusion is reached that the only logical reason for the existence of hospitals must be based on the supposition that they do good by preventing the spread of the disease. Nineteen years' experience in Portsmouth has failed, however, to show that hospital isolation has exercised any restraining influence on the disease. The occurrence of return cases in which the disease is contracted from patients discharged from hospitals is considered to be one of the strongest evidences of the failure of the system in question. Fraser concludes that the hospital isolation of scarlet fever cases in large towns is not to be commended. [A.G.E.]

Impotence and Tobaccoism.—G. Petit² shows from experiments on animals that the effect of overuse of tobacco is seen in a temporary depression of sexual feeling. He believes this action of nicotin is rendered upon the medulla. He notices that in addition to nicotin, tobacco fumes produce many other toxic effects. These have a pronounced influence on the medullary nerve tracts. And local disturbances of the genital system are to be recognized. There is swelling of the epididymis, and a congestion generalized in the testicle, while the seminal vesicles show epithelial proliferation, desquamation, and, in chronic cases, become sclerotic. These channels, with prolongation of the toxic influence, appear devoid of any spermatozoons. It is of value to establish a relation between these experiments on animals and conditions as they may exist in man. [T.H.E.]

Adams-Stokes' Disease.—Percy Kidd³ reports a case occurring in a woman of 58; the symptoms are summarized as follows: Weakness, fainting fits, vomiting, swelling of the feet and legs, headache, sharp pain around the heart, slight hacking cough, occasional night-sweats, swelling of the abdomen at times, and increased stoutness. The fits are described as follows: The patient suddenly cried out, head retracted, pupils widely dilated, face cyanosed, pulse imperceptible for 40 seconds, unconsciousness complete, her body rigid and extended, incontinence of urine, and on recovery, the pulse, which before ranged from 25 to 28, rose to 52; the convulsions lasted 5 minutes. This case is considered typical, and reference is made to others that have been reported, the first being by Robert Adams, of Dublin, in 1827. In this instance the pulse-rate ranged about 30 per minute. Reference is next paid the disease by W. Stokes, and the first case reported by him was described as having repeated pseudoapoplectic attacks, not followed by paralysis, slow pulse with valve murmur. The slow pulse and fainting fits are characteristic of this affection. [A.B.C.]

Albuminuria of Puberty.—A. Pribram⁴ gives a review of this condition. It occurs at the age of puberty in persons who usually show signs of weakness, anemia, inability to perform much work, etc. It occurs just at that period when the greatest growth in stature takes place. It often shows a disposition to run in families. An invariable characteristic of albuminuria of puberty is that it occurs in the erect position, and disappears or is much lessened when the patient lies down for some time.

The specific gravity of the urine is unusually high. Urea, uric acid, and the alkalies, especially potassium, are all increased to a considerable extent. The author believes that this condition is probably dependent on some abnormality in the growth and development of the bone marrow, and sees a possible analogy to the occurrence of Bence-Jones' albumin in multiple myelomas of the bone marrow. The prognosis must be carefully made. Disappearance of the albumin in the recumbent position, with absence of casts, and with a high specific gravity, are favorable signs. The treatment, as outlined by Pribram, consists in prolonged rest in the recumbent position, with very gradual return to the erect position, subject to repeated examinations of the urine. All mental exertion should be avoided, the patients being taken from school. The diet may be a mixed one, including meat. [B.K.]

Syphilitic Anemia and Icterus.—Considerable clinical experience has led F. Samberger¹ to conclude that in the initial stages of syphilis the poison exerts its deleterious influence partly upon the red blood cells, and partly upon the liver cells. Depending upon the intensity of this poison, an alimentary glycosuria, and a urobilinuria, or jaundice, are produced. The longer the disease is without treatment the more powerful the poison becomes. The cause of these disturbances does not lie in the inability of the liver to manufacture the coloring material, but rather in the inability of the liver cells to retain them. As the result of the hemolysis, there is also an increase in the amount of coloring material. The jaundice is therefore hepatogenic. Concerning mercury and its mode of action in syphilis, the author believes it acts in 2 ways. It acts as an antiseptic against the contagium of syphilis and destroys red blood cells, thus inciting the hematopoietic organs to greater activity, and therefore rapidly overcomes the anemic state of the disease. [E.L.]

Angioneurotic Edema.—J. Burnet² defines this peculiar affection as a circumscribed swelling associated with changes of sensation in the part affected, and occasioned by a vasomotor neurosis. The true sites of its origin are no doubt the vasomotor centers of the medulla and cord. The condition is usually, if not always, met with in women, and in those whose nervous stability is readily upset. Burnet makes the following clinical classification of cases: 1. Traumatic. 2. Purely neurotic. 3. Menopausal. Examples of each of these types are cited. In the former the onset of edema may be months or even years after the injury, which is usually brooded over by the patient, though it may have been trivial in character. Treatment should be directed toward lowering the blood-pressure. Bromids accomplish as much as any drug. Local applications are of service in relieving disturbances of sensation. Ichthyol is contraindicated. The principle point in treatment, however, is to gain the patient's confidence, assure her that the condition is not serious, and that she will soon recover. Burnet emphasizes the importance of reporting all cases of this little understood affection. [A.G.E.]

GENERAL SURGERY

A. B. CRAIG

MARTIN B. TINKER

C. A. ORR

EDITORIAL COMMENT

Movable Kidney and Enteroptosis.—The wide differences of opinion which exist as to the advisability of operative treatment for movable kidney must be confusing to young practitioners. A few years ago, immediately after the introduction of nephropexy, practically everyone considered the existence of movable kidney an indication for operation. At the present time many take the extreme opposite view and advise operation in few, if any cases. Aaron,³ of Detroit, believes that 95% of cases can be relieved by a properly fitting abdominal binder; that enteroptosis almost always coexists with movable kidney, and he calls attention to the

¹ Public Health, January, 1904.² Il Policlinico (Rome), No. 8, 1904.³ The Lancet, February 13, 1904.⁴ Prager med. Woch., 1904, Nos. 1 and 3.¹ Archiv für Dermatologie u. Syphilis, 1903, lxvii, 87.² International Clinics, Vol. iv, Thirteenth Series, 1904.³ American Medicine, 1903, Vol. vi, page 898.

importance of mapping out the position of the stomach, liver, and all other abdominal organs, as well as the kidney, and adapting the support accordingly. Larabee¹ reports a study of 112 cases of movable kidney in the Out-Patient Department of the Boston City Hospital and of this number he did not find a single one in which he considered operation advisable. Two of his patients had been operated upon previously, without relief. He believes that enteroptosis generally coexists, and the use of a bandage will often tide a patient over a period of poor health or debility and when she has recovered to normal health and flesh the symptoms usually cease. In most of his cases no treatment was considered necessary. In a paper on "Nervous Phenomena Associated with Movable Kidney," by Dr. Wharton Sinkler,² and the discussion following it before the section on Nervous and Mental Diseases of the American Medical Association, the general trend of opinion seemed to favor operation in cases of much displacement of the kidney in which other treatment had been faithfully tried without benefit. Considerable difference of opinion was expressed as to the influence of operation on neurasthenic symptoms, some of the neurologists stating that they never hesitated to send neurasthenics to the surgeon, while others believed that the treatment should be mainly along neurologic lines. It was quite generally believed that operation is of some value in certain cases. As might be expected, many surgeons take almost opposite ground from that of the internists and believe that practically all cases of movable kidney should be operated upon. Goelet³ is one of these, and he points out many reasons why that operation has proved a failure in the hands of some surgeons. Among the causes of failure which he mentioned were: Incomplete detachment of the fatty capsule, leaving the kidney adherent to the colon, which drags upon it; improper insertion of sutures or their too early removal or absorption, or attachment too low down. Among postoperative influences he mentions the loosening of the attachment by a violent vomiting, coughing, or early exertion, or by turning on the opposite side, or assuming the erect position too soon. He advises operation in a large proportion of cases of movability. On the other hand, many prominent surgeons agree with the internists that operation is not advisable in the majority of cases. Morris⁴ says that when movable kidney is associated with enteroptosis operation is usually contraindicated, and Keen has shown that in a large percentage of cases operative results are unsatisfactory. Careful observers have estimated that from 60% to 80% of all women over 45 years of age have movable kidney, and we feel that it would be too extreme to say that operation is indicated in all or even a small proportion of these cases. Some of the most able of both internists and surgeons, including such men as Osler and Morris, believe that operation is advisable in certain cases of extreme movability, though not indicated in the majority of cases. Whenever the movability gives rise to crises of pain, symptoms from pressures on the intestines, the pyloric end of the stomach, or the common bile duct, when hydronephrosis is caused by kinking of the ureter, or twisting of the pedicle occurs, there seems to be little doubt as to the advisability of operation; and when the dragging of the kidney gives rise to symptoms which cannot be relieved by other means, operation should be seriously considered. No doubt in a great proportion of the cases in which no relief has been experienced following nephropexy, the failure has been due to injudicious selection of cases, and operation in cases in which the symptoms were dependent fully as much upon general enteroptosis as to the movability of the kidney alone.

REVIEW OF LITERATURE

Hepatic Drainage.—E. Berger¹ concludes as follows: 1. Drainage is preferred to choledochotomy closed with sutures because it hastens cure of the existing cholangitis, and the operation is done more rapidly. 2. Drainage is indicated in cholangitis when it is not possible to remove all the stones from the common and hepatic ducts at the time of the operation. 3. It is the safest and best method even in cases in which the histologic and operative findings show no stones in the deep gall passage. 4. It is contraindicated in acute choledochus obstruction (where one should really not operate at all), and in acute suppurative cholangitis, because there is danger of infection spreading downward. 5. The incision is best made at the supraduodenal portion of the choledochus duct, encysted concretions necessitate special incision for their removal. 6. Since in hepatic drainage stones escape in about 17% of all cases after operation, it prevents subsequent operations. Recurrence of gall-stones is the exception when drainage has been carried out. 7. With drainage diffuse cholangitis subsides even when stones still exist high up in the liver. 8. With hepatic drainage the mortality does not exceed 2% or 3%. 9. Cholangitis in the larger branches of the hepatic duct, long-continued icterus, and cholemia, liver cirrhosis, pancreas affections, enterobiliary fistulas, and extensive adhesions increase the dangers. 10. In diffuse cholangitis, carcinoma of the pancreas or gall passages, and liver abscess, the mortality is nearly 100%. This is not due to operation, but to prolonged internal cure. If in choledochus duct obstruction, 3 months at Carlsbad fails to give relief, he says an operation is necessary. [A.B.C.]

Operation in Cancer of the Stomach.—B. G. A. Moynihan² says that admitting the difficulties in the way of earlier recognition of cancer of the stomach, the present results of surgical treatment of that condition are not so satisfactory as they ought to be. The questions in urgent need of settlement are those of the relative values of palliative operations and gastrectomy. The larger part of Moynihan's paper is devoted to a consideration of the statistics furnished by Crönlein and von Mikulicz, the former reporting 264 cases in 21 years, the latter 458 cases in 10 years. The results of different methods of treatment by these 2 observers differ but slightly, the average length of life after the beginning of the disease being, in nonoperated cases, 12 months; after exploratory laparotomy, 13½ months; after gastroenterostomy, 15 months; after gastrectomy, 25½ months. Moynihan is very outspoken in his advocacy of gastrectomy. The advantages of gastrectomy as compared with gastroenterostomy are: (1) In the most competent hands its mortality is not more, but is even less; (2) the prolongation of life is 10 months greater; (3) the comfort, general health, appetite, and well-being of the patient are all emphatically better; (4) the patient has always a chance, even though it is of the slenderest, of a complete recovery from his disease. [A.G.E.]

Abdominal Aponeurosis and the Best Method of Approximation.—Kennelm Winslow³ reviews the various methods that have been employed to effect union of the abdominal parietes, especially in the radical cure of umbilical and other hernias, and advocates an overlapping of the abdominal aponeuroses in the closing of abdominal wounds, as in appendicitis, hernia, etc., thus giving a stronger parietal wall for the prevention of hernia. He says: When we see how successful have been the special operations of Halsted and Mayo by the method of overlapping the aponeuroses for the cure of hernia, why not apply the same operations to the closure of all abdominal incisions for the prevention of hernia? Incisions for attacking the gallbladder, the middle line incisions, and incisions in any part of the belly wall, can be closed to best advantage in consonance with anatomic reasoning and clinical results by this method. This effects a closure by overlapping and therein strengthening the abdominal wall by its chief covering, and thus insures the prevention of hernia. [A.B.C.]

Acute Mediastinitis, Due to Ingested Fishbone: Necropsy.—Armando de Córdoba⁴ relates the case. A laborer of 20 swallowed a fishbone of small size, immediately after

¹ Boston Medical and Surgical Journal, 1903, Vol. cxvix, page 586.

² Journal of the American Medical Association, 1904, Vol. xiii, page 417.

³ New York State Journal of Medicine, 1903, Vol. iii, page 497.

⁴ Surgical Diseases of the Kidney and Ureter, Vol. i, page 138.

¹ Arch. für klin. Chirg., 1903, Bd. lxiix, Heft 142.

² The Practitioner, December, 1903.

³ Annals of Surgery, February, 1904.

⁴ Revista de Medicina y Cirugia, Havana, November 25, 1903.

which he suffered pain in the epigastrium. In a few days his temperature rose to 40.2° C. The latter symptom persisting, and the patient having been in a malarial district, quinin was given, but the temperature curve remained erratic, and chills appeared, alternating with sweats. Blood-examinations repeatedly revealed no parasites. Symptoms of precordial tension developed and slight dyspnea; the sputum contained no pneumococcus, nor bacillus of Koch nor of Pfeiffer. Amid the chances of (1) phlebitis of the portal vein, (2) gastric torsion or trauma, (3) acute mediastinitis, the last seemed probable. Death occurred and necropsy confirmed the diagnosis of mediastinitis. The postmortem conditions revealed the formation of a mediastinal abscess and an inflammatory exudate in the pleural and pericardial cavities. The esophagus presented an area of necrosis, due to the ingested fishbone. The esophagus was quite adherent to the root of the right lung, where the injury and necrotic area involved bronchus and vein, and where an unorganized clot, evidently hemorrhagic, was found. [T.H.E.]

Operative Removal of Tumors of the Liver.—H. A. Haubold¹ reports a case. The patient was a woman of 26, who had had 2 miscarriages, but absolutely denied specific infection. A tumor the size of an orange could be palpated in the region of the gallbladder; the diagnosis rested between cholelithiasis, duodenal ulcer, and neoplasm of the gallbladder, liver or pylorus, a gumma not being suspected. At operation the tumor was enucleated without serious hemorrhage, the latter being controlled readily by tamponade of gauze and hot salt solution. Cholecystectomy was at the same time performed, the cyst wound in the liver was approximated with deep sutures and drainage established. The recovery of the patient was uneventful, the interesting feature being that a microscopic examination of the removed tumor showed, instead of malignant disease, a simple gumma. He gives a summary of 96 cases of resection of the liver reported by Anschuetz; of this number 75 recovered and 17 died from the operation. The various methods of procedure are enumerated. [A.B.C.]

Nongonorrheal Metastatic Urethritis.—According to F. Porges,² this may arise from: (1) Trauma, such as those caused by continued catheterism; (2) chemic irritation from urethral injections; and (3) communication of an infectious agent (excluding the gonococcus) through coitus or dirty instruments. The author reports a case in which an operation was performed on the anterior urethra, followed by habitual catheterism for a time. A mild catarrhal urethritis occurred, which persisted for 2 or 3 months. At the end of that time, local injections were instituted, which resulted in setting up an acute posterior inflammation. No gonococci could be found in the discharge. Three days later an epididymitis and orchitis developed, and still later an abscess of the prostate gland. Complete recovery occurred in 14 weeks. [B.K.]

Deceptive Abdominal Conditions and the Question of Operation.—A. H. Tubby³ reports a series of cases representing various suppurative abdominal conditions and states (1) that many abdominal lesions are latent in their symptoms for a time and then suddenly become active; (2) that cases commencing actively subside and are apparently getting well and then break out with increased virulence and end fatally, the favorable opportunity of the latent period not having been grasped; (3) that when the general symptoms of suppuration are present, it is sometimes impossible to say with what organ it is connected, and we have no data on which to commence our exploration, which may be of a severe character; and (4) the fear that if we do not find the focus of suppuration we may not, in evacuating it, be able to limit and prevent its spread to the general peritoneal cavity. He then discusses the relation of pulse to temperature, leukocytosis, rigidity, vomiting, adventitious diarrhea and constipation, local tenderness, hematemesis, increased abdominal dullness, effusion of blood beneath the abdominal wall, etc. With reference to rigidity, he states that it is almost always associated with some tenderness, and is a symptom to be carefully watched, particularly if it persists, even in the absence of other abdominal signs, such

as vomiting and severe pain. Rigidity with some tenderness is sufficient ground for operation. [A.B.C.]

Relation of Surgical Pathology to Surgical Diagnosis.—J. C. Bloodgood¹ says that surgical technic is far in advance of surgical diagnosis. In the great majority of instances failure to cure is not the fault of the operative procedure, but is due to the fact that operation has been done at too late a period in the course of the disease. The latter is due to 3 factors: (1) The time during which the lesion has not attracted the attention of the host; (2) the time that the patient delays before seeking advice of the physician; (3) the time spent by the physician in deciding on the treatment to be instituted. In the majority of instances a careful examination of the patient at the time of his first visit will allow one to decide whether delay is justifiable. It is unnecessary and dangerous to delay treatment for exact diagnosis; the question is, not what is the exact nature of the surgical disease, but rather is it, or is it not, a lesion which will allow of delay. The question of tumors is then discussed, as they illustrate very well the need of surgical pathology in order to make a diagnosis, particularly an early diagnosis. The object of surgical pathology, therefore, is to instruct in the positive recognition of surgical lesions by their naked-eye appearances. [A.G.E.]

Perforation of the Urinary Bladder by Appendicial Abscess.—I. S. Stone² reports that a woman of 50 suffered from mild symptoms of appendicitis which were not deemed sufficient to justify operation. Three weeks after the beginning of her illness there was dysuria and cystitis which culminated in the discharge of nearly a pint of pus during 2 days, from the bladder. Following this the symptoms subsided, and 3 months later an examination showed a mass in the site of a former appendicial abscess. The abdomen was opened and it was found that the appendicial abscess had ruptured into the bladder; the omentum had been of great service in securing the attachment of the appendix. When the latter was liberated its distal extremity was found opened and in direct contact with the perivesical tissue; spontaneous closure of the bladder had been effected before operation. The author has collected a report of 30 other cases from as many different surgeons. [A.B.C.]

Acute Inflammation of the Cecum.—Reisinger³ found acute cecitis twice in 350 operations for appendicitis. Its symptom-complex is identical with that of appendicitis, and it is impossible to make a diagnosis before operation. In both cases the appendix was perfectly normal, and the cecum the seat of a gangrenous abscess. In the second case chronic constipation was evidently the cause, but this was no factor in the first case. He discusses the question, Why is the cecum the part of the large intestine constantly affected whenever ulceration and gangrene follow fecal impaction? He explains it by the greater impaction at this point on account of the ileocecal valve, by its lack of mobility as compared with other parts of the large intestine, and by the fact that the posterior wall of the cecum is free of peritoneum, and, therefore, less resistant than other portions. [E.L.]

Bilateral Temporosphenoïdal Abscess.—A. L. Whitehead⁴ reports the case. A woman of 20 was brought under observation in a comatose condition with a purulent discharge from both ears; she had suffered from an intermittent aural discharge for 6 years. For some 3 weeks there had been urgent symptoms, constant headache, dizziness, constipation, mental dulness, vomiting, and finally complete unconsciousness; the temperature had been normal or slightly subnormal. A mastoid operation was done upon the left side, a part of the squamous part of the temporal bone removed and the brain exposed. It did not pulsate. A glass tube was passed in to a depth of three-eighths of an inch, abscess found, and 3½ ounces of pus evacuated. The patient slowly and completely recovered. Two and a half years later there was recurrence of these symptoms, but indicating trouble on the right side. A mastoid operation was now done upon the right side, and a large abscess found in the right temporosphenoïdal lobe, and 3 ounces of pus

¹ Annals of Surgery, February, 1904.

² Prager med. Woch., 1903, No. 58.

³ British Medical Journal, February 13, 1904.

¹ Journal of the Michigan State Medical Society, February, 1904.

² Annals of Surgery, February, 1904.

³ Münchener medicinische Wochenschrift, 1903, Vol. I, No. 40.

⁴ The Lancet, February 13, 1904.

evacuated. The patient again made a slow but complete recovery. In the contained pus of the last abscess the colon bacillus was found. On both occasions the points by which the diagnosis was established were the presence of chronic otorrhea, severe unilateral headache, subnormal temperature, slow pulse, drowsiness progressing to coma, and occasionally vomiting. [A.B.C.]

The Healing of Laparotomy Wounds.—F. W. Bukoemsky¹ has made a series of experiments on animals in order to study the mode of wound-healing after laparotomy. He finds that union of the wound-edges may be perfect, even histologically, provided the edges do not curl inward. It is advisable to employ the finest suturing material, which better enables us to approximate the edges of the wound. The incision should be made laterally from the linea alba, or still better, the linea alba may be completely removed and the broad muscular surfaces united. Since muscle-tissue is well-nourished, such wounds heal promptly. The simpler the suture of an abdominal wound the better, as a rule. The author has often noted that deep sutures are injurious to the tissues, irritating them and producing edema, which may suppurate. The idea of absolute asepsis must be abandoned. Microbes have been found in 90% of wounds healed by first intention. Edema supplies a favorable nutrient medium for bacteria, and therefore deep sutures are best avoided. In placing the sutures, we must guard against tightness, which often results in compression and death of muscular tissues. The lost muscle is then replaced by connective tissue. The best method of sterilizing catgut is by means of dry heat, at 150° C. This kills even spores of anthrax. In general, laparotomy in animals takes a more favorable course if the incision has been short. [L.J.]

Removal of the Prostate by the Suprapubic Route.—B. G. A. Moynihan² reports a series of 12 cases, the ages ranging from 56 to 73; in 4 instances a stone was found in the bladder. A detailed description of the suprapubic operation as revived by Frayer is given. Attention is called to the fact that often after operation there is extreme paroxysmal pain for a few hours, which is usually relieved by a morphin suppository or that drug given hypodermically. At the end of 48 hours the suprapubic tube is removed and the patient allowed to sit up; on the fourth day and each succeeding day a catheter is passed and the bladder freely washed with a dilute carbolic lotion. It is important to get old and feeble men up out of bed as quickly as possible, allowing them to sit in the chair by the end of the first week. Cystitis is combated with urotropin or helmitol. The after-treatment of these cases requires close attention and considerable time. The bladder is washed out daily. In some instances, where the urine is especially foul, a stream of oxygen is passed through the bladder daily. Over the suprapubic wound a tight-fitting impervious cap is placed, having a small leak to permit the escape of gas; this facilitates feeding. The removal of the prostatic portion of the urethra with the tumor produces no untoward complications. [A.B.C.]

The Surgical Treatment of Pulmonary Abscesses.—Karewski³ says the most important causes of long abscesses are croupous and influenzal pneumonia, foreign bodies, septic emboli, invasion from neighboring or distant abscesses, as from liver, kidney, pleural or subphrenic abscesses. The abscesses of influenza are usually multiple and the suppuration chronic. The abscesses produced by foreign bodies should not be operated upon until the causal agent has been removed by bronchoscopy. Empyema is oftener secondary to lung abscess than lung abscess to it. Many abscesses heal spontaneously through perforation into a bronchus, but even after perforation it does not necessarily mean that the patient's condition will be cured. It may continue to suppurate and break out later, and sometimes chronic sepsis will be the result. The indications for an operation exist, therefore, so soon as a diagnosis is made with certainty, and grave general symptoms do not disappear quickly, or if they should, reappear after a spontaneous rupture into a bronchus. Expectant treatment is permissible in young individuals, in small abscesses in the pulmonary apices or in

large abscesses in the base, if they belong to the acute variety, and are not associated with too serious a symptom-complex. [E.L.]

An Experimental Method of Aseptic Gastroenterostomy.—Padula⁴ reports favorable results upon dogs from the following: Laparotomy, suture of the serous and muscular walls of the organs involved, done lengthwise; attachment of a special clamp to the parts sutured, and a second set of similar stitches joining the walls over the clamp. The mucous coats are not included and no connection is established between the first ways and the peritoneal cavity. After a time the clamp cuts through the inner parenchyma and is passed in stool, leaving a satisfactory passage from stomach to intestine. The clamp is flat and square, having 2 opposing edges rolled slightly upward and inward; it is applied by folding tightly shut to catch the tissue and cut into it. [T.H.E.]

The Genesis of Hygroma.—Langemak⁵ says they develop from bursas, although they have begun in regions in which there is no bursa, *e. g.*, over the spinous processes, amputation stumps, etc. The connective tissue from which the bursas develop, especially those that give rise to hygromas, contains also collagen and elastic fibers. He believes hygromas are formed by atrophy of the adiposa, and hypertrophy of the fibrous tissue framework which becomes vascular; this is followed by a deposit of collagen, the accumulated collagen soon liquefies, when it simulated fibrin; this Langemak calls fibrinoid. Radical extirpation of the hygromas only prevents return, he does not favor aspiration and compression. [A.B.C.]

Home Treatment of Suppurative Ear Diseases.—J. C. Beck⁶ says that most individuals suffering from suppurative ear diseases belong to the poorer classes and cannot afford to go daily for treatment. When treated 2 or 3 times a week the accumulated moisture leads to granulation formation and necrosis. To avoid this, Beck has devised a glass tube with a little beak at the end to retract the tragus and enable a whalebone probe to grasp the sterile gauze which is contained in the tube. This is furnished the patient with instructions how to pack the ear with gauze if the dressings become saturated. With this device to be used by the patient or his friends between visits to the physician, much more satisfactory results can be secured than from the occasional dressings by the physician, especially in acute cases. The simple appliance is also very useful in the office practice of the physician. [A.G.E.]

Oxygen-Chloroform Narcosis with the Roth-Draeger Apparatus.—D. Hahn⁷ describes the Roth-Draeger apparatus and the manner of using it, minutely. He himself has employed it for purposes of narcosis in 77 cases, and praises it. He considers it superior to the drop method employed so generally; as a special point of preference over all others he mentions its easy applicability, the quiet which exists all through the narcosis and the absence of all excitement even in cases where this is to be expected (alcoholism).

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

Vaginal Tampons of Value in Vomiting of Pregnancy.

—A Pettazi⁸ believes such vomiting due to uterine lesion, and has found it possible to arrest the disturbing symptoms by using a vaginal tampon of ichthyol and glycerin. Granting the cause of vomiting to be seated in the uterine wall, gestation brings about an unusual and excessive pressure on the vessels of the blood-vascular system therein, in consequence of which the reflex becomes established through the sympathetic nerve supply. A cure is possible if the original lesion be metritis; if it be a false position of the uterus which causes the increased pressure on the vessels, a cure is not so readily to be obtained. [T.H.E.]

Tuberculous Disease of the Fallopian Tubes.—A. W. W. Lea⁹ reports 4 cases of this kind treated by operation. In

¹ Journal Akousherstwa, October, 1903.

² Annals of Surgery, January, 1904.

³ Münchener medicinische Wochenschrift, 1903, Vol. 1, Nos. 39 and 40.

⁴ Il Politecnico (sez. prat.), Rome, December 12, 1903.

⁵ Arch. f. klin. Chir., 1903, Bd. lxx, Heft 4.

⁶ Chicago Medical Record, January 15, 1904.

⁷ Ugeskr. f. Laeger, 1903, 337.

⁸ Il Politecnico (Rome), No. 8, 1904.

⁹ British Med. Jour., October 17, 1903.

cases 1 and 2 there were present many miliary tubercles and adhesions. Both tubes and ovaries were removed, and both patients made a good recovery, and are still in excellent health. In case 3 both tubes were distended with pus and with the ovaries were removed, and the patient rapidly regained perfect health. In the fourth case the tubal affection was accompanied by tuberculous peritonitis, and the removal of the tubes did not seem to have any effect upon the course of the peritoneal disease. The patient died 3 weeks later. The operative treatment which consists essentially of the removal of both tubes, holds out a prospect of cure if the tubes are the primary seat of the disease, and are removed early; but in acute abdominal tuberculosis and the secondary invasion of the tubes as in case 4, the value of operative interference is very doubtful. [W.K.]

Paget's Disease.—M. A. Tehlenow,¹ after an exhaustive study of the various aspects of Paget's disease of the nipple, arrives at the following convictions: 1. Paget's disease belongs to the group of cancerous skin affections. 2. Clinically the disease presents features peculiar to itself and allowing it to be differentiated from eczema and other similar conditions. 3. Paget's disease is not confined to the female sex; neither is it invariably located on the nipple, other parts being occasionally attacked. 4. Diagnosis in the later stages offers few stumbling-stones. Incipient Paget's disease may, however, be mistaken for eczema, etc. Histologic examination will in such cases give the decision. 5. The origin of the affection is still a matter of conjecture, although a parasitic etiology is probable, as in other forms of cancer. 6. The course is usually chronic, the prognosis in general favorable, especially under proper treatment, which is chiefly surgical. [L.J.]

Fibromyoma of the Uterus with Visceral Metastases.—E. Devic and L. Gallavardin² give extended clinical, autopsy, and histologic notes of a case which is a new contribution to the study of malignant leiomyoma. The patient was a woman of 55, who, for 7 months had suffered from lumbar and abdominal pain. Ascites was present, also a pleural effusion, and the uterus was enlarged and immobile. At autopsy the uterus was found to be quadrupled in size and contained submucous and interstitial fibroids with extension to the surrounding structures, especially the rectum. The omentum, peritoneum, liver, diaphragm, and lungs contained secondary growths. Microscopic examination showed the uterine tumor to have the structure of a malignant leiomyoma, this also being true of the metastases. Analogous cases are very rare, only 2 others being mentioned. The histology of this tumor differed somewhat from that of a cutaneous leiomyoma previously reported, this leading the authors to state that there may be many histologic varieties of malignant leiomyomas depending on the age, the degree of malignancy, and the site of origin. [A.G.E.]

Acute Yellow Atrophy of the Liver and Pregnancy.—I. J. Lisiansky³ reports a case and reviews the literature. He concludes: 1. Frequently icterus gravis has been confounded with acute yellow atrophy of the liver, although the two are distinct. 2. The most deserving theory of pathogenesis of yellow atrophy is that of intoxication from the intestinal contents. 3. Yellow atrophy is not invariably fatal, even in its severer grades. 4. Every pregnant woman with icterus should be under the strictest medical control, especial attention being given to the quantity and quality of the urine. 5. As to management, it seems that in the early stages of the disease, interruption of pregnancy may be beneficial. Such a course is contraindicated in the advanced phases of yellow hepatic atrophy. [L.J.]

Hematology of Gestation, Etc.—E. Alfieri⁴ publishes tests of 211 cases. During the later months of pregnancy there is a diminution of iron in direct relation to that of the hemoglobin and the erythrocytes, varying from $\frac{1}{10}$ to $\frac{1}{2}$. In the first week of the puerperium there occurs a greater drop in the ferric constituents, followed by a slow, perhaps unequal, rise to the normal relations after several months. Yet pregnancy may offer other types than the foregoing, which, if not really path-

ologic at times, approach it and may be described as the "chlorotic" and the "pernicious." The newborn reflects maternal variations so far as to follow ferric reductions in percentage within certain limits, and at the same time resists as great a reduction in hemoglobin as in the number of red blood cells and the actual ferric value. In the mother there is a more pronounced resiliency shown during the puerperium if the anemia has been of the pernicious type than of the chlorotic, in a measure explainable by etiologic factors as now known. The writer points out a disproportion in the hematic and the hemometric results, as seen above. [T.H.E.]

The Toxemia of Pregnancy.—W. S. Stone¹ discusses at length the toxemia of pregnancy with 3 illustrative cases, and analyzes especially the symptoms of the group of cases described as pernicious vomiting of pregnancy. The temperature may be subnormal, normal, slightly raised, or high in the last stages of the disease. The pulse also may remain nearly normal until an advanced stage. The character of the vomitus is a better index of the progress of the disease, changing from an almost colorless mucus to a thin blackish fluid, due to disintegrated blood and bile. In the toxemia of pregnancy there will be found in the urine an excess of ammonia, or amidoacid nitrogen, together with a loss of urea nitrogen. The recognition of the toxemic origin of hyperemesis gravidarum should prevent our trying any of a long list of drugs often recommended and limit the treatment to a few, such as calomel and salines, that we know to be useful. There should be absolute abstinence from either food or drink by stomach until improvement has begun. Nutritive enemata may be used; in some cases it may be best to wash out the stomach one or more times. Our chief reliance, however, should be placed in the injection of hot normal saline solution into the rectum at frequent intervals. It may be advisable to add a half ounce or an ounce of whisky to some of the injections; or, in some cases, it may be advisable to employ continuous irrigation of the rectum with hot saline solution for half an hour every 2 or 3 hours. Occasionally the injection of saline solution, either subcutaneously or directly into the veins, may be used with good effect. [W.K.]

Treatment of the Umbilical Stump in the Newborn.—After the child receives its first bath, P. Ahlfeld² relegates the stump as close to the root as possible, and then cuts off the surplus cord. Then the stump and surrounding abdomen is washed with 90% alcohol. The stump is then covered with sterile absorbent cotton, and an abdominal binder applied. The daily bath is omitted, the child being washed instead, until the stump separates. The primary dressing is not changed, unless it becomes soiled from urine, when a fresh binder is applied, and the wet cotton replaced by dry. The author has never had an infected umbilical stump since employing this method. [B.K.]

Cancerous Metamorphosis of Dermoid Cysts.—T. W. Zeleuski³ reviews the present state of the question regarding cancer originating in ovarian dermoid cysts. He sums up thus: 1. Ovarian dermoids, if they become cancerous, invariably produce the flat epithelial type, which arises from the dermal covering of the cyst. 2. Cancer attacks most frequently multilocular dermoids of the ovary and is usually unilateral. So far, no bilateral cancerous degeneration of ovarian dermoids has been recorded. 3. The victims are generally advanced in years, and the cancer takes a very malignant course, ending fatally either from perforations of adjacent organs or from cachexia. 4. Ascites seems to be invariably absent in this variety of cancer. 5. The diagnosis is difficult, and the only rational treatment is preventive, aiming at removal of dermoid cysts, whenever such are recognized, before malignant changes have supervened. [L.J.]

Tuberculosis of the Uterus and Appendages.—J. H. Targett⁴ states that in 500 necropsies of females who died of tuberculosis in Brompton Hospital for Consumptives, the genital organs of 7.7% were found affected. Of the organs affected in genital tuberculosis the fallopian tubes are to be found the most frequently and are involved in about 90% of the cases;

¹ Chirurgia, October, 1903.

² Revue de Chirurgie, January 10, 1904.

³ Journal Akousherstva, November, 1903.

⁴ Il Policlinico (sez. prat.), Rome, January 9, 1904.

¹ American Gynecology, December, 1903.

² Centralblatt für Kinderheilkunde, January, 1904.

³ Russki Vrach, November 15, 1903.

⁴ British Medical Journal, October 17, 1903.

the forms may be diffuse military tuberculous salpingitis, caseous tuberculous salpingitis, and tuberculous pyosalpinx. Tuberculosis of the uterus is usually the result of infection from the tubes. There is great difficulty in accurate diagnosis of acute tuberculosis of the tubes, but in chronic lesions there is much better chance of a correct diagnosis. The previous history is of importance, and the absence of other adequate causes of the disease is a valuable guide. Sterility is usually present in the chronic forms of tuberculous salpingitis, especially pyosalpinx. On the other hand pregnancy seems to hasten the development of tuberculous peritonitis, not a few cases of which follow rapidly upon a confinement, and they often do badly. Dysmenorrhea is a common symptom and the absence of pelvic pain is worthy of note. It may be stated generally that the tuberculous process is unaccompanied by pain so long as it remains free of secondary infections by pyogenic organisms. [W.K.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

EDITORIAL COMMENT

Treatment of "Cold in the Head."—A Toronto subscriber asks "what remedies are best to use, when from ordinary 'cold in the head' the patient is quite unable to breathe through the nose, and suffers in consequence." He had "thought of using adrenalin as a spray, or possibly a snuff containing cocain, but would like very much to have (our) opinion as to the advisability of using either of these remedies." Adrenalin, or suprarenalin, whichever is easier to obtain—or in case of inability to get either of these, a filtered, saturated aqueous solution, made extemporaneously from the suprarenal substance prepared by any reputable manufacturer—is the best of all palliatives for the acute obstruction of the nasal passages described by our correspondent. In order not to waste the expensive drug, the parts should first be cleansed thoroughly from accumulated mucus or mucopus, either by a douche of hot saline solution (sodium chlorid, 0.77% in distilled water), or of hot milk to which sodium chlorid in the proportion of 3 grains to the ounce has been added, or by an alkaline detergent spray. The spray solution should be warmed, though it need not be hot. By "warm" is to be understood a temperature of about 90° F., and by "hot" a temperature of more than 100° F. In douching, the patient's head should be bent well forward over a basin to avoid entrance of the solution or of the secretions that it washes away, into the eustachian tube. Of alkaline detergent solutions, the following formula may stand as a type:

Sodium borate 5 grains
Sodium bicarbonate 5 grains
Pure carbolic acid 1 grain
Glycerin 4 fluidrams
Infusion of tar sufficient to make . . . 4 fluidounces
Mix.

In place of the infusion of tar the preparation known as "liquor carbonis detergens," which is an emulsion of purified coaltar and tincture of soapbark (guillala), may be used in the proportion of from 2 drops to 4 drops to the ounce of water, depending somewhat upon the strength of the preparation—for which there is no pharmacopeial standard. The French preparation, known as "coaltar saponin," is a diluted emulsion of this kind, and of this from 10 drops to 15 drops to the ounce may be used. The wellknown "Dobell's solution" is also available, and there are a number of eligible proprietary solutions on the market to which a sufficient dose of the sodium salts may be added, if tar preparations are not available. The suprarenalin solution may be applied topically, in the strength of one part of suprarenalin to one thousand parts of water, by means of a cot-

ton wad firmly twisted on a delicate carrier of wire, and the relief thus given frequently lasts from 12 to 24 hours. Or the patient may be allowed to spray the nasal passages very lightly, using a solution of from one part in four thousand to one part in eight thousand. After the suprarenalin has been applied, a warm oil-spray should be used as a protective to the parts. An eligible formula is the following:

Menthol 5 grains
Benzoinated liquid petrolatum 1 ounce

In certain cases, from one drop to twenty drops of eucalyptol or a few drops of oil of gaultheria or of oil of birch may be added with benefit and may contribute likewise to the patient's sense of comfort. Other fragrant or aromatic oils, as cloves, sassafras, and the like, may be used in addition if desired. Internally, the use of minute doses of atropin has for 20 years been advocated by the writer of this paragraph, and the practice is now almost universally followed by the laity, through the medium of what they call "rhinitis," believing that term to be the name of a drug. Many physicians who have prescribed the so-called "rhinitis tablets" marketed by various manufacturers, have themselves to blame for the fact that their patients resort to these tablets on self-prescription or the advice of friends; in very many cases when such drugging is not only useless but positively counterindicated. We have personal knowledge of more than one case of pneumonia or other form of influenza in which valuable time in sending for the physician has been lost through such self-medication. Physicians ought never to prescribe these ready-made preparations, but should write their own prescriptions, and in such doses as best suit the individual case. A useful combination is represented by the formula following, which should, however, be varied to meet the necessities of individual cases. Age, the condition of the eyes, drug susceptibilities, cardiac, pulmonary, and renal conditions must all be taken into consideration. The prescription here given, containing $\frac{1}{2000}$ grain of atropin in each dose, is for an adult.

Atropin sulfate $\frac{1}{2000}$ grain
Camphor 2 grains
Quinin 5 grains
[Balsam of Peru or other suitable excipient, a sufficient quantity]

Mix. Make into 20 doses in pills, tablets, capsules, cachets, or powders, diluted with sufficient milk-sugar.

The dose is one (capsule) given usually from about every half-hour to every four hours, according to the effect. At first the intervals between doses may be even shorter than 30 minutes, and when relief is obtained they may be lengthened—to even more than four hours. Sometimes it is advisable to use tincture of belladonna instead of atropin. As a rule the belladonna is preferable for children, and so little as one-tenth drop every ten minutes for a certain number of minutes until effective, may be given. Sometimes it is advisable to use the camphor and sometimes the latter should be left out. The same may be said as to quinin, salol, and other drugs. Ammonium salicylate is often the best drug for internal use. It should be given in a pepsinated vehicle. A good purge at the beginning of an attack is often highly useful. A good sweat often cuts the attack short, and when there is no counterindication, pilocarpin in appropriate doses may be used in conjunction with external heat to produce the free perspiration desired. Sometimes strychnin is necessary. Cocain should never be employed in any case or under any circumstances, except it be the only cardiac stimulant available in an emergency that calls for such line of treatment. Camphor, however, is infinitely superior for this purpose. A cocain habit has often been induced by the use of cocain snuffs and solutions prescribed by physicians or sold over the drug counter for the relief of "colds."

REVIEW OF LITERATURE

Pure Carbolic Acid in the Treatment of Smallpox.—

J. T. Neech and J. F. Hodgson¹ state that they have employed this drug in the treatment of 136 cases of smallpox with a mortality of 3.6%; 22 of these cases were of the confluent type, 12 semiconfluent, and 103 were discrete. The method employed was as follows: The pure carbolic acid was applied with a small camel's hair brush to the vesicles over a certain area of the body, which had commenced with the face and head until the whole of the vesicles had been touched. These applications were continued until the vesicles showed signs of drying up or aborting. Considerable time is required to do this carefully and thoroughly. Care must be taken to avoid touching the healthy skin with the acid. Though a careful watch was kept for the appearance of toxic symptoms, only 2 patients showed carboloria. In some cases only one side of the patient was treated with the carbolic acid, and in all such instances it was plainly seen that carbolic acid gave the best results. The application of the acid caused very slight transitory pain and relieved the intense irritation. The effect appeared to be local, the pustules rapidly shriveled and scabbed, and the further development of the papules and vesicles was aborted. All the vesicles had formed into scabs at from 5 to 10 days, and in from 10 to 18 days the scabs had fallen off, except on the palms of the hands and soles of the feet. The tendency to the formation of scars was not nearly so great as in other forms of treatment, the offensive odor was prevented, and the secondary rise of temperature was prevented owing to there being little or no toxic material absorbed into the vesicles. On the whole, the authors are pleased with this method of treatment. [A.B.C.]

Necessity for Muscular Exercise.—Luther Halsey Gulick² points out that those conditions under which the body was given its present size, shape, and structure are in general the conditions adapted to maintaining the fullest functional activity. During the unnumbered years of evolutionary time, muscular exercise in labor, war, or the chase, has been one of the major elements of human experience. Upon neuromuscular ability the race has depended for survival, even when its ancestors were in a condition of development yet more elementary than that of savage life. A biologist, having brought to him a human body, and being asked for a statement of its functions from an examination of the structure would say that both in form and function the organism must have been adapted to a life of considerable muscular exertion; that this appeared, first, from the proportions of the muscular system; that the lungs as well as the heart indicated far more capacity than would be needed for a life exclusively or even largely sedentary; and, finally, that the nervous system was designed predominantly for the initiation or control of muscular movements. The health of such an organism depends upon the balanced cooperation of all its parts. These parts have become adjusted to a certain general balance in the activities of the nutritive, neural, and muscular tissues. No argument is necessary to the evolutionist to show that the necessity for muscular exercise has been constant and predominant throughout the whole history of the life of the species; that it has been so constant and so large a factor in adjustment to the total environment as to have had a chief share in determining the character of the organism itself; and that those conditions which have been decisive in determining the form and functions of the organism are the conditions in which it functionates the best. The argument for muscular exercise from the standpoint of evolution is thus the strongest that can be presented. The environment of the organism cannot be changed in other respects with impunity. The conditions of human life in civilized countries have changed more since the development of the steam-engine than they had for thousands of years previously. In the United States the proportion of steam-power to manual labor is represented by a steam-engine of 11½ horse-power to every male adult inhabitant. The bulk of the heavy work in the civilized world is done by machinery and not by human muscles. There is still a good deal of muscular work per-

formed, but it is decreasing rapidly. It is least among the most civilized peoples, and among these peoples is least among the most civilized classes. The management of machinery demands not muscular force, but muscular skill and intelligence. In the handling of machinery the tendency is to have individuals make comparatively few movements many times. The more general activities of early farm life called for a far more varied set of muscular movements. These, and other factors, according to Gulick, make conscious attention to muscular exercise a necessity for the modern man, especially the city-dweller.

Citarin, a Remedy against Gout.—Citarin is a white, fine crystalline powder, easily soluble in water, the solution tasting somewhat like lemonade. It is made by the action of formaldehyd on sodium citrate. A. Leibholz³ has employed it in doses of 2 gm. (30 gr.) in a number of cases of approaching gout. He gives it as soon as the first signs of the disease are manifest, giving 4 doses the first day and 3 doses daily for several days afterward. In every case the result was prompt, and in several it actually aborted the condition. Its advantages over colchicum are its nontoxicity, and therefore the possibility of taking large doses without unpleasant after-effects. Several times slight diarrhea was noted after it. It may in some cases be combined with aspirin. [E.L.]

Manipulative Correction of Congenital Torticollis.—

H. A. Wilson² states that when the unnatural posture of the head is caused by a contracture of the sternocleidomastoid muscle of one side, this being the most frequent form, it may be corrected by forcible manipulations. The method is applicable only to children under 7 years of age. In older patients the muscles are too resistant to tear without considerable risk of serious injury to the surrounding tissues. The patient is placed on a suitable table in the recumbent position and anesthetized. The operator grasps the head between his hands and turns the head so that the chin will point toward the shoulder of the affected side, rendering the muscle of that side tense. Additional corrective force will usually cause the contracted muscles to elongate. If this does not occur, the operator holds the head in the best possible position, as determined by the previous manipulations, while using forcible massage upon the muscle near its clavicular attachment. When sufficient correction has been obtained, fixation is secured by the application of plaster-of-paris with the head in a somewhat over-corrected position. This plaster cap should embrace the head except the face, the neck and shoulders, with a portion running under the axillas. Three or 4 weeks are ordinarily sufficient to obtain union of the torn portions of the muscles, when the plaster cap may be removed. Developmental movements should be instituted to secure coordination of the muscles in their new relations.

Treatment of Septic Conditions with Collargol.—

Credé³ says when used before the brain and heart have lost their resisting powers, and before metastases have occurred, this soluble silver preparation a few hours after its injection into the blood, produces a decided improvement. The good effect lasts as long as there is silver present in the blood, sometimes 2 or 3 hours. The injection may be repeated as soon as the patient's condition becomes worse. From preparations used in his first experiments definitely known solutions could not be made, nor were they at all times chemically pure, but since the middle of this year he is able to obtain a preparation of collargol chemically pure, and from which he can make known solutions. By using a strong solution the syringe can be sterilized. Now he uses a 2% solution, and injects half the amount (2 cc. to 10 cc.) of the former 1% solution. When he operates in septic cases he gives infusion of collargol instead of salt solution. The diseases in which this preparation was used embraced severe phlegmon and gangrene, general sepsis, peritonitis, erythema nodosum, anthrax, and hopeless cases of tuberculosis. In some of the cases that appeared to him hopeless, recovery ensued. In some of the tuberculous cases there was a decided improvement for several weeks. [A.B.C.]

¹ The Lancet, December 26, 1903.

² "Exercise as a Means of Physical Education," in Cohen's System of Physiologic Therapeutics, Vol. vii.

³ Deutsche medicinische Wochenschrift, Vol. xxix, 1903, No. 39.

² System of Physiologic Therapeutics, Vol. vii.

³ Archiv f. Klin. Chirurg., 1903, Bd. lxxix, Hefte 1 und 2.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 5, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
Arkansas:	Fort Smith.....Feb. 13-20.....	5	
California:	San Francisco.....Feb. 14-21.....	9	
Colorado:	Denver.....Dec. 26-Jan. 30.....	18	
Delaware:	Wilmington.....Feb. 20-27.....	1	
District of Columbia:	Washington.....Dec. 20-27.....	7	
Florida:	Jacksonville.....Feb. 20-27.....	1	
Illinois:	Belleville.....Feb. 6-27.....	7	
	Chicago.....Feb. 20-27.....	2	
	Danville.....Feb. 20-27.....	1	
Maryland:	Baltimore.....Feb. 20-27.....	2	
Michigan:	Detroit.....Feb. 20-27.....	1	
	83 localities.....Feb. 13-20.....	Present.	
Missouri:	St. Louis.....Feb. 20-27.....	9	1
New Hampshire:	Manchester.....Feb. 20-27.....	3	
New Jersey:	Trenton.....Feb. 20-27.....		3
New York:	Buffalo.....Feb. 20-27.....	1	
Ohio:	Bucyrus.....Feb. 20-27.....	1	
	Cincinnati.....Feb. 12-26.....	9	1
	Cleveland.....Feb. 20-26.....	1	
	Toledo.....Feb. 20-27.....	1	
Pennsylvania:	Allentown.....Feb. 20-27.....	1	
	Johnstown.....Feb. 20-27.....	2	
	Philadelphia.....Feb. 20-27.....	26	12
	Pittsburg.....Feb. 20-27.....	2	
		Imported.	
	Williamsport.....Feb. 13-27.....	7	2
South Carolina:	Charleston.....Feb. 20-27.....	6	1
Tennessee:	Memphis.....Feb. 20-27.....	35	
	Nashville.....Feb. 20-27.....	15	
Virginia:	Pocahontas.....Feb. 1-29.....	7	
Wisconsin:	Milwaukee.....Feb. 20-27.....	4	

SMALLPOX—FOREIGN.		Cases	Deaths
Africa:	Cape Town.....Dec. 1-31.....	1	
	Green and Sea Pt.....Dec. 1-31.....	1	
Austria:	Prague.....Jan. 30-Feb. 13.....	11	
Belgium:	Antwerp.....Jan. 30-Feb. 13.....	9	2
	Brussels.....Jan. 30-Feb. 13.....	2	
Brazil:	Rio de Janeiro.....Jan. 24-31.....	29	19
Canada:	Quebec.....Feb. 13-27.....	6	
China:	Hongkong.....Jan. 9-16.....	2	
	Shanghai.....Jan. 9-16.....	20	
France:	Nantes.....Jan. 1-31.....	2	
	Rheims.....Feb. 7-14.....	1	
Great Britain:	Edinburgh.....Feb. 6-13.....	19	1
	Hull.....Feb. 6-13.....	3	1
	Leith.....Jan. 30-Feb. 13.....	5	
	London.....Jan. 30-Feb. 13.....	11	
	Manchester.....Feb. 6-13.....	1	
	South Shields.....Feb. 6-13.....	2	1
India:	Bombay.....Jan. 26-Feb. 2.....	10	
	Karachi.....Jan. 24-31.....	1	
Java:	Batavia.....Jan. 16-23.....	15	2
Malta:	.....Jan. 16-30.....	4	
Mexico:	City of Mexico.....Feb. 14-21.....	16	
Netherlands:	Amsterdam.....Feb. 6-20.....	7	1
Russia:	Moscow.....Jan. 23-Feb. 6.....	15	5
	St. Petersburg.....Jan. 30-Feb. 6.....	2	2
Spain:	Santander.....Jan. 8-15.....	3	
Turkey:	Constantinople.....Jan. 31-Feb. 14.....	23	

YELLOW FEVER.		Cases	Deaths
Brazil:	Rio de Janeiro.....Jan. 24-31.....	5	1
Mexico:	Merida.....Feb. 13-20.....	1	
	Vera Cruz.....Feb. 13-20.....	1	

CHOLERA—INSULAR.		Cases	Deaths
Philippine Islands:	Provinces.....Jan. 9-16.....	219	163

CHOLERA—FOREIGN.		Cases	Deaths
India:	Calcutta.....Jan. 23-30.....	27	
	Madras.....Jan. 16-22.....	2	

PLAGUE—UNITED STATES.		Cases	Deaths
California:	San Francisco.....Feb. 8.....	1	
	Bacteriologically confirmed February 27.		

PLAGUE—INSULAR.		Cases	Deaths
Philippine Islands:	Manila.....Jan. 9-16.....	5	4

PLAGUE—FOREIGN.		Cases	Deaths
Africa:	Port Elizabeth.....Jan. 9-16.....	2	2
Brazil:	Para.....Jan. 28-30.....	9	
	Rio de Janeiro.....Jan. 24-31.....	8	5
India:	Bombay.....Jan. 26-Feb. 2.....	384	
	Calcutta.....Jan. 23-30.....	17	
	Karachi.....Jan. 24-31.....	11	10
Mauritius:	.....Jan. 21-Feb. 4.....	45	82

Changes in the Medical Corps of the U. S. Army for the week ended March 5, 1904:

LA GARDE, Major LOUIS A., surgeon, is relieved from duty at Washington, D. C., and will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands.

BOURKE, First Lieutenant JAMES, assistant surgeon, is relieved from temporary duty as attending surgeon and examiner of recruits in Chicago, Ill., and will proceed to Fort Sheridan for duty.

KILBOURNE, Lieutenant-Colonel HENRY S., deputy surgeon-general, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty as chief surgeon of that department, relieving Colonel John D. Hall, assistant surgeon-general, who will proceed to Manila, P. I., reporting to the commanding general, department of Luzon, for assignment to duty as chief surgeon of that department.

PATTON, First Lieutenant IRVINE W., assistant surgeon, orders of February 23 are revoked.

BINGHAM, First Lieutenant ERNEST G., assistant surgeon, is granted leave for ten days from February 22.

JORDAN, EDWARD H., contract surgeon, leave granted February 6 is extended one month.

YEAGER, CLARENCE E., sergeant first class, Fort McDowell, will proceed to the general hospital, Fort Bayard, for duty.

VOORHIES, HUGH G., contract dental surgeon, is assigned to duty at Fort Hancock.

MCCULLOUGH, E. A., contract surgeon, leave granted is extended one month.

ADAIR, Lieutenant-Colonel GEORGE W., deputy surgeon-general, will proceed to Fort Harrison for the purpose of making a thorough personal examination of certain property near that post offered for sale to the government, with a view to ascertaining its desirability as a sanatorium, etc. He will submit a report, giving the detailed information called for in the instructions referred to above, which were transmitted to him by endorsement.

Changes in the Medical Corps of the U. S. Navy for the week ended March 5, 1904:

SPRATLING, L. W., surgeon, ordered to report for special temporary duty in the Bureau of Medicine and Surgery, Navy Department—February 26.

DEVRIES, J. C., acting assistant surgeon, detached from duty with recruiting party No. 2, and ordered to Recruiting Station, Baltimore, Md.—February 26.

JANNEY, W. H., acting assistant surgeon, detached from Naval Recruiting Station, Baltimore, Md., and ordered to duty with recruiting party, No. 2—February 26.

TAYLOR, J. S., passed assistant surgeon, detached from Naval Hospital, N. Y., and ordered to accompany Marine Battalion to San Francisco, Cal., and thence to U. S. S. Relief—February 29.

MCCULLOUGH, F. E., passed assistant surgeon, ordered to Asiatic Station, sailing about March 9—February 29.

STRINE, H. F., assistant surgeon, detached from Naval Station, Olongapo, P. I., and ordered to U. S. S. Annapolis—March 2.

MURPHY, J. F., assistant surgeon, detached from U. S. S. Wisconsin and ordered to the U. S. S. Isla de Cuba—March 2.

Changes in the Public Health and Marine-Hospital Service for the week ended March 3, 1904:

NYDEGGER, J. A., passed assistant surgeon, granted leave of absence for one month from March 6, 1904, on account of sickness—March 2, 1904.

MC MULLEN, JOHN, passed assistant surgeon, bureau order of December 3, 1903, relieving Passed Assistant Surgeon McMullen from duty at Hongkong, China, and directing him to proceed to San Francisco, Cal., amended so that he shall report to the chief quarantine officer at Honolulu for temporary duty—February 29, 1904.

FRICKS, L. D., passed assistant surgeon, relieved from duty at the Immigration Depot, New York, N. Y., and assigned to duty in the office of the United States Consul at LaGuayra, Venezuela—February 29, 1904.

GOLDBERG, JOS., assistant surgeon, to report to chairman of Board of Examiners at Washington, D. C., March 9, 1904, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—February 29, 1904.

KORN, W. A., assistant surgeon, to proceed to Washington, D. C., and report to chairman of Board of Examiners, March 9, 1904, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—February 29, 1904.

HOLT, J. M., assistant surgeon, to proceed to San Francisco, Cal.—February 29, 1904.

TROTTER, F. E., assistant surgeon, relieved from duty at San Francisco, Cal., and directed to report to Passed Assistant Surgeon Rupert Blue, Plague Laboratory, San Francisco, for duty—February 26, 1904.

LLOYD, B. J., assistant surgeon, relieved from duty at San Francisco, Cal., and assigned to duty in the office of the United States Consul at Callao, Peru, February 26, 1904. To proceed to Concord, Cal., for special temporary duty—March 1, 1904.

BOGDANS, J. S., assistant surgeon, granted leave of absence for three days from February 18—March 2, 1904.

WARREN, B. S., assistant surgeon, granted one day's extension of leave of absence—February 22, 1904.

MANNING, H. M., assistant surgeon, relieved from duty at Honolulu, T. H., and directed to proceed to Manila, P. I., and report to chief quarantine officer for assignment to duty—February 29, 1904.

ASHFORD, F. A., assistant surgeon, granted leave of absence for ten days from March 28—March 1, 1904.

RICHARDSON, S. W., pharmacist, to proceed to St. Louis, Mo., and assume charge of the Marine-Hospital exhibit at the Louisiana Purchase Exposition—February 26, 1904.

Promotion.

Passed Assistant Surgeon J. C. Perry commissioned as surgeon—March 1, 1904.

Boards Convened.

Board convened to meet at Washington, D. C., February 29, 1904, for the physical examination of candidates for position of second assistant engineer, Revenue Cutter Service. Detail for the board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

Board convened to meet at Washington, D. C., March 4, 1904, for the physical examination of Chief Engineer G. B. Maher, Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General W. J. Pettus, recorder.

Casualty.

Assistant Surgeon H. C. Russell died at Stapleton, N. Y., March 2, 1904.

American Medicine

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Railway Car Hospitals have been ordered by the Pennsylvania Railroad for the purpose of being sent to scenes of accidents and wrecks. It is strange that this has not been done long before, since apart from the evident humanity of the project, it is clearly in the line of self-interest. Life and death often depend on the promptness of medical or surgical attention, and the difference between life and death, admittedly considerable to the sufferer, is readily translatable into dollars in the case of a company liable for damages. The example thus set by one of the model railways of the country should at once be followed by other companies, which in reality have more need of such a system. Fitted with all the modern and scientific devices and materials for the treatment of the wounded, stationed at convenient points along the lines of busy thoroughfares, under the instant command of the company's surgeons, these rolling emergency hospitals would be of the greatest service to the community. This is especially true in our country, where the loss of life by railway wrecks is much greater than in any other. The recklessness of life shown by our transportation companies demands at least this recompense, and they may at any time lessen the expense of the hospital service by greater solicitude as to the avoidance of preventable accidents.

Modern revivals of heathenism—such, literally, are many of the outbreaks of crazy fadism we are daily witnessing. It may not be wise, or at least possible, to repress them by law until overtly illegal barbarism is manifest, but these insane people are so expert in hiding their crimes, or in apparently keeping within certain extremes, that conviction is often difficult. The noteworthy feature of all these wild-eyed enthusiasts is the utter disregard, and even hatred, of the laws of hygiene and scientific medicine. This characteristic of the eddyites, faith curists, and similar insanities of a hundred types, gives warrant to the community and the law for interference when the young, innocent, and beguiled are sacrificed to the frenzy of unrestrained morbid-mindedness. From Maine come reports of people with strange delusions and manias which show the fury of the hidden fires of savagery beneath the thin lava crust of civilization. The "Holiness Society," for instance, at Beal's Island, near Jonesport, Me., according to report, was prevented by the sheriff from sacrificing children and from the murder of a family. The whole popula-

tion, with a few exceptions, appears to have become insane over the new cult brought to the island by the Holiness Society. The creed requires converts to impoverish and humiliate themselves, giving all their money to the ministers as the representatives of God, and casting away all other valuables. The leaders seemed to possess a hypnotic influence over the 300 islanders.

Failure in cancer research is the lamentable result bemoaned in all countries, and by all investigators. Although "certainly discovered" a score of times, the pathogenic organism and the pathogeny are as elusive as ever. At a recent meeting of the directors of the London Cancer Hospital, Dr. Herbert Snow, the senior surgeon, said that he and his associates had studied the disease as, to the best of his knowledge, it had been studied nowhere else in the world. They had attacked its problems with the microscope in one hand and the scalpel or the stethoscope in the other. They had labored by every means in their power to substitute for the mass of chaotic confusion and traditional fallacy which had hitherto prevailed—a genuine and precise cancer-science, as a sure foundation for all future research. And in this attempt they had failed—utterly and miserably failed. And now on all hands they found schemes of cancer research. Those also must fail—must of necessity fail—until some step was taken to clear away all the traditional lumber of past centuries and to formulate precisely what was known with certainty, what was known only imperfectly, and what yet remained to be ascertained. Cancer is not one but many diseases, as it includes ten genera and thirteen species. Each variety is established by a different cause or chain of causes. Each probably required a separate line of research. He had long thought that proper scientific investigation of the physiologic reasons for those remarkable diversities, referring mostly to the action of the lymph-glands on the cancer protoplasm, would assuredly far advance the practical knowledge of cancer, and might even lead up eventually to the ideal nonsurgical cure. But he heard no rumor of any such contemplated investigation. At present all was groping in the dark—or little more. Is there, then, something wrong with the methods of research of the pathologists? Has there been too great reliance upon bacteriologic and laboratory ways, and too little upon clinical and physiologic observations? It seems as if some obscure country practitioner stands as

good a chance to solve the enigma as the most famed and erudite. Perhaps the bacillus is not after all the arbiter of health and destiny.

Fraudulent Citations and Testimonials.—The parasitic scamps who infest the body of the medical profession well know how difficult it is to examine the files of a medical journal, and in fraudulently quoting they are careful not to give the dates, which would enable one to catch the cheat. It thus comes about that quotations and testimonials lauding some drug, book, or institution, and said to be taken from good writers and journals, may not be trusted any more than those appearing with portraits in the advertising columns of newspapers. The latter, as is well known, have a definite market price and are bought and sold exactly as any article of trade. Those of Mrs. Brown are cheap; those of policemen are somewhat higher, and quotations run higher and higher according as one is governor or congressman. These suggestions are made because of the testimonial quoted by the publisher of a book called *Dollars to Doctors*, said to be taken from *American Medicine*. The author of the book is a certain Wood of "St. Luke's Hospital," and "Christian Hospital" fame. The quotation is as follows:

"This is a neat volume of 272 pages, filled with wise and timely advice on the much neglected subject of success in practice. It is a work of great value to the general practitioner. The Lion Publishing Co., Chicago; \$2."

American Medicine never said it.

A demonstration of the curability of incipient pulmonary tuberculosis, is furnished in the report (1902-1903) of the Muskoka Cottage Sanitarium of Canada. Of 115 patients who remained at the institution over one month there were:

Discharged, apparently cured	24	=	20.9%
" with disease arrested	41	=	35.6%
" with marked improvement	30	=	26.1%
" unimproved	17	=	14.8%
" failed	3	=	2.6%
Died	0	=	0.0%
	115		100.00%

The report emphasizes the sharp distinction which is to be made between the curability of incipient and advanced cases; 75% or over of incipient cases may be cured, while of advanced cases we may look for less than 15% of cures, and of far-advanced cases barely 1%. This but emphasizes the necessity of taking the disease in its early stages and of not waiting till the symptoms become pronounced. During the year the real aim of this institution, the cure of incipient pulmonary tuberculosis, was again made subservient to the great need of the public. It cared for many patients far more advanced than the class intended to be treated there. Seventy-five percent of all patients admitted were classified as advanced cases. The results therefore must be considered not in a general percentage but in reference to the class of cases admitted. Of patients remaining longer than a month only 18% of those classified as advanced were arrested, though an additional 30% were very much improved, whereas, of the undoubtedly tuberculous cases classed as incipient, 82% were apparently cured or arrested. Such results must encourage all those who have been working for the establishment of sanitariums, and should bring definite

determinations with the charitable, and votes in legislative halls.

The premature burial bogey springs up periodically and persistently. The latest resuscitation of this long dead subject is a bill introduced into the Massachusetts Legislature with a fearful array of punishments and \$1,000 fines promised breakers who shall violate its provisions as regards notification, and putting corpses in coffins which exclude light, air, and movement, until certain tests of death shall have been made. These tests are in part as follows:

1. Heart-sounds entirely absent, the test being by the stethoscope.
2. Respiratory sounds entirely absent.
3. Temperature of the mouth same as that of surrounding air.
4. A bright needle plunged into the body of the biceps muscle, left there, shows no sign of oxidation.
5. Intermittent shocks of electricity at different tensions passed by needles into various muscles and groups of muscles give no indication whatever of irritability.
6. Fillet test applied to veins of the arm causes no filling of veins on distal side of fillet.
7. Opening of vein shows the blood to have undergone coagulation.
8. Subcutaneous injection of ammonia causes a dirty brown stain indicative of dissolution.
9. Careful movements of the lower jaw and of lower extremities and of occipitofrontalis indicates the presence of rigor mortis.
10. Scarlet line (diaphanous test) is absent.
11. Decomposition has set in. And provided, further, that, if there is an absence of any of the signs of death except decomposition, all known means of resuscitation shall be tried while such signs are absent.

The facts, as we have often pointed out, upon which the scare is based, are themselves most "diaphanous." Investigation of the newspaper reports of premature burials always shows them to be even more newspaperish than the usual newspaper "science." If carried out in the United States the expense to the people would run to many million dollars.

The professor lectures the Bowery, and in doing so, illustrates a doubtful medical and philologic science. His subject was "Hypno and Auto Suggestion," and was devoted to the thesis that the drink habit is controllable by suggestive therapeutics. The patient is tactfully conducted into the desired state of mind—or lack of it—and is assured that, in accordance with his own desire and decree, he has lost all craving for beer, wine, and whisky—that alcohol in any form will disgust him, and, as a safeguard, that he cannot swallow it, cannot carry the containing glass to his lips. Of 200 patients treated in this way by the speaker, 80%, he said, was saved. Now, "auto suggestion," he added, "is open to every one of you, and it will ennoble and beautify your lives. The state of mental abstraction called reverie, immediately preceding natural sleep, is most appropriate for treatment by this kind of suggestibility. As you are yielding to slumber, say to yourself that you will no longer be a slave of the dominant idea or the evil habit that is crippling your best expression." With a thousand earnest preachers of these glad tidings our country could in 10 years, he thought, be regenerated. The trouble, of course, is to get the thousand earnest preachers and practitioners of suggestion, auto or hypno. Then is not 80% a very high proportion of cures, even by any or all methods? Lastly, how about the failures? If suggestion is ineffective, will not the reaction be all the greater toward alcoholism? There are thousands of suggesters

to drink to one for abstention, and if suggestion is effective, *per se*, and to be indulged and encouraged, will not the stronger and more numerous forces conquer the weaker and fewer? We have perfect sympathy with every promising agency against the liquor habit, but as to the professor's plan we have the sincerest doubts. He introduces two words into the language both of the Bowery and of the educated world. These two coinages are *auto* and *hypno*. As component parts of other English words, we can guess at their meaning, but physicians have never treated patients with those articles of the *materia medica* called *auto* and *hypno*.

Some of the Trials of a Medical Journalist.—

One of our subscribers sends us the following letter, addressed to him by the editor of a medical journal:

DEAR DOCTOR:—We would like so much to have you write an article for our journal. At this time, when every doctor knows the effect of —, which has been used with so much success for many years past, a few clinical cases would be in order. Suppose you prepare six clinical cases. Simply outline the cases by giving sex, age, married or single, temperament, habits, mention any peculiarities of the patient, sometimes the statement of the patient himself makes interesting matter, and then give treatment, showing the results from — in each case. We would prefer, if possible, for you to report all cases of the same disease. If you are too busy to write the article as you would like, simply outline the cases as described above, and we will touch them up for you so as to give the proper tone. We know that physicians have long hours to work and we do not want to burden you with more work unless you can do it at your convenience and do it cheerfully. We are offering a clinical thermometer and our journal for one year for \$2, to induce new subscribers to take our journal. Should you have use for one of these thermometers, we will be pleased to send you one free with our compliments, and also send you our journal for one year. Please let us know how soon we can expect the article. Awaiting your reply, we beg to remain,
Very truly yours,

The condition of mind and of pocket book of the poor man who wrote this letter is pathetic, and commands sympathy; not so, however, the condition of the medical journalism which is neither journalistic nor medical; when it comes to the profession that permits or supports all of this, sympathy and wonder become simply disgust.

Should the General Practitioner Fit Himself to do Specialty-work?—The publisher of a medical book lately issued from his press, sends out a notice concerning the book, parts of which read as follows:

A Fee is as Good in the Pocket of the Practitioner as in that of the Specialist.

In these days when medical competition is so keen, it is not to be imagined that the general practitioner is lying awake at night devising schemes for turning over this or that patient to his brother, the specialist. He is rather devising ways and means by which he can treat the patient himself and retain the fee to which, by reason of his long and patient study of the case and devotion to his patient's interest, he is justly entitled. It has been so much the fashion of recent years to refer the patient suffering from kidney trouble to the specialist of renal diseases; the one suffering from throat trouble to the specialist of nose and throat disease; and the one suffering from eye-strain to the oculist, etc., that the field of the practitioner grows limited, unless by a little patient study and investigation and a small amount of capital he will post himself in all departments of medicine and keep fully abreast of the time, thereby fitting himself to treat such cases with justice to his patient and credit and profit to himself.

Is there a competent and reputable general physician who will agree to this? Certainly no specialist will do so. If it is possible, which we doubt, for the general physician to keep in the front of progress as regards the advances in general and internal medicine, and at the same time to acquire the requisite skill and knowledge to practise one or two of the more clearly defined specialties, it is not possible for him to do so in all the specialties. That is rank nonsense. The appeal to cupidity and superficiality, if not to quackery, in the above quotations is contemptible. It is fast becoming impossible for any general physician to be a master in his proper and chosen work and also in any one of the specialties. It is not to the advantage of the patient or of the profession that he should attempt it. He can at best acquire only such knowledge of the principal specialties as will enable him to know when to refer his cases to specialists. Let him do that conscientiously, quickly, and frankly, and he will still have enough to do. Especially if he demands, as he should, the equally important reference by the specialist of cases in general medicine back to the general physician.

Antipathies: Floral and Olfactory.—Antipathies and aversions rank among the most unreasoning and unmodifiable of the many contradictory features which occasionally bubble up from the depths to ruffle the surface of the placid mirror of the human understanding. One of the most remarkable and least explicable of the recorded antipathies is that connected with the rose—one of the most beautiful of flowers and sweet-smelling of odors—to the optical and olfactory organs of the ordinary civilized individual. Many very striking instances have been from time to time recorded, and on the most reliable testimony. Lady Heneage, of the Bed-chamber of England's "Good Queen Bess," had, we are assured by Sir Kenelm Digby, had her cheek severely blistered by having a rose surreptitiously placed thereon during sleep. We are told by the celebrated Amatus Lusitanus that there was a noble Venetian (a member of the Barbarigi family) who always fainted at the sight and smell of a rose, even at a distance; so that he was obliged to remain confined to his house during the annual period of the bloom of the rosebeds. Cardinal Don Henrique a Cardona always fainted when the smell of a rose reached him, even if not in sight. And another church dignitary, Laurentius, Bishop of Vratislavia, met his death by an attack of syncope brought on by the odor of roses. Cardinal Oliverius Caraffa also suffered from the same infirmity, and during the rose season shut himself up in his chamber, while care was taken that nobody bearing a rose was allowed to approach the palace. And the famous physician, Zacchias, a great medicolegal authority in his day, tells us that he himself was most unpleasantly affected by the odor of white roses, which always made his head ache violently, although he really liked the smell at the time. Johannes Quercitanus, secretary to Francis I, King of France, had a horror of the odor of apple blossoms and apples. If one of the latter were held near his nose, epistaxis always followed; and when there were any apples at table, he always stuffed his nostrils with bread crumbs. The odor of roses has frequently been found to produce epistaxis. A relative of

the famous Scaliger was thrown into a state of syncope by the smell or even sight of a lily. Magnolias have produced extreme nausea; and Dr. Barton has known their odor to produce an exacerbation of acute gout. Rue, carnation, orange, saffron, and peony have also excited extreme antipathies. The greatest proportion of floral aversions has, curiously enough, been reported from the sunny land of Italy, where the country people regard the introduction of perfumes into the lying-in-chamber as a fatal proceeding.

Antipathies: Digestive, Gustatory.—We are told by the famous physician and naturalist, Brassavolus, that the younger daughter of the King of Naples, who had been a patient of his own, could not bear to eat—or even taste—any flesh of any kind whatsoever; whenever she was induced to put a small morsel in her mouth she immediately fell to the earth, and rolled about shrieking and moaning for about half an hour. The celebrated physician and botanist, Guaianerius, has reported of himself that “hog’s flesh was so very great an enemy to him, that it produced the same accidents in him that poyson would have done, although he used but any part of it in sawces; as also that when his mother (who was desirous to accustom her son to all kinds of meats) had prepared for him (without his knowledge) a dish of that flesh, minced into smallest bits, and offered it to him to eat; within an hour after he fell into a palpitation of the heart, and thence into a *Syncope*, and thence into a vomiting, in which he brought up pure blood; so that they looked for no life in him.” And Felix Plater has recorded a similar aversion to meats of all kind, in a French boy, who “tabled with my father;” and who lived upon bread, fruits, and milk—the latter always cold. “In the meantime he was of good habit of body, fresh and well-colored.” Horstius has narrated the case of a “Noble Countess” whose lips always suddenly swelled whenever she tasted udder of beef—although she felt no actual dislike to that dish. Schenck mentions the case of a citizen of Antwerp, who immediately swooned off whenever hog’s flesh was placed on any table at which he was seated. The presence of eel—even enclosed in a paste—had the same effect in a case recorded by Henricus ab Heers. Amatus Lusitanus has recorded the case of a Spaniard of Toledo, who could never bear the taste of fish; so that when once given him, “well prepared and wrapped up in eggs, he immediately fell into fainting pressures of the heart, accompanied with vomitings and seige, so that little wanted but that he had dyed.” On the other hand, Donatus tells us of the son of a Count, who on tasting of egg, “his lips would swell, in his face would rise purple and black spots, and he would froth at mouth, after the same manner as if he had swallowed poyson.” And Schenck tells us of two other extraordinary cases of such aversion. One was that of a Norman rustic, who could never taste bread, flesh, or fish, but lived upon eggs, on which account he was called “the weasel.” The other was a Flanders maiden, who (then aged 16) had always lived upon milk. If even a small piece of bread were put into the latter she would detect it, even at a distance, by the smell.

BOOK REVIEWS

A Manual of Operative Surgery.—By SIR FREDERICK TREVES, Bart., K.C.V.O., C.B., LL.D., F.R.C.S. New edition, revised by the author and Jonathan Hutchins, Jr., F.R.C.S. In 2 Vols., Vol. No. II. Published by Lea Brothers & Co., Philadelphia and New York.

A review of the first volume of this work has already appeared in these columns. The second volume has now appeared, and it meets every expectation. The following subjects are discussed in the present volume: Plastic surgery, operations on the neck, operations upon the abdomen, operations on hernia, operations upon the bladder, operations upon the scrotum and penis, operations upon the rectum, operations upon the head and spine, and operations on the thorax and breast. It is difficult to select a portion of this excellent work which is more creditable than another. In view, however, of the rapid evolution in plastic surgery, it is particularly interesting to find in the work before us such an excellent dissertation upon this subject. The numerous illustrations throughout the work add special value. The parts devoted to hernia, hemorrhages, various operations upon the intestines, the kidney, and the bladder, are particularly interesting and instructive. The method of procedure in the numerous operations presented throughout the work are described somewhat tersely, clearly, and in that explicit and direct manner to be expected from one who has achieved such success in the profession. A special feature in connection with the various operations is the after-treatment, which, in the vast majority of surgical works, is passed over with scant attention. The 2 volumes as now completed, are excellent from every standpoint. The publishers are to be commended for the excellent style of these volumes, the quality of paper, the printing, the cuts and binding, all of which are excellent in their execution and complete in detail.

The Treatment of Fractures, with Notes Upon a Few Common Dislocations.—By CHARLES LOCKE SCUDDER. Fourth Edition, thoroughly revised. Published by W. B. Saunders & Co., Philadelphia, New York, and London.

The fact that the fourth edition of this valuable work has appeared in less than 4 years from the appearance of the first edition is sufficient guarantee that the author has kept entirely abreast of the latest discoveries, means of diagnosis and methods of treatment of which the profession have become possessed. The elaborate series of illustrations, comprising some 688, give the student and practitioner a mental picture of almost every fracture that is likely to take place in the human body. This, together with the methods of diagnosis and the efficient means of treatment, whose application is splendidly illustrated in many cases, comprise the volume. A number of röntgen illustrations are presented in the present edition, which, taken all in all comprise an exceedingly valuable addition to surgical literature as applied to fractures and many of the more common dislocations.

Prostatic Hypertrophy from every Surgical Standpoint.—By GEORGE M. PHILLIPS, M.D., and 40 distinguished authorities. Edited and compiled by S. C. Martin, M.D. Published by Lewis S. Matthews & Co., St. Louis, Mo.

This is a very readable book of nearly 200 pages and consists of the expressed opinions of the distinguished authorities on the subject under consideration. These authorities have written answers to 14 questions propounded by the author, the questions being such as these: 1. To what extent does occupation tend to prostatic hypertrophy? Answer with special reference to active indoor, active outdoor and sedentary pursuits. 3. In brief, what is the etiology of prostatic hypertrophy? 6. In what cases do you advise palliation and of what does this consist. 10. How often have you practised suprapubic drainage and what is your estimate of results? Likewise are asked questions pertaining to suprapubic and perineal prostatectomy, complications, the result of cystoscopic examination, etc. These answers are published as given and enable the reader to view the answers from many different lights, according to the views and experience of the various authorities. In view of the revived interest in connection with prostatic hypertrophy

and the evolutionary condition of treatment as applied to this malady, the little book forms an interesting and instructive volume.

The New International Encyclopedia. Volume XIV.—Dodd, Mead & Co., New York.

This number runs from Philadelphia to Rice-bird. Among the medical and semimedical articles included are:

Phlebitis	Ptosia
Phlegmasia alba dolens	Puberty
Phosphatic diathesis	Puerperal fever
Phosphorus	Puerperal insanity
Phototherapy	Pulse
Physical training	Purgatives
Phytolacca	Purpura
Picrotoxin	Pyemia
Piles	Quarantine
Pill	Quassia
Pink eye	Quinin
Pin worm	Quinsy
Piperazin	Radioactivity
Pityriasis	Radium
Placenta	Rectum, Diseases of
Plague	Relapsing fever
Plasters	Remittent fever
Pleurisy	Resection
Pleurodynia	Resins
Pneumonia	Resorcin
Podophyllum	Respiration, Artificial
Poisonous plants	Respiratory sounds
Potassium	Rest cure
Pott's Disease	Resuscitation
Prescription	Retention of urine
Prolapsus ani	Retinitis
Prolapsus uteri	Rheumatism
Prostate gland	Rhinitis
Prurigo	Rhinoplastic operation
Psoriasis	Rhubarb
Psoriansis	Rib, Fractures of
Ptomains	

The following subjects, several of them of first importance, are either not treated or are without cross reference:

Photomicrography	Pterygium
Pica	Pyelitis
Plaster-of-paris (surgical uses)	Pyrogallol
Plastic surgery	Quebracho
Plethora	Railway injuries
Pneumonokoniosis	Raynaud's Disease
Pneumothorax	Rectocele
Postpartum hemorrhage	Reflexes
Protargol	Resinol
Prunus Virginian	Retinoscopy
Pruritus	

P, Q and R seem to be unfortunate initials for members of the medical profession, less than half the usual quota of famous names being chronicled, such familiar ones as Raynaud, Pinard, Pirogoff, Porro, Rasmussen, Reichman, and Reusner being omitted. The majority of the articles are quite short, the longer ones for the most part dealing with subjects that have achieved medical interest comparatively recently, as, for instance, those on radioactivity, phototherapy, etc. The nervous reflexes and their elicitation, so important from a diagnostic standpoint, are not mentioned; refraction, including retinoscopy, as a department of ophthalmology, is not alluded to. The articles are all readable and exhibit the usual intelligent conservatism. The work as a whole has been exceptionally free from typographic errors. An unimportant one occurs on page 543, where proctus is substituted for procedure at the top.

International Clinics.—Volume IV. Thirteenth series, 1904. Edited by A. O. J. KELLY, A.M., M.D. Philadelphia: J. B. Lippincott Company.

This, the concluding volume, is in some respects the best of the thirteenth series. It contains a large number of readable short articles, no less than 28 being included in the 304 pages of text, grouped under the headings of Treatment, Medicine, Surgery, Gynecology and Obstetrics, Neurology, Orthopedics, Ophthalmology and Pathology. Among the names in the list of contributors are Albarran, DaCosta, Duckworth, Julien, Keen, McFarland, Musser, Poynton, Senn, Tyson, and Wiggin. Space forbids mention of the long list of contents, which includes a wide range under the topics given. The tendency to increase the number rather than the length of the articles is to be commended.

The Treatment of Neurasthenia.—By A. PROUST and G. BALLET. Translated by Peter Campbell Smith, M.D. E. R. Pelton, New York, 1903.

This small book of less than 200 pages contains many helpful suggestions regarding the treatment of the troublesome affection in question. Conciseness and clearness are valuable features of the work. The rest treatment of Weir Mitchell is largely used as a basis in ordinary cases. Before definitely considering treatment, the authors devote some space to the nature, causes, symptoms and clinical forms, and the prophylaxis of neurasthenia.

The Self-cure of Consumption without Medicine.—By C. H. S. DAVIS, M.B. E. B. Treat & Co., New York, 1904.

This book of 160 pages is largely a compilation of well-known facts regarding the cause, transmission, prevention, and curability of pulmonary tuberculosis. Modern principles of treatment, including ventilation, breathing exercises, diet, exercise, sanatorium life, etc., are put in popular form without sacrifice of scientific truths. For this reason the book can be recommended as a source of knowledge that is proper to be put into the hands of the tuberculous generally.

Anatomy Applied to Medicine and Surgery.—By D. E. MUNDELL, B.A., M.D. Published by E. R. Pelton, New York City.

This is a volume of 500 pages devoted to anatomy as applied to medicine and surgery, particularly the latter. The arrangement of the book is rare, unique, and in many respects meritorious. Various regions of the body are taken up under separate headings and the anatomic description of the part given, together with the landmarks, functions, and the various pathologic conditions which may arise in the part, together with such treatment as the varying conditions would indicate. As an example we might cite the heading, region of the elbow, under this are the subheadings anatomy, phlebotomy, bursa, elbow-joint, fractures, dislocations, excision. These are tersely and intelligently discussed. Thus the various anatomic regions of the body are taken up and discussed accordingly. As a practical book for ready reference for the busy practitioner we believe this book possesses very considerable merit.

A Compend of Diseases of the Skin.—By JAY F. SCHAMBERG, A.B., M.D. Third edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co., 1903.

This edition of Dr. Schamberg's Compend of Diseases of the Skin does not differ in any important particular from the second. A few additions and revisions have increased the usefulness of the book, which is a concise and reliable outline of the more important facts of dermatology. Conclusive proof that it has been found useful by the student is afforded by the fact that 3 editions have been called for.

Transactions of the National Association of the U. S. Pension Examining Surgeons. Volume I.—Published by the Association; Issued by the Burnett Publishing Co., Rochester, N. Y.

This is a volume of over 200 pages containing the papers presented at the Second Annual Meeting at Washington, D. C., May 13 and 14, 1903, together with discussions thereon. There is also included an account of the first meeting at Saratoga Springs, June 9, 1902. The articles are varied in character and presented by able men throughout the country and these, together with the discussions which were brought out when the papers were presented, comprise a valuable and readable book.

The Practical Medicine Series of Year Books. Vol. X. Skin and Venereal Diseases; Nervous and Mental Diseases.—Edited by W. L. BAUM, M.D., HUGH T. PATRICK, M.D., Chicago. The Year Book Publishers, 1903.

This small volume contains a fairly complete, although necessarily brief, review of the more important literature of skin and venereal diseases and nervous and mental diseases which has appeared during the year preceding its publication. The chief criticism we have to offer is that in the portion devoted to dermatology, no definite plan has been followed in

the arrangement of the subjects considered. The various diseases are taken up apparently haphazard; for example, we find a paragraph on cutaneous horn immediately preceded by one on varicella occurring on the conjunctiva, and followed by one on iodoform eruptions. The same criticism, however, does not apply to other sections of the volume, which seem to have been arranged upon a more definite plan. A full index adds materially to the usefulness of the volume.

The Blues.—By ALBERT ABRAMS, A.M., M.D., F.R.M.S. New York: E. B. Treat & Co., 1904. Price, \$1.50.

The object of this little volume is to direct attention to a variety of nerve exhaustion which the author states has been heretofore undescribed, and which he designates splanchnic neurasthenia. The characteristic symptoms are periods of depression popularly known as "the blues." Of the eight chapters in the book, the first 5 are devoted to general considerations on neurasthenia, including irritants as causes, symptoms, and general treatment. The last 3 chapters contain a discussion of the cause, symptoms, and treatment of splanchnic neurasthenia. The fundamental condition underlying this type of neurasthenia is congestion of the abdominal or splanchnic veins; this may be primary in origin or secondary to nervous exhaustion. Treatment must therefore be directed not only to the neurasthenia itself, but also to the local abdominal condition. Physical methods for relieving congestion of the abdominal veins are discussed under the following heads: 1. Massage of the abdominal wall. 2. Exercises that strengthen the abdominal muscles. 3. Respiratory exercises. 4. Electricity to the abdomen. 5. Abdominal supporters. 6. Cold water. An appendix contains numerous notes on the liver, lung, heart, and other reflexes. The book is very clearly written, and is an addition to the literature on the protean disease neurasthenia, that is worthy of a careful perusal.

Plain Hints for Busy Mothers.—By MARIANNA WHEELER. E. B. Treat & Co., New York, 1903.

This booklet of 54 pages contains many helpful suggestions for busy mothers who perhaps have several small children to care for and who must do without many of the conveniences or even the necessities of life. Directions are given for bathing, dressing, feeding, and training the child. While the incompleteness of all such books renders their value questionable, the points given in this particular instance are very practical.

The Acid Autointoxications.—By DR. CARL VON NOORDEN and DR. MOHR. Part IV in the series of Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. E. B. Treat & Co., New York, 1903.

We have had occasion to commend the previous volumes in this series and find the latest to be fully as valuable as the preceding. The subject is perhaps not quite so inviting, as stated by the editor, but is of considerable importance to the therapist. The conciseness of these monographs is particularly pleasing.

Mammalian Anatomy, with Special Reference to the Cat.—By ALVIN DAVISON, Ph.D. Philadelphia: P. Blakiston's Son & Co., 1903. Price, \$1.50.

For the student of zoology, and particularly the prospective medical student, we know of no better short work on mammalian anatomy than this one of Davison. The text is clear and explanatory and the illustrations, 108 in number, are excellent. The book contains 242 pages of text. Each subject is followed by a short list of suggestive questions to aid the student in review.

The Principles of Open-air Treatment of Tuberculosis and of Sanatorium Construction.—By ARTHUR RANSOME, M.D. London: Smith, Elder & Co., 1903.

The contents of this book of 104 pages are composed of 4 essays on, respectively, the principles of sanatorium and open-air treatment of pulmonary tuberculosis, certain bodily conditions resisting pulmonary tuberculosis, the principles of sanatorium construction, and the pure-air treatment of pulmonary tuberculosis at home. A diagram of plans and sections for a sanatorium is included. Ransome believes that the suc-

cess of sanatorium treatment may to some extent be explained by its blood-making power, a power which may need to be pushed beyond the limits of perfect health. In conclusion, he emphasizes a point that is too often overlooked by modern writers on the home treatment, or self treatment, of tuberculosis, namely, that all the details of successful home treatment cannot be carried out except under the constant supervision of a physician and a nurse, or competent attendant.

A Manual of Hygiene and Sanitation.—By SENECA EGGERT, A.M., M.D. Third edition, enlarged and thoroughly revised. Illustrated. Lea Brothers & Co., Philadelphia and New York.

This manual now contains 460 pages of useful information that has been brought down to date, and hence sets forth the most recent advances in the realms of sanitation. The author is an enthusiastic teacher of hygiene, and the reader of his book is impressed by the fact that it has been written for the purpose of inducing further study of the methods of preventing disease. It remains one of the very best of the smaller works on hygiene.

Electrodiagnosis.—By J. MONTGOMERY MOSHER, A.M., M.D. Albany, N. Y.: Brandow Printing Co., 1903. Price, \$1.

This scheme for the differential testing of nerves and muscles as an aid to diagnosis is one of the most practical of recent medical publications. A few pages are devoted to the technic of electrodiagnosis and the variations in electric excitability. The remainder of the little book gives the action of the various nerves, their motor points, and the motor points of the muscles supplied by them. Plates of the various regions of the body show the location of these points. The book is so concise, 55 pages, and so completely fulfils its purpose that it should be in the hands of every physician who in any way employs electricity.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Die Fäces des Menschen.—By PROF. AD. SCHMIDT and DR. J. STRASBURGER. Part III. August Hirschwald, Berlin, 1903.

Infant Feeding in its Relation to Health and Disease: A Modern Book on all Methods of Feeding. For students, practitioners, and Nurses.—By LOUIS FISCHER, M.D., Visiting Physician to the Willard Parker and Riverside Hospitals, of New York City; Attending Physician to the Children's Service of the New York German Poliklinik; Former Instructor in Diseases of Children at the New York Postgraduate Medical School and Hospital; Fellow of the New York Academy of Medicine, etc. Third edition, thoroughly revised and largely rewritten. Containing 54 illustrations, with 24 charts and tables, mostly original. 357 pages. Neatly bound in extra cloth. Price, \$1.50, net. F. A. Davis Company, Publishers, Philadelphia, Pa.

Atlas of Anatomy for Students and General Practitioners.—By PROFESSOR CARL TOLDT, M.D., and K.K. HOFRATH, Senior Professor of Anatomy in Vienna. Only authorized English translation from the third German edition by M. EDEN PAUL, M.D. With wood-cuts (many in several colors) and explanatory text. The explanations are given in the English as well as in the International nomenclature, a circumstance which will recommend the work particularly to teachers and students. Complete in 6 volumes. Cloth bound, \$18.00.

A Manual of General Pathology for Students.—By SIDNEY MARTIN, M.D., F.R.S., F.R.C.P., Professor of Pathology at University College; Physician to University College Hospital, London. With numerous wood-cuts from microphotographs and other illustrations, including many in colors. P. Blakiston's Son & Co., Philadelphia, 1904. Price, \$4.00 net.

A System of Physiologic Therapeutics: A practical exposition of the methods other than drug-giving, useful for the prevention of disease and in the treatment of the sick.—Edited by SOLOMON SOLIS COHEN, A.M., M.D., Senior Assistant Professor of Clinical Medicine, Jefferson Medical College; Physician to the Jefferson Medical College Hospital, etc. Volume vii.

Mechanotherapy and Physical Education including Massage and Exercise.—By JOHN K. MITCHELL, M.D., Fellow of the College of Physicians of Philadelphia; Physician to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases; Assistant Neurologist to the Presbyterian Hospital of Philadelphia, etc. **Physical Education by Muscular Exercise.** By LUTHER HALSEY GULICK, M.D., Director of American Physical Training, Public Schools of Greater New York; President of American Physical Education Association, etc. Special articles have been contributed as follow:

Orthopedic Apparatus.—By JAMES K. YOUNG, M.D., Professor of Orthopedic Surgery in the Philadelphia Polyclinic; Clinical Professor of Orthopedic Surgery in the Women's Medical College of Pennsylvania, etc. **Corrective Manipulations in Orthopedic Surgery (Including the Lorenz Method).** By H. AUGUSTUS WILSON, A.M., M.D., Clinical Professor of Orthopedic Surgery in the Jefferson Medical College; Emeritus Professor of Orthopedic Surgery in the Philadelphia Polyclinic; Orthopedic Surgeon to the Philadelphia Hospital; Ex-president of the American Orthopedic Association, etc. **Physical Methods Employed in Ophthalmic Therapeutics.** By WALTER L. PYLE, M.D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. With 229 illustrations. P. Blakiston's Son & Co., Philadelphia, 1904.

AMERICAN NEWS AND NOTES.

GENERAL.

Ten Physicians in One Family.—In Lovington, Moultrie county, Ill., Dr. J. D. Donovan, who has practised medicine and surgery for 40 years, has raised 9 sons to adopt the same profession. Four are now in college, but 5 have practices of their own. The elder Donovan is a native of Marshall county, Ky., where he was born in 1836.

Red Cross Society.—If newspaper accounts are to be credited a difference of opinion exists between Clara Barton, president of the National Red Cross Association, and certain auxiliary bodies of that association. It appears the National Red Cross Association offered its services to the combatants at the seat of war in the far East; the offer was not accepted owing, it is asserted, to a possible fear that international complications might arise, and the further fact that the combatants were plentifully supplied with trained assistants in the armies; instead, the offer, particularly of the auxiliary body in Philadelphia, was accepted and nurses sent to the far East. The National Association feels that slight has been put upon it.

Tuberculous Patients Need not Go West.—Dr. Abraham Jacobi was the principal speaker recently at a mass meeting of East Side working people. He said that the spread of tuberculosis is preventable by the people themselves at little expense. The principal thing is attention to the ordinary sanitary laws and the rules of cleanliness. "Windows should be left open a little," he said, "not necessarily more than a little in cold weather. Baths should be taken frequently and people should stay as much in the open air as possible. Instead of long trips to Colorado, short trips to farms in the neighborhood of the city where the air is just as good will serve as well. There is plenty of pure, bracing air near the city which would have a wonderful tonic effect in the incipient stages of the disease."

Bequests to Charity.—Newport, R. I.: By the will of the late Miss Sarah Schermerhorn, the sum of \$200,000 was left to various institutions, among which was the Home for Consumptives, of Denver, Col., which received \$50,000; the New York Association for the Improvement of the Poor received \$15,000; the New York Institute for the Blind, \$5,000; Children's Aid Society, of New York, \$30,000.—Baltimore: By the will of the late George Brehm certain institutions were remembered as follows: To the president and directors of the General German Aged People's Home of Baltimore city, \$500; to the General German Orphan Association, \$500; to St. Anthony's Orphan Asylum of Baltimore city, \$1,000; to St. Joseph's German Hospital of Baltimore city, \$1,000.—Boston: By the will of Nathaniel A. Moody, to the Waltham Hospital is given all of the real estate and property left at the death of the testator's wife. The amount is estimated to be about \$12,000 or \$16,000.

Special Cars for Tuberculous Patients.—Tuberculous patients may be barred from first-class Pullman cars on the Santa Fe railway. The plan involves the running of hospital cars at intervals on through trains. These cars will be specially equipped, and no one except sick persons will be allowed to ride in them. This innovation in train operation will be put into effect between Chicago and Kansas City to Colorado and New Mexico health resorts, and to California points, over practically the entire system. The care of tuberculous patients has always been a burden to the railroads. After a berth has been occupied by a tuberculous patient it must remain unoccupied until the end of the run, when it is disinfected. This precaution for the care of the health of the traveling public involves expense. There is prejudice against riding in cars that are known to have been occupied by tuberculous patients. The hospital cars will probably be put in operation at the opening of the summer tourist business this season.—[*Daily Medical.*]

Profits on Patent Medicine.—According to the *Daily Medical*, the Utah State Board of Health is waging war against patent medicine manufacturers and vendors in that State. The secretary of the Board of Health has caused samples of various patent medicines to be bought from the shelves of druggists and submitted to the State chemist for examination. One alleged remedy, widely advertised as "Hyomei," a liquid preparation for catarrhal troubles, was found to be crude oil of eucalyptus diluted in oil of vaselin. The retail price printed on the label was \$1. Kauffman's Sulphur Bitters was another "remedy" for about 50 different ailments of a patient's insides. On the label was printed "No alcohol," but the State chemist found 23.4% of alcohol in the pint bottle which sold for \$1. Moreover, there was not even a trace of sulfur, and the alleged restorative had no curative properties that could be discovered. "Swamp Root" was a third "remedy" for all the ills the flesh is heir to—particularly in the line of renal troubles. The chemist found 9.6% of alcohol in the pint bottle, with a large percentage of sugar and juniper berry. "Paine's Celery Compound" was a fourth, a \$1 per pint "remedy." The analysis showed 20.9% of alcohol, as much as will be found in wine, and also the presence of a large amount of fusel oil. This makes it worse than straight whisky. But the chief of the collection was Birney's Catarrhal Powders. In this precious stuff

Chemist Harms found nearly 2% of cocaine, with 90% of sugar preparations and inert substances to hold the deadly drug. The preparation is sold in small vials, each containing 1.5 gr. of cocaine.

Decrease of Tuberculosis in Large Cities.—In the Maryland *Medical Journal* for February "The Statistical Laws of Tuberculosis" are discussed by Mr. Frederick L. Hoffman, who makes the gratifying announcement that "the mortality from tuberculosis has progressively declined in American cities for more than half a century." In New York, for example, the deathrate from tuberculosis per 10,000 of population was 42 during 1851-1860, against 27 during 1891-1900. In Boston the rate was 46 in the former years and 26 in the latter. Baltimore shows a like decline of the mortality from the white plague. In 1876-1880 the rate was for Baltimore 36 per 10,000 of population, and in the period 1896-1900 but 21. As these figures include the colored element, which is only partially amenable to sanitary regulations, a gratifying amelioration of the conditions affecting the prevalence of the disease among the people is indicated. There has been in all the principal American cities, according to the writer, "a progressive decrease in the mortality from this disease from decade to decade during the past 40 or 60 years." And this decrease antedates, he adds, by many years the discovery of the tuberculosis bacillus by Koch and the new view that the disease is highly infectious.

NEW YORK.

Typhoid Epidemic in Watertown.—Information from Watertown, N. Y., March 10, says: George A. Soper, of New York, the sanitary expert who is in charge of the typhoid fever situation here, says that there is a marked improvement in conditions. The number of cases reported daily shows a decided decrease, and the total number of cases is considerably less. The number of cases now in the city is less than 500. Arrangements have been practically completed for supplying the city with pure spring water. A number of tank wagons will be put into commission, and kept until the filtration plant is in operation next fall.

Infectious Pneumonia.—A New York exchange says: The increasing prevalence and deathrate of infectious pneumonia is recognized by the State Health Department in its monthly bulletin by the announcement that hereafter it will be given a separate column in the bulletin, and be the subject of distinct notice. Hitherto it has been grouped in the reports with other "acute respiratory diseases." The term will be used as including only acute lobar pneumonia, and not catarrhal or bronchopneumonia. The bulletin says: "While many prefixes to this name appear on our death returns, it is pretty safe to say that physicians generally understand the distinction as to the infectious disease we desire to specially record." The total number of deaths from pneumonia in the State during January is given as 1,510. This is more than half of the average mortality in the State for all acute respiratory diseases, including pneumonia, for 5 years.

New Colony for Insane in Northern New York.—In the annual report of the State Commission in Lunacy, the commission points out with considerable emphasis the necessity of beginning work at the earliest possible moment upon the proposed new colony for the insane in northern New York. The impending transfer to Kings county of the buildings now accommodating 1,200 insane, is referred to, and the commission points out the necessity of providing accommodations for these as well as the 3,800 additional patients who will require housing by the time the new colony is made ready. The commission renews its recommendation for the establishment of a reception hospital in New York City, designed for the immediate care and treatment of acute and curable cases of insanity; that arrangements be made at general hospitals in the larger cities and towns for the temporary detention of emergency cases, this provision supplanting the use of jails and station houses for this purpose; also, the establishment of so-called convalescent houses at a distance from the hospitals for patients not sufficiently recovered to return home, yet able to leave the institution.

Race Suicide in Middletown.—State Health Commissioner Dr. Daniel Lewis, formerly president of the State Board of Health, wants to know the cause of the extremely low birthrate for the city of Middletown, which, as he has noticed, hardly exceeds half the number of deaths. Race suicide has been suggested, but the members of the Board of Health say that as regards themselves this is not so. One of the members particularly refutes the statement by saying: "And on the seventh he rested." The fact of the matter is, however, the birthrate is far too low for a city of 15,000 population. In the past 5 years there have been only 757 births, while the death list foots up to 1,358. The marriages for the 5 years have been about half the deathrate. There is no visible reason why Middletown's birthrate should be so extremely low, as the population is strictly of the middle class, the proportion of wealthy citizens being very small. Of course, the proportion of very poor people, among whom births are most numerous, is also limited. The births and deathrate for the city for the last 5 years show that there were 100 births in 1899, 136 in 1900, 196 in 1901, 146 in 1902, 179 in 1903, as against 266 deaths in 1899, 331 in 1900, 267 in 1901, 246 in 1902, and 248 in 1903.

Arrested for Practising without being Registered.—On a warrant sworn out by 2 female detectives of the New York County Medical Society, charging him with practising medicine without being registered as a physician, Dr. Carl F. Starken, 44 years old, living in the Albany apartments, at 224 West Fifty-second street, was arrested recently by Policeman Buckley and arraigned in the West Side Court.—[*New York Times*.]

PHILADELPHIA, PENNSYLVANIA, ETC.

Lectures on Tuberculosis.—The fifth lecture in the International Course, given under the auspices of the Phipps Institute, will be delivered by Professor Maragliano, of Genoa, Italy, on Monday evening, March 28, at the Witherspoon Building, Philadelphia, the subject being "The Specific Therapy of Tuberculosis and Vaccination against the Disease." An invitation is extended to the medical profession.

Baby Weighs 24 Ounces.—The smallest baby ever born hereabouts was ushered into the world March 10 at the home of Mr. and Mrs. T. H. Keefer. The baby weighs only 24 ounces and is so tiny that it could be drowned in an ordinary tumbler filled with water. The babe is fully developed and is in excellent health. Baby's father is 5 feet 8 inches in height and weighs 209 pounds. The child's mother is of average height and weight.

Lorenz and Hoffa to Visit the United States.—Dr. Adolf Lorenz, of Vienna, who has formerly made several visits to the United States, and Prof. Dr. A. Hoffa, of Berlin, have both accepted invitations to hold clinics at the Jefferson Medical College Hospital, Philadelphia, in June of the present year. The date of the first clinics have been arranged for Monday morning, June 6, the day before the first session of the American Medical Association. The dates of other clinics will be announced later.

Morbidity and Mortality in Philadelphia.—There were 142 new cases of typhoid fever, with 25 deaths reported to the city health authorities, for the week ended March 11, as against 195 new cases, and 19 deaths for the week previous. Notwithstanding this, the health authorities are convinced that the marked decrease is only temporary, and the near future will probably see many new cases reported and a further extension of the disease. This belief is based upon the fact that the water-supply for many sections of the city is fearfully contaminated, and little short of horrible in character. Smallpox, which was thought to have run its course, broke out afresh in the early part of the week, and 48 new cases were reported, an increase of 15 new cases compared with the previous 7 days. Deaths from all causes numbered 700 last week. This is the largest number reported in any week for a year, and 81 more than for the week before. Of the deaths, 141 were due to pneumonia, which prevails in every ward in the city. There were also 12 deaths from grip.

Pennsylvania Medical Students Disappointed.—The medical students of Jefferson Medical College, the medical department of the University of Pennsylvania, and the Medico-Chirurgical School are disappointed, owing to a late ruling by the State Board of Medical Examiners of Pennsylvania. The board has decided that hereafter the certificate issued by the New York State Board will not be accepted in the State of Pennsylvania. This is particularly disappointing to prospective graduates, who heretofore could take the State Board examinations in New York and, having passed, could, by the payment of an additional fee of \$15, have their license accepted in both Pennsylvania and New Jersey. This is all the more disappointing owing to the fact that at the end of the sophomore year in the State of New York students are allowed to take examination in certain studies that have been completed by that time, and in the final examination the grades made at the end of 2 years are accepted without further examination. Since a number of students have taken these mid-grade examinations and expected to complete their examinations in New York, it is all the more disappointing to them.

SOUTHERN STATES.

Maryland Physicians Ask for \$50,000.—A large delegation of prominent Maryland physicians have asked the State Legislature for \$50,000 to erect a fireproof building for the custody of the library of the Medical and Chirurgical Faculty. The bill as introduced called for \$100,000, but the visitors state that in consideration of the many urgent claims upon the State at this time they would voluntarily reduce the amount to \$50,000.

Commission to Investigate Tuberculosis.—The Governor of Maryland is authorized to appoint a tuberculosis commission of 5 persons, 3 of whom shall be physicians, under the provisions of a bill recently introduced. The commission is to determine the relations of the disease to public health and welfare, and to devise means for restricting and controlling it. A report is to be made on the proper equipment and location of a sanatorium. The members of the commission are to serve without pay, and are empowered to fill any vacancy that may occur in the membership of the commission. In order to provide for the expenses of the commission, \$6,000 is set aside.

Mortality Rate in Baltimore.—The deathrate, as reported by the Health Department for the week ended March 12, is still high, but shows a considerable falling off from the preceding week. The total number of deaths reported for the week was 282, as against 231 for the corresponding week of last year. The deathrate in 1,000 population was: Whole, 26.82; white, 22.87; colored, 48.29. Of these deaths, 34 were due to pulmonary tuberculosis and 46 to pneumonia.

American Physicians Would Enlist in the Russian Service.—Recent information from Washington states that a large number of American physicians have offered their services to the Russian Government for hospital service during the war with Japan. It is stated that the Czar of Russia is grateful for the spirit of friendship thus manifested, but owing to the overwhelming number of physicians in his own domain, he has declined to accept the service of Americans.

Bill to Levy Penalty for Spitting.—A bill making it unlawful to expectorate on the floor, seats or platforms of passenger cars or steamboats has been recently introduced in the Maryland Legislature. It also forbids spitting in public buildings. The fine is \$3.50, half of which is paid to the informer. Justices of the Peace are given jurisdiction over all of such cases. Railroad and steamboat companies are required to provide cuspidors, and failure to do so subjects the companies to a fine of \$25.

War against Tuberculosis.—Bills have been lately introduced in the Maryland Legislature providing for the registration of tuberculous patients and to provide for the enactment of precautionary measures to prevent the spread of the disease. These bills were prepared by the State Tuberculosis Commission, acting in conjunction with the State Board of Health. They are explained in some detail by Dr. Fulton, secretary of the Board of Health. The registration bill authorizes the State Board of Health to request all physicians to report to the local Boards of Health all cases of laryngeal or pulmonary tuberculosis that are treated by them; and further authorizes the State Board of Health to keep a register of all such cases reported, the data thus secured to be available for statistical purposes, but otherwise to be regarded as absolutely private and confidential. If these measures become laws they will be operative throughout the entire State, including the city of Baltimore. The Health Department officials of Baltimore recognize the importance of disinfection and disinfect the premises that have been occupied by persons suffering from tuberculosis whenever asked to do so. But up to the present time they have not been able to require persons whose houses or apartments have been occupied by tuberculosis patients to fumigate the infected apartments, as they are able to do after rooms have been occupied by persons suffering from other contagious diseases, for the reason that there has been no law authorizing it. This law will give the necessary authority.

Instruction in Preventive Medicine at Columbian University.—It appears that the board of trustees of Columbian University have arranged that hereafter, if certain conditions in regard to endowment be met, the University will conduct a course in preventive medicine. Section 1 of the measure providing for such organization says: "That there shall be created in the University, as hereinafter provided, a department of civics, for the purpose of graduate education in the subjects of preventive medicine and the fundamental and administrative laws pertaining to the prevention of disease, epidemics, and injuries, which shall be designated as the 'Department of Public Health.'" The following subjects shall be taught in said Department: Hygiene, sanitary chemistry, bacteriology, medical zoology, biochemistry, sanitary administration, sanitary inspection, national and international dangerous occupations, sanitary engineering, comparative medicine, insects as agents in the transmission of infectious disease, international law as affecting sanitary regulations, constitutional and statutory law as affecting sanitary regulations, the history of preventive medicine. Section 4 says: "Courses in the Department of Public Health shall be open to candidates for the degrees of Master of Arts, Master of Science, Civil Engineer, and Doctor of Philosophy, under the conditions set forth." Section 15 reads in part as follows: "This ordinance shall not go into effect until pledges for an endowment have been secured for the full amount of \$200,000, or a subscribed guarantee fund extending over a period of 5 years, which will produce \$10,000 per annum for said period."

WESTERN STATES.

Measles at Madison.—Recent information from Madison, Wis., states that an epidemic of measles prevails among the university students at that place. It is said that more than 100 are now victims of the disease, which was first noticed about 2 weeks ago. Active measures are being taken to suppress the epidemic.

Do They all Chew the Weed in Milwaukee?—According to newspaper reports, Mayor Rose has vetoed the anti-expectoration ordinance passed by the Council, on the ground that it was unreasonable under the present conditions. The ordinance passed after the sidewalk part of it had been omitted,

and its provisions were confined to public buildings and street cars. The Mayor says he is in sympathy with the idea, but holds that it is a necessity to spit in this climate, and that an ordinance should be passed to provide spittoons for all public places before an antisputting ordinance is enforced.

High Mortality Rate from Pneumonia in Chicago.—The Bulletin of Chicago's Health Department for the week ended March 5 says: With 56 days more of the pneumonia season remaining the "upwards of 2,100 deaths from pneumonia," predicted in the Bulletin of October 24, ultimo, are already exceeded. Between November 1, 1903, and March 5, 1904, a total of 2,186 deaths from the disease have been reported. If the last 14-years' daily average of such deaths be maintained until the end of April the death roll of the new "Captain of the Men of Death" will number about 2,800, or a third more than was anticipated. Pulmonary tuberculosis, also, threatens to exceed the estimated 1,300; there have been 970 tuberculosis deaths reported in the 126 days since November 1, and if the daily average be maintained during the next 56 days the total tuberculosis deaths will be about 1,400, or about 8% more than the estimate.

Chicago's Health Department and Antitoxin.—Chicago's Bulletin of the Health Department, for the week ended March 5, says: The Health Department is again prepared to furnish standard diphtheria antitoxin—from the bacteriologic laboratories of the New York Department of Health—to every physician of Chicago in the following manner: 1. Physicians may obtain antitoxin free from the antitoxin stations of the department for the gratis treatment of their charity cases. 2. Physicians may have their prescriptions for antitoxin to use in their paid practice filled by any antitoxin station at the following (present) prices: No. 1 (1,000 units), 75 cents; No. 2 (2,000 units), \$1.25; No. 3 (3,000 units), \$2.25. Free antitoxin is furnished by the stations on the application of any physician, who gives a receipt for the amount of antitoxin supplied, which receipt contains the following certificate: "I hereby certify that the family of this patient is unable to pay for the antitoxin; that the case is urgent; that I am attending without fee, and that I will report the termination of the case on the postal-card form of the Health Department furnished by the druggist." In the body of the receipt is given the name of the patient and the exact residence address. This—in order to refer what is, presumably, a case of destitution to the Bureau of Charities for such further assistance as, upon investigation, may be found necessary. All cases of charity antitoxin will be investigated by the bureau. But this will not be allowed to delay the prompt administration of the remedy. The antitoxin will be furnished first; the investigation will follow.

FOREIGN NEWS AND NOTES

GENERAL.

Dogs Trained to Carry First Aid to the Injured.—The Russian Kennel Club has offered to provide the Red Cross Society with dogs trained to find and relieve the wounded on the battlefield and in rough country districts. The offer probably will be accepted. These dogs carry restoratives and a first aid package attached to their collars.

What Medicine Has Done for Japan.—In these days original Japanese contributions to medical science are taken as a matter of course, yet it's worthy of note that it was a recognition of the superiority of Western medicine that first led the Japanese to study and adopt European life and language and methods. Before the year 1867 the only European language known to the Japanese was Dutch, which was studied by interpreters as a medium for acquaintance with Western medical science. Possibly the choice of Dutch may ultimately be traced to the influence of Boerhaave, the famous physician of Leyden from whom, as it happens, Peter the Great took lessons in 1715.

The Jewish Doctors Forced into Russian Service.—An exchange says: A dispatch from St. Petersburg gives curious particulars of the turn taken by Russian anti-Semitism in war preparations. An enormous percentage of Jews has been sent to the front, including most of the Jewish doctors in St. Petersburg. Out of 180 medical men who left at the beginning of the month, 110 were Jews. This measure was taken for two reasons, although it is against the wish of the Minister of War. One reason was that the Jewish savants are all supposed to be Liberals, whose presence in Russia in critical times is considered undesirable. The other reason was that reprehensible influence was brought to bear on behalf of certain non-Jewish practitioners, who are only too glad to get their Jewish rivals out of the way. The Jewish doctors sent East are deprived of part of their emoluments, and receive only 900 roubles and traveling expenses, whereas Christians get 1,250 roubles. Pressure is being brought to bear upon those Jews whose presence is tolerated outside the ghettos by subordinate officials and police agents, who claim "voluntary contributions" for Red Cross Work, the naval fund, and other institutions.

Röntgen Rays and the Russian Police.—An exchange gives the following: The Russian police make practical use of the röntgen ray. At Kief, recently, a drunken prisoner was robbed of about \$300 by cellmates. They denied the crime, but two-thirds of the money was found in their clothing and the röntgen ray revealed the other hundred dollars, which was in gold snugly stowed away in their respective interiors. They had swallowed it. Against detectives provided with the röntgen ray, the radium ray, and other marvels yet to come, the criminal of the future will need to be armor-plated like a battleship.

Curing Drunkards in Norway.—A novel method is that adopted in Norway for turning a drunkard from the error of his ways. The patient is placed under lock and key, and is fed at frequent intervals on bread saturated with port wine. For the first day this is no doubt palatable fare; on the second it begins to pall, and fails to tempt the appetite; on the third day the prisoner turns from it with obvious distaste. But he must either eat or starve; and before the eighth day sets him free he has acquired such a loathing for intoxicants that he, more often than not, spends the rest of his days as a rabid teetotaler. At least, that is what is asserted.—[*London Westminster Gazette.*]

Patent Health Tent.—Among the new inventions chronicled in *The Lancet*, London, England, January 30, is a patent health tent, manufactured by Messrs. S. Wilson & Co., of Bedford street, Belfast, who have sent to Bartholomew's Hospital an illustrated description of their "patent health tent," in which there are no poles visible when the tent is erected and an air space 6 inches wide is provided between the inner and outer layers of canvas for the purpose of reducing variations of temperature. A center pole is not used. A special feature of the tent is stated to be the employment of stretchers and of cross-stays connecting the vertical poles together in such a manner as to be adjustable lengthwise. These stretchers are, in fact, strong spiral springs, and in this way the canvas is firmly held both in wet weather and in dry. The makers believe that the tent will be found useful in the open-air treatment of tuberculosis and in the isolation of cases of infectious disease.—[*Daily Medical.*]

The Mosquito and Malaria.—An exchange says: Professor Royce, recently returned from Egypt, gave an interesting account of the success which has attended the efforts to extirpate the mosquitos and malaria from Ismailia. He said that when Major Ross visited Ismailia in September, 1902, there were 2,000 cases of malaria annually in a population of 9,000 people, of whom 2,000 were Europeans. The authorities at Ismailia loyally carried out his suggestions as to filling up marsh land close to the town and cleaning out small irrigating channels and stagnant waters. That involved an expense of \$22,000, and at the same time they organized a drains brigade and a petroleum brigade, and now people could sleep in any of the houses in the European quarter without mosquito nets. Malaria cases had been reduced from 2,000 a year to 200. As a matter of fact, there were no fresh cases of malarial infection in Ismailia; there had been no deaths among Europeans during 1903, and only 4 among natives, against 30 deaths the year before. The improvement was so wonderful that Prince D'Arenberg, president of the Suez Canal Company, hopes soon to see Ismailia the sanatorium and watering place for Cairo. Major Ross, who was present, remarked that the success of the antimalarial campaign at Ismailia had taught 2 things—that it was possible to rid a large town entirely of mosquitos, and that it was equally possible to eradicate malaria. He had been asked to draw up a report as to malaria cases in India, which were responsible for 300,000 admissions to hospitals from the troops and jail prisoners. With the Ismailia figures before him, he felt confident that these high figures would be reduced soon by at least one-third.

OBITUARIES.

Jefferson Cushing Gallison, from heart disease, at his home in Franklin, Mass., February 22, aged 62; a graduate of Brown University in 1875, The College of Physicians and Surgeons, Boston, in 1888, Tufts College, Boston, in 1894, and Harvard Medical School, in 1895. He was one time member of the Legislature; demonstrator of anatomy at the College of Physicians and Surgeons; lecturer on surgical pathology in Tufts Medical College, and member of the Massachusetts Medical Society.

Vernanus Morse, at his home in Brooklyn, March 9, aged 85; a graduate of Dartmouth College and of the University of New York. He began practice in New York City, in 1849, and was one of the founders of the Y. M. C. A. in New York, in which organization he was particularly conspicuous. He was treasurer of the New York Medical Union for several years, and was well known and revered in the community in which he lived.

John P. Edge, at his home in Downingtown, Pa., March 7, aged 82; a graduate of Jefferson Medical College, in 1846. For several consecutive years he was a member of the Pennsylvania Legislature. He was the author of the bill establishing the Board of Agriculture, a member of the Chester County Medical Society, and one time member of the Board of Agriculture of the State of Pennsylvania.

Dallis M. Wick, after an illness of several months, at his home in Cedar Falls, Ia., March 1, aged 63; a graduate of the Chicago Medical College in 1874; vice-president of the Iowa State Medical College; member of the Iowa State Association of Railway Surgeons; member of the American Medical Association and a prominent physician of northern Iowa.

William H. Highlands, at his home in Newtown, Ohio, February 29, aged 81; a graduate of the Medical College of Ohio, Cincinnati, in 1850. He was the oldest physician in Hamilton county and he served as surgeon in the Civil war and was at one time a member of the Ohio Legislature.

Robert S. Henry, from Bright's disease, at his home in Charles town, W. Va., March 10, aged 52; a graduate of the U. S. Naval Academy, Annapolis, and from the University of Maryland. He had practised in Charlestown since 1882, and was prominent in medical circles.

Guy B. Chase, from pneumonia, at his home in Cleveland Ohio, February 26, aged 52; a graduate of the University of Wooster, Cleveland, in 1873; member of the American Medical Association, and professor of dermatology at the Cleveland College of Physicians and Surgeons.

Thomas S. Galbraith, at his home in Seymour, Ind., February 23; a graduate of the Medical College of Ohio, Cincinnati, in 1866; one time superintendent of the Central Indiana Hospital for the Insane, Indianapolis, and of the Oklahoma Insane Hospital at Norman.

David L. Wallace, from pneumonia, at his home in Newark, N. J., February 29, aged 48; a graduate of the Bellevue Hospital Medical College, New York, in 1875; secretary of the Newark Board of Health, and member of the American Medical Association.

Arthur Collis Gibson, from septicemia, at his home in Bangor, Me., February 21, aged 43; a graduate of the Medical School of Maine, at Bowdoin College, in 1885; a member of the Maine Medical Association, and a prominent physician of Bangor.

Robert J. Wilding, from heart disease, at his home in Malone, N. Y., February 24, aged 67; a graduate of Apothecaries' Hall, London, England, in 1856. He was secretary of the Franklin County Medical Society at the time of his death.

James Billingslea, at his home in Baltimore, March 2, aged 47; a graduate of the University of Maryland. He had resided in Baltimore 16 years, and was at one time State Medical Examiner for the Royal Arcanum.

Ida R. Gridley Case, a specialist in eye and ear diseases, at her home in Collinsville, Conn., March 9. She received her medical education in Boston, and was considered one of the best experts in the State.

Eldridge G. Hard, from malignant disease, at his home in Medina, Ohio, February 23, aged 77; a graduate of the Cleveland Medical College in 1850. He was surgeon in the U. S. Army during the Civil war.

Charles T. Whybrew, of Bright's disease, at his home in New York, March 8, aged 62; a graduate of the College of Physicians and Surgeons, and a member of the New York Medical Society.

Frank E. Baker, at his home in Newark, March 1, aged 48; a graduate of the College of Physicians and Surgeons, New York City, and ex-superintendent of the Newark City Hospital.

Thomas B. Cosford, from tuberculosis, at his home in Redlands, Cal., February 26, aged 57; a graduate of Trinity Medical College, Toronto, in 1876. His home was at Lockport, N. Y.

Peter Arnold, at his home in Wellsville, Mo., February 25, aged 35; a graduate of the Washington University, St. Louis, in 1895. A member of the American Medical Association.

W. S. Ruby, committed suicide by shooting, at his home in Riverside, California, February 22; a graduate of the Homeopathic Medical College of Missouri, St. Louis, in 1878.

Theophilus Smith, at his home in Wausau, Wis., February 27, aged 87; a graduate of Jefferson Medical College, and one time post-master of his native city.

Frank M. Severson, from pneumonia, at his home in Seneca Falls, N. Y., March 1, aged 40; a graduate of the College of Physicians and Surgeons, N. Y., in 1889.

Hermann Motter, at his home in Reading, Pa., February 22, aged 83; a graduate of the University of Giessen, Germany, in 1846. He retired from practice in 1891.

William C. Mills, from heart disease, at his home in Chateaugay, N. Y., February 23, aged 38; a graduate of McGill University, Montreal, in 1893.

William D. McClees, at his home in Wichita, Kansas, February 25, aged 42; a graduate of the University of Pennsylvania, in 1885.

Middleton Stuart Hanckel, at his home in New York, March 12, aged 76; a graduate of the Charleston Medical College, S. C.

Anna E. Mills, from tuberculosis of the intestines, after a long illness, at her home in Denver, February 21.

Enoch Lewis, from pneumonia, at his home in Oskaloosa, Ia., March 2, aged 67.

Edward Downes, at his home in Kensington, Philadelphia, March 11, aged 65.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE PROBLEM OF POTASSIUM IODID.

BY

ALFRED GORDON, M.D.,
of Philadelphia.

To the Editor of American Medicine:—The inquiry concerning the internal administration of potassium iodid is undoubtedly a question of interest and of great practical importance, and Dr. Payne's correspondence in *American Medicine*, February 27, should be commented upon by all who have had a more or less large experience with that drug.

The iodids are of great utility not only in hemiplegia, but also in many other conditions indicating an organic involvement of the cerebrospinal axis. As far as results are concerned, if on one hand some cases are not at all benefited by the drug, there are on the other hand diseases which are very favorably influenced by it. Among the latter syphilis of the nervous system is the most fortunate of the organic diseases. The consensus of opinion as it stands now is that syphilitic infection (hereditary or acquired) is the principal cause of many forms of cerebrospinal affections (tabes, for example). It should, however, be distinctly understood that there is a capital and fundamental difference between a genuine syphilitic affection of the nervous system and those systemic diseases in which syphilis played perhaps a certain role as a causative factor. In the latter case the pathologic condition is expressed in well-established tract degenerations which run a chronic and a well-defined course, upon which the old syphilitic poison has no more effect. These are the so-called parasymphilitic affections of Fournier. When we speak of cerebrospinal syphilis we have in view a pathologic condition, which is due to a direct and immediate effect of the syphilitic poison upon the nervous tissue, and according to the portion involved, we have a great variation of symptoms. It is true, they may be transitory in character, may disappear and reappear, may at one time affect a certain portion of the brain and at another the spinal cord *in toto*, or only in part, or both at the same time. One may improve, the other persist, or both disappear and reappear. This multiplicity and variation of manifestations, the repetition of symptoms, are due to various localizations of syphilitic formations and infiltrations (gummas). This is the characteristic feature of cerebrospinal syphilis, and in this disease more than in any other form of organic nervous diseases the iodids are useful. This affection is more common than it is generally supposed, and indeed, it is frequent. The questions raised by Dr. Payne are therefore very important. Is there a method for the administration of the drug? as the doctor puts it. If it can be called method, it will consist merely of the general principle applied in therapeutics. Test the idiosyncrasy of the patient, and for this begin with small doses; .32 gm. (5 gr.) 3 times daily for an adult is the proper dose to begin with (at least in my experience), although I have known patients who showed iodism with .26 gm. (4 gr.) doses. It is not difficult to manage if this principle is borne in mind. The dose should be increased every other day, .53 gm. (8 gr.) 3 times daily, and then .65 gm. (10 gr.) 3 times daily, etc. When the dose of 1.3 gm. (20 gr.) is reached, the increase may be made somewhat more rapidly; give 1.6 gm. (25 gr.) 3 times daily, and increase only 4 to 5 days. Of course, the patient must be seen often, and at the slightest symptoms of intolerance discontinue the drug for 1 to 2 days, and then again follow the same plan. In this manner I have very rarely observed undesirable symptoms and succeeded in having my patients accustomed to daily absorption of very large quantities of iodids. As to the question of a maximum dose, I was never much concerned about it, as it was not necessary. In fact, there is no possibility of establishing, or even giving approximately, a maximum dose; for one patient the maximum dose may be .32 gm. or .65 gm. (5 gr. or 10 gr.), for another 20.1 gm. (310 gr.) 3 times daily (a case of tumor in an adult), and still for another 21.1 gm. (325 gr.) 3 times daily (a case of cerebrospinal syphilis). A boy of 12, being treated for a cerebellar tumor, is now taking 7.3 gm. (112 gr.) 3 times daily without the slightest symptom of iodism. In this particular case there was an intoler-

erance at the beginning, because of gastric disturbances of several years' standing. As soon as the condition of the stomach improved the intolerance of iodids disappeared. This latter circumstance, namely, the state of digestion, is a very important factor in establishing the tolerance or intolerance of iodids. We therefore see that with a proper management and reasonable discrimination we can in the large majority of cases avoid iodism or other undesirable symptoms in administering iodids.

In closing, I wish to call attention to this fact, that in the majority of my cases I prescribed sodium iodid instead of potassium iodid. Perhaps this is also one of the reasons of the great tolerance of the drug, and since the results are identical with those of potassium iodid (at least in my experience), it is perhaps desirable to apply it more extensively than therapeutists usually do.

THE DIAGNOSIS AND TREATMENT OF DIPHTHERIA.¹

BY

T. CLARKE MILLER, M.D.,
of Massillon, Ohio.

Probably almost all workers in bacteriologic laboratories believe that it is fully settled that a diagnosis of diphtheria arrived at clinically at the bedside is valueless. While the producers of antitoxin and many physicians agree that only one therapeutic measure is worthy of mention, some go so far as to condemn the neglect to use antitoxin in any given case of diphtheria, or even in any suspicious case.

It is an unfortunate event in the pursuit of truth when a difference of opinion has to be expressed apologetically. If the evidence at hand satisfies one and compels the conviction that the last word has been said as to diphtheria and its treatment, I concede that one has a right to such opinion. However, though the subject has been cleverly opened up, it is by no means exhausted.

The discovery of the Klebs-Loeffler bacillus and the evidence presented of its causative association with diphtheria, are matters of immense importance to physicians and to humanity.

The presence of the germ in the absence of the more palpable evidence of the disease, or in the doubtful case, has a significance which can hardly be said to be fully interpreted. The initiative still rests with the trained senses and the experience which enables us to recognize the disease, as we recognize most other diseases—by characteristics which are obvious to the organs of sense, unaided except by the reasoning faculties. The presence of the Klebs-Loeffler bacillus is not sufficient evidence that diphtheria is present, and its presence is not conclusive evidence that the disease is diphtheria. It does not seem to exclude other infections, and is present when there is no infection.

The term diphtheria has a more specific application than formerly. At one time inflammation of the throat attended by a membranous exudation might properly be named diphtheria. At present diphtheria is an exudative inflammation attended by a specific germ—the Klebs-Loeffler bacillus. The exudative inflammations of the throat are not all diphtheric in character, and those that are not are assumed to be less threatening to life and less important from a sanitary point of view than the true diphtheric disease, characterized by the membranous exudate and *Bacillus diphtheriae*.

The concession of less gravity to these infections ought not to give rise to the assumption that any exudative inflammation invading the throat or upper air passages, is devoid of danger, for it is a matter of record that exudative inflammations due to other than the Klebs-Loeffler germ, have not infrequently proved fatal. All exudative inflammations are probably infectious and should be managed as such by the physician and sanitarian. A genuine diphtheric exudate which can be brought well into view can be pretty easily and confidently recognized and differentiated. I have not neglected to test repeatedly the foundations of this confidence by a bacteriologic inquiry, the result of which has not failed to fortify my diagnosis. I have taken this course to satisfy myself and those who contributed their manipulative skill.

The exudate due to *Bacillus diphtheriae* is more substantial and continuous than that resulting from other infections. It is more regular in its ovoid outline, more often spreads from a single center, and has an angry red boundary, which of itself is, I believe, characteristic. I make this statement, first, because I believe it, and second, because, in the interests of truth, I am willing that it should be questioned or disproved. There are, no doubt, obvious features in a diphtheric exudate which point unerringly to the nature and characteristics of the causative germ.

There are cases of diphtheric infection without an exudate which can only be presumptively diagnosed, clinically, from the known fact of exposure. An exudate will appear later, in the absence of treatment, but until it does appear the positive diagnosis must depend upon the bacteriologic test. Children who have been exposed to diphtheria may become sick, with high fever, headache, nausea and a sore throat several hours before an exudate appears. The microscope will show the presence of the germ, but aside from that fact, whatever your method of treatment may be, the case must be at once handled as diphtheria.

Fortunately, a diagnosis need not often depend upon bacteriologic findings, for in no other disease is prompt action in the right direction more urgently demanded. In diphtheria every hour of delay is likely to be an hour's progress toward a fatal end. Again, many physicians have not the appliances nor the manipulative skill necessary to a bacteriologic determination of such questions, and are practically out of reach of any one who is equipped for such work. To a large percentage of the profession a bacteriologic diagnosis is out of the question. Observation and study will qualify the physician to make a diagnosis, clinically, and a clinical diagnosis is almost always sufficient—while a microscopic diagnosis, alone, is never sufficient.

While recognizing the virtues of antitoxin, it is well not to abandon, or at any rate not to forget other therapeutic measures founded on the experiences and observations of the past. It is quite possible that we may be several hours away from a fresh and reliable supply of antitoxin and even when it has been procured, it is more likely to be from the old than from the newer stock.

It is to be hoped that the time may come when antitoxin can be so prepared as to retain its virtues indefinitely, but until that time, if other drugs can show good results, we will not do well to ignore them.

Diphtheria, taken in hand at the outset, quickly yields to antitoxin, and also quickly yields to other means. In this paper it might not be inappropriate to consider the various therapeutic lines which might be followed with fair promise of success, but this would be wearisome and not perhaps altogether inoffensive. So I will only refer to the method of treatment which I am in the habit of following.

For more than 20 years my main dependence in the treatment of diphtheria has been mercurous chlorid. In the early stages the disease is checked in a few hours and under complete control in a few more hours. The early fever and sickness are almost immediately relieved, and very soon the progress of the local disease is stayed and a feeling of comparative wellbeing takes possession of the patient. These are the most definite features of a typical antitoxin action. The action of quinin on malarial fever is not more quickly nor more decidedly marked, and is apparently not more nearly specific. Of course, when the disease has gone on to a secondary systemic infection, generally mixed in character, the results are not so prompt under this or any other treatment. The administration of mercurous chlorid fortifies the system against the toxins of diphtheria, and at the same time, inhibits the growth of the diphtheria bacillus. There is also considerable evidence that mercurous chlorid has an inhibitory effect upon the growth of other exudation producing germs. (The apparent relationship of these other exudates to true diphtheria justifies me in noting this fact.) The Klebs-Loeffler germ is killed or crippled in situ, thus greatly simplifying the task of protecting others from infection, for the germs of diphtheria, which have made their escape from the host in a vigorous condition may be very difficult to reach and destroy, and are liable to

¹ Read at the Toledo meeting of the Ohio State Pediatric Society May, 1902.

assert themselves at unexpected times and in unexpected places. I am not sure that it is claimed, but I am willing to concede, that antitoxin may also, to some extent, inhibit or destroy the developmental vitality of the Klebs-Loeffler germ and render it less potent for mischief when transferred to a new host. If so, it is susceptible of proof. If it has been proved I have overlooked the proof. (Councilman, Mallory and Pearce, in their wonderfully interesting report on 220 fatal cases of diphtheria, almost all of the patients being treated with antitoxin, do not mention any difficulty in developing cultures.) In 20 years I have not seen a case of post-diphtheric paralysis among the patients I have treated. I believe it is not claimed that the liability to paralysis is at all diminished by the use of antitoxin. Some claim that the liability to this sequel is increased. I incline to think it is not. I have failed to find any trouble with the kidneys attending or following diphtheria when treated with mercurous chlorid. I have not had a single case of extension to the larynx after treatment had been begun.

In cases seen in the preexudative stage the disease may be throttled before an exudate appears, and if the exudate has just appeared, to an extent sufficient for recognition, the mercurous chlorid generally triumphs within 24 hours. I have almost given mercurous chlorid a certificate of excellence as an immunizing agent and I do not hesitate to add that I doubt whether there is anything better at present within the reach of the therapist.

I think I appreciate the hazard of my position. I am aware that in the present state of the public, as well as of the professional mind, we can afford to lose a patient if we give antitoxin promptly and freely, while if we lose a patient under any other treatment many physicians seem ready to dictate to the laity a verdict against us of manslaughter or worse.

In laryngeal diphtheria I would use antitoxin without delay and freely. In this really formidable type of the disease nothing else has such a record to its credit. Early in cases in which the nose is invaded, antitoxin is advisable; later, when secondary systemic infection is present I could not in the light of my experience bring myself to trust antitoxin to the exclusion of other measures.

It is, however, fairly certain that antitoxin, in some way, antagonizes the toxins or supplements the natural powers of resistance more quickly than any other known remedy. This rapidity of action is no doubt partly, if not wholly, due to the method of its administration.

The most formidable cases of diphtheria, aside from the laryngeal form, are mixed infections. The neglected case, I think, is likely in a few days to take on this type. It then becomes a rather poor case for the exploitation of any method of treatment. When a secondary toxic condition has been established I doubt whether antitoxin promises much, and I believe mercurous chlorid will give better results and I would prefer to trust it if compelled to a choice, though I am not aware of serious objections to its use in connection with antitoxin. I have seen no troublesome cathartic effects from the use of mercurous chlorid, no prostration, no threatened salivation and no undesirable effects in any way. (In looking over my record I find that of the last 80 patients I treated I lost but one.) Of course, one man's experience is not a basis for conclusions, yet it is of some importance to himself. I do not claim to have discovered anything, I may, however, have pushed this particular line of inquiry a little further than some others have, and possibly a little more systematically.

There are a few reasons why one might prefer to use other means rather than antitoxin: 1. Antitoxin is very expensive, and I am not sure that we can expect much reduction. 2. Confidential relations between the physician and his patient are sometimes seriously imperiled when it becomes his duty forcibly to administer hypodermically a large dose to a child 2 to 4 years old. Subsequent necessary inspection of the throat will often not be submitted to without vigorous muscular protest. A struggle is to be deplored, and might be dangerous. The administration of antitoxin is brutal when it is unnecessary. 3. Not infrequently the expense falls on the physician himself. I do not advance these objections as having sufficient weight to dissuade one from doing what is necessary. Such

considerations weigh nothing against a measure which is necessary to save human life. Bacteriology ought to furnish some evidence as to the effects of treatment which would be no less valuable than that it offers in diagnosis. As I am situated, a case of diphtheria is not always at hand for diagnosis, or treatment, but in the past 6 years I have had some opportunities to study the effects of treatment aside from its more palpable results.

Dr. D. W. Gans has contributed his knowledge and manipulative skill in the way of bacteriologic work with a patience and enthusiasm which is inadequately rewarded by appreciation. I will briefly summarize the result of these studies, because I believe this to be an important feature in the discussion of this subject:

1. In every case clinically diagnosed as diphtheria, the Klebs-Loeffler bacillus has been found.

2. A swab taken from the throat *before treatment*, never failed to show the bacillus under immediate coverslip examination, and it never failed to grow beautifully in from 15 to 24 hours.

3. After 12 to 24 hours' treatment the bacilli were present on the coverslip, but showed no growth in a culture medium after 24 hours, and only an extremely feeble growth after 48 hours' incubation. It remains to be determined whether by repeated cultures the germ recovers its virility or becomes completely sterile. In a number of cases the second crop was very feeble or a complete failure, and cultures could not be continued.

4. After the exudate had disappeared, though bacilli were sometimes present, cultures always failed.

5. In patients thoroughly exposed to infection, and developing the initial malaise, fever, headache, and sore throat, but showing, as yet no exudation, the bacilli were present and grew luxuriantly. After 24 hours' treatment with mercurous chlorid the bacilli were still present, but failed to grow, and no exudate appeared.

It would seem that if the growth of the bacilli in a culture medium is inhibited, the danger of these bacilli as agents of infection must be at least to a corresponding degree mitigated.

If this be true, it is entitled to serious consideration from a sanitary and hygienic point of view.

I append an outline of the management of diphtheria:

Isolate the patient as completely as possible from those susceptible. Strip the sickroom of woven fabrics, books, papers, and bedding, beyond what is absolutely necessary for the comfort of the patient. An open fireplace with at least a little fire, is very desirable, in order to maintain a movement of air toward the sickroom, and for the destruction of soiled cloths, etc. Only such books, papers, and playthings should be about the patient as may be burned at the conclusion of the sickness. Keep formaldehyd gas in the room to the verge of discomfort. Secure plenty of fresh air, provide mercuric chlorid solution in basins to receive all secretions coming from the mouth or nose. An abundant supply of worn cotton goods or cheese-cloth in moderate sized pieces should be used to receive secretions, and destroyed at once by fire.

If there is no fire in the room, wrap these soiled cloths in paper and take them to the fire, or place them immediately in mercuric chlorid solution. Use as few dishes as possible, and keep them separate from those used by the well. Bathe the patient every day, and for several days after recovery destroy or thoroughly disinfect the cloths used in bathing. Encourage the use of plenty of water for washing the mouth and throat, and drinking plenty of water materially aids the elimination of poisons from the blood.

Burn freely, boil freely, disinfect freely with mercuric chlorid and formaldehyd. These, up to this point, are sanitary measures.

The medication is very simple. I give 6 mg. ($\frac{1}{10}$ gr.) of calomel every hour for 12 hours to 24 hours, then continue the same dose once in 2 hours. I generally provide a gargle of potassium chlorate with tincture of iron or formaldehyd to be used about once in 3 hours. I direct the patient to take plenty of milk and other liquid foods, and anything else he will eat.

Other members of the family should be watched, and if any should be feverish, nauseated, or have aching of the bones or pain in the head, I would put them on 6 mg. ($\frac{1}{10}$ gr.) doses of calomel at once. I begin the calomel at once if any child who has been exposed shows a real indisposition. If I find that the exudate has originated in, or extended to, the larynx, I use antitoxin at once. If the nose is involved seriously, it is well to use antitoxin, though not to the exclusion of the calomel. I would omit the antitoxin rather than the calomel. I insist on quiet, especially in severe cases, and give alcoholic stimulants or strychnin as needed, but not as a routine treatment; generally neither is needed.

ORIGINAL ARTICLES

THE PATHOLOGY AND SURGICAL TREATMENT OF PANCREATIC DISEASES.*

BY

JOHN B. DEAVER, M.D.

Surgeon-in-Chief, German Hospital, Philadelphia.

AND

GEORGE P. MÜLLER, M.D.,

Instructor in Surgery, University of Pennsylvania; Assistant Pathologist to the German Hospital, Philadelphia.

The experimental researches which have been made of recent years into the etiology and nature of pancreatic disease have established the pathology. The production of hemorrhagic, suppurative, and gangrenous pancreatitis in animals by the injection of acids, alkalies, bile, bacteria, etc.; the histology of the development of the islands of Langerhans; the importance of the latter in the pathology of diabetes, and, finally, the creation of chronic pancreatitis by ligature of the ducts, are the most important achievements of the experimental pathologists¹ of today.

A few words as to the special anatomy of the gland, having a direct bearing upon the pathology, are important enough to bear repetition:

1. The pancreas has not a distinct capsule, being surrounded by areolar tissue only.
2. The accessory duct of the pancreas has no outlet into the duodenum, Opie² states, in a third of all individuals.
3. The secreting acini of the pancreas terminate in ducts which finally empty into the duct of Wirsung, the latter, together with the common duct, forming a conical cavity, the ampulla of Vater, which empties into the duodenum by a minute opening.
4. The common bile duct in its lowest 2 cm. to 7 cm., is embraced more or less completely by the head of the pancreas.
5. Certain columns of cells within the lobules of acini, the islands of Langerhans, have no communication with the ducts, are not infected through them, are not involved by chronic obstruction of the main duct and only become diseased late in the process of chronic interlobular inflammation, or primarily in the interacinous pancreatitis.

As the extent of this paper hardly admits of any extended discussion of the pathology, the description of the more common lesions only will be referred to.

Acute pancreatitis with its fearful rapidity of progress and great mortality is essentially a peritonitis of the upper abdomen, with varying lesions in the gland itself, and often the diffused fat necrosis which may extend to the fat in the epiploic appendages of the sigmoid, or to the mesoappendix on the right. Whether the causal factor is an ascending infection from the duodenum or retrojected bile from the obstruction of a stone in the ampulla of Vater, destruction of the parenchyma of the pancreas ensues, and one of 2 types of disease presents itself.

Acute hemorrhagic pancreatitis is an affection peculiar to the pancreas and undoubtedly due to the complexity of the ferments and of the internal secretion. If a calculus in the presence of infection obstructs the common bile duct alone, the retained infectious bile produces lesions of the ducts, gallbladder, and liver, suppurative in type, but never of the hemorrhagic and often gangrenous character observed in the pancreas. But should the ampulla of Vater be plugged by a gallstone, in the absence of an accessory duct, the retained secretions of the pancreas, retrojected bile, and various infectious agents may produce the wellknown hemor-

rhagic disease. This impaction of a gallstone more nearly explains the sudden onset than any other. The experimental production of hemorrhagic pancreatitis, typical and convincing as it may be, does not explain entirely the pathogenesis in the human subject. If cases of hemorrhagic pancreatitis are more closely studied it is probable that those of sudden onset and rapid, often fatal, progress will be found in the great majority of instances to be due to this obstructing action by a gallstone, either in the ampulla or its immediate vicinity; while those more gradual in onset, and often becoming subacute, will be more directly traceable to an infectious inflammation about the ampulla. It should be recalled in this connection that the formation of calculi in the gallbladder or biliary ducts is directly dependent upon a primary infection, and that at the time of the impaction in the ampulla the bile is probably always more or less infectious.

The onset of acute hemorrhagic pancreatitis is rapidly followed by destruction of part or the whole of the parenchyma of the gland. The pancreatic secretion, acting upon cells injured by retained ferments, infection, etc., causes areas of necrosis and hemorrhage. The

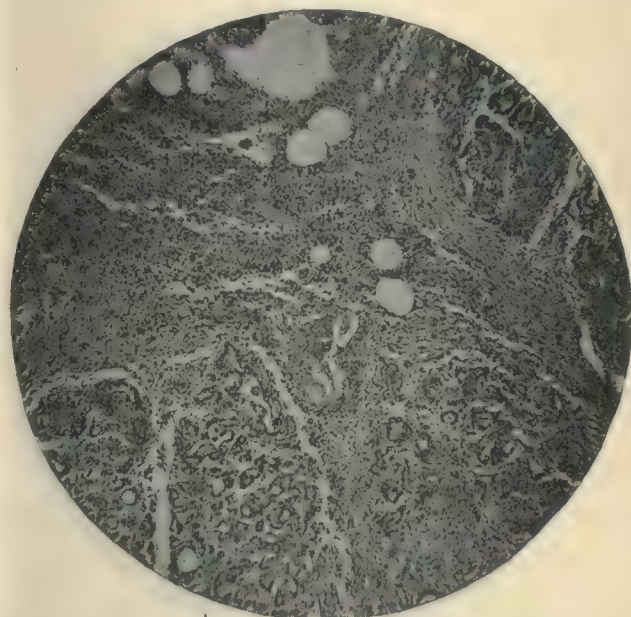


Fig. 1.—Acute pancreatitis (Case 12). Intense bleeding in the interlobular connective tissue.

bleeding is at first confined to the interlobular connective tissues and gradually increases until large areas or even the entire gland is implicated. The necrosis of the cells is marked at first by a solution of the nuclei, but later the entire outline of the acini becomes lost. An inflammatory reaction, marked by the presence of a large number of polynuclear leukocytes, is present from the beginning. In advanced cases the pancreas appears large, dark, and tightly distended with blood of a blotchy red or purple color and surrounded by a necrotic mass of blood and fat, often of a chocolate color. In microscopic sections of such a pancreas the interacinous, interlobular, and peripancreatic tissue is seen infiltrated with blood (see Fig. 1), the intact bloodvessels distended with blood, and their walls are swollen and cloudy. The acini, if identified, are barely discernible, though their nuclei are lost, and the cells are granular and cloudy in appearance. In various areas the destruction of the gland becomes total and nothing can be discerned except a structureless granular debris.

In other areas of the gland a line of demarcation is sharply drawn between necrotic and fairly living tissue.

* Read before the Medical Association of Greater New York City, February 8, 1904.

In the zone between the two, nuclear fragments, red blood cells, and leukocytes are observed, with hyaline capillary thrombosis. (See Fig. 2.) In those cases which have lasted for some time, active proliferation of new connective tissue and fat drops replace the destroyed parenchyma.

Gangrenous pancreatitis is the termination of the acute lesion, and naturally follows the widespread death of tissue observed in marked cases of hemorrhagic forms.

The organ is large, friable, slate, brown, or purple in color, and upon section presents a mottled red and black appearance, without visible evidence of any structure, except the duct of Wirsung, which may be observed near the center of the gland. The pancreas is surrounded by a foul-smelling chocolate-like material.

Suppurative pancreatitis, or abscess of the pancreas, is due to infection by bacteria, either ascending from the duodenum or through the circulation. The pus is observed as multiple small abscesses or metastatic deposits, distinguishing this form from the hemorrhagic disease, with infiltration and diffusion of the leukocytes into the already formed necrotic tissue. Hemorrhages may be coincident, and usually occur in the interstitial

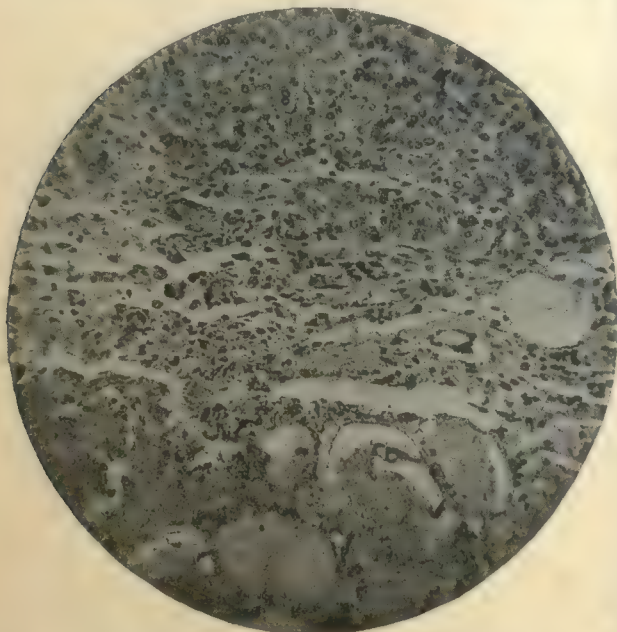


Fig. 2.—Acute hemorrhagic pancreatitis, necrosis (above). Zone of leukocytes and red cells, acini, swollen and cloudy (below).

connective tissue. The abscess, if large, may open into the peritoneal cavity, more rarely externally, and if primary in the pancreas, may infect the portal vein and liver.

Fat necrosis has been referred to, and is an interesting chemic reaction whereby the pancreatic ferment, by virtue of its fat-splitting element, infiltrates the fat in the peritoneal cavity, induces specks of necrosis followed by the production of the crystalline calcium salts, and may either break down or subsequently disappear. These areas appear as scattered white points, varying in size from 1 mm. upward, and surrounded by a thin wall of leukocytes. The latest investigations, those of Wells,³ place the dissemination as occurring through the lymphatic system. At the present time their appearance in the mesentery and omentum, when the abdomen is opened at operation, must be considered as indicating a grave lesion in the pancreas and a probable fatal termination.

The peritoneum is variously affected by acute pancreatitis. Many cases have been reported with marked dis-

ease of the gland, extensive fat necrosis, and widespread extravasation of blood, and yet the evidence of a true inflammatory reaction was wanting. The peritoneal cavity has been observed as studded with points of fat necrosis, with a transparent peritoneum, and no adhesions whatever. Such instances strongly indicate the chemic nature of the agent causing many of the cases of hemorrhagic pancreatitis. In others, a true and often diffuse peritonitis is present, and especially when the pus in the suppurative form has broken into the peritoneal cavity.

CASE XII.—S. W., aged 39, a male Russian and a tailor by occupation, was admitted to the German Hospital October 14, 1903. The family history is unimportant. He had enteric fever twice, never with jaundice. Suffered frequently from attacks of indigestion and eructations of gas.

Eleven days before admission was seized with sharp shooting pain over the region of the gallbladder radiating downward and to the middle of the back. He vomited some bitter green material during the attack and again several times later. Bowels were constipated, absolutely so, for the first 4 days and the stools are dark brown in color. No jaundice. Suppression of urine at times.

Upon admission he was very ill, temperature was 101°, pulse 108, no jaundice nor cyanosis. The abdomen was distended and tympanitic with marked tenderness over the gallbladder and toward the median line.

Urine revealed a trace of albumin, no casts, no sugar, no bile.

Blood counts October 14, 1903: Hemoglobin, 96%; erythrocytes, 5,616,000; leukocytes, 7,200.

Differential count: Polynuclear, 75%; small lymphocytes, 16%; large mononuclear, 5%; eosinophiles, 2%; transitional, 1%; mast cells, 1%.

October 16, 1903, leukocytes, 8,850.

October 17, 1903, leukocytes, 7,600.

A fluoroscopic examination revealed a shadow in the epigastrium, dense upon the right side with very little movement upon deep inspiration.

Operation.—October 17, 1903. Upon opening the abdomen over the gallbladder, a large fatty omentum was encountered slightly adherent to the parietal wall and speckled with fat necrosis. The pancreas was felt to be somewhat enlarged, hard and rather nodular. There was no fluid in the lesser sac and the foramen of Winslow was open. For this reason a simple cholecystostomy was performed. The bile in the gallbladder was thick and dark, free from calculi, and later revealed the colon bacillus in pure culture. October 23, the patient, who had hitherto been doing very well, ate a quantity of grapes brought by a visitor, vomited, collapsed, and death followed.

No autopsy was permitted, but the operative incision allowed the removal of the pancreas. The fat within the abdomen was speckled throughout with fat necrosis, the gallbladder was surrounded by adhesions, and beneath it some necrotic fat had formed a small, well walled-off collection resembling pus and revealing the colon bacillus. There was no other peritonitis. The liver appeared normal; there was no fat necrosis upon the epicardial fat; the kidneys appeared congested, but were not opened.

The pancreas was surrounded by areas of fat in a state of necrosis, was swollen and in areas mottled, purplish in color, especially near the middle. Upon section the surface was granular and the hemorrhage was observed as confined to the areolar tissue enclosing the organ and extending in fine lines inward, evidently along the interlobular connective tissue.

Areas of necrosis were seen beneath the capsule and in several small areas within the gland near the head. The duct was thickened, congested and patulous. The common bile duct was patulous, the ampulla clear, and the duodenum much congested.

Microscopic sections of the pancreas revealed the usual lesions of acute pancreatitis. The acini are swollen and cloudy, though in some areas they stain sharply. The interlobular connective tissue septums are thickened and infiltrated with blood (Fig. 1) and leukocytes.

The zones of necrotic tissue (Fig. 2) are surrounded by leukocytes and by greatly altered glandular structure. A few thrombi are present in the smaller veins.

Chronic pancreatitis is of immense importance at the present time by reason of the brilliant prospects which surgery offers in the cure of a disease long believed to be incurable and frequently confused, in diagnosis, with malignant disease.

The experimental researches made during the past few years into the pathology of this affection have been spoken of by those who have preceded, and but little remains to be said.

The pancreas parallels the liver in a fairly close manner, when attacked by chronic indurative inflam-

mation, though the lesions observed have a more direct bearing upon the clinical findings. Both organs may become involved through the same etiologic factors of which infection and gallstones bear the chief part. Biliary cirrhosis following calculous cholangitis is becoming better understood and chronic indurative pancreatitis, at least the interlobular variety, has already passed the threshold of correct interpretation.

When obstruction of the duct occurs, the secretion is gradually dammed back upon the gland, infection is favored and the pancreas becomes damaged. The gland, especially at the head, enlarges, and to the palpating hand is hard, frequently nodular. The secretion surface is granular and compact with the replacement of the loose interlobular tissue of the normal gland by that of a dense and scar-like hardness. In more advanced cases, areas of fat are observed to have encroached upon the parenchyma, and finally nothing may remain of the pancreas but a mass of fat held together by strands of fibrous tissue.

Microscopically, the acini are barely altered in the earlier stages with atrophied nuclei and dilated lumina. The interlobular connective tissue is thickened and greatly infiltrated with polynuclear, lymphoid and plasma cells and eosinophiles. The bloodvessel walls are thickened. The islands of Langerhans are unaltered.

As the process of sclerosis advances the glandular stroma becomes replaced by connective tissue and infiltrating fat. Often islets of acini are observed entirely surrounded by fat or connective tissue, which do not contain a trace of glandular cells. The islands of Langerhans may be entirely normal, or compressed and distorted by the contracting scar tissue. At this point, viz., in advanced interlobular pancreatitis, the question as to when the islands become sufficiently diseased to influence the occurrence of glycosuria, is difficult to answer. We have in mind 2 cases, in 1 pronounced glycosuria was present and the islands were normal, except for great distortion by sclerotic tissue. (Figs. 3 and 4.) There was no hyaline degeneration.

CASE XIII.—Male, aged 55. Seen in private practice with Dr. George McCracken. No history obtained, except that he had been a free user of alcohol. In the summer of 1903 he was seized with severe pain in the epigastrium, radiating concentrically. Bowels fairly regular. No vomiting. Considerable distress after eating. His urine revealed considerable sugar and a trace of albumin. This condition continued until January, 1904, when during a very severe attack of epigastric pain radiating upward to the cardiac region, he suddenly collapsed and died. At several physical examinations nothing could be determined except tenderness and slight rigidity in the epigastric region. Dr. McCracken and Dr. Deaver both told the patient that they believed his trouble due to inflammation of the pancreas.

At necropsy only the abdomen was opened; an enormously fatty omentum and mesentery were found with a normal-sized pancreas embedded in fat; no fat necrosis. The splenic artery was hard with flecks of fibrosis, and upon section the pancreas was found to have been invaded by fatty tissue, seemingly replacing considerable of the parenchyma. The duct was patulous. There were no gallstones, and the common duct was patulous.

Microscopic section revealed advanced interlobular pancreatitis with a new formation of connective tissue, thickening of the interlobular tissue, fatty infiltration in places cutting small areas of acini into islets, and thickening of the bloodvessels.

In some of the sections a round-celled infiltration was observed in the interlobular tissue. The islands of Langerhans were often unaltered, often distorted and compressed by fibrous tissue, never the seat of hyaline degeneration. (Figs. 3 and 4.)

In the other case, and one representative of the advanced type of the disease, there was no trace whatever of glandular acini, nothing but fat and fibrous tissue in which the islands of Langerhans stood out prominently and involved, as in the other case, by mere distortion and compression. (Fig. 5.) There was no sugar. In both of these cases there was marked arteriosclerosis, especially of the splenic artery. In the second case pancreatic calculi completely obstructed the duct of Wir-

sung and the gland, as has been said, was in a state of complete atrophy. The condition was found at postmortem examination, after death had occurred from pulmonary tuberculosis.

The history of the case, for which we are indebted to Dr. J. C. Wilson, is as follows:

CASE XIV.—August S., aged 60, a store-keeper, was admitted to the German Hospital March 18, 1903. He was brought from a distance to the hospital, and was in a dying condition when admitted. Neither he nor the relatives with him could give any history of his past or present illness. Physical examination revealed the presence of pulmonary tuberculosis. He complained of some pain in the epigastrium and to palpation a sense of resistance was determined. The urine showed a trace of albumin, specific gravity 1.019, a few hyaline casts, and no sugar. No other examinations were made, and he died on March 21, 3 days after admission.

The necropsy was made by one of us with the following findings:

Tuberculosis of both lungs, double pleurisy with effusion, ascites, parenchymatous nephritis, pancreatic lithiasis, chronic and atrophic pancreatitis, arteriosclerosis of the abdominal aorta and most of its branches, especially of the splenic artery.

The lungs were markedly diseased with cavity formation. The gallbladder was normal in size, pale in color with very thin walls and an atrophic condition of the mucous membrane,

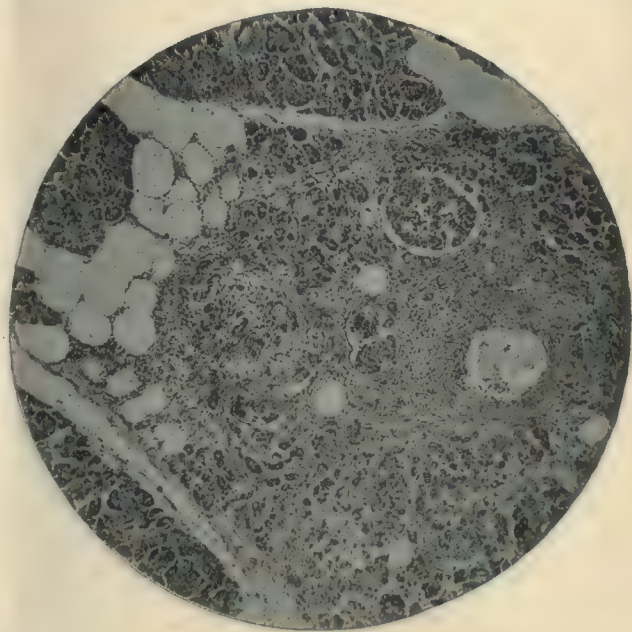


Fig. 3.—Chronic pancreatitis (Case 13). Overgrowth of connective tissue and fat infiltration.

as though this organ had been, at some previous time, greatly distended. All of the biliary ducts were patulous.

Upon opening the transverse mesocolon the pancreas was observed to be extremely soft and fatty, although the configuration of the gland was fairly well preserved (lipomatosis). It was removed, together with a portion of the duodenum, and upon section was found to be a mass of fat, traversed by fine bands of fibrous tissue, bloodvessels, and nerves. The ampulla of Vater was 8 cm. from the pylorus, and normal, as was the opening of the bile duct. The duct of Wirsung was found completely obstructed, greatly dilated, packed with white calculi and with thickened walls. The ducts leading into the main duct contained fine concretions for some distance into the pancreas. The opening of the duct of Santorini into the duodenum was found 6 inches from the pylorus, but could only be probed upward a short distance.

Pancreatic calculi have rarely been diagnosed during life and only once has such diagnosis been followed by operation. They are composed in great part of calcium carbonate, indicating that they are not formed by the precipitation of these salts from the pancreatic secretion, which contains only a small amount of calcium phosphate, none of the carbonate, and which therefore must be altered in quality by some antecedent affection.

Stagnation of the secretion *per se* cannot be held responsible for the calculi, many cases of complete

obstruction of the pancreatic duct having been observed without their formation, and experimentally, only one investigator (Thirolloix) by the injection of soot succeeded in producing an artificial lithiasis.

As a result of the obstruction of the pancreatic ducts by the calculi the parenchyma suffers, an interlobular pancreatitis occurs, and atrophy of the gland is the result. The acini degenerate and disappear, while the islands remain unaltered until late in the process, when the pancreas, as in several reported cases, is reduced to a fibrous cord with a calculus occluding the duct of Wirsung.

This concludes a very brief and inadequate sketch of the pathology of pancreatitis, time not permitting a more minute description of the lesions in the acute type, nor even mention of the congenital syphilitic form, the interacinar pancreatitis, or bronzed diabetes in the chronic variety.

The surgery of the diseases of the pancreas has been advancing with rapid strides since Senn, in 1886, wrote his classic work. Following upon Fitz's lecture in 1889, upon "Acute Pancreatitis," many contributions

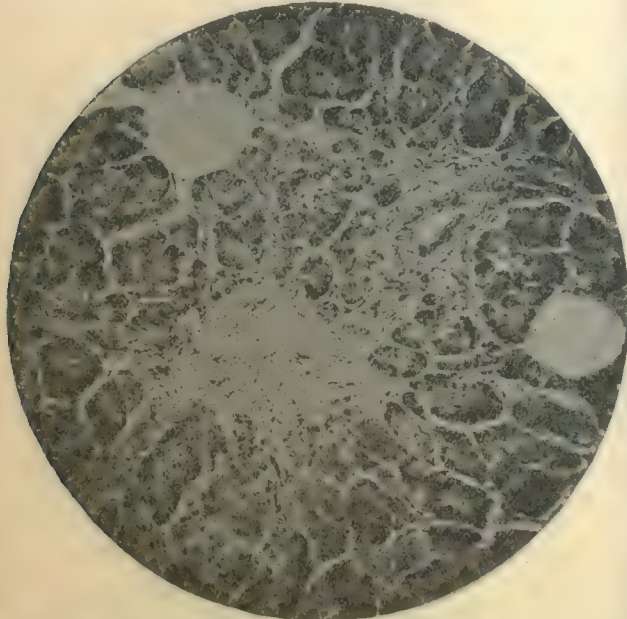


Fig. 4.—Chronic indurative pancreatitis. Fibrous tissue compressing acini and (below and to right) to some extent the island of Langerhans.

have been made to the literature of the subject, and through the splendid achievements in the pathology of this organ a mass of facts and observed symptoms have accumulated, which bid fair to place the pathology and treatment of these lesions upon a sound basis.

At the Congress held in Washington last May, in a symposium upon the diseases of the pancreas, Mikulicz and Park brought the surgery of the pancreas to date, and showed not only the necessity but the wisdom of operating upon pancreatic lesions.

Unfortunately, many points in the etiology and symptomatology of acute pancreatitis are as yet obscure, and obstruct the efforts of the practising physician, who sees but few of these cases, to have them operated upon. The results obtained in the clinical laboratory by examination of the urine, blood, and feces, are not sufficiently definite to enable us to recognize constantly the disturbed metabolic functions coincident upon chronic pancreatitis. Surgical treatment depends upon certain principles, and without intending to transgress upon the field so ably covered by the previous speakers, we must refer casually to certain symptoms furnishing indica-

tions for operation. But first a word in respect to classification. The older one of Fitz, viz., into hemorrhagic, suppurative, and gangrenous, may be classed under the general heading of acute, or in the milder cases, of sub-acute pancreatitis, whether mechanical, toxic, or infectious, but the obscurity of the etiology renders the exact nature of the causal factors difficult to ascertain before operation. The chronic inflammation, with its induration, is divided, as proposed by Opie,⁴ into the interlobular and interacinar forms.

Acute hemorrhagic pancreatitis is sudden in its onset, severe in its clinical manifestations, and remarkably fatal in its termination. Resembling in the early stages an acute intestinal obstruction, or a severe calculous infection of the terminal portion of the common duct, the pain, vomiting, rapid pulse, dyspnea, and cyanosis are followed by collapse, which may be so profound as to presage death a few hours from the beginning of the attack. In other cases the initial shock is not so great, the patient continues to live, suffering from severe epigastric pain, with vomiting, cyanosis, and great weakness. Destruction of the capsule of the pancreas permits the escape of the pancreatic secretion which converts the fat of adjacent areas into a pultaceous mass and speckles the omentum with the wellknown spots of fat necrosis. In one case which we have previously reported,⁵ the lesser cavity was filled with this converted fat admixed with blood, and was of a chocolate color.

Suppurative pancreatitis is believed always to be due to infection. The early symptoms closely resemble the hemorrhagic form, with which, in fact, suppuration may be associated. The actual abscess can rarely be felt in the early stages, and it should be remembered that suppuration may begin in the tail of the pancreas and cause symptoms entirely confined to the upper left side of the abdomen, simulating splenic abscess. Jaundice is often present, and is due to compression of the common duct by the enlarged and swollen pancreas, to the abscess itself, or even to a stone in the common duct—the starting point of the whole process. Pus and blood have been noted in the stools from rupture of the abscess into the duodenum.

Later, an abscess develops in the lesser peritoneum and may appear as an epigastric tumor with the other symptoms of a pus collection. By a fluoroscopic examination the mass may be seen to be separate from the liver and spleen and not movable with the diaphragm.

Gangrene and necrosis of the pancreas present but few symptoms and can hardly be diagnosed, unless portions of the sequestered pancreas are passed with the stool or found at operation, or unless a clear history of the antecedent acute inflammatory and suppurative lesions can be elicited.

The indications for operation in acute pancreatitis are furnished by the pathology of the disease and the history of the cases so far reported. The extraordinary rapidity with which death so often follows, shortly after the onset, makes any delay inadvisable and yet the diagnosis is difficult, the symptoms, both objective and subjective are often so ill defined, that the mortality following operative interference is very high. The time for operation is open to considerable question. Mikulicz collected 9 recoveries out of 46 cases operated upon in the acute stage, while 18 recoveries out of 35 occurred when the operation was performed during the later stages of the disease. But, and his great experience carries weight, he advises early operation, "rationally conducted."

In a case which we have previously reported the symptoms were well marked, but thinking that some delay promised more than an immediate operation, we waited nearly a week, keeping the patient at absolute rest with careful feeding and stimulation. No change whatever in the symptoms was observed and as subsequently seen the progress of necrosis was not checked in the least, nor was any attempt made by nature to localize

the lesion. In many forms of acute pancreatitis the disease appears to be a destructive infiltration of tissues by the ferments often associated with infection, and only in those cases in which local areas of pus produce necrotic foci does the disease limit itself. For this reason, we believe that the early operation, "rationally conducted," as Mikulicz expresses it, will finally give us the better results.

The technic of such an operation varies with the nature of the condition present in the pancreas and its adjacent region. Upon opening the abdomen, fat necrosis, if present, is a symptom of great moment indicating the diffusion of the ferment through the lymphatics, and of course decides the diagnosis. The gallbladder should be palpated for calculi, the association of which with pancreatitis being well known, and if found, one of the possible causes of the pancreatic lesion will be recalled and may be of great advantage later. The common duct should always be explored with the finger and at the same time the condition of the head of the pancreas becomes apparent.

The intestines and surrounding viscera must be protected with gauze pads with great care, when the region of the pancreas may be approached with the minimum risk of infection. The organ may be reached: (1) Through the gastrocolic omentum, below the stomach; (2) through the gastrohepatic omentum above the stomach; (3) through the transverse mesocolon, back of the colon and stomach. The first method is the most applicable for the purpose of drainage and consists in dividing the two layers of the peritoneum forming the gastrocolic omentum, raising the stomach and then cutting through the ascending layer of the transverse mesocolon. The pancreas is then observed and the actual lesion determined. It is well at this point to recall certain points formulated by Mikulicz:

1. The very slight tendency of pancreatic hemorrhage to stop spontaneously.

2. The locally destructive and general toxic action of the pancreatic ferments set free by the inflammatory and hemorrhagic processes, and finally—

3. The ease with which the pancreas may be infected from the ductus choledochus.

That these points are important can be readily understood. Acute hemorrhagic pancreatitis is marked by a diffuse hemorrhage within the organ with disintegration of the pancreatic tissue and erosion of the vessels. Such bleeding is often hard to check, even from small vessels, and may require the extensive use of gauze tampons, or more rarely, the introduction of deep sutures. The latter procedure is rather dangerous from the chance of producing necrosis of the gland, but may be necessitated by a threatened fatal hemorrhage.

The action of the ferment leads to a progressive necrosis of the pancreatic cells, a self digestion, as well as of the surrounding fat. This cannot be checked by operation, but may be prevented to a great extent by free and proper drainage. Finally, infections from the duodenum involving the pancreas require the same treatment as an infected area in any other portion of the body, viz., free incision and drainage.

If, then, the pancreas merely presents a swollen, tense, edematous appearance, reddish or purplish in color, and without marked peripancreatic involvement, an incision should be made in the long axis of the pancreas and extending the entire length of the gland if necessary. Drainage to this opening, though uphill, will sufficiently provide for the serous effusion and broken down cellular products.

When the peripancreatic involvement is severe with great necrosis of the gland and of the fat in the neighborhood of the lesser omentum, loin drainage is required, after free incision of the pancreas. It is useless to attempt to dissect out the necrotic foci. The loin incision is made at the left costovertebral angle.

Abscess, necrosis and gangrene of the pancreas re-

quire identical treatment, viz., incision when necessary, followed by free drainage through the loin.

After completing the technic of the operation about the pancreas and disposing of the drains the area of disease must be carefully walled off from the general peritoneal cavity by gauze. This step in the procedure is materially aided by the supracolic incision, the omentum extending downward and without becoming entangled in the gauze wicks which are above. The toilet of the abdomen is completed and the wound closed as far as possible.

In cases complicated by the presence of stones in the gallbladder or the bile ducts, the operation is considerably complicated, as the incision is too far to the left for the best performance of a cholecystostomy. The mere presence of the calculi presupposes an infection of the biliary ducts, which was probably the factor concerned in the production of the pancreatitis. In such cases removal of the stones and the establishment of an external biliary fistula greatly assist the chances for recovery. When the stone occupies the common duct, especially in its course beneath the head of the pancreas, the greatest ingenuity and operative skill are often required to pre-

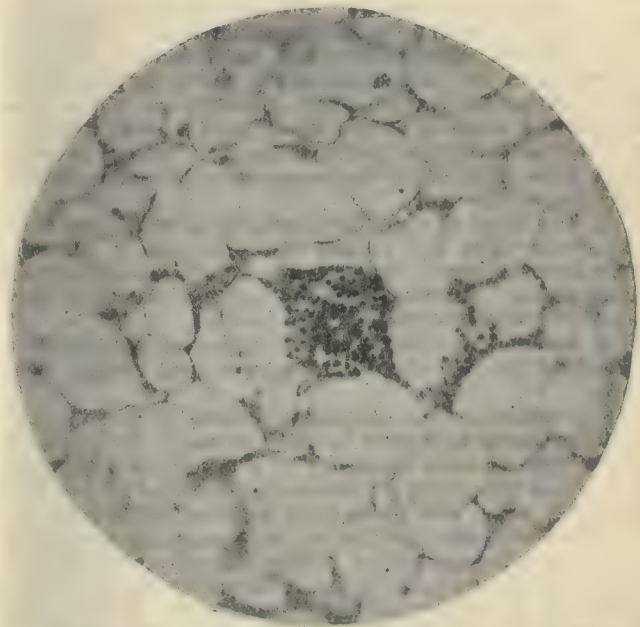


Fig. 5.—Chronic atrophic pancreatitis. Island of Langerhans, surrounded by fat, instead of acini.

vent a fatal catastrophe from a subsequent peritonitis by leaking, infected bile. A choledochotomy may be performed if the stone cannot be dislodged or the duodenum opened and the papilla split up, depending upon the exigencies of the case.

The surgery of chronic pancreatitis has been made in recent years, and what was formerly regarded as a hopeless and incurable condition, offers a field which will add a new laurel to the brilliant achievements of latter-day surgery. In 1886, Senn wrote, "that cirrhosis or chronic interstitial pancreatitis sometimes produces stenosis of the bile duct or the pancreatic duct, and that when the obstruction is followed by the retention of the secretions, an operation becomes always necessary in biliary retention, which should be treated by establishing a new outlet for the bile into the duodenum. The formation of an external pancreatic fistula in cases of cyst of the pancreas becomes necessary only when the presence of the swelling in itself has become a source of sufficient pain and discomfort to warrant treatment by abdominal section."

Senn, however, while upon the right path, revealed only half a truth, and we now know that it is not neces-

sary to wait for jaundice to establish a bile fistula. It is principally to Mayo Robson that we owe the impetus given to the surgical treatment of chronic inflammatory enlargements of the head of the pancreas; for while many other surgeons have observed like results, yet Robson, in 1900, published his observations as a collected report.

The diagnosis of chronic pancreatitis is often exceedingly difficult, and is very frequently confused with carcinoma involving the head of the pancreas. In the only fatal case which we have observed after operation for chronic pancreatitis, the diagnosis was believed to be carcinoma, even at the operating table, though at necropsy a marked condition of interlobular pancreatitis was found; no malignancy. Mikulicz had an exactly similar experience. The complexity of the symptomatology in chronic pancreatitis depends upon the associated lesions in the stomach, intestine and liver, where such conditions as gastrointestinal and biliary tract inflammation, arteriosclerosis, alcohol, etc., have been the causal factors in the production of the chronic pancreatitis.

The essential lesions from the standpoint of surgery are:

1. Chronic pancreatitis due to obstruction of the ducts of the glands by biliary or pancreatic calculi.
2. Chronic pancreatitis due to infection, usually secondary to an obstruction of the ducts by gallstones, or by carcinoma, though not necessarily so. Opie⁶ has observed 4 cases in which the clinical history afforded evidence of continued gastric or gastrointestinal disease. They were presumably the consequence of an ascending infection of the duct.
3. The form of the disease arising in consequence of the effects upon the organs of the misuse of alcohol, from arteriosclerosis, endarteritis, syphilis, and general tuberculosis. In these cases biliary cirrhosis and perhaps interstitial nephritis are coexistent.
4. Interacinar pancreatitis, of unknown origin, with disease of the islands of Langerhans, and usually diabetes.

The technic of the surgical treatment of chronic pancreatitis can be dismissed in a few words. The cause of the disease must be removed, if a biliary or pancreatic stone, and temporary or permanent drainage of the bile provided for. The method of making the fistula has caused considerable discussion, most surgeons preferring the external opening, or cholecystostomy. The great advantage of the latter fistula is the ability to keep the drainage constantly under observation. It has been urged that the closure of such a fistula is often difficult, but we find, from our experience, that the nonclosure is always due to the continued existence of an obstruction, either persistent enlargement of the pancreas or a stricture. If such occur after performing cholecystenterostomy or cholecystgastrostomy the liver may become damaged by the infected bile, jaundice supervene, and a dangerous reoperation become necessary.

When the stone is located as being in the ampullas, and the stone cannot be carried back into the common duct, it is best to open the duodenum and slit up the papillas, such a proceeding not requiring any suture to reclose the duct. If the calculus is somewhat to the proximal side of the ampulla of Vater, and cannot be reached by slitting the latter, nor carried up into the duct, a choledochotomy must be performed, after dividing the peritoneum to the outer side of the duodenum and lifting the latter upward. The wound in the duct may be closed by suture, but all of these cases should be drained. With a higher position of the stone, the duct is usually dilated, and the calculus can be pushed up to the cystic duct, and by a choledochotomy removed, and, if not able to carry the stone into the proximal portion of the common duct, the duct may be opened at the site of the stone. In all cases where an infectious cholangitis is present in addition to the pancreatitis, the liver should

be drained by means of a rubber tube introduced into the gallbladder, common or the hepatic duct.

Pancreatitis without stone is frequently completely relieved by a simple cholecystostomy which, by diverting a large amount of bile from the ampulla of Vater, allows better opportunities for the free drainage of the pancreatic secretion.

Chronic pancreatitis with glycosuria and without obstruction of the biliary apparatus may be relieved, to a great extent, by a cholecystostomy, but theoretically an operation offers no hope for cure as the diseased "islands" are not dependent upon any lesion ascending through the ducts.

Cholecystostomy has been referred to several times, and we rarely, at the present time, practise the method whereby the gallbladder is stitched to the aponeurosis and peritoneum. The gallbladder having been aspirated, opened, and any stones or concretions removed, a rubber drainage-tube is introduced for a distance of about 1.5 cm., and fastened by a catgut suture to the edges of the gallbladder wound. The latter are then invaginated inward and a pursestring Lembert suture introduced, holding the rubber tube firmly in position. Gauze drainage is introduced to the subhepatic space beneath the gallbladder, guarding the intestinal side by rubber tissue.

Pancreatic calculi may obstruct the duct of the pancreas and cause permanent injury to the gland, usually in the form of a chronic and atrophic pancreatitis. They are not common, and the great majority of instances noted in the literature have been found at necropsy. The clinical data so far obtained are evidently so insufficient, so inconclusive, that Kinnicutt⁷ in December, 1902, was able to collect but 7 cases, one his own, in which a positive diagnosis of the pancreatic calculi was made or even suspected during life. Moynihan,⁸ however, reported a case diagnosed as chronic pancreatitis and operated upon successfully, removing a stone from the pancreatic duct measuring about 12 mm. by 5 mm. This was the first occasion upon which a pancreatic stone was diagnosed and found by operation. Perhaps the the röntgen ray may aid in making such a diagnosis more frequent in the future.

The operation required in these cases depends upon the location of the stone, and while it may be reached by opening the papilla and duct through the duodenum, yet the operator must be prepared to open the lesser peritoneal cavity and cut down through the gland itself.

The surgery of pancreatic cysts has been well recognized for a long time, and as far back as 1885, Senn wrote a very complete paper, and a year later made the statement that "the treatment by extirpation is not deserving of imitation;" he advocated the formation of an external pancreatic fistula.

The diagnosis of these cysts must be made from renal tumors such as hydronephrosis, from enlarged spleen, ovarian cysts, hydatid cysts of the liver, mesenteric cysts, retroperitoneal sarcoma, and large abdominal aneurysms. The previous history and slow onset, with progressive weakness; the deep situation of the tumor and its slight range of mobility; the condition of the stools; and, further, the fact that the great majority of cystic tumors in the epigastrium are pancreatic, should aid in the diagnosis. Ransohoff,⁹ in July 1901, had collected 159 cases of pancreatic cysts which had been operated upon with a mortality of 7%.

The operative procedure in pancreatic cysts will depend upon the degree of adhesion to surrounding structures, and as this almost invariably occurs, the extirpation of the cyst is difficult unless, as is the case in rare instances, the cyst is pedunculated. In a certain small percentage of cases the cyst can be dissected out. Aspiration of the cyst should only be performed when the patient is severely ill from diabetes or the effects of pressure. The cyst will always refill, and the danger of

leakage into the peritoneum from the point of puncture is very great.

Whenever practicable the abdomen should be opened by a median incision above the umbilicus, and by incising the gastrocolic omentum or the transverse mesocolon the cyst is exposed. Its contents should be withdrawn with an aspirator, as the needle is removed closing the puncture with one or more hemostats. The cyst wall is then drawn to the wound, sutured to the parietal peritoneum, and drained. When the cyst is small, and from its position and relations cannot be brought to the abdominal wound, the rubber drainage-tube should be introduced into the cavity of the cyst, and by careful gauze packing so surrounded that leakage is prevented.

In conclusion, we wish to express our obligations to Fitz, Senn, Opie, Flexner, Oser, Körte, Pierce, Mikulicz, Robson, and Moynihan, and many others, whose writings have stimulated our interest in this fascinating disease.

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ON THE OCCURRENCE OF DIABETIC AND NONDIABETIC GLYCOSURIA IN THE SAME INDIVIDUAL.¹

BY

HEINRICH STERN, PH.D., M.D.,

of New York City.

Seven years ago I pointed out² that what we designate as diabetes mellitus is but the second stage of a process of systemic deterioration, that there is a preglycosuric stage of the affection, that the glycosuria is nothing more than the most prominent phenomenon of the second stage of the deterioration, and that the severity of the diabetic state does not depend upon the intensity of the concomitant glycosuria.

Hence, an individual may be diabetic long before glucose has made its appearance in the urine, and he likely continues to be subject to the affection even if for the time being the excretion of sugar is suspended.

Glycosuria is but a consequence, but a manifestation of a variety of causes. It is an enunciation of the diabetic state much in the same manner as it is a symptom of manifold disturbances of either ectogenous or endogenous causation. Its presence does not, a priori, stamp a person a diabetic; on the other hand, its absence in the face of other pertaining phenomena is no conclusive proof of the nonexistence of the diabetic state.

The glycosuric symptom of disease, other than diabetes, is an established fact. It appears and subsides, as its underlying factors supervene or vanish. It may, therefore, be transitory in character, but it may also attain a certain degree of chronicity. Cases of long-continued glycosuria, not modified by a diet free from sugary and starchy substances, are nondiabetic, as a general rule. This is especially the case (excepting, of course, when the patient is in the last stages of diabetes) when progressive bodily decline ensues after a prolonged, unintermitted, antidiabetic regimen.

Apart from the dissimilarity of the clinical pictures of true diabetes and that disturbance of which it forms

an integral part, nondiabetic glycosuria as shown by me¹ differs from the diabetic type in the following respects:

	Nondiabetic Glycosuria.	Diabetic Glycosuria.
Cause.	Demonstrable in most instances.	Unknown.
Duration.	Depending upon nature and degree of underlying factors.	Chronic.
Degree of intensity (uninfluenced.)	Mild, urinary glucose, usually less than 1%.	Higher, urinary glucose from 1% upward.
Amount of urine (uninfluenced.)	Normal, or but slightly (temporarily) increased.	Markedly increased (permanently.)
Nitrogen excreted by urine (uninfluenced.)	Normal ratio.	Increased.
Influence of antidiabetic regimen.	Frequently none or limited. Gerhardt's reaction always negative.	Always. Gerhardt's reaction occasionally positive.
Influence of measures directed toward removal or modification of (known) etiologic substratum.	Frequently positive; cessation or decrease.	

Recalling that in addition to these divergent points of the two general types of glycosuria, the classic symptom-complex of diabetes, including the augmented nitrogen metabolism as described by me,² is either wanting altogether or only partly present in the nondiabetic condition accompanied by glycosuria, and remembering that in the majority of instances a demonstrable cause stands at the foundation of nondiabetic glycosuria, it is not a difficult task to discriminate clinically between the diabetic and nondiabetic forms of melituria.

On the hand of these discrepant factors the occurrence of diabetic and nondiabetic glycosuria in one and the same individual may be recognized. We know that simple glycosuria is not infrequently superseded by well authenticated diabetes. In these cases, however, there is no contemporaneous or alternate, but a successive occurrence of both types of melituria in the manner that the one subsides and the other consequential to the graver condition becomes firmly and permanently established. Such instances, of course, do not belong to the domain of duplex melituria, a term by which I shall designate hereafter the synchronous or alternate occurrence of diabetic and nondiabetic glycosuria.

I have met at least 16 or 17 cases of duplex melituria, upon a study of which are founded the following data and deductions:

Duplex melituria, as the name implies, is always of contemporaneous nature. Clinically, however, it is demonstrable only by the temporary abatement of one pertaining set of symptoms. It is characteristic of the affections that the syndrome subsiding rapidly, even if but temporarily, upon the institution of a rigid antidiabetic regimen, is the one of diabetes. Hence it is mostly by the temporary decrease or cessation of the diabetic phenomenon that the manifestations of an accompanying or intercurrent disorder, plus its glycosuric symptom, become evident or more conspicuous. The recognition of duplex melituria depends, therefore, on the alternate prominence of one set of symptoms, including the respective glycosuria.

If the nondiabetic glycosuria disperses simultaneously with the diabetic melituria, it can hardly ever be recognized. Duplex melituria is just as much a simple glycosuria aggravated by the glycosuric symptom of diabetes, as it is a complication of the latter with simple glycosuria. The two types of glycosuria may be interdependent; in the majority of cases, however, they seem to occur independently of each other. They may be of synchronous production, for which, however, there

¹ Read at the meeting of the Medical Society of the State of New York, January 26, 1904.

² On the prodromic stage, the early recognition and early treatment of diabetes mellitus, New York Medical Journal, July 10, 1897; also: A contribution to the pathogenesis and etiology of diabetes mellitus, Medical Record, December 18, 1897.

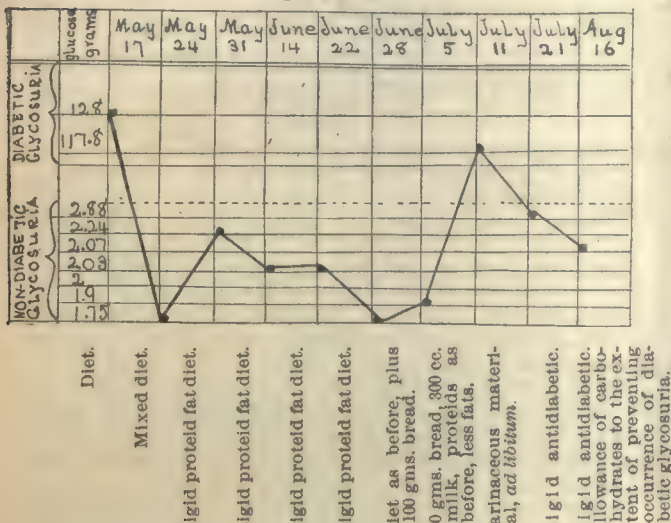
¹ The Glycosuric Symptom of Disease and its Medicinal Treatment, Journal American Medical Association, March 14, 1903.

² A contribution to the pathogenesis and etiology of diabetes mellitus, Med. Record, December 18, 1897. Also, Points connected with the general etiology and pathogenesis of diabetes mellitus, Phila. Med. Jour., April 27, 1901.

is no proof; viewed from the clinical standpoint, one type of glycosuria antedates the other, as the symptom-complex connected with the one always overshadows the syndrome, of which the other is an important factor.

Duplex melituria is the result of two concurrent or intercurrent affections of dissimilar character, having the one symptom, glycosuria, in common. There is no reason why glycosuria cannot reflect two pathologic conditions at any one time, as

CASE 1.



Delineation of duplex melituria. Dotted line shows limit of nondiabetic glycosuria.

does for instance the symptom, fever. The extent to which each type of glycosuria contributes toward the duplex melituria can only be determined by the abatement of one type; as a general rule, however, diabetic glycosuria, as already pointed out, surpasses the nondiabetic form in intensity. A patient, for instance, exhibiting all the clinical phenomena of diabetes, excretes diurnally 3,000 cc. of urine containing 3%, that is 90 gm., of carbamid and 5%, that is, 150 gm., of glucose. After pursuing a strict antidiabetic dietary for four weeks, all the manifestations of diabetes have subsided, the daily amount of urine is reduced to 1,500 cc.; the carbamid, notwithstanding the increased ingestion of proteid material, has not been augmented, which in reality means a decided reduction, but the patient continues to excrete 0.33% glucose, that is 4.95 gm., daily. This amount, in all likelihood, represents the glucose of nondiabetic production. Of course, in far advanced diabetes, a similar differentiation between the two great types of glycosuria cannot be attempted. Here the diabetic glucose—in spite of all dietary regulations—is as enduring as are the other manifestations of the diabetic state.

In uncomplicated diabetes, as long as it has not entered into its last stage, when it is *eo ipso* a complicated affection, the decrease of the glycosuria when under a specific diet, goes as a rule hand in hand with the obliteration of the other diabetic manifestations. The majority of cases of diabetes in which on prolonged dieting the *total* syndrome, save a slight glycosuria, disappears, are, it seems, complicated with disorders of which this very glycosuric condition is the consequence. This is especially the case when the patient, still under a strict regimen, continues to decline after the suppression of the symptom-group of diabetes.

In uncomplicated diabetes, systemic decline is not only arrested after the temporary abatement of the glycosuric and the other pertaining phenomena, but the patient frequently gains in weight and strength even if

the monotonous, though sufficient proteid-fat nourishment be continued for long periods.

Moreover, in diabetic urine, acetone and diacetic acid may occur in excess and betaoxybutyric acid even may make its appearance after prolonged dieting; in nondiabetic glycosuria, while the diet exerts but limited influence upon the excretion of glucose, I have never observed undue amounts of acetone or diacetic acid, nor could I ever detect the presence of betaoxybutyric acid which, in its clinical importance, is a much overrated factor.

For purposes of illustration I have selected a few of my cases of duplex melituria whose pertaining, though abbreviated, histories are related in the following:

CASE I.—Rosa N., aged 53, was born in Russia, and is the mother of 10 children. The patient, according to her physician, exhibited the symptoms of diabetes for the past 18 months. Urine varying from 2,800 cc. to 3,500 cc. per day. Glucose between 3% and 5.5%. She had been on a liberal diet.

The patient was first seen May 17, 1902. She complained of polydipsia, pruritus, weakness, and emaciation. She had lost about 25 pounds since the onset of the disease. Present weight, 151 pounds. She had been repeatedly affected with furunculosis during the past 18 months. No lues.

The physical examination revealed nothing beyond the usual manifestation of progressive emaciation; flabby abdomen, flaccid muscles, enteroptosis and prolapsed right kidney; thoracic and abdominal organs were apparently in fair condition.

Urine, amount for 24 hours, 3,840 cc.; specific gravity, 1.029; acidity, 0.45°; carbamid, 2.9% or 111.36 gm.; glucose, 3.33% or 127.872 gm.; no acetone or diacetic acid. There was no evidence of kidney disease.

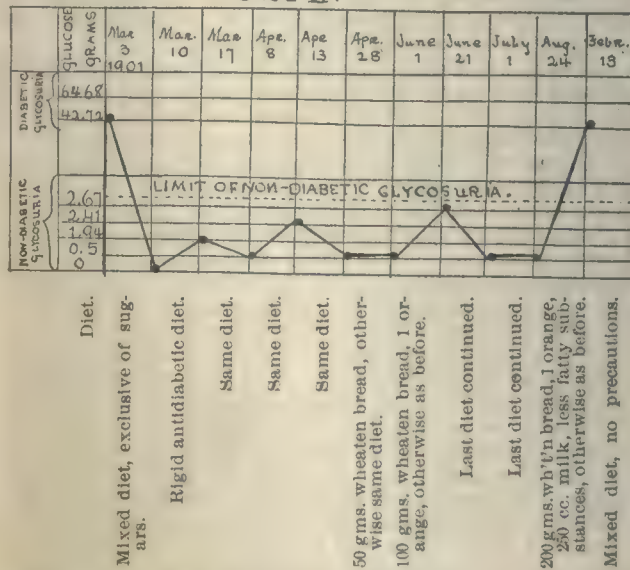
Treatment.—Dietary, exclusion of all farinaceous material and substitution thereof of hydrocarbons—35 calories per day and kilogram of body-weight.

May 24. Body-weight, 152½ pounds. Polydipsia disappeared, weakness less pronounced, pruritus absent. Twenty-four hours' urine, 1,700 cc.; specific gravity, 1.021; acidity, 0.48°; carbamid, 3% or 51 gm.; glucose, 0.10% or 1.7 gm.; acetone and diacetic acid absent. Diet continued.

May 31. Body-weight, 154½ pounds. Diabetic symptoms dispersed, some weakness and glycosuria. Twenty-four hours' urine, 1,600 cc.; specific gravity, 1.0165; acidity, 0.41°; carbamid, 2.6% or 41.6 gm.; glucose, 0.14% or 2.24 gm. No acetone or diacetic acid. Diet continued.

June 14. Body-weight, 159 pounds. Twenty-four hours' urine, 1,450 cc.; specific gravity, 1.0155; acidity, 0.40°; car-

CASE II.



Delineation of duplex melituria.

amid, 2.2% or 31.90 gm.; glucose, 0.14% or 2.03 gm. Diet continued.

June 22. Body-weight, 161 pounds. Patient complained of irritability and insomnia. The urine exhibited the same features as on the 3 previous occasions; amount of excreted glucose still above 2 gm. in 24 hours. All the phenomena of diabetes have vanished. Patient continued to gain in weight. Irritability and other nervous phenomena not due to subali-

mentation. Diet: 100 gm. of wheaten bread (toasted) per day in addition to the former dietary.

June 28. No diabetic symptoms. Irritability and insomnia continue. Body-weight, 160 pounds. Glucose output, 1.75 gm. in 24 hours. Diet: 150 gm. of wheaten bread (toasted) per day, 300 cc. of milk in divided portions, proteid material, less fatty substances. Total caloric value, about 35 per day and kilogram of body-weight.

July 5. Body-weight, 160½ pounds. No diabetic symptoms. Irritability and insomnia continue. Glucose output, 1.9 grams. Diet: Farinaceous material *ad libitum*.

July 11. Polydipsia and pruritus returned; irritability and insomnia have yielded to weakness and languor. Body-weight, 158½ pounds. Twenty-four hours' urine, 3,100 cc.; carbamid, 2.8%, or 86.8 gm.; glucose, 3.8%, or 117.8 gm. Diet: Rigidly antidiabetic.

July 21. Body-weight, 158 pounds. Diabetic phenomena disappeared again. Irritability and insomnia returned, feels stronger. Twenty-four hours' urine, 1,800 cc.; carbamid, 3%, or 54 gm.; glucose, 0.16%, or 2.88 gm. Diet: Strictly antidiabetic.

August 16. Body-weight, 160½ pounds. Diabetic manifestations absent; irritability and insomnia persisting; fairly strong. Twenty-four hours' urine, 1,480 cc.; carbamid, 3.1%, or 45.88 gm.; glucose, 0.14%, or 2,072 gm.

Treatment.—Medicinal for neurotic condition.

Dietary.—Allowance of carbohydrates to the extent that not more than 3 gm. of glucose are excreted daily. Patient has in the course of time ingested as much as 250 gm. of bread, 500 cc. of milk, and one apple or orange per day, without superintention of diabetic glycosuria or any of the other symptoms of diabetes.

CASE II.—William A., aged 50, native of United States, lawyer.

Patient, according to the notes of his physician, had been affected with typical diabetes for almost 2 years, when he came under my observation. The daily urine amounted to about 2,500 cc. on the average; the glucose output varied between 2% and 4%. Had been for occasional short periods on a somewhat restricted diet, but never under a rigid antidiabetic regimen. For the greater part of the time the only dietary restriction consisted in the exclusion of sugars.

The patient was first seen March 3, 1901. He stated that he was affected with nocturnal polyuria, loss of memory, and weakness, and that he had lost about 30 pounds since the onset of the disease. Present weight, 177½ pounds. No lues.

The physical examination evidenced a somewhat enlarged liver, slight gastrectasis, and a somewhat irritated heart. The other organs were apparently in a normal state.

Urine.—Amount for 24 hours, 2,200 cc.; specific gravity, 1.026.5; acidity, 0.52°; carbamid, 2.3%, or 50.6 gm.; glucose, 2.94%, or 64.08 gm. No acetone or diacetic acid; no evidence of renal disease.

Treatment.—Rigid antidiabetic diet, 35 calories per day and kilogram of body-weight.

March 10. Body-weight, 178½ pounds. Nocturnal polyuria almost disappeared; memory about the same, feels stronger. Twenty-four hours' urine, 1,550 cc., specific gravity, 1.020; acidity, 0.53°; carbamid, 2.6%, or 40.30 gm.; glucose, none; acetone and diacetic acid, none; other foreign substances, none. Diet continued.

March 17. Body-weight, 179½ pounds. Nocturnal polyuria subsided entirely; memory improved; feels decidedly stronger. Twenty-four hours' urine, 1,550 cc.; specific gravity, 1.020; acidity, 0.50°; carbamid, 2.5%, or 38.75 gm.; glucose, 0.125%, or 1.94 gm.; no acetone or diacetic acid. Diet continued.

April 8. Body-weight, 180½ pounds. Feels very well. Twenty-four hours' urine, 1,650 cc.; specific gravity, 1.019; carbamid, 2.2%, or 36.30 gm.; glucose less than 0.5 gm. Diet continued.

April 13. Body-weight, 181½ pounds. Constipated, flatulence, headache. Twenty-four hours' urine, 1,725 cc.; specific gravity, 1.020, glucose, 0.14% or 2.41 gm.

Treatment.—Fifty grams wheaten bread daily in addition to former diet; medicinally for the inactivity of the liver, fluid extract of chionanthus virginica.

April 28. Body-weight, 182 pounds. Abdominal symptoms and headache disappeared a few days ago. Twenty-four hours' urine, 1,500 cc.; specific gravity, 1.019.5; glucose less than 0.5 gm.

Treatment.—Diet: 100 gm. wheaten bread, 1 orange, otherwise as before.

June 1. Body-weight, 183½ pounds. Feels well. Specific gravity, 1.018; glucose less than 0.5 gm. Diet as before.

June 21. Nausea and vomiting, constipation and flatulence. Twenty-four hours' urine, 1,675 cc.; glucose, 0.16%, or 2.67 gm. Diet as before.

July 1. Body-weight, 182½ pounds. Feels well. Glucose less than 0.5 gm. Diet: 200 gm. wheaten bread, 1 orange, 250 cc. milk, less fatty substances, otherwise as before.

August 24. Feels well. Glucose less than 0.5 gm. Patient continued for some time in a very good condition, always excreting small amounts of glucose. Some months afterward he discarded all dietary precautions.

February 13, 1902. Reappearance of diabetic phenomena. Body-weight, 180 pounds. Urine, 2,400 cc.; specific gravity, 1.025.5; carbamid, 2.4%, or 57.6 gm.; glucose, 1.78%, or 42.72 gm.

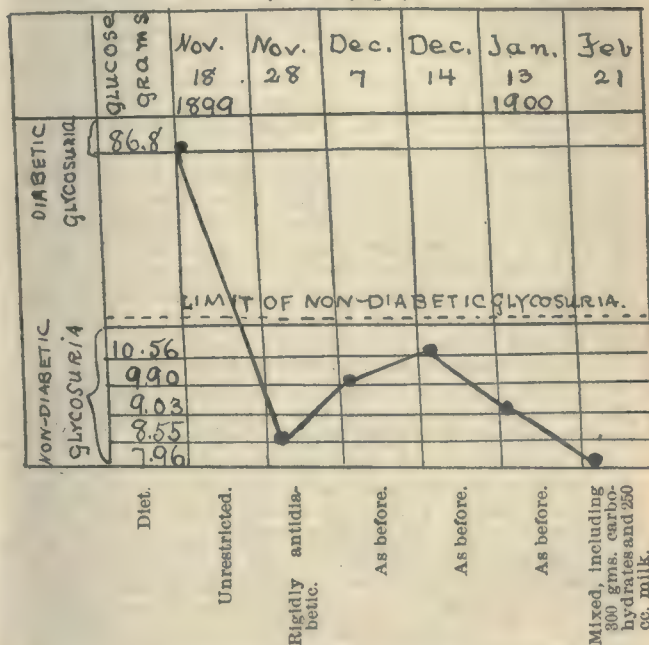
CASE III.—Louise C., aged 58, native of United States, widow, no children.

Patient had been affected with a parotid abscess involving the adjacent lymphatic gland. Nothing short of a parotidectomy, performed during the winter of 1898-1899, gave relief to the local symptoms. Almost immediately after removal of the parotid the patient's sense of hearing became impaired, she began to suffer from headaches and attacks of indigestion, and a slight glycosuria—never higher than 0.75%—of more or less chronicity, supervened.

According to the statement of her physician, phenomena characteristic of diabetes were not exhibited until the following September, when an analysis made at a public laboratory showed the urine to possess a specific gravity of 1.032 and to contain carbamid 0.9% and glucose 4.4%. No evidence of renal disease was demonstrated.

Patient was first seen November 18, 1899. She stated that her deafness became more pronounced from day to day, that she had intense pruritus of the vulva since about the middle of September, that she had great thirst and that she must urinate frequently. Had lost considerably in weight, "at least 4 inches

CASE III.



Delineation of duplex melituria.

in bust measure" during the past two months. Present weight 161 pounds. No lues. Suffered occasionally from dull headache at the base of brain. Had indulged in all kinds of food, including sweets.

The physical examination revealed a very weak heart, in the condition of fatty degeneration, a state of general arteriosclerosis, enteroptosis, distended stomach, some coprostasis, and very flaccid muscles.

Urine.—Amount for 24 hours, 2,800 cc.; specific gravity, 1.024; acidity, 0.55°; carbamid, 2%, or 56 gm.; glucose, 3.1%, or 86.8 gm. No acetone or diacetic acid. No characteristics of kidney disease. Rigid antidiabetic diet in any desired amount.

November 28. Body-weight, 155.5 pounds. Feels much improved. Loss of weight very likely due to incessant diarrhea since institution of proteid-fat nourishment; thirst moderate, some insomnia. Twenty-four hours' urine, 2,250 cc.; specific gravity, 1.018.5; glucose, 0.38%, or 8.55 gm. Antidiabetic diet as before. Antidiarrheal medication.

December 7. Body-weight, 159 pounds. Deafness continues, otherwise improvement very marked; muscles appear harder; seems to have her old spirits and energy. Twenty-four hours' urine, 1,800 cc.; specific gravity, 1.019; glucose, 0.55%, or 9.90 gm. Diet as before.

December 14. Body-weight, 160½ pounds. Deafness unchanged; improvement continues. Twenty-four hours' urine, 1,825 cc.; specific gravity, 1.022; glucose, 0.58%, or 10.56 gm. Diet as before.

January 13, 1900. Body-weight, 164 pounds. Deafness permanent; feels very well. Twenty-four hours' urine, 2,100 cc.; specific gravity, 1.015; glucose, 0.43%, or 9.03 gm. Diet: mixed food, including 300 gm. carbohydrates and 250 cc. milk.

February 21. Body-weight, 171 pounds. Feels well, excepting the occasional dull pain at the base of the brain. Twenty-four hours' urine, 1,560 cc.; specific gravity, 1.017.5; glucose, 0.51%, or 7.96 gm. Diet somewhat restricted, as before.

The foregoing 3 cases are typical instances of duplex melituria. The differences in these 3 cases are multiplex, but they all have in common a condition of true diabetes plus another disorder also characterized by a more or less pronounced glycosuria tending to chronicity. The additional disorder exhibiting a glycosuria symptom in Case I is undoubtedly one of the central nervous system; in Case II it is the enlarged liver and its perverted activity, and in Case III it is the loss of the parotid gland implying the probable loss of an internal secretion, which stand at the foundation of the nondiabetic glycosuria.

In Cases I and II, diabetes may have been the original affection; in Case III the glycosuria antedated the occurrence of diabetes without any doubt. In all the cases the body-weight increased on the institution of a rigid dietary as long as the organism was in an actual diabetic condition; the moment the diabetes resumed its latent character and the phenomena of the concurrent affection appeared in the foreground, the restricted diet remained without any decided influence upon the absolute body-weight. Excepting on one occasion in Case II, all the dietary restrictions could not completely suppress the low, accompanying glycosuria. That this was in no instance due to the synchronous diabetic condition is proved by the rapid disappearance of all the diabetes phenomena on the institution of the strict diet. The diabetic affections in the 3 cases were of an exceedingly mild nature; in 7 days' dieting the daily glucose output in Case I was reduced from 128 gm. to 1.75 gm; in the same period of time the glucose excretion in Case II amounting to 64.68 gm. in 24 hours, had entirely disappeared, and a reduction from 86.8 gm. to 8.55 gm. per day ensued in Case III, within 10 days.

That the accompanying low degree of glycosuria in the 3 cases was not diabetic in character is evidenced: 1. By its continuation after the rapid suppression of the manifestations of a mild diabetes. 2. By its persistence after prolonged and rigid antidiabetic dieting. 3. By the increase in body-weight in spite of the persistence of the glycosuria. 4. By the normal, or almost normal amount of urine eliminated after disappearance of the high degree of glycosuria. 5. By the excretion of proportional small amounts of carbamid during the continued ingestion of large quantities of nitrogenous substances. 6. By the greater prominence of certain, more than transitory phenomena, after the establishment of the artificial latency of the diabetic state.

One could adduce that the low degree of glycosuria was nothing else but the insuppressible portion of the diabetic glycosuria. To this must be remarked that the nondiabetic glycosuria not only antedated the diabetic glycosuria and continued in unaltered form after subsidence of the diabetic manifestations in one of the cases, but that the diabetic phenomena were of a type readily and completely responding to dietary measures, of a type in which the excreted glucose is the result of perverted amylolysis only.

That the concomitant low degree of glycosuria was not the consequence of proteolysis or of plasmolysis,* indicating the graver and the gravest diabetic states, respectively, is peremptorily precluded by the progressive gain in weight and the associated diminished egestion of nitrogenous material after subsidence of the demonstrable diabetic phenomena.

The following points may be deduced from this communication:

1. The diabetic state may be well established before glucose is excreted by the urine. Diabetic glycosuria is nothing more than the salient feature of the second stage of the diabetic deterioration.

2. Glycosuria is a symptom, an enunciation of manifold other disturbances of ectogenous, as well as of endogenous causation.

3. With the assistance of various discrepant factors we are enabled to differentiate clinically between the diabetic and nondiabetic form of glycosuria.

4. Duplex melituria is the result of two concurrent or intercurrent affections of dissimilar character, having the one symptom, glycosuria, in common.

5. The recognition of duplex melituria depends on the alternate prominence of one set of symptoms, including the respective glycosuria.

REMARKS ON THE UNCINATE GROUP OF FITS, AND ON SEVERE SUBCUTANEOUS HEMORRHAGE OCCURRING IN EPILEPSY.¹

BY

WILLIAM G. SPILLER, M.D.,
of Philadelphia.

Associate Professor of Neurology, and Professor of Neuropathology in the University of Pennsylvania.

Certain movements of the mouth and tongue, tasting movements, occurring in epilepsy have been described repeatedly by Hughlings Jackson, and have been regarded by him as the result of an epileptic discharge, beginning in the gustatory elements of a certain region of the cerebral cortex (taste region of Ferrier.)

Hughlings Jackson says:

"... he who neglects the 'dreamy state,' because it is indefinite and 'merely curious,' and such symptoms as chewing, etc., movements, and apparent alteration in the size and distance of external objects, because they seem trifling things, may not even surmise that his patient has the serious disease, epilepsy, in a rudimentary form, until a severe fit comes to tell him so."

In another place he says:

"I have ... suggested for these cases the name of uncinat group of fits; this was on the hypothesis that the discharge lesions in these cases are made up of some cells, not of the uncinat gyrus alone, but of some cells of different parts of a region of which this gyrus is part—a very vague circumscription, I admit—the uncinat region. In cases of this group there is at the onset of the paroxysms a crude sensation of smell or one of taste, or there are movements of chewing, smacking of the lips, etc., (sometimes there is spitting). In some cases of this group there is a warning by what is known as the epigastric sensation, a crude development of a systemic sensation; this warning sometimes occurs along with a crude sensation of smell or with the chewing, etc., movements. Different varieties of this group of cases depend, I suppose, on discharge lesions of different parts of what I call the uncinat region.

There is, according to Hughlings Jackson, a dreamy state in the paroxysms of many—not of all—cases of the uncinat group of epileptic fits, or the dreamy state may occur without any of the crude sensations mentioned.

I can, perhaps, illustrate best what is meant by the dreamy state, by referring to the condition in one of Hughlings Jackson's patients. The man felt "as if he were saying, doing, and looking at things which he had experienced before." "Surrounding people seemed to have strange expressions on their faces, and people and things seemed to be far away." The dreamy state or intellectual aura varies very much in different cases, there may also be fear or a sense of impending death.

The symptomatology of uncinat fits refers especially to the digestive system.

Hughlings Jackson speaks more especially of chewing and tasting movements, but probably he would class swallowing movements among his uncinat group of fits, and indeed, he refers to a case reported by Herpin in which during the attacks there were sounds of deglutition, and the attacks were regarded by Hughlings Jackson as of the uncinat variety.

Jackson is inclined to include in the uncinat group of fits the asphyxia occurring in slight attacks, the "turning blue," and explains this asphyxia by the fact

* Employed here to designate disintegration of body albumin.

¹ Read before the section on General Medicine of the College of Physicians of Philadelphia, February 8, 1904.

that respiration can be slowed and arrested in animals, as shown by W. G. Spencer, by irritation of a certain spot situated to the outer side of the olfactory tract just in front of the junction of the tract with the uncinate.

Purves Stewart has been able to collect 6 cases with necropsy, reported in the literature, in which some lesion of the temporosphenoidal lobe was the cause of the uncinate group of fits.

I have had a few clinical cases that probably should be regarded as of the uncinate type, and I report them because of the importance of the recognition of this group of cases, and as a contribution to the study of cerebral localization, especially of localization in a region of the brain which has been regarded as almost a "silent" area.

A. E. T., female, single, aged 27; is unable to give an account of her family. She had her first attack when 3 years of age, and has had attacks as often as once or twice daily. When the attack is coming on she sees a bright light in front of her, objects appear strange and out of place; sometimes they are large and sometimes small, and she has the taste of raw, unsalted beef in her mouth. She then loses consciousness. Her mother says she has convulsive movements, bites her tongue, and has involuntary passage of urine. The patient passes into sleep after the attack is over.

W. McG., female, married, aged 29, is unable to give any history of epilepsy in her family. Her first attack occurred when she was about 28. It began with a creeping sensation in her left upper limb, which seemed to ascend the limb gradually and to involve the left side of the tongue, so that the tongue felt thick. She then was obliged to sit down and seemed to be unconscious, although she heard all that was said to her, but she could not speak. She saw everything about her during the attack, but vision was blurred. She had a "gassy taste" at the time of the attack. She has had 3 of these attacks, but she has never fallen, and has not had convulsive movements, nor involuntary micturition. She has dreams, in which she imagines she is being killed.

C. S. was a patient of Dr. J. H. Musser and was seen by me September 18, 1903. The notes taken at that time are as follows: The man, aged 40, is married and has 8 children; none of these has had teething spasms. One child had convulsions during an attack of whoopingcough, and another child had convulsions after eating raw lima beans. No history of epilepsy in the family can be obtained. The patient denies syphilitic infection, says he has never had any venereal disease, that he never drank heavily and stopped drinking entirely 9 years ago. He has not smoked during the past 2 years, but smoked much before that time. He says he has had hyaline and granular casts and albumin in his urine. He has no cardiac disease. He has always been nervous, easily annoyed and made to tremble, and cries from little cause. During the past 2 years he has had occasionally what his wife calls "swallowing spells," and in these he would become unconscious, make the noise and movement of swallowing, and rub his fingers together. These attacks last a minute or two. Otherwise the patient was healthy until April 29, 1903. He has had very little headache.

On April 29, 1903, he had a severe convulsion at 6 a.m. The convulsive movements implicated both the upper and the lower limbs, but did not appear to be severe enough to injure him, and were as severe in one upper limb as in the other, but were more intense in the lower limbs. He was unconscious during the attack. When he regained consciousness the right upper limb was completely paralyzed and exceedingly painful. After about 3 weeks he began to regain power in the right upper limb. The left upper limb was not affected after the convulsion for about 2 weeks, then as the right upper limb improved the left upper limb became weak, and pain was felt in this left limb on movement, but very little pain was felt when the limb was kept still. He regained full power in the right upper limb. After the first convulsion he had subcutaneous hemorrhages in the conjunctiva, in the face and about the right shoulder. The hemorrhages in the face were punctate.

The second convulsion occurred July 14, 1903, and was not so severe as the first. It began with swallowing movements. The right upper limb became completely paralyzed after this attack and exceedingly painful. The left upper limb was stiff, but not more paralyzed than it is at the present time. Pain in the left upper limb was still felt only on motion. The voluntary power partially increased in the right upper limb. After the second attack the man had severe hemorrhages in the right side of the neck, right shoulder, and right upper limb, and sensation was lost in the thumb and in the first finger of the right hand.

A third attack occurred a little over a week ago. At the present time (September, 1903) he has extensive subcutaneous hemorrhage in the right upper limb above the elbow. He can shrug the right shoulder, but cannot raise the right upper limb at the shoulder at all. He can flex the right forearm on the arm. The grasp of the right hand is very feeble and he complains of a sensation of numbness in this hand. Sensation for

touch and pain is normal in the upper limbs. No distinct atrophy of the upper limbs is found. He can raise the left upper limb, but not to a right angle with the shoulder, and the backward and forward movements are limited. He has normal movement at the left elbow and in all parts below this in the left upper limb. The grasp of the left hand is impaired, but is much better than that of the right hand. He has not struck his shoulder at any time. He seems to have ankylosis of the left shoulder. The biceps tendon jerk is very much diminished in the right upper limb, but the triceps tendon jerk is prompt. The biceps tendon and triceps tendon reflexes and wrist reflexes are much exaggerated on the left side. The voluntary power in the lower limbs is normal. The patellar reflexes are exaggerated. Ankle-clonus is not obtained. The achilles reflex is normal on each side. Babinski's reflex is not present on either side.

Between the second and third convulsive attacks he had 5 "swallowing spells," as his wife calls them.

The "swallowing spells" preceded any convulsive attack about a year and a half, and the case probably belongs to the uncinate group of fits, although his wife says that the patient does not get blue in the face during his swallowing spells, that he has no peculiar taste in the mouth, that he has no chewing or spitting movements with the "swallowing spells," and does not smack the lips, and that he is unconscious during the "swallowing spells," although occasionally he will answer questions. Inasmuch as one of these attacks has never been seen by a thoroughly trained observer, the statements of the wife may be inaccurate.

Especially interesting is the occurrence of the severe subcutaneous hemorrhages in the face and right upper limb. Evidently neuritis of the right upper limb was caused by this intense outpouring of blood about the brachial plexus, and the ankylosis or arthritis of the left shoulder was the result of the convulsive movements. It seems probable that arthritis was started by hemorrhage. The case in this respect is very uncommon.

We have in this case extensive organic changes produced by the epileptic attacks, and it is reasonable to suppose that similar lesions may occur in rare cases within the brain during epileptic attacks. This seems to be shown by the following case, which I report, as we are so prone to regard every cerebral lesion found in a case of epilepsy as the cause of the convulsive attacks, forgetting that some of the lesions may be the result of such attacks.

T. A., male, aged 16, had his first attack when 8 years old. He has had numerous severe convulsions. When 15, he had status epilepticus, and was unconscious 8 hours. His entire right side was then found to be paralyzed. Speech was lost about a month. When he was examined at the age of 16, the muscles of the right side were spastic, the gait was somewhat stiff, the grip of the right hand was good, and there was still some motor aphasia.

This boy had had numerous convulsions. It seems probable that during the status epilepticus a lesion of the brain developed, possibly hemorrhage or thrombosis, and caused the persisting symptoms in the right limbs, and the disturbance of speech.

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Tuberculosis Decreases in Germany.—An exchange says: In a period of 25 years the relative mortality from tuberculosis in Germany has decreased 139, or 39%, per 10,000 of population. If the discovery of Prof. Koch has not accomplished all that was hoped for from it in the way of completely getting rid of tuberculosis in Germany, other methods and treatment are doing gradually what he expected to do immediately. At the present rate of improvement a century will see tuberculosis almost entirely rooted out in Germany, and in a generation it will be reduced to one of the minor diseases in the number of deaths caused by it.

Yellow Fever Experts go to Panama.—Information from Washington, D. C., on March 3, says: Having acquired the right of way for the Panama Canal, the United States now proposes vigorously to take steps looking to the protection from malaria and yellow fever of the large number of Americans who undoubtedly will be attracted to that section when the work of construction begins. It has been decided to bring Colonel W. C. Gorgas, the yellow fever expert of the army, to Washington for a conference with Admiral Walker. Dr. Gorgas is an immune, and will go to the Isthmus prepared to put into execution the methods adopted by him in Havana, which brought such effective result.

REFLEX CARDIAC INHIBITION RESULTING FROM IRRITATION OF THE PERIPHERAL FIBERS OF THE TRIFACIAL NERVE AND OCCURRING IN THE COURSE OF AN OPERATION FOR CHRONIC EMPYEMA OF THE FRONTAL SINUS.¹

BY

GEORGE FETTEROLF, A.B., M.D.,

of Philadelphia.

In the course of operations on the upper air passages, in regions supplied by the terminal fibers of the fifth cranial nerve, I have at times noted an embarrassment of

the circulatory apparatus which was entirely out of proportion to the severity of the operation or the general condition of the patient. It was not until the patient, whose case is herewith reported, came to the table that the true inwardness of the situation occurred to me, and on looking up the literature of the subject and working out an explanation of



Showing slight scarring of operation.

the phenomenon, I elicited several points which should prove to be of practical as well as of scientific interest to those working in rhinolaryngologic fields.

The patient is a vigorous working man of 35 and a caulker by occupation. His family history is negative as far as his nasal condition is concerned, his father being alive and healthy at the age of 75, his mother having died from a gastric tumor at the age of 35, and his only brother having been killed at the age of 40. As a child he had measles and mumps and 13 years ago had a severe attack of inflammatory rheumatism which left his heart unimpaired.

His more recent personal history is of decided interest, since during the last 5 years he has had 3 severe blows over the bridge of his nose and right frontal sinus, the first by a baseball 5 years ago and the others by pieces of timber 4 and 2 years ago. Following the first of these injuries he suffered considerable supraorbital pain, associated with a great deal of hemorrhage and nasal obstruction. From this on he was never free for any length of time from a sense of fullness, throbbing and supraorbital pressure, associated with which was a feeling of exophthalmos. These attacks became longer and longer in duration and the intervals increasingly short. Winter before last he came to my clinic at the Methodist Hospital and I gave him only palliative treatment, as his condition then did not warrant external operation. The ideal procedure at that time would have been the conventional one of removing the anterior half of the middle turbinal, but his septum was so far deflected to the right that this was impossible and a straightening operation was out of the question because the nasal irritation was too great to allow of even a brief retention of any form of splint. After attending the clinic for a few weeks he disappeared and I saw nothing of him until the latter end of last February, when he returned with the old train of symptoms. At this time the middle turbinal was very much inflamed and there was a large polypus depending from its inner surface near the hiatus semilunaris. Removal of this failing to give him any relief, I had him admitted to the house and put to bed. He was suffering intense pain over the right eye, his upper lid could hardly be raised, and there was distinct bulging of the supraorbital area. In addition, the power of hearing in his right ear was becoming impaired. For a week his nose was sprayed with a warm alkaline solution of suprarenal gland and cocaine, followed by a bland oil. Cold compresses, changed every 10 minutes, were used externally. He had a daily remission of his symptoms in the morning, but they would return in all their severity in the evening. Palliative treatment having availed nothing, I determined to operate.

The patient was prepared in the morning by shaving his moustache and eyebrows, and his scalp as far back as the coronal suture. Just before the operation his conjunctival sac was cleansed with boric acid solution, and his forehead and face with mercuric chlorid solution and alcohol. The area of operation was covered with a sterile dressing, which was allowed to remain in place until anesthesia was complete. The external incision began at the junction of the outer and middle thirds of the eyebrow and terminated over the lower margin of the glabella. The soft tissues and periosteum were retracted, and a button of bone removed with a $\frac{3}{8}$ -inch trephine. As soon as the edge of the trephine entered the sinus, and before the button was completely severed, seropus and flakes of lymph exuded from the wound. As the opening after the removal of the button was not sufficiently large to permit of thorough cureting of the sinus, it was enlarged upward and outward with rongeur forceps, care being taken to keep the supraorbital margin intact. The mucous membrane was found to be covered with foul-smelling granulation tissue and pus, which was especially thick at the entrance to the infundibulum. This was cureted away until the entire bony wall of the sinus was exposed. There were no spots of caries in the walls, nor was there any communication with the sinus of the opposite side. The probe passed freely into the nose without eliciting any suggestion of caries, and in the absence of a Panas' probe an ordinary silver one was introduced into the infundibulum, and brought out of the anterior naris. This was moved backward and forward a number of times, and the passage way thus made patulous. The cavity was syringed freely with hydrogen dioxide until froth ceased to come from either sinus or nose, and then douched with hot boric acid and permanganate solutions. After thorough drying, the whole interior of the sinus was swabbed with 50% zinc chlorid solution, and again douched. The cavity was then packed with acetanilid gauze, and the outer two-thirds of the wound closed with interrupted silk sutures, the inner third being allowed to remain open for the purposes of packing and douching. An ordinary sterile dressing was applied, the eye being covered with a disc of gauze dipped in boric acid solution, and the hollow at the inner canthus filled with cotton.

The interesting feature of the operation was the occurrence of a trigemino-cardioinhibitory reflex. Each time the curet would be applied to the sinus wall there would be a marked diminution in the force, fullness, and frequency of the pulse, along with distinct cyanosis. The cureting had therefore to be frequently interrupted. This phenomenon has occasionally been noted in operations involving areas supplied by the fifth nerve, and especially by dentists. One of my assistants told me that he frequently anesthetized for dentists, and when chloroform was the anesthetic used had so often noted cardiac embarrassment at the instant of the extraction of the tooth that he had become quite timid about giving an anesthetic for any dental operation. The particular area of the fifth nerve involved in the case just described was, of course, the mucosa of the sinus. In none of the standard textbooks on anatomy have I been able to find any description of the nerve supply of this region. It must unquestionably be from the trifacial and examination of a number of skulls leads me to the belief that the principal source is from the supraorbital, with possibly additional filaments from the nasal and the malar branch of the temporomalar.

That this reflex does occur has been proved experimentally by Brodie and Russell,¹ who among their conclusions state the following: "The connection of the respiratory tract with the cardioinhibitory center is very close. Thus, stimulation of the nasal mucous membrane at once arrests the heart. Stimulation of the laryngeal mucous membrane is only a little less effective. Stimulation of the trachea and large bronchi is apparently without effect, but stimulation of the alveolar nerves is about as effective as that of the laryngeal. These nerves produce the result when stimulated electrically in their course from the mucous membrane, or when stimulated electrically or mechanically in the mucous membrane itself." The path of the impulse is clear. It runs through the afferent fibers of the fifth to the Gasserian ganglion, then through the fibers of the sensory root to the deep origin which comprises the sensory nuclei in the floor of the fourth ventricle and the gray substance of the substantia gelatinosa of Rolando as far down as the second cervical nerve. From these situations the path to the nucleus ambiguus, which contains the motor

¹ Read at the annual meeting of the Eastern Section of the American Laryngological, Rhinological and Otological Society, held at Fall River, Mass., January 30, 1904.

centers of the vagus, is short and direct, and is probably through some of the fibers of the posterior longitudinal bundle.

Normally the relations between the nuclei of the fifth and tenth cranial nerves are directed and controlled by centers situated higher up. This control is usually not materially interfered with during ether anesthesia, but when chloroform is used the connecting fibers between the two deep origins are given much freer play, and as a consequence, any irritation of the peripheral fibers of the trigeminus may produce, through the cardioinhibitory fibers of the vagus, an amount of disturbance which may vary from only a slight degree of embarrassment to actual cessation of the heart's action. In this way may be explained some of those deplorable accidents which have occurred during adenoid and dental operations, and a safe rule to follow would be never to use chloroform when the area about to be operated on is supplied by sensory fibers of the fifth nerve.

A similar reflex has been proved to occur in operations on the ear, by the experiments of Reik,² who performed a number of operations on the tympanic structures of dogs, and measured and determined accurately the effect produced thereby on the circulatory apparatus. He concludes: "The results of these and similar experiments tend to show that the faintness and other effects which attend operations on the tympanum are due mainly to disturbance of the vasomotor apparatus, through irritation of the sensory nerve supply; that these nerves when stimulated show a depressor effect and usually a cardioinhibitory action, though under some circumstances the pulse-rate may be increased; and that complete anesthesia prevents the transmission of such an influence by these nerves and partial anesthesia weakens this influence."

The occurrence in aural manipulations is of much greater frequency than when the upper respiratory tract is the field of operation. It has been frequently noted and mentioned in the former connection, and has occurred at the hands of all of us. I have seen it on the mere introduction of the speculum, during the incision of a furuncle, during the removal of cerumen, and during operations involving the tympanic membrane and ossicles. The anatomic relations here are of great interest, and afford a ready explanation of the greater frequency with which these symptoms occur in aural compared with rhinolaryngologic work. The nerve supply of the external auditory meatus is derived from the auriculotemporal branch of the trifacial and from the auricular branch of the vagus, while the tympanic membrane depends for its nerve supply on the tympanic plexus, which is made up of the tympanic branch of the glossopharyngeal and the caroticotympanic (least deep petrosal) branch of the carotid plexus of the sympathetic. In the case of afferent impulses originating in the external meatus, the path is evidently one of two, either through the mandibular nerve and gasserian ganglion, as described above, or through the auricular branch of the vagus to the ganglia of the root and trunk, and thence to the small-celled or sensory nucleus common to the ninth, tenth, and the accessory portion of the eleventh. From here to the nucleus ambiguus is but a short and easy step. In the case of the tympanic membrane the path is probably through the tympanic branch of the ninth to the jugular and petrosal ganglia, thence to the sensory nucleus just mentioned, and then to the nucleus ambiguus or motor nucleus common to the ninth and tenth nerves. It is thus evident that the anatomic connection between the external auditory apparatus and the cardioinhibitory apparatus is much closer than that between the upper respiratory tract and the cardioinhibitory center, and in this would seem to lie the explanation of the fact that cardiovascular embarrassment occurs and has been noted so frequently in operations on the former, while in the latter it has passed practically unnoticed.

The after history of the case described is uneventful, with the exception that in spite of the most rigid surgical cleanliness the wound in the soft tissues became infected. As a consequence, there was some annoying edema of the right eyelid, which was, of course, partly due to the necessary division during the operation of the supraorbital artery and vein. This extended to the eyelid of the opposite side, probably on account of pressure on the left angular vein, and for several days both eyes were practically closed. Some ptosis of the right side remained for several weeks, but disappeared as the inflammatory exudate became absorbed. There was, of course, and still is, the usual numbness of the forehead incident to the division of the supraorbital nerve.

The external wound was not allowed to close for 6 weeks, and when the gauze drain was finally removed the wound healed quickly. The accompanying photograph shows what a slight degree of disfigurement remains. A slight pit which will receive the very tip of the little finger and a suggestion of broadening of the nasal end of the eyebrow are all that remain, the rest of the scar being concealed by the eyebrow.

Systematic treatment of the nasal chambers was continued throughout, and for a while an apparently atrophic condition seemed to be developing in the area over which the pus from the infundibulum flowed, but when the pus ceased to form the mucosa speedily returned to its normal condition.

This open method of treating the wound, while necessitating unsightly bandaging or strapping for a considerable time, does certainly seem to be the more rational procedure. What we are after is an ultimate good result, and we should not allow an ultrarefinement of cosmetic treatment as regards the bandaging interfere with our efforts to secure the best final good for our patient. Our final success must depend upon the thoroughness with which cleansing can be carried out, and while there can be no question that it is possible to syringe or douche the sinus from the nose, it is likewise certain that far more thorough irrigation can be carried on through the external wound. And if the operator is careful to see that the sinus, which is allowed to form for therapeutic purposes, is confined to the inner portion of the eyebrow the only deformity which will ensue will be a shallow pit over the dehiscence in the anterior wall and a slight broadening of the eyebrow at the point which was allowed to remain open.

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THE OCHSNER TREATMENT OF APPENDICITIS APPLIED AFTER OPERATION.

BY

GEORGE S. BROWN, M.D.,
of Birmingham, Ala.

The fact, that Ochsner's recommendations for the management of the more severe types of appendicitis, have met such general approval or at least favorable comment, indicates plainly that many beside Ochsner have had discouraging results from operation in this class of cases.

Much as has been said and written about the technic of operating and, since Ochsner's paper, as to whether to operate at all, there seems to have been written little or nothing new for several years, as to the treatment of such patients *after* operation. I think I am safe in saying that the most common course pursued after operation is still about what has been followed since the first operations for appendicitis were done. The formula usually followed with a zeal and unswerving faith worthy of a devotional exercise is: (1) Withholding water after ether for a routine number of hours or while the nausea lasts; (2) withholding opium as much as possible because it masks the symptoms and for fear the patient will like it too well; (3) giving purgatives because the surgeon feels better when the patient's bowels move.

As my practice for several years has been exactly opposite of all this it may be of some interest to summarize my cases and results and describe the plan of treatment pursued.

In all I have had 90 cases in the last 7 years of which number 25 were clean cases and 65 were pus cases. I have seen in addition to these about 100 other patients who refused operation or were not operated upon because the cases were so mild as to throw a doubt on the diagnosis in the minds of the attending physicians. Again I have been called to 7 patients who were dying at the time and operation was out of the question. These facts tend to show that we have not been so quick to operate here as in some other communities. Another bit of evidence to the same effect is that the average time at which the operations were done was 7 days after the onset of the symptoms. This average time was greatly due to the fact that 12 of the pus cases were old large abscesses. These were incised and drained and the appendix left. In all the other cases the appendix was removed. The 25 clean cases were not drained and all the patients recovered. Two patients with large abscesses died; one from a subphrenic complication and the other because the abscess had already ruptured into the cavity at the time of operation, and the condition of the patient was too bad to do any more than open and let out the pus. Of the 53 pus cases remaining, in which the appendix was removed, 4 were extraperitoneal and 24 were intraperitoneal abscesses which were unruptured. Only one of these patients died. He had an ugly abscess between the folds of the mesentery, followed by a subphrenic abscess, which also ruptured into the lung and caused his death by pneumonia and sepsis. He did not have peritonitis. He died 5 weeks after the original operation. Of the 25 remaining cases, 3 were cases of ruptured gangrenous appendix and 22 of ruptured intraperitoneal abscesses. One of the patients with a ruptured appendix died from sapremia. The rupture had taken place 18 hours before operation and there had been no inflammatory reaction against the poison. The peritoneum was a dark lead color and the veins were black. The autopsy showed the same condition 2 days later. In the other two, operation was done soon after the appendix became gangrenous and the rupture had just taken place. The contents of the bowel had spilled out and was running through the opening, but the time had been so short that we were able to clean it out and close the abdomen without drainage. Of 22 patients with ruptured intraperitoneal abscesses, 18 had peritonitis in varying degrees of intensity. Twelve of these had diffuse peritonitis in the severe degree that is usually called general peritonitis. Three of these patients died. Two did not rally from the shock of operation. The other patient died after 4 days from regurgitant vomiting, caused, I believe, by a large quantity of castor-oil she had been given before the operation and which we had failed to wash out. The operation was done 10 miles out in the country and the stomach-tube had been forgotten. The reasons for my belief are the following: In spite of the vomiting, 24 hours after the operation her temperature and pulse had fallen from 104° and 140 to 101° and 110, respectively. The autopsy showed that the diffuse peritonitis, which was so marked at the time of the operation, was very much less and that the right iliac region was walled off and draining. Then, too, the vomitus contained oil to the end. These 3 patients who died did not seem to be any worse off at the time of operation than the other 9, a brief history of whose cases follows:

CASE I.—Dr. B., white, aged 53. The patient had had repeated attacks. A sudden attack occurred at 5 a.m., June 29, 1889, accompanied by chill, vomiting, and great pain. Operation was performed at 2 p.m. Temperature was 104° and pulse 130. The appendix was gangrenous; there was diffuse peritonitis; serosa was injected, lymph deposit plentiful, and there were remains of an old abscess cavity around the appendix; the belly was full of seropus and cloudy serum. The bowels contained large quantities of food and gas. The patient was a large fat man and the incision was 8 inches long. The stomach was not washed out. Opium was given, but water was withheld. Regurgitant vomiting persisted for 4 days, then he got

hold of the water pitcher and helped himself to more than a quart. After this was vomited he was much relieved and made a good recovery.

CASE II.—J. L., aged 30, had been very ill for 4 days. A diagnosis was made of gangrenous appendix. Operation was refused until the abscess ruptured and collapse occurred. Operation was done 4 hours later. Diffuse peritonitis was present; the abdomen was full of cloudy serum; pulse 150; temperature 103°; great distention. The patient was given all the water he wanted after the operation and morphin enough to keep him quiet. The tight binder was not used and he suffered a great deal from gas for 5 days, when gas passed per anum. He was then given an enema, his bowels moved, and he recovered rapidly.

CASE III.—W. M., aged 10, had pain all day of November 12, 1902. Next day after a very painful night his temperature went up rapidly to 103° and his pulse to 150. He was given morphin and was removed to the hospital. After the morphin the pulse came down to 114 and the temperature to 101°. Operation was performed 6 hours after symptoms became worse. There was diffuse peritonitis with a gangrenous appendix. Seropus was washed away, lymph of the adhesions wiped away, and the cavity thoroughly drained. He was given opium, lavage was done, the tight binder applied, and all the water he wanted was given to him after the operation. Recovery occurred with hardly any discomfort. There was no distention and bowels moved naturally on the third day.

CASE IV.—P. C., aged 30, suffering from the first attack. The patient had been sick 8 days. The abdomen was swollen and very tender. Pulse 100, temperature 101°. Appendix was gangrenous but walled off. A mild general peritonitis was present in process of spontaneous cure. All adhesions were broken up, lymph wiped away and the cavity flushed and drained. Lavage was done, the tight binder applied, opium and plenty of water were given, and convalescence was very rapid.

CASE V.—A. H., aged 18. First attack. Pulse was 120, temperature 102°, when admitted. Shortly after admission the pain became intense, vomiting ensued and the patient was immediately taken to the operating-room. A large pelvic abscess had ruptured and a diffuse peritonitis was beginning. The appendix was gangrenous and the pelvic cavity was full of cloudy serum. Lymph deposit and adhesions in all the lower abdomen and injection of the serosa over the entire cavity. The appendix was removed, and the cavity wiped, flushed and drained. Lavage was done before leaving the table, the tight binder applied, opium was given and water ad libitum. There was no nausea nor other discomfort. Bowels moved on the fifth day.

CASE VI.—J. M., aged 11, third day of the disease. There was chill, vomiting, and great distention. Pulse was 130, temperature 104°. Gangrenous appendix and diffuse peritonitis. Appendix was removed, adhesions broken up and wiped away and the cavity flushed and drained. Lavage was done before the patient was removed to bed; the tight binder was applied and plenty of opium and water given as needed. Recovery was uneventful.

CASE VII.—E. E. C., aged 22; first attack. The patient was first seen on the fourth day. Pulse 130, temperature 103°. He had two or three hard chills, there was vomiting, great distention, and every symptom of general peritonitis. Operation was performed at once. There was a very great degree of general peritonitis, pus and cloudy serum, and a gangrenous appendix. A collection of pus was also found up under the ribs against the liver just as we were about to close the wound. This was drained. The usual course was pursued but the patient later developed an abscess up under the diaphragm for which 2 secondary operations of resecting the ribs had to be done before he recovered. The peritonitis was controlled at once however by the first operation, followed by opium, the binder, lavage, and water, and no purgatives. This patient seemed worse off at the time of operation than the two who died.

CASE VIII.—J. A., aged 26, white, epileptic. First attack occurred May 4, 1901; 48 hours later operation was done. Diffuse peritonitis was present, and a gangrenous appendix, 8 inches long and nearly as large as the small bowel was found coiled up in the pelvis. Adhesions and plastic exudate were present over the entire lower abdominal cavity. There was a large amount of free seropus in the cavity. The appendix was removed, adhesions were broken up, the cavity wiped, flushed, and drained. Same treatment was followed as in former cases, and convalescence was rapid and comfortable.

CASE IX.—C. W., aged 7, white. The patient was seen September 1, 1902, when he had been very ill for 4 days. Operation was performed at once. Temperature 103°, and pulse 140. There was much distention, a gangrenous appendix, and diffuse peritonitis. In removing the bowels, loop at a time, in order to wipe away the lymph, the bowels prolapsed through coughing, and it was seen that inflammation and its products were present everywhere in the cavity. The peritoneum was wiped clean, and the cavity flushed, and a tight binder applied. The after-treatment consisted of lavage before removing the patient from the table, and the administration of opium and water afterward as in the other cases. Rapid recovery.

CASE X.—M. R., white, aged 17. The patient was seen November 8, 1901, was sick 6 days, and was getting worse all the time; there was great distention, pain, and vomiting. Tem-

perature 104°, pulse 150. A large gangrenous appendix was removed. Diffuse peritonitis was present in extreme degree. Adhesions were broken up, lymph deposit wiped away, and a large quantity of seropus washed out, and the iliac fossa and pelvis drained.

This patient was 20 miles out in the country, and 100 miles away by rail. She did not have very good nursing, but I got a report every day, and according to it she convalesced very rapidly, and for nearly 2 weeks her pulse and temperature were normal. The drains were taken out, and the wound was doing well until about 3 days after the removal of the drains, when she began to have a little fever. I was informed later that she had typhoid fever, but suspecting a secondary abscess, I went to see her, and arrived in time to see her die from the effects of an enormous secondary abscess in the pelvis, death occurring a month after the original operation. This case is recorded as a recovery only as relating to the immediate result of operation for diffuse peritonitis.

In all my clean cases and in nearly all the others, and especially for intraperitoneal abscesses I pursued the course described. Lavage, tight binder, opium, plenty of water to drink and no purgatives until the bowels manifest a disposition to move by the uncomfortable rolling about of the gas and the other symptoms showing that the inflammation is subsiding and the paralysis of the bowel is being overcome.

When the inflammation is active the bowel is paralyzed at that point. For this reason it has always seemed to me very dangerous to give a purgative, the effect of which is to set up an ever increasing activity of the upper part of the bowel which is not inflamed. This peristaltic wave goes to the paralyzed portion and as it can go no further it sets up a return wave which empties the contents of the bowel into the stomach and causes regurgitant vomiting. Emptying the stomach and bowels by irrigation will, as Ochsner has pointed out, favor quiescence of the bowel and the formation of adhesions. Opium also favors quiescence but as it seems to stop the secretions and promote the fermentation of what little food is left after irrigation, thus favoring the formation of gas, it has not been used as much as its other good qualities warrant. By using the binder properly, *i. e.*, keeping it tight as the gas recedes, opium can be used liberally, for its quieting influence on the nervous system and conservation of the patient's strength. The tight binder merely supplements the stiffened up abdominal walls which is nature's feeble way of trying to avert the fearful complication of over-distention. If these muscles are not so supplemented they may, in a short time, become over-distended and then the picture of so-called paralysis of the bowel is complete. Paralysis of the bowel is the only way in which nature can cure a severe case of peritoneal inflammation, therefore it is to be encouraged, but over-distention is dangerous and must be avoided.

For 5 years now I have given my patients all the water they wanted, both before and after ether and I have yet to see anything but good result from the practice. If there is nausea, vomiting cures it in a little while if the patient is given water. If irrigation is sufficiently prolonged it will not only empty the stomach of ether-laden mucus, but will actually wash every particle of ether out of the blood; just as laboratory experiments have shown that morphin, for instance, can be almost totally recovered from the stomach washings, after it has been injected hypodermically. As stated before, opium keeps the bowel quiet and favors adhesions, and when a patient is under its influence his nerve and tissue waste is at a minimum. This effect is so pronounced that for a long time it was regarded as almost a specific for peritonitis and in those days it did cure a great many patients, just as Ochsner is curing them today on the same principle. It cures by aiding nature and nothing cures in any other way. I started out in the regular line of purgatives and was in a constant frenzy to get every patient's bowels to move as soon as possible after an operation and at least 3 of my 7 fatalities in the 90 cases were in some degree due to this effort. I believe that the mortality in such cases as I

have reported would be fearful (and is) if the patients are treated with purgatives. I believe that the mortality of 15% to 48% in cases published some years ago was due to the purgatives that were given. Constipation does not kill and purgatives will not cure general peritonitis, but purgatives are often responsible for a fatal termination. Gas passing on the second, third, or fourth day is a sign that the inflammation is subsiding and that peristalsis is becoming active and at this juncture a purgative will move the bowels and give the patient and the surgeon considerable relief, though the bowels would probably move the next day without a purgative. The bowel movement is the indication of the cure and not the cure itself. The great relief experienced after the movement gives the impression that it is responsible. Hence the cart before the horse.

Finally, if the Ochsner treatment will tide over a patient with a gangrenous appendix, I am convinced that the same method applied *after* the appendix has been removed will give better results, and I have found it so in my practice. Granting that it is best to tide over the worst cases in this way, it is hard to say always just what is a bad enough case in which to institute this treatment. Sometimes we might find ourselves much puzzled when the abdomen is opened and a gangrenous appendix in our hand whether to leave it and close the abdomen and follow out Ochsner's plan, or to take it out and give purgatives. So far as I have been able to read in the current literature there is no other choice, and yet I feel sure we should do neither, but remove it, and then apply the Ochsner treatment. I may add that in all my other abdominal cases I have treated my patients on the same line and have seen nothing but good result from it.

ASTIGMATIC CHANGES.¹

BY

JULIUS POHLMAN, M.D.,
of Buffalo, N. Y.

Such work as published in *American Medicine*, Vol. VI, No. 5, by Drs. Bennett and Clemesha, if carried out according to the views of the authors, will give an excellent idea of astigmatic averages, but not of changes. Even if we had records tabulated for 100,000 cases, they would not convey any knowledge of the changes that take place in the individual and give no proof that the averages of one cycle have changed or will change into the average of the previous or the succeeding cycle. This work was undertaken to determine the changes in the refraction of individual cases. Its study is based upon eyes examined and reexamined by me during a period of 10 years; reexamined from one to ten times at intervals varying from 6 months to 5 years. All eyes below the age of 50 years were examined under a cycloplegic; no doubtful case has been counted, but only those in which a definite change could be measured, and in which the patient reported satisfactory improvements due to the change of glasses. For convenience all parallel axes and all those in which the axes form an angle of 90° or of 180° have been classed as regular, whereas all others, which cannot be classed under these 3 forms, have been called irregular. Hyperopic and myopic corrections have been ignored, because nobody disputes the fact that they change; attention has been given solely to astigmatic errors and their variations.

This paper was written in 3 sections. The first section, embracing 300 cases was ready for presentation at the November meeting of the Club, but its reading was postponed to December, which gave time to write up the second 300 cases; to oblige a colleague, the reading in December was postponed for another month and this allowed the compilation of the full 900 cases, extending

¹ Read before the Buffalo Ophthalmologic Club, January 14, 1901.

over a period of 10 years. This separation into 3 distinct papers brought out a series of unexpected and striking similarities, which would not have been discovered if all the cases had been originally studied for one paper. What was foreshadowed in the first section was emphasized in the second, and strongly corroborated in the final chapter as well as in the totals. Among the first 1,550 patients recorded there were 300 who presented themselves for reexamination; the second 300 were from 1,450 cases and the third 300 needed 1,500 patients to complete the number; practically no difference in the course of 10 years, 1 patient among 5 returned for reexamination. The usual instructions given by the ophthalmologist to the patient, as to the time when a reexamination will be advisable or necessary, make apparently very little impression on that patient, otherwise a distinct increase in the number of reexaminations should be recorded as the years go by; even if we make due allowance for patients leaving the city, or consulting another physician, still these numbers are small enough to prove that patients do not return for reexamination because the physician advises it, but because the reappearance of former bad symptoms forces them again to seek his services. Hundreds, yes, thousands of men and women visit the dentist at regular intervals to keep their teeth in good condition; they don't wait until the tooth aches or shows signs of decay; it would be well for the eyes and the general health of the present and the next generation if the patients of the ophthalmologist would learn to treat their eyes as respectfully as they do their teeth, but the wellknown law of evolution which says that "ornament precedes use" in the development of the human family, finds here again a strange but forceful confirmation, the teeth are seen, the refractive error of the eye is only felt.

The proportion between male and female patients among the 4,500 cases studied was 62 females to 38 males; i. e., about 3 women to 2 men. Among the 900 reexamined cases were 573 females and 327 males, 64 to 36, practically the same proportion. Taking the 3 sections separately, the first 300 gave 190 females to 110 males, 63 to 37; the second 300 gave 197 females to 103 males, 65 to 35; the third 300 gave 186 females to 114 males, 62 to 38.

Among the reexamined 900 cases were 682 hyperopes and 218 myopes, 76% of the former to 24% of the latter. Divided again into the 3 sections, the first 300 gave 230 hyperopes to 70 myopes, 77% and 23%; the second 300 gave 231 hyperopes to 69 myopes, 77% and 23%; the third 300 gave 221 hyperopes to 79 myopes, 74% and 26%.

Among the 284 of the reexamined 900, 32% showed changes in their astigmatic corrections, 1 case in every 3½. These 284 cases presented 171 females and 113 males; i. e., 60% to 40%. There were among them 205 hyperopes and 79 myopes, 72% of the former and 28% of the latter.

It seems from these percentages that female and male, hyperope and myope, average about the same, whether for the total numbers or for the reexamined or the changed eyes, and as far as the return for reexamination is concerned, the difference between 62 females and 38 males among the 4,500 cases, and 64 females to 36 males in the 900 reexamined cases, shows that sex has no influence whatever and that the woman hates to part with her money for the payment of doctor bills as much as the man, and that one sex is just as loath to learn as the other that the appreciation of the "useful" necessitates a higher point of view than that of the "ornamental."

Among the 900 reexamined cases, classified according to age, we find:

Below 10 years	59
Between 10 and 20 years	166
Between 20 and 30 years	276
Between 30 and 40 years	182
Forty years and over	217

In the 284 changed cases, the age is as follows:

Below 10 years	22
Between 10 and 20 years	45
Between 20 and 30 years	100
Between 30 and 40 years	57
Forty years and over	60

Or to equalize these figures to a common base:

Up to 10 years, 37 among 100 had changed; from 10 to 20 years, 28 among 100 had changed; from 20 to 30 years, 36 among 100 had changed; from 30 to 40 years, 31 among 100 had changed; from 40 years up, 28 among 100 had changed.

Small differences indeed, and considering that the total change was 32%, these averages appear good enough to warrant the statement that, in spite of preconceived ideas, the different ages change with about equal frequency. Sex, age, hyperopia, and myopia, according to the foregoing figures, will have to be excluded as factors in the production of astigmatic changes.

The 284 cases found in which changes had taken place are classified as follows:

1. Increase of astigmatism, 142 cases, 50%.
2. Change of astigmatic axis, 89 cases, 31%.
3. Increase of astigmatism and change of axis, 21 cases, 7%.
4. Change of regular to irregular axis, 16 cases, 6%.
5. Change of irregular to regular axis, 16 cases, 6%.

To recapitulate: From a study of 900 cases examined and reexamined, nearly every third showed changes in the astigmatism; 50%, half of all the changes found, presented a simple increase in the quantity of astigmatism without any change of axis; 31% gave merely a change of axis; these two combined accounted for 81% of all the changes recorded. The other 19% were almost equally divided between (1) increase of astigmatism plus change of axis; (2) change of regular to irregular; and (3) change of irregular to regular axis.

It will be exceedingly interesting to know whether different series from the records of other observers present similarities like the foregoing. It would be more interesting if such records gave an equally large and rapid amount of changes in the astigmatism of the eyes studied, and if they do, the accumulated evidence will teach us tolerance with the work of our fellow ophthalmologists, and diminish the spirit of infallibility which so often comes to the surface in the most unexpected places.

SPECIAL ARTICLES

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

Proceedings Reported by the Secretary,
WILLIAM J. GIES, M.S., PH.D.,
of New York.

The fifth regular meeting of the Society for Experimental Biology and Medicine was held on the evening of February 17, in the rooms of the department of pathology of the Cornell University Medical College. Dr. S. J. Meltzer presided.

MEMBERS PRESENT.—Adler, Calkins, Crampton, Dunham, Ewing, Gies, Jackson, Levene, Lusk, Meltzer, Murlin, Norris, Richards, Wadsworth, Wallace, Wilson, Woodworth, Yatsu.

ABSTRACTS¹ OF THE REPORTS ON ORIGINAL RESEARCHES.

"The nature and basis of sexual selection in moths:" H. E. CRAMPTON.

The object of the investigation described was to obtain a quantitative expression for the strength of the mating instinct in certain species of large saturniid moths (*Philosamia cynthia* and *Samia cecropia*), and to determine the correlation between the mating instinct and structural characters. The results of earlier statistical studies upon the pupas of these species were reviewed, dealing with the nature and basis of the process of natural selection during the period before emergence and at emergence. It was shown that:

1. Those pupas which die after pupation and prior to metamorphosis are structurally different from and more variable than those individuals which successfully survive the pupal period.

¹The authors of the reports have furnished the abstracts. The secretary has made only a few abbreviations and minor alterations in them.

2. Those pupas which become perfect moths are likewise different from those which cannot emerge as perfect moths.

3. The basis for selective elimination is to be sought in correlation between the various structures.

The mating period follows immediately after metamorphosis, when certain individuals with weak mating instinct fail to take part in the production of the next generation, and are thus "sexually eliminated." In order to determine the points mentioned above, pupas of the 2 species named were isolated as the time for metamorphosis approached, and upon emergence were given one opportunity to mate. It was therefore possible to compare the pupas of the 2 classes of mating and nonmating individuals. The results, briefly stated, are:

1. That even slightly imperfect moths possess very little mating instinct, or in other words, that with the structural conditions associated with an imperfect power of emergence, is correlated a low grade of mating ability.

2. That the mating individuals of the perfect class differ structurally to a certain extent from the nonmating ones, but they are very much less variable than the latter class.

The importance of these results from the standpoint of inheritance and evolution is sufficiently clear to render extended discussion unnecessary.

"Observations on a serous fluid of unusually high molecular concentration:" E. K. DUNHAM.

The fluid was removed from the pleural cavity of a man suffering from lobar pneumonia. The patient was a scene-shifter in a theater, and had suffered considerable pain in the chest for 4 months before his admission to the hospital. His occupation required severe labor for brief periods, during which he became much heated, with intervals of leisure and exposure to cold drafts of air. The immediate reasons for his admission were a chill and inability to continue work. There was nothing unusual in the clinical course of the pneumonia or peculiar in his treatment. A few days after he entered the hospital 400 cc. of a clear serous fluid was aspirated from the affected side of the chest, and was examined on the same day, with the following results:

Distinctly alkaline; specific gravity, 1.021; depression of freezing point, 1.383° C. (mean of 3 examinations with different portions of the fluid, 1.395° C., 1.385° C., and 1.370° C., respectively); electric conductivity, 0.009119; chlorin calculated as NaCl, 0.58%; total nitrogen, 0.84%; nitrogen from washed tannic acid precipitate expressed in percentage of the fluid, 0.83%; proteid (N×6.25), 5.21% of the fluid; traces of reducing substance (sugar?) after removing proteids with ferric acetate; traces of nitrogen liberated by hypobromite of soda; no extractives of appreciable amount upon shaking with ether, acetic ether, or chloroform.

The matter of chief interest in the results was the considerable depression of the freezing point—0.81° C. greater than that by the blood, which was found to be 0.57° C. This 0.81° C. represents nearly 0.438 gram molecule in solution in excess of the molecular concentration of the blood, and appears to be a clear indication that osmotic interchanges between this fluid and the blood did not freely take place, possibly because of a thick layer of fibrin upon the pleural surfaces. Such a deposit would not, however, explain the high molecular concentration of the fluid. It appears most probable that this was produced subsequent to the formation of the fluid, by cleavages in the larger molecules originally present in solution, or by the solution of substances not at first dissolved. These substances could not be dissociable, because the electric conductivity was rather lower than is usual in such fluids. If the substances causing the high molecular concentration were organic compounds, they were not extractives, soluble in ether, acetic ether, or chloroform.

On the assumption that cleavage products of proteid substances, precipitable with tannic acid, might be present and cause the unusual depression of the freezing-point, the following experiments were made: Sterile horse serum, which had not been subjected to heat, was divided into portions. Of these some were kept for controls and others were inoculated with pure cultures of *Staphylococcus pyogenes aureus* or Fraenkel's pneumococcus. Freezing-point determinations were made on certain of these portions and the rest were sealed up in pipets

holding 100 cc. each. These were incubated at 37° C. for a week, when freezing-point determinations were made on one of the controls and one of the tubes inoculated with each of the bacteria mentioned. Cultures at this time showed the presence of great numbers of the species used, with no admixture of other species. The remaining tubes were left in the incubator for several months, when cultures proved to be sterile. The results of physicochemic examination of these serums are tabulated below:

HORSE SERUM A.			
Sterile Controls.		Inoculated with <i>Staphylococcus</i> .	
	°C		°C
1903			
May 19	△=0.580; K=0.009394	△=0.585; K=0.009370	
May 26	△=0.580; K=0.009491	△=0.585; K=0.009674	
1904			
Jan. 16	△=0.590; K=0.009684	△=0.640; K=0.010128	
HORSE SERUM B.			
Sterile Controls.		Inoculated with <i>Staphylococcus</i> .	
	°C		°C
1903			
May 21	△=0.560; K=0.009516	— — — —	
May 28	△=0.560; K=0.009516	△=0.580	— — — —
1904			
Jan. 15	△=0.600; K=0.009897	△=0.640; K=0.010372	

These data show but slight changes in the molecular concentration of the serums, and such changes as have occurred occasion an increase in the electric conductivity as well as in the depression of the freezing-point, showing that dissociable bodies have been produced. The experiments, therefore, fail to explain the high molecular concentration of the serous fluid from the chest, but it is possible that further experimentation in this direction will be more successful.

"An experimental study of the eosinophile cells during infection with an animal parasite—*Trichina spiralis*:" EUGENE L. OPIE. [Presented by James Ewing.]

The administration of *Trichina spiralis* to the guinea pig causes an increase of the eosinophile leukocytes in the blood, comparable to that which accompanies human infection. There is no constant alteration of the number of these cells until the end of the second week after infection, when the relative and absolute number rapidly increases and reaches a maximum at the end of the third week. At this time embryonic trichinas are in process of transmission from the intestinal mucosa by way of the lymphatic vessels and the blood through the lungs to the vascular system.

Eosinophile cells accumulate in the mesenteric lymph-glands and in the lungs, and form foci, which resemble small abscesses, in which polynuclear leukocytes are replaced by eosinophile cells. These cells are provided with polymorphous nuclei and do not differ from the eosinophile leukocytes of the circulating blood. Accumulation of the eosinophile cells in the mesenteric lymph-glands and in the lungs is explained by the transmission of the embryonic parasites through these organs.

Increase of eosinophile cells in the blood and in other organs is accompanied by characteristic changes in the bone marrow. The fat is diminished in amount and cellular elements replace it. Cells with eosinophile granulation are present in immense number and particularly numerous are the eosinophile myelocytes, cells peculiar to the bone marrow. Eosinophile cells undergoing mitotic division are more numerous than usual.

The number of eosinophile leukocytes in the blood always diminishes before death, so that the proportion is usually less than 1%. Infection with a very large number of trichinas causes a rapid diminution of the number of eosinophile leukocytes, and is quickly fatal. The eosinophile cells of the bone marrow exhibit degenerative changes, of which nuclear fragmentation is most characteristic. Similar changes may affect the eosinophile cells of the intestinal mucosa and of the mesenteric lymph-glands. Mild infection stimulates the eosinophile cells to multiplication, but severe infection causes their destruction.

"Subcortical expressive reflexes and their spinal pathways:" R. S. WOODWORTH.

Dr. Woodworth reported on some experiments done in collaboration with Professor Sherrington in the latter's laboratory. It was shown that in a recently decerebrated cat, powerful

sensory stimuli evoked reactions such as in a normal animal would be expressive of pain, anger, and other similar emotions. Such reactions are therefore primarily subcortical reflexes and not dependent on the organ of consciousness. The "ether cry" also appeared in decerebrate animals. The sensory spinal pathway, by which these signs of pain were aroused, was found by experiments in which partial cross-sections of the cord were made, to run not in the posterior, but in the lateral columns. The pain pathway from either side of the body runs up both halves of the cord, but more largely up the opposite half.

"An experimental study of the cause of shock:" W. H. HOWELL. [Presented by S. J. Meltzer.]

Professor Howell's experiments were made upon dogs anesthetized with morphia and ether, and brought into a condition of shock by operations of various kinds. Blood-pressure records were obtained in the usual way during the experiment. The following general conclusions were reached:

1. The most important and dangerous feature of severe shock is a long-continued, practically permanent fall in blood-pressure to about 20 mm. to 40 mm. of Hg. This condition is designated as vascular shock and is due to a long-lasting loss of activity of the vasoconstrictor center.

2. A second important result of shock is a very rapid and feeble heart-beat. This condition is designated as cardiac shock; since, although it may result secondarily from the permanent fall in blood-pressure, it may also occur quite independently of the vascular shock as a primary result of the operations. Cardiac shock, so far at least as the rate of beat is concerned, is due to a more or less permanent loss of activity of the cardioinhibitory center.

3. Intravenous infusions of alkaline salt solutions (NaCl, 0.6%—Na₂CO₃, 0.5%) cause a rise of pressure by increasing the force of the heart-beat. The effect is more durable than with salt solution alone and may be renewed by repeating the injection.

4. The fundamental cause of vascular and cardiac shock is not exhaustion of the vasomotor and cardioinhibitory centers from over-activity, but a more or less permanent inhibition of these centers from excessive stimulation of the inhibitory paths.

NEW MEMBERS.—Drs. Isaac Levin and J. P. Atkinson were elected to membership.

OFFICERS.—Officers for the ensuing term were elected as follows: President, S. J. Meltzer; Vice-President, James Ewing; Secretary, William J. Gies; Librarian, Graham Lusk; Treasurer, Gary N. Calkins.

Three Hundred Men in Chicago Fined for Spitting.—The police have at last found an ordinance they can enforce. It is the antisputting ordinance. More than 300 men have been fined in 2 days for spitting in public places. All women's clubs are backing the crusade.

Decrease of Tuberculosis throughout the United States.—In the *Maryland Medical Journal* for February, Mr. Frederick Hoffman says: The mortality from tuberculosis in the United States decreased from 25 per 10,000 in 1890 to 19 in 1900, a decline of 24%. In cities the rate in 1900 was 20, against 13 for the rural districts. For males the rate was 19, against 16 for females. In cities the rate for males was 21; for females, 16. But in the country districts the deathrate was for males, 12, against 14 for females. The deathrate from tuberculosis for the white population in 1900 was 17 per 10,000, against 49 for the colored population—a remarkable disproportion. In cities the colored deathrate from tuberculosis was even higher, being 50, against 19 for the white element; in the rural districts the rate for colored people was 32, against 13 for the whites. For both races, however, there was a decrease of the mortality in the decade 1890-1900, the decrease being attributed to "an improved environment." Americans of native stock have a lower rate, it is found, than foreigners, or persons of foreign extraction, their rate being 13, against 17 for the aggregate white population. In comparison with Baltimore's rate of mortality from tuberculosis of about 22 per 10,000 in 1901, other cities make the following exhibit: San Francisco, 29; Orange, N. J., 27; New York, 26; Newark, N. J., 26; Pueblo, Col., 26; Jersey City, N. J., 25; Boston, 24; Brooklyn, 22; Cambridge, Mass., 22; Paterson, N. J., 22; Providence, R. I., 22; Holyoke, Mass., 21; Worcester, Mass., 21; Cincinnati, 21; Philadelphia, 21; Lowell, Mass., 21; Manchester, N. H., 17; Binghamton, N. Y., 17; New Bedford, Mass., 16; Fall River, 16; Chicago, 15; Lynn, Mass., 14; Gloucester, 14; St. Paul, 14; Milwaukee, 13; Minneapolis, 12; Spokane, 12.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

March 12, 1904. [Vol. XLII, No. 11.]

1. Perforating Gastric Ulcer; Posterior Gastroenterostomy; Fowler's Position. J. H. MUSSER and W. W. KEEN.
2. Bovine and Human Tuberculosis. D. E. SALMON.
3. The Condition of the Blood in Patients Suffering from Pulmonary Tuberculosis. JOHN M. SWAN.
4. The Present Conception of the Perirenal Fascia and Its Role in Fixation of the Kidney. D. D. LEWIS.
5. The Value of an Injury. L. SEXTON.

1.—Perforating Gastric Ulcer.—J. H. Musser and W. W. Keen report a case in which extreme hyperchlorhydria doubtless contributed to the perforation. The importance of neutralizing the acid when food which takes it up is not permitted should be emphasized. Early operation when the stomach was empty doubtless saved the patient's life. There was no spasm of the abdominal walls on account of muscular atrophy. The perforation was 5 mm. ($\frac{1}{4}$ in.) in diameter, and in the middle of the pylorus anteriorly. The transverse colon was turned up, a hole torn through the mesocolon and a posterior gastroenterostomy done with a Murphy button, the patient being placed in bed in Fowler's position. The recovery from so serious a lesion and operation in a woman past 70 is sufficient reason for recording the case. [H.M.]

2.—Bovine and Human Tuberculosis.—D. E. Salmon sums up the results of other observers, who found tubercle bacilli in human lesions, which had about the same virulence for cattle and other animals as bacilli from bovine animals. Since bovine cultures have sometimes failed to produce generalized tuberculosis in cattle and some human cultures have produced it, shall we conclude that such nonvirulent cultures are in reality of human origin, the original animal being infected by man? Inoculation in cattle to decide the source of a bacillus seems an uncertain method of diagnosis. Four cases of human tuberculosis virulent for cattle were found among 16 children; therefore, according to Koch's method of classification, 25% of tested cases among children are of bovine origin. Two cultures from children were found identical in morphology with the bovine bacillus. Human bacilli with bovine peculiarities have had their morphology changed by being passed through cats, but in consequence increased in virulence. This and similar experiments indicate that types are inconstant in morphology and virulence. When Koch estimated the danger of infection from cattle as hardly greater than that of hereditary transmission and advised taking no measures against it he did immense harm, which sanitarians must endeavor to correct. The location of a primary focus is of little value in determining the origin of infection. Bacilli may pass through the walls of the intestine without producing a lesion at the point of entrance. It is impossible to prove that a given individual has not been exposed to infection by bacilli of either human or bovine tuberculosis. [H.M.]

3.—The Blood in Pulmonary Tuberculosis.—J. M. Swan finds the blood picture not constant. The average case in the first stage shows the erythrocytes slightly reduced, moderate reduction of hemoglobin, and a normal leukocyte count. The second stage presents varying degrees of leukocytosis, due to an increase in polymorphonuclear neutrophile cells. Erythrocytes are about normal and hemoglobin often so. Hemorrhage is usually followed by marked reduction in hemoglobin and slight reduction in erythrocytes. Leukocytosis is not invariable. Albuminuria appears to cause no constant change in the blood picture. In tuberculous diarrhea erythrocytes and hemoglobin percentage are reduced with increase of leukocytes. Pleurisy is usually accompanied by polymorphonuclear neutrophile leukocytosis. Extensive cavity formation from tuberculous degeneration and other causes cannot be differentiated. Leukocytosis is not a constant feature. Absence of eosinophile cells is an unfavorable prognostic sign. Increase indicates a tendency to arrest in the progress of the disease. [H.M.]

4.—The Perirenal Fascia.—D. D. Lewis records various descriptions of the fascia all differing somewhat as to the attachments and making no mention of a constant anterior layer. As the subperitoneal fascia approaches the lateral margins of the kidneys it divides into a prerenal and retrerenal

layer. In the embryo the anterior surface is covered by parietal peritoneum. Anatomists differ as to the time the fatty capsule develops. The writer describes the coverings and their relations in detail with cuts of vertical and horizontal sections in illustration. The fascia is the most important factor in maintaining normal position though the neighboring organs are important accessories. Harris and Andrews were the first to realize the full surgical significance of the fascia. The good results from Senn's gauze packing are dependent on broad bands of adhesion between the lower pole of the kidney and the retrorenal fascia. If this were sutured into the fibrous capsule, lasting results should be obtained. This direct suture could be easily combined with Senn's method. [H.M.]

5.—The Value of an Injury.—L. Sexton says when we remember how difficult it is to fix any sort of an estimate on physical suffering or mental distress by the standard of a dollar, we realize the difficulty of discussing the subject in hand. The injury generally fixes the price, and unless the verdict is so excessive or grossly inadequate as to indicate passion, prejudice or corruption, it is generally allowed to stand. The writer cites a number of cases showing the widely varying estimates made by juries. For injuries resulting in death, verdicts show the greatest possible variation. A jury has more sympathy for a permanent cripple than for the heirs of a dead man, unless these happen to be a pretty widow and orphaned children. [H.M.]

Boston Medical and Surgical Journal.

February 25, 1904. [Vol. CL, No. 8.]

1. The General Management of Diabetes. FREDERICK C. SHATTUCK.
2. Medical Treatment of Diabetes. W. H. THOMSON.
3. A Comparison between the Medical Uses of the Röntgen Rays and the Rays from the Salts of Radium. FRANCIS H. WILLIAMS.
4. The Prognosis of Idiopathic Pleurisy. GEORGE G. SEARS.

1.—General Management of Diabetes.—F. C. Shattuck includes all grades of failure to oxidize sugar under the term diabetes. Drugs are of subordinate value to diet and mode of life. It is best to enforce absolute or nearly absolute diet at first, unless the case is very mild or very severe. Quantity is only next in importance to quality. Body-weight should be ascertained weekly. The patient should be given a rough idea of the size of a given weight of bread, meat, and fat. Increase in fats may be as important as diminution of starch. In favorable cases the sugar disappears in 2 or 3 weeks. The period of strict dieting depends on the type of the disease. No diabetic bread which is palatable for any length of time is safe. If alcohol is desirable whisky, brandy, or a dry wine should be given. A day of starvation once every 2 or 3 months is useful. Beef tea may be given without invalidating the fast. Careful attention should be given to the bowels. Hot or vapor baths followed by friction are useful if the skin is dry. Cold baths may be used if reaction is prompt. Diabetics are sensitive to cold and should wear silk or wool underwear, and have several overcoats varying in warmth. Working hours should be shortened. Sunshine and open fires are important in the treatment. Muscular exercise burns up the sugar, and is better taken out doors. Before 20 the disease is sure to be severe, but life may be prolonged even 10 years under rigid diet, etc. [H.M.]

2.—Medical Treatment of Diabetes.—W. H. Thomson thinks the only valid distinction between glycosuria and diabetes is the presence of diacetic acid in the urine. His practice is to pronounce a glycosuria of over a year, diabetes. Excessive excretion of urea and obesity call for special medication, even when the sugar has disappeared. Opium derivatives are only functional remedies, and in therapeutic doses do not affect structure or nutrition. Alcohol produces organic changes only by virtue of its chemic and not by its nervine properties. Opium may diminish the sugar in the urine, but has no effect on the disease causing that symptom. The writer advocates free use of cod-liver oil, with pepsin and bismuth. The younger the patient the more persistently he urges it. It diminishes both sugar and urea when well borne by the stomach. Obesity and sedentary habits contraindicate it, but it is useful with many elderly people. He believes diabetes is largely a muscle disease, and to increase muscular power

through increase of oxygen he gives all the iron the patient can take, guarding against constipation. He has succeeded better in controlling the disease by antiseptics than any other drugs, except the above, including arsenic in this class. When speedy reduction of sugar is imperative, he gives 15 gr. each of antipyrin and sodium benzoate 4 times daily, after a time substituting 15 gr. of aspirin, with 10 gr. of bismuth salicylate. Salines should not be given to any one who is losing flesh. In coma he advises prolonged intestinal irrigation with hot normal saline solution, using Kemp's rectal irrigator. Hypodermics of 7 gr. to 14 gr. of camphor in sterilized almond oil or olive oil best sustain the failing heart, while diluted milk with all the sodium bicarbonate the patient can take is the only recourse for food. [H.M.]

3.—Comparison between the Medical Use of Röntgen Rays and Radium Rays.—Francis H. Williams compares the medical use of these 2 agents in the several ways in which they are used in medicine and surgery, and concludes as follows: 1. The rays from radium salts, unlike the röntgen rays, are not serviceable in diagnosis either by means of radiographs or of fluoroscopic examinations. 2. The beta rays are useful as a therapeutic agent in certain skin diseases and newgrowths, if the diseased tissues are superficial or are not more than about 1.25 cm. ($\frac{1}{2}$ in.) below the surface of the skin or accessible mucous membranes. 3. The beta rays from radium salts will heal some cases of newgrowths that are not healed by the röntgen rays, and they act more promptly, but not over so large a surface at one time as the röntgen rays. 4. Radium salts of an activity of 8,000, or considerably more, are not sufficiently strong to be efficient. Pure radium salts, which have a radioactivity of about 1,500,000, are not too strong for the work to be done. 5. The radiation from radium salts, unlike that from the röntgen ray tube, is uniform. 6. Great care should be exercised to avoid burns. [A.B.C.]

4.—Prognosis of Idiopathic Pleurisy.—G. G. Sears is not able, after a study of his figures, to hold so hopeful a view as Cabot, then giving reason for the suspicion that an attack of pleurisy is a manifestation of a constitutional taint which may be the cause of death years after apparent recovery. How great the danger is, the figures do not show, for the only conclusions they justify are these: About 10% of the cases are known to have developed tuberculosis. Over 55% of all cases which were followed to their death, died from tuberculosis. Tuberculosis, when it occurred, developed within 5 years in over 50%, and within 10 years in over 70%. This danger is much increased by a tuberculous family history or a personal history of some form of tuberculosis previous to the attack. [H.M.]

Medical Record.

March 12, 1904. [Vol. 65, No. 11.]

1. Secondary Laparotomy. H. C. COE.
2. Dry Superheated Air in Therapeutics. CLARENCE EDWARD SKINNER.
3. Strangulated Hernia. JOHN F. ERDMANN.
4. Some Points Regarding the Early Diagnosis and Some New Features in the Treatment of Pulmonary Tuberculosis. W. FREUDENTHAL.
5. The Relation of Physical Defects to Mental Development. GEORGE STOCKTON.
6. Mastoiditis. E. H. POMEROY.
7. Remarks on the Preparation of Vaccine Virus. JOHN F. ANDERSON.

1.—Secondary Laparotomy.—H. C. Coe says that the principal indication for a second operation is pain, either the same of which the patient previously complained, or a new form more severe than before. Dysmenorrhea, menorrhagia, vesical irritation, gastrointestinal disturbance—each of these symptoms may be so severe as to require surgical relief; but pain is the one which usually makes the patient willing to submit to a second section. In his experience intestinal adhesions have been the most common cause of distressing symptoms, varying in severity from obstinate gastric irritation to intestinal obstruction. Hemorrhages, so profuse as actually to sap the vitality of the patient, not infrequently call for the removal of the uterus, even when the latter is small and atrophied, and the curet shows no evidence of disease of the endometrium. Dysmenorrhea may be marked in connection with cystic or cirrhotic changes following resection of the ovary. Coe is

strongly averse to resection of ovaries and tubes in pus cases, though he has left ovaries or parts of ovaries (never the tubes), with gratifying results. The only way to treat a pus-tube is to excise it entirely, and to suture the uterine wound and broad ligament with continuous catgut. In order to draw a correct inference as to the probable morbid condition, one should know the exact nature of the former operation, and have a complete history of the patient subsequently. Unfortunately, this is seldom possible in hospital practice, even in case of one's own patients. [W.K.]

2.—See *American Medicine*, Vol. V, No. 21, p. 822.

3.—**Strangulated Hernia.**—John F. Erdmann reports a total of 58 cases of inguinal, femoral, umbilical, and ventral hernias, all operated upon by him for strangulation during the past 8 years; of these, 31 were inguinal, all occurring in males. This is unusual, since in Coley's series of 937 cases of inguinal hernia, 181 occurred in females. Among the 31 above cases there were 5 deaths; 19 of the 58 cases were femoral in character, of which 4 were in males and 15 in females; 2 died. One case occurring in a male was reduced *en bloc* or *en masse*; laparotomy was performed 48 hours later, the true condition found, but the patient died. There were 6 cases of umbilical hernia, among which there was 1 death; there were 2 cases of ventral hernia with 1 death. Of the entire series there were 17 cases of excision, from 3 inches to 10 inches excised in all cases. The youngest excision case occurred in a male 5 years old, death occurring from general septic peritonitis. The youngest patient was a male 13 days old; left inguinal hernia; no anesthetic; recovery. The oldest was a female, 86; femoral hernia; local anesthesia; recovery. The author insists that so-called incarcerated hernia, since it is in reality the first stage of a strangulated hernia, should be omitted from the textbooks and should be classed as strangulated hernia, or at least, as demanding immediate surgical interference. [A.B.C.]

5.—**The Relation of Physical Defects to Mental Development.**—George Stockton says that to determine the frequency of the association of physical stigmas of degeneracy with abnormal mental states, he examined 1,000 cases in the Columbus State Hospital, and recorded the measurements of the head, calculated the cephalic index, and noted abnormalities and asymmetries of the cranium, face, palate, and ears. He noted evidences of defective development of the body and extremities. Out of this number, 50 white male patients were selected indiscriminately to form a series on which to base conclusions. From these the author gives a series of figures with reference to the cephalic index, the cranium, the face, eyes, nose, lower jaw, palate, ear, etc., which, while too extended to embrace in an abstract, are of much interest. He says: "Counting wellmarked cranial peculiarities, stigmas of the ear, facial asymmetry, defects in the palate, the eye muscles, the body and extremities, each under a single head, our notes show that 2 stigmas were found in 7 cases, 3 in 9 cases, 4 in 17 cases, 5 in 8 cases, 6 in 6 cases, and 7 in 3 cases." He further states that in the face of facts such as these, and the prominence given to mental and physical stigmas by eminent authors, it seems they are entitled to greater consideration and more careful study. [A.B.C.]

6.—**Mastoiditis.**—E. H. Pomeroy states that this affection is probably always caused by bacterial infection. The most prominent symptom of mastoiditis, and the one which can be called almost pathognomonic is a falling forward and downward, or a protrusion, of the external ear. Taking a case of a patient at any age, showing a drooping or protruding ear, with or without slight increase of redness of the surface back of the ear, with a history of a preceding otitis media, with or without discharge of pus through the external auricular canal, and the case will almost certainly be one of mastoiditis. He emphasizes the point that every case of severe disease of infancy should be carefully examined as to the condition of the middle ear, for Ponfick has demonstrated that in 100 autopsies of unselected cases of infants dying under the age of 2 years, there was scarcely one without pus in the middle ear. Prophylactic treatment of the middle ear will, in the overwhelming cases, give relief. Treatment further than this is distinctly surgical. This procedure is very simple. A good free incision should be made $\frac{1}{2}$ in. posterior to the edge of the external auditory

meatus, 1 in. or more in length. Then the periosteum is lifted from about the incision, especially forward, and the gouge is used carefully from above downward, or the burr with the dental engine, all bleeding points being controlled before the bone is opened into. The internal administration of calcium sulfid, in doses of $\frac{1}{10}$ gr. to $\frac{1}{2}$ gr., 3 or 4 times daily, to patients suffering from mastoiditis, will often prove of distinct value, but should not be relied upon to the exclusion of surgical treatment. [A.B.C.]

7.—**Preparation of Vaccine Virus.**—J. F. Anderson agrees with Rosenau that too much dependence is placed by manufacturers on the germicidal action of glycerin, which is feeble. It probably acts by abstracting water from the germ, its power being much greater at the temperature of the body than in the ice-chest. Pus cocci are killed by it in the incubator in 2 weeks, but live for months in the ice-chest. Colon bacteria are markedly resistant to its action, and it has practically no effect on spores. In the inspections of establishments conducted by the national government some were found in excellent condition, others not. In some plants the close proximity of horses made tetanus contamination possible. The floors were of wood soaked with discharges, and not properly sloped and guttered. The windows were not screened. When the pulp was to be taken, the site was flooded with ordinary tap water, the pulp scraped off and put in an unsterilized container. The methods of sterilization of points, tubes, and other containers were often crude. Examination showed a high degree of bacterial contamination, some of the organisms being virulent for laboratory animals. Tetanus was never found. Recently sodium biborate, boric acid, carbolic acid, chloroform, and potassium cyanid have been found valuable. Chloroform frees the pulp from nonsporebearing germs in a few hours to 7 days, one-quarter the time required by glycerin. Potassium cyanid exerts complete bactericidal action and then volatilizes in 5 or 6 days. [H.M.]

New York Medical Journal.

March 5, 1904. [Vol. LXXIX, No. 10.]

1. The New Biologic Test for Human Blood, with a Report of Its Employment in a Recent Murder Case. A. ROBIN.
2. Postdiphtheric Paralysis of Accommodation, with Report of a Case. AARON BRAV.
3. Thrombosis of the Jugular Veins in Pulmonary Tuberculosis, with Report of a Case. CHARLES J. ALDRICH.
4. Impressions of the Tuberculosis Exposition at Baltimore. JOHN B. HUBER.
5. Preliminary Report of Bilateral Excision of the Superior and Middle Cervical Sympathetic Ganglia in 5 Cases of Epilepsy. S. D. HOPKINS.
6. Tertiary Syphilis of the Nose and Pharynx. (Continued). W. SCOTT RENNER.

2.—**Postdiphtheric Paralysis of Accommodation.**—Aaron Brav says this condition occurs in about 10% of cases of diphtheria. As a rule, it sets in during the stage of convalescence, from 3 to 4 weeks after all symptoms characteristic of the disease have subsided. This form of paralysis is more common than the other forms of ocular palsies, and is next in frequency to paralysis of the pharyngeal vault and soft palate. It is never a complete paralysis and is always bilateral, affecting both eyes simultaneously. The degree of the paralysis is by no means an index of the virulence and intensity of the disease causing it. Paresis of accommodation as a sequel to an inflammatory condition of the pharynx is always of specific origin, and is caused by the poison produced by the Klebs-Löffler bacillus. Brav says there seems to be a general tendency to the belief that it is a peripheral neuritis, as there is a great susceptibility of the nervous system to the diphtheric toxin. He adds that it may be due to a local disturbance of the circulation and that nerve force is restored as soon as the circulation readjusts itself. Paralysis of accommodation is due to paralysis of part of the oculomotor nerve innervating the ciliary muscles, and may either exist alone, or be a symptom of a complete paralysis of the third nerve. Proper care during the period of convalescence would most probably lessen the frequency of postdiphtheric palsies. Glasses should not be prescribed, except in high degrees of hyperopia. Fresh air, good food, absolute rest, physical and mental, and a tonic of iron, quinin, and strychnin are all that is required. [C.A.O.]

3.—**Jugular Thrombosis in Pulmonary Tuberculosis.**

—C. J. Aldrich gives a short review of 9 cases of thrombosis of the jugular veins in pulmonary tuberculosis, that have been collected from the literature, and reports another case in full that occurred in his practice. His case is that of a woman of 27, who, while in the last stages of chronic pulmonary tuberculosis, developed a left internal jugular thrombosis, which extended through the subclavian down the axillary into the basilic veins. Two weeks later a like thrombosis appeared on the right side and extended to the veins of the arm. Death occurred from cerebral sinus thrombosis from extension of the thrombus in the right internal jugular vein. The author says it is remarkable that the condition is not more commonly observed as a complication of pulmonary tuberculosis. In the late stages of pulmonary tuberculosis we have very grave changes in the blood. It is lacking in the normal nutritive constituents; it contains some bacteria and the toxins of many more, and when the disease has overwhelmed the normal resistance of the body, it teems with the more or less virulent microorganisms of a mixed infection. Alterations of the venous wall late in pulmonary tuberculosis are to be expected. The poverty of the blood, the continued elevation of the temperature, must result in a lowered nutrition and a consequent diminution of its normal power of resistance. The presence of foreign matter in the blood-stream tends to the development of fibrin ferments which, as in all septic conditions, favor coagulation. Lastly, when the forces of life are expended, the degenerated heart-muscle cannot force the blood-stream on; stasis develops, microorganisms attach themselves to the venous walls, phlebitis occurs, thrombi form, and death comes. [C.A.O.]

5.—Excision of Ganglions in Epilepsy.—S. D. Hopkins gives a preliminary report of bilateral excision of the superior and middle cervical sympathetic ganglions in 5 cases of epilepsy. One patient has been free from epilepsy for a period of 2 years and 1 month. The 4 remaining patients, except Case II, have had the bromid and antipyrin treatment for years without any beneficial effect. In all the cases the severity and number of attacks were lessened. [C.A.O.]

Medical News.

March 12, 1904. [Vol. 84, No. 11.]

1. A Clinical Study of 62 Cases of Intestinal Infection by *Bacillus Dysenteriae* (Shiga) in Infants. LINNEUS EDWARD LA FETRA and JOHN HOWLAND.
2. A Factor in the Etiology of Distorted Nasal Septums. CHARLES E. QUIMBY.
3. On the Abortive Treatment of Gonorrhea in the Male. FREDERIC BIERHOFF.
4. Differential Diagnosis and Treatment of Chancroid and Chancre. C. G. CLARK.
5. The Ocular Signs of Syphilis. WENDELL REBER.
6. Diagnosis and Treatment of Syphilis of the Central Nervous System. LUTHER C. PETER.
7. The Recognition and Treatment of Some of the Pharyngeal Lesions of Syphilis. LEWIS S. SOMERS.
8. New Stain for *Diphtheria Bacillus*. EDUARDO ANDRADE.

1.—Intestinal Infection by *Bacillus Dysenteriae*.—La Fetra and Howland, after an analysis of his cases, note the following points: 1. The great prevalence of the dysentery organism in diarrhea in the summer months, 62 out of 64 cases reacting positively, these being ambulant patients seen very early. 2. All clinical types of diarrheal disease are to be found among these cases, including the mildest forms of intestinal indigestion. The course of the disease, while usually short, was prolonged in 8 cases. 3. As compared with summer diarrhea of other years, those in this series were in general much milder, owing possibly to the cool summer and increasing knowledge among the tenement class of the care of infants. 4. The marked number of breast-fed infants, 14 in 62 cases. Not one of these, however, was strikingly ill, and only 1 had blood in the stools. 5. The serum treatment was not given often enough to warrant conclusions. It may be that larger dosage is necessary; if so, the serum must be more concentrated. [H.M.]

2.—A Factor in the Etiology of Distorted Nasal Septums.—Charles E. Quimby states that while the condition of the distorted nasal septums may be produced by many agencies, he calls attention to one factor which he believes has been almost entirely neglected. That undeveloped and distorted septums are, in many cases, developmental defects, and require no other cause for their explanation. It has long been recognized that in many cases there is a difference in size and form of symmetric

parts of the facial skeleton; it has also been long observed that the narrow alveolar arch and asymmetric development are often most frequently associated with triangular teeth and varying grades of irregular dentition. It can therefore easily occur that the development of the facial skeleton is never perfect; failure in development is frequently so extreme as to prevent union of the 2 halves as shown in harelip and cleft palate. Therefore it hardly seems consistent for one to object to the proposition, that in some cases the superior maxillary bones unite at an unduly acute angle; that the vomer and the triangular cartilage, one or both, fail of proper articulation with the maxillary palate and ethmoid bones. From this point the production of deflected and distorted septums is merely a question of mechanics. [A.B.C.]

3.—Treatment of Gonorrhea in the Male.—Frederic Bierhoff lays great stress upon the prophylactic treatment of this condition. He states that prophylaxis is the ideal treatment. Haussmann, Kopp, and Blokusewski recommend the instillation of a few drops of a 2% solution of silver nitrate. Probably the greatest credit is due to Frank and Weland for their studies in the prevention of gonorrhea, by means of protargol solution. Both, working independently, succeeded in demonstrating conclusively that it is possible to prevent gonorrhea. Bierhoff has adopted the prophylactic measures in his practice, and recommends patients to instill 2 drops to 3 drops of a 10% to 20% solution of protargol in glycerin into the fossa navicularis, as soon as possible after the suspicious coitus. Thirty cases are reported, illustrating the statements which he sets forth. Various methods of prophylactic treatment are enumerated, with an enumeration of the important advantageous points in each. Basing his conclusions upon the comparatively few cases recited, they are as follows: Abortive treatment of gonorrhea is possible; if it be employed early, the percentage of cases in which a positive result may be obtained is fairly large; when one employs only those drugs which, while they kill the gonococci, do not injure the mucous membrane, the percentage of complications will be smaller than has heretofore been supposed; and should the attempt to abort the disease fail, the patient will not have been injured. [A.B.C.]

4.—Differential Diagnosis and Treatment of Chancroid and Chancre.—C. G. Clark says: A hard or syphilitic sore is generally small and insignificant. The edges are indurated, and its base is excavated and has a smooth floor with little or no secretion, while a soft sore may appear anywhere on the penis, is generally multiple and larger, its base being irregular and covered with a purulent discharge. In a chancre the incubation period is always more than a week and generally from 10 to 14 days. In a chancroid it is always less than a week and generally from 2 to 3 days. The inguinal glands are enlarged in both cases, but are much more apt to break down in chancroidal infection. In the syphilitic sore they are more shotty, uniformly enlarged on both sides, and do not break down as a rule. As the disease progresses the cervical and epitrochlear glands become enlarged. This never happens in chancroidal infection. In more than 1,000 cases of syphilis the author found in two-thirds the sore was on the corona and near the frenum. The best method of treating these cases is absolute cleanliness. Under no circumstances should the patient be put under antisyphilitic treatment until diagnosis be confirmed by the appearance of secondary symptoms. The old custom of burning every venereal sore with carbolic acid, nitric acid, and other corrosives only aids in delaying the healing process and making unsightly scars in many cases. [A.B.C.]

5.—Ocular Signs of Syphilis.—Wendell Reber states that no tissue of the eye or its appendages is free from the probable invasion of syphilis. What percentage of syphilitics exhibit ocular invasion it is unable to determine. DeWecker places the number at 15%. In 1,385 ophthalmic cases with a specific origin, Alexander found the ocular muscles infected in 15%, the uveal tract in 24%, and the optic nerve and retina in 48%. Syphilis in the visual sphere may assume any of the 4 usual phases, namely, primary, secondary, tertiary, and hereditary. The cases of iritis caused by syphilis is estimated at 50% by Brunson of Hot Springs. Choroiditis is as frequently syphilitic in origin as is iritis and it invariably leaves a scar in the choroid which is diagnostic years afterward. Nine German

observers found optic neuritis of syphilitic origin in 52½% of 981 cases; Alexander found 58% of 269 extraocular palsies to be syphilitic, while 77½% of intraocular palsies were from the same cause. Hereditary syphilis commonly affects the cornea in childhood and young adult life, though the ocular muscles may be involved, but interstitial keratitis is the form assumed most frequently by this phase of this disease. [A.B.C.]

6.—Syphilis of the Central Nervous System.—Luther C. Peter, in his paper, deals only with the immediate infection, the symptoms of which make their appearance usually from 6 months to 2 years after the initial lesion. He quotes Ayers' classification of the pathologic condition of brain syphilis as: (1) a localized meningitis leading to thickening and infiltration; (2) inflammation of the arteries leading to thrombosis; (3) gummatous deposits or tumors; and (4) degeneration of nerve structures. Paralysis of the cranial nerves, when there is no history of traumatism, is a factor in favor of syphilis. The fifth and seventh pairs are most apt to escape, whereas the sixth is usually involved. To sum up briefly, variability in symptoms, absence of systematic grouping of symptoms, paralysis of cranial nerves, 'Argyll-Robertson pupils, irregularity of pupillary margin, inequality of pupils, apoplecticiform and epileptiform attacks, recurrent palsies usually without loss of consciousness, numbness in extremities, increased reflexes, headache, vertigo, somnolence, and altered mental states, are symptoms which point to syphilis of the brain and its coverings. In syphilis of the cord we have a distinct group of symptoms, first described by Erb, characterized by a slowly oncoming spastic paraplegia, atrophic at times, contractures of the muscles, with involvement of the bladder; slight disturbance of sensation, with a tendency to improve and again relapse. [A.B.C.]

7.—Pharyngeal Lesions of Syphilis.—Lewis Somers calls attention to 3 important phases which a syphilitic lesion of the pharynx may present, viz.: Erythema, mucous patches, and ulceration. Syphilitic erythema is often mistaken for catarrhal pharyngitis or tonsillitis, but the erythema is usually symmetric, being limited in outline by abrupt, well-defined margins from the healthy mucosa; it differs from simple erythema, since it presents a deeper brick-red or more of a copper hue, and there is a marked tendency to the development of small irregular patches of cloudy swelling of the epithelium. When these areas of epithelial change become larger, well-defined and present a whitish or bluish-white color, they then constitute the so-called mucous patch. In ulcers the areas of tissue disintegration at first shallow, cover a wide, irregular surface and rapidly cause the soft tissues to melt away, while the affected parts are covered with a thick, mucopurulent, offensive secretion. The tendency to disintegration and perforation of bone is most marked, with but little or no pain. We should, if possible, obtain the history of the initial infection, examine other portions of the body for evidences of the disease and try the results of specific treatment. For the erythema and mucous patches mercury is essential. Syphilitic ulceration demands active treatment, as the tissue breakdown is rapid. Potassium iodid should be immediately pushed to the point of tolerance. [A.B.C.]

8.—New Stain for Diphtheria Bacilli.—E. Andrade refers to the failure of Löffler's blue at times to bring out the metachromatic granules. He prefers Borrel's blue, 1 cc. with vesuvin, watery solution 50 cc. The vesuvin should be dissolved in boiling water. In order that all other bacteria present may be decolorized, he uses Borrel's blue 5 minutes, washes in distilled water; uses Lugol's iodine solution 1 minute, washes in distilled water; decolorizes in absolute alcohol until no more blue is given off; washes in distilled water, dries, and mounts. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

The Bacteriologic Diagnosis of Diphtheria.—There is often an unmistakable discrepancy between the clinical and the bacteriologic diagnosis of diphtheria. The bacillus of Löffler

is often found in angina without membrane, and, on the other hand, it may be absent in membranous tonsillitis. Considerable difference of opinion prevails in consequence. B. N. Tcheruo-Schwarz¹ reports several cases of a puzzling nature and gives his conclusions in the following: 1. The bacteriologic method has proved beyond doubt that membranous angina, laryngitis, and croup may all be nondiphtheric in character. Many cases of laryngeal stenosis are on record in which no bacillus of Löffler has been found on repeated trials. Whenever, therefore, repeated examination fails to show diphtheria bacilli, we may safely regard the case as nondiphtheric. 2. On the other hand, the presence of Löffler bacilli is conclusive proof of diphtheria, provided the clinical picture corresponds to that disease. 3. If, however, the clinical picture contradicts the bacteriologic findings of diphtheria bacilli, we must remain in doubt until some new method will enable us not only to demonstrate the bacilli, but also to estimate the presence of systemic intoxication with the diphtheric poison. [L.J.]

Congenital Hypertrophy.—A case is reported by L. Cagiati.² At birth the parents of a child did not notice any deformity. But now, at the age of 11 months, the whole left side of the child has grown disproportionately to the right. The distance from the temporomaxillary articulation to the angle of the jaw on the right is 40 mm. (1½ in.); on the left is 60 mm. (2½ in.); length of left hand 100 mm. (4 in.); right hand, 85 mm. (3½ in.). From the coccyx to the right anterior superior spinous process of the ilium, 80 mm. (3½ in.); to the left, 90 mm. (3½ in.). The heart is normal in position, as are the abdominal viscera. No sense of smell can be proved. There is a slight choroiditis in left eye, whose eyeball is distended. The child is a female, of Hebrew parentage, and among none of the family can be found a history of lues, tuberculosis or nervous taint. Gestation in this instance was normal, and neither parent presents any distinct abnormality. [T.H.E.]

Diagnosis of Pulmonary Tuberculosis.—A Schmidt³ agrees with Naegeli that most all of us are tuberculous and that the cases are to be divided into the progressive and latent types, the latter again into active and inactive. This classification is suitable for the pathologist and the clinician, but he finds that our methods for the discovery of clinically latent cases, Koch's tuberculin, and the Arloing-Courmont serum test do not agree absolutely with limitations set by Naegeli. Our tests are often negative in markedly progressive cases, and frequently positive in individuals with thoroughly healed foci. Of the two, the tuberculin test is the more practical, not only because its results are more certain, but also because it is easier carried out; still it must be said that even it discovers too little in one line of the cases, too much in the other. The negative results of the tests are of much greater value than the positive. Because of this uncertainty in tests, it is no easier for the practitioner of today to determine whether prophylactic or therapeutic measures are necessary in the average latent case, than before. It occurs too frequently that, basing a diagnosis upon our uncertain methods, an individual is called tuberculous and his future marred for him by the fright thus produced; at other times through these wrong diagnoses an individual is put upon a pension, and thus needlessly pampered. Other symptoms which, in the hands of the inexperienced, are likely to lead to wrong diagnoses are: 1. Irregular configuration of the shoulder girdle may lead to simulation of dullness and retraction of the apex. He relates cases of scoliosis, atrophy of isolated muscles and abnormally high position of scapula, in which because of dullness about the apical area tuberculosis was needlessly diagnosed. 2. Hemorrhage from small bronchiectatic foci; a typical case of pseudotuberculosis is quoted in a man of 35. 3. Pseudorales and friction sounds heard at the margin of the lungs, especially in scoliotic subjects. He thinks that infinitely more harm is done by needlessly frightening persons with the announcement that they have tuberculosis than would result from overlooking of a few cases that later proved to be actually progressing tuberculosis. [E.L.]

¹ Russki Vrach, January 3, 1904.

² Il Policlinico (Rome), No. 4, 1901.

³ Deutsche medizinische Wochenschrift, 1903, No. 40.

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

The Surgical Treatment of Epilepsy.—J. Chalmers Da Costa¹ says that an opinion regarding this subject, to be of value, must emanate from one who possesses a scientific knowledge of epilepsy, who has studied the particular case with painstaking care, and who has a surgical conscience. The great difficulty in the surgical treatment of epilepsy is that the pathology usually assigned to that disease is a probability or a guess instead of an established certainty. Epilepsy, from the surgical standpoint, is classified in 7 varieties, each of these being discussed separately. The conclusions are: Operations for epilepsy are distinctly disappointing and rarely curative and are indicated in only a small proportion of cases; they frequently produce temporary benefit; they may save life but are not entirely free from danger and occasionally leave the patient worse than before; the mortality, though small, is not inconsiderable; the actual number of complete recoveries is probably under 5%; no case should be claimed to have been cured until from 3 to 5 years have elapsed after the operation; even after operation, medical treatment and supervision should be exercised for a long period of time. [A.G.E.]

Surgery of the Lung.—Valerio and De Fabii² discuss procedures of value after trauma. The former gives results of many experiments on dogs. One great source of danger is the development of a pneumothorax, which occurs as a sequel to operation. This is overcome by mobilization of the region of operation, and by an arrangement whereby hernia of the adjacent lung tissue occurs; this occludes the orifice and lessens the possibility of a communication being established between the pleural cavity and the external air. The suture advised in lung tissue is modeled after that in enterorrhaphy. When it is not practicable to suture, Valerio suggests the production of hemostasis by minute particles of decalcified bone. It is probable that wounds of the lung tend to spontaneous recovery, whatever their nature, and that the microbic flora of the lung is of little influence in causing traumatic infection when that occurs. Hemothorax predisposes to a pneumopleuritis. In any instance, avoid operation when possible. [T.H.E.]

Hammer-finger, with Notes of 7 Cases Occurring in One Family.—J. Scott³ thinks if hammer-finger were oftener recognized at an early stage there would be a much better chance of curing the deformity without surgical interference. In the family reported, contraction occurred during the developmental period. Probably it is sometimes congenital. It is often hereditary. The structures affected are the ligaments, bone, flexor tendon, skin, and fascia. The bone deformity is the primary lesion. Treatment consists in practising forcible extension of the affected fingers frequently, and wearing at night a splint of metal covered with leather, shaped to fit the palm, with divisions corresponding to the affected fingers, and fixed at the wrist by a strap. The fingers are straightened as much as possible by bandaging to the metal prolongations. This failing, surgical treatment is indicated. [H.M.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Injection of Saline Solution followed by Death.—Ch. Achard and G. Paiseau⁴ point out that saline injections are used for 2 purposes—to make up for the loss of volume of the blood in severe hemorrhage and to increase the renal elimination of noxious substances (*lavage du sang*). The second object is attained only when the injection is quickly followed by abundant diuresis—a result which does not always follow even in experiments on animals. When this diuresis fails,

symptoms, notably dyspnea, may be induced both in man and animals. Achard has in conjunction with Laubry shown that the diuretic effect is habitually absent in the subjects of chlorid retention, a frequent condition among patients. This absence of diuresis is a direct consequence of the chlorid retention and in such cases, saline injections, like simple ingestion of salt, may produce serious results—increased of pathologic effusions, dyspnea, uremia, and even death. Further, large injections are dangerous not only on account of the salt they contain; the water itself may by its abundance produce ill effects.—[*Medical Review*, February, 1904.] [Much is yet to be learned concerning the right composition and right use of saline injections and every scientific contribution to the subject is of importance. S.S.C.]

Schools and Exercise.—Conscious attention to the muscular exercise of children has been made necessary by the growth in school population, and the increase in the length of time during which children go to school. Gulick¹ states that in 1840, out of a total population of 17,069,453, in the United States, there was a school population of 2,025,565, or 11%. In 1890, out of a total population of 62,622,250, there was a school population of 14,768,965, or 23%. The normal life of the child is one of steady activity during the waking hours. We are taking away for 5 hours a day a large part of this activity. Exercise is fundamentally related to growth, so that the decrease of exercise by school life during the early years of the individual's life is of great importance. Not only is muscular exercise decreased by school life, but pressure is brought to bear to increase the attention to psychic things. Thus, there is a coincident decrease in muscular expenditure and an increase in lines that are purely neural. The remedy lies in greater attention to play, especially out of doors, and in appropriate gymnastic exercises; not however showy calisthenic drills which are nervously fatiguing and of little value as exercise.

PATHOLOGY.

J. EDWIN SWEET

EDITORIAL COMMENT

The "Ultramicroscopic" Organisms of Disease.—Evidence is constantly accumulating that there is a distinct group of diseases caused by organisms too small to be detected by our most powerful microscopes. This evidence has been obtained by experiments with porcelain filters, the pores of which are so small as to prevent the passage of bodies measuring 0.1 micron in diameter—which dimensions represent the optic limit of our best instruments. We have already called attention in these columns to the conclusion of the French yellow fever commission² that the virus of yellow fever will pass through a porcelain filter. The same conclusion has also been reached from experiments with the peripneumonia of cattle, with sheeppox, and possibly most important among others, with rabies. Remlinger³ describes the results of his work in regard to the action of porcelain filters upon the virus of rabies. Several workers have already performed such experiments, and have found that the etiologic factor would not pass the filter; Remlinger believes that the reason for these negative results is that these experimenters used filters with too fine pores. He has, therefore, experimented with the Berkefeld "V," a filter with comparatively large pores, yet with pores so small that organisms so small as those of chicken cholera and water organisms, still smaller, are held back. About 30% of the subdural inoculations with the filtered emulsion of the brain of an animal dead with rabies gave positive results. The subcutaneous injection of increasing amounts of this filtrate conferred an immunity, a point so far as we know not proved by other workers, yet of great importance regarding the passage through the filter of the etiologic factor of rabies. The conclusion seems justified that

¹ *Medicine*, February, 1904.² *Il Policlinico* (Rome), No. 7, 1904.³ *Glasgow Medical Journal*, November, 1903.⁴ *Bulletins de la Soc. Méd. des Hôpitaux*, December 4, p. 1362.¹ Cohen's System of Physiologic Therapeutics, Vol. VII.² *Annals of the Pasteur Institute*, November, 1903.³ *Annals of the Pasteur Institute*, December, 1903.

rabies is caused by some one of the group of ultramicroscopic organisms. Advance in medicine is always dependent upon advance in general knowledge. Now it seems that medicine must wait for the physicists to devise some improvement in our optical instruments.

Hodgkin's Disease.—The clinical entity marked by progressive enlargement of the lymph-glands, anemia, and sometimes an increase in the number of the white cells, with the secondary symptoms which may be caused by these conditions, and known as Hodgkin's disease, has not until very recently been thoroughly studied; tuberculous lymph-adenitis has been most generally confused both clinically and pathologically with true Hodgkin's disease. A very careful paper by Longcope¹ gives us a clear and complete study of eight cases of this disease. Longcope's paper confirms and completes the work of Reed,² and the results of both these workers are confirmed by the work of Simmons.³ The results of these three papers may be summarized as follows: The disease is definite and distinct, originating in the lymphatic tissue; this tissue and the newly formed lymph-glands at first simply increase in size, then follows a proliferation of endothelioid cells, formation of giant cells, thickening of the reticulum, and finally, overgrowth of connective tissue. Eosinophiles are abundant, but are not specific. The tubercle bacillus plays no part in the production of the lesions. The etiology is thus far unknown, but Longcope makes the very pertinent suggestion that Flexner's work on the specific toxins for lymphatic tissue may contain an explanation for Hodgkin's disease—that some specific toxic substance of bacterial or cellular origin causes the peculiar proliferative changes in the lymphatic tissue.

REVIEW OF LITERATURE

Anatomic Study of the Human Parathyroid Gland.—H. Petersen⁴ comprises a careful histologic study of these small organs, which are of late attracting considerable attention, and which from their importance in the animal economy and the lack of definite knowledge concerning their function, are to be ranked with the adrenals and the pituitary body. The study covers an examination of 100 cases, and details the gross and microscopic character of the organs; the structure of the parathyroid resembles markedly that of the adrenals. The glands seem quite subject to degenerative changes, 67 of these 100 cases showing parenchymatous swelling, formation of colloid or of cysts, and general overgrowth of fat tissue.

Experimental Studies of Air Embolus.—L. P. Wolf⁴ gives a very complete bibliography of this much mooted question, and concludes from his experiments that death is due to embolism of the capillaries of the lungs, and not due to the filling of the heart with air, as is generally accepted and taught.

Formation of Pigment and Organization, Especially in an Extradural Hematoma.—R. Milner⁴ discusses the changes which occur in the breaking up of the hemoglobin in extravasates of blood; the cause of the chemic changes in the surrounding tissue; leukocytes have little influence upon the formation of pigment. Details, methods, and literature are discussed at length.

Etiology and Pathogenesis of Black Water Fever.—A. Plehn,⁴ beside a discussion of the pathology of cases of this chiefly tropic disease, reaches the following conclusion of general interest: In 24 of 168 cases, quinin had either not been given or not recently enough to be considered the cause. The disease may follow the administration of other drugs, such as salipyrin, phenacetin, and methylene-blue. The development and the disposition of black water fever depends upon the activity and number of those latent forms of the malarial parasite, which continue the infection during the periods between the attacks of fever and after the primary inoculation, concerning which forms, nothing is known. It would seem from this

paper that the extensive destruction of erythrocytes, characterizing black water fever, is due to an accumulation of the toxic products of the plasmodiums, and possibly that quinin by its specific action in destroying the plasmodiums, may suddenly set these toxic products free in unusual quantity.

The Pathologic Anatomy of Whoopingcough and the Presence of the Whoopingcough Bacilli in the Organs.—G. Arnheim¹ obtained his results from a study of 8 autopsies. Whoopingcough is an infectious, frequently desquamating catarrh of the mucous membrane of the respiratory tract, especially of the trachea; the characteristic bacillus is found often in masses in the secretion, in the mucous membrane, and in the bronchial pneumonic areas, where the lung is affected. The cough is caused by the presence of colonies of bacteria at the typical "cough regions." The secretion becomes viscous in the course of the disease, probably due to the increased chemotactic influence of the secondary infection with pyogenic organisms. The paroxysms of coughing are to be considered a healing process by mechanically removing the specific bacteria.

Carcinomas of the Gall Ducts and Adenomas and Primary Cancers of the Liver Cells.—V. Fisher¹ describes 3 cases under the above heading, with a view of establishing his belief that the majority of cases described as carcinomas arising from the liver cells were really primary tumors of the gall ducts; carcinoma cylindrocylindricum gelatinosum oesophagi, an addition to the teaching of fetal inclusion. Franke³ describes a tumor of the esophagus, situated a short distance from the cardia, which he concludes could only have arisen from dislocated cylindric cells of the mucous membrane of the stomach.

The Coagulation of the Blood.—J. Bordet and O. Gengou² describe very interesting experiments upon the coagulation of blood plasma, the most important results of which are that coagulation occurs independently of any formed elements such as leukocytes or blood-plates, and the confirmation of the role of the calcium salts in coagulation, first described by Pechelharing.

Experimental Studies of Syphilis.—El. Metchnikoff and Em. Roux² report the successful inoculation of syphilis into chimpanzees; the disease presented a typical characteristic course. The experiments are being continued and a further report is promised.

Anaerobic Organisms and Symbiosis.—Bienstock² has studied the phenomenon first described by Pasteur, that many of the most strict anaerobes can flourish in the presence of oxygen when growing with some aerobic organism. He has worked principally with a bacillus which putrefies fibrin. The most interesting and suggestive conclusion reached is that the ferment produced by *Bacillus pyocyaneus*, called by Emmerich and Löw "pyocyanase," has the same property as a growing aerobic organism of furthering the growth of a strict anaerobe. Pasteur's idea that this symbiotic phenomenon is due to the extraction of oxygen from the medium by the aerobic organism seems therefore to be inadequate to meet all the conditions of symbiosis.

The Pathologic Anatomy of "Paratyphoid Fever."—H. G. Wells and L. O. Scott² give a description of autopsy findings in a fatal case of paratyphoid fever and a thorough review of the literature upon the subject. This disease can hardly be distinguished clinically from typhoid, except in its usual mild course and by the agglutination reactions. The cause is supposed to be an organism which stands midway between the typhoid and the colon bacillus. This case is the fifth with autopsy report. The summary of the pathologic findings as given in this paper seems to confirm the result of the agglutination reaction—that "paratyphoid" is in its pathology different from ordinary typhoid; the anatomic changes are simply those of septicemia with splenic swelling, and occasionally nonspecific ulcers in the intestine. The ulcers in the 3 cases reported resemble those of dysentery rather than those of typhoid; there is no alteration of Peyer's patches nor of the solitary follicles.

The Embryoid Tumors of the Sex Glands, and the Presence in These Tumors of Growths Similar to Chorion-

¹ Bulletin of the Ayer Clinical Laboratory, No. 1, October, 1903.

² Johns Hopkins Hospital Reports, 1902, Vol. x, p. 133.

³ Journal of Medical Research, 1903, Vol. ix, p. 378.

⁴ Virchow's Archiv, 174, 3.

¹ Virchow's Archiv, 174, 3.

² Annals of the Pasteur Institute, xvii, December, 1903.

³ The Journal of Infectious Diseases, i, No. 1, January, 1904.

epithelioma.—H. Steinert¹ discusses at length the theory of these tumors, and gives a fair bibliography. The tumor described was from the testicle, belonging to the group classed by Wilms as "embryoid" tumors. Steinert points out the difficulties which confront a rational explanation of such forms, but adds little new. [J.E.S.]

Chorioepitheliomas Originating Beyond the Confines of the Placenta.—O. Busse¹ describes 2 cases of this class of tumors, which have always excited the interest of pathologists. The cases were marked by the fact that no sign of tumor formation could be found at the site of the placenta. Both instances offer the typical picture of a very malignant tumor, with metastases carried by way of the circulation; in 1 case the primary tumor seemed to be in the left ventricle, in the second case in the parametrium. The uterus in both cases showed the changes characteristic of both extrauterine pregnancy, and of the few cases of this tumor formation which have been recorded. [J.E.S.]

The Formation of Adenomas and Carcinomas from the Ampulla of Gärtner's Canal.—R. Meyer¹ divides this paper into 2 parts, the first discussing the position of Gärtner's canal, anatomically and embryologically; at an early stage an ampulla can be demonstrated, which is often provided with gland-like structures. The second part discusses a case, which Meyer believes represents the first described case of a carcinoma arising from this ampulla of Gärtner's canal. The case presents the further interesting complication of tuberculosis of the mucous membrane of the cervix. [J.E.S.]

An Addition to the Question of the Genesis of the Blood-platelets.—P. Schneider¹ gives an extensive discussion of the literature upon the subject of the platelets, the methods in use, and experiments which led to the result that the blood-plates are not independent cells, but are cell derivatives. The great majority of the plates of normal blood come from the red cells, while others may possibly come from the white cells. Most of them possess nucleus substance, which can be demonstrated by stains, and which is the cause of the resistance of the plates to diluted acetic acid. [J.E.S.]

Blood-platelets Differentiated through Staining.—K. Preisch and P. Heim² have succeeded in staining blood-plates so that different portions may be differentiated. They were able to demonstrate nuclei and granules; the method they used is a modification of the Romanowsky method. As they found the platelets often inside red corpuscles, they believe them to be a nucleated formation of the red cells, which is by it extruded into the circulatory stream. Their occurrence within leukocytes must be explained by the process of phagocytosis. It is possible that the granules of leukocytes are simply granulations of phagocytized platelets, especially as they correspond with them in size, staining reaction, and other points. [E.L.]

Pathologic Histology of Hodgkin's Disease.—W. T. Longcope³ reports the pathologic findings in 8 cases of Hodgkin's disease, giving in detail the histology of the involved structures. The results of this careful study occupy some 75 pages, in addition to which are a number of illustrative plates. We can give here only the conclusions of the report, which are: (1) Hodgkin's disease should be considered as a distinct clinical and pathologic entity; (2) the lesions in the lymph-glands and other organs are especially characterized by the early increase in the lymphadenoid tissue, with later proliferation of endothelioid cells, formation of uninnuclear and multinuclear giant cells, thickening of the reticulum, and finally overgrowth of connective tissue. Eosinophiles, though not specific, are frequently found in great abundance. Together with the abundance of eosinophiles in the lymph-glands, the eosinophilic leukocytes and myelocytes of the bone marrow are increased; (3) the process originates in lymphoid tissue, and during the course of the disease there are constantly being formed new lymph-glands, which ultimately become the seats of the lymphomatous growths; (4) in rare instances the retro-

peritoneal lymph-glands may be the only group affected; (5) the etiology of Hodgkin's disease is so far unknown. The tubercle bacillus plays no part in the production of the lesions. [A.G.E.]

The Bacillus of Turtle Tuberculosis.—F. F. Friedmann¹ found that the second generation of cultures of turtle tuberculosis bacilli, when growing at 37° C. on glycerin agar could not be distinguished from bovine or human tubercle bacilli. It therefore differs from all tubercle bacilli thus far cultivated from cold-blooded animals. When this bacillus was injected into guineapigs, in not too large doses, typical tuberculous processes developed, but they remained localized invariably and showed a tendency to heal, thus supporting Koch's theory of the quality of the different species of tubercle bacilli, and especially of the human and bovine types. [E.L.]

The Bacteriologic Postmortem Diagnosis of Plague.—The bacteriology of the bubonic plague is sufficiently developed to allow a diagnosis to be made without much difficulty on fresh bodies. Far more difficult is the recognition on decomposing bodies, due to the rapid destruction of the bacilli. S. T. Goldberg² offers a number of guiding principles: 1. It is necessary to resort to direct infection of the animals from the dead body to be tested. The best adapted animal for the purpose is the guineapig. 2. In the case of fresh bodies, an emulsion of the material to be tested may be injected beneath the skin of the animal or into its peritoneal cavity; when the body is decomposed, however, the animal should be infected on the nasal mucous membrane. 3. Low temperatures favor the preservation of the bacilli in the dead body. Rapid and marked changes of temperature have an opposite effect. 4. The bacilli are best preserved in the buboes of the disease, and these should in all difficult cases be the source of animal infection. [L.J.]

Diagnostic Value of Cytologic Tests of Effusions.—A. Signorelli³ shows the method of determining same, and his conclusions are: In effusions of serous character there is a cellular reaction, both general and local in origin. The proportion of polynuclear cells is the exponent of phlogistic, or sthenic and general, acute reaction. The lymphocytes are indicative of local inflammatory processes, subacute or chronic even, and relating to the serous membrane or its underlying structures, in reorganization. There is a pseudolymphocytosis to be distinguished. Here embryonal or unstable organisms point to a breaking down, or retrogression. Of diagnostic importance is history of rapid or slow lymphocytosis, and the gradual or sudden disappearance of the same; while recrudescence of the morbid process is foreshadowed plainly by changes in character and number of the cellular fluid-constituents. The writer cannot agree with those who claim to differentiate exudates and transudates. [T.H.E.]

Tetanus and Vaccine Virus.—J. H. Huddleston⁴ reports the results of a series of experiments made upon calves supplied to the Vaccine Laboratory of the New York City Health Department. In the feces of two out of twenty-five that had been fed with hay, tetanus bacilli were found. Numerous experiments tending to show the action of tetanus bacilli when mixed with virus were made with the following results: (1) Tetanus germs do not develop in glycerinated virus; (2) if any form of vaccine virus, either dry points or tubes of glycerinated virus, is infected with tetanus, it may convey it; (3) small amounts of the tetanus infection easily fail of demonstration, both by animal and by cultural tests; (4) if tetanus germs are applied in quantity to the inoculated areas of a calf at any time during the period of vaccine production the tetanus may be present in the vaccine virus collected; (5) inoculation by scarification is a possible method of inducing tetanus in susceptible animals; (6) it is probable that precaution against the issue of infected vaccine virus consists less in tests of the virus than in care taken during production, and especially in the cleanliness of the methods in use in the stable and in the laboratory. [A.G.E.]

Pathology of the Ductus Arteriosus.—O. Wagener⁵ reports 2 cases of patulous ductus arteriosus, which corre-

¹ Virchow's Archiv, 174, 2.

² Deutsche medizinische Wochenschrift, August 13, 1903, No. 33.

³ Bulletin of the Ayer Clinical Laboratory of the Pennsylvania Hospital, No. 1, October, 1903.

⁴ Deutsche medizinische Wochenschrift, No. 26, 1903.

⁵ Russki Vrach, September 6, 1903.

⁶ Il Policlinico (sez. med.), Rome, October, 1903.

⁷ Medicine, December, 1903.

⁸ Deut. Archiv f. klin. Med., Bd. lxxix, p. 90.

spond in many points. At the pulmonary end in each case there was an occluding membrane, which bulged into the pulmonary artery. In the first case this membrane formed a complete separation between the contents of the duct and the pulmonary artery; in the second case there was direct communication by means of perforations in the membrane. No cause could be determined for the persistence of the duct in either case. Above the aortic opening of the duct in both cases there was a ridge-like projection into the lumen of the aorta; in the second case it formed a sort of funnel-shaped opening into the duct. The author believes that the occluding membrane at the pulmonary end was of recent origin in both cases, and claims that the duct may be completely patulous throughout life, without giving rise to symptoms. [B.K.]

Immunization of Man with Diphtheric Toxin.—W. N. Boldirew¹ reports on some highly interesting experiments of his own, made with a view of immunizing the human organism against diphtheria. It has been noted that horses employed in the production of diphtheria antitoxin retain their acquired immunity for a number of years. This suggested the idea of immunizing human beings in a manner very similar in principle to vaccination. Such an attempt has been made by Dzerzowsky, who injected into himself 4,300 minimal fatal doses of diphtheria toxin (fatal to guineapigs!). As a result the quantity of antitoxin in his blood rose to 1 unit (according to Behring) in 1 cc. of the serum. This experiment conclusively proved the possibility of human immunization against diphtheria. The author now took up these experiments and made on himself a series of injections with small quantities of toxin. He found that even minute doses of toxin (5 minimal fatal units to guineapigs) resulted in the production of considerable amounts of antitoxin (at least 600 units). This net result ought to encourage further research. The author thinks that at present too much attention is absorbed by serum treatment, while active immunization with toxins is neglected. However, Behring's recent report on immunity in tuberculosis is a step in advance. [L.J.]

A Clinical Test for Urobilin.—To prove the presence of urobilin, W. Schlesinger² adds to the urine an equal quantity of an alcoholic 10% solution of zinc acetate; the precipitate is filtered out. Even though the urine contains but a small quantity of urobilin and a large quantity of other coloring matter, a beautiful fluorescence and distinct spectrum bands will be obtained. Hemoglobin always disturbs the reaction, and even intense urobilinuria will not be recognized if blood be present. To overcome this fault, he has modified the test by adding potassium oxalate in normal salt solution, which prevents the coagulation of the blood and permits the removal of the red corpuscles by centrifugation, leaving the clear blood plasma behind. [E.L.]

Bacillus Tuberculosis in Man and Animals.—M. P. Ravenel³ presents the report, signed by E. A. deSchweinitz and Veranus A. Moore, of the committee of the laboratory section of the American Public Health Association on *B. tuberculosis* in man and animals. Reference is made to the experiments and clinical observations of a number of writers. The report concludes as follows: In summing up the available evidence, we feel that there is strong ground for believing in the genetic unity as well as the intertransmissibility of the human and bovine races of the tubercle bacillus; we consider that it has been positively proved that a certain proportion of persons, chiefly young children, meet their death through infection with the bovine tubercle bacillus, but the knowledge at hand does not enable us at present to define the extent of this danger. [A.G.E.]

Serous Exudate or Transudate; Differential Diagnosis.—The clinical meaning and histochemic examination of 27 selected cases is reported by Agenor Zeri,⁴ who emphasizes the importance of careful microscopy in early diagnosis. The serous fluid extracted from the patient is exudative, transudative, or normal. Its specific gravity, the nature and quantity of contained albumen, extracted matter, toxins, or globulicides should be considered. Coagulability and presence of micro-

organisms noticed. Cryoscopic tests. Contrasts are observed among transudates in peritoneal cavity from hepatic syphilis, hepatic atrophy, and tuberculous peritoneal exudates; pleural effusion, and pleural transudates due to pulmonary tumor, or cardiac lesion. The cerebrospinal fluid is highly indicative of the nature of adjacent morbid processes. All serous effusions are diagnostic in regard to the various elements contained. The microscope will show predominating, wandering, partially disorganized nuclei; large and small leukocytes, vacuolated or not, single or multinuclear cells; eosinophiles, basophiles, or others. The differences may thus be early drawn among lesions of syphilitic, tuberculous, or alcoholic causation. [T.H.E.]

The Action of Elasticity on Microbes.—S. M. Burak¹ reports his experiments in this direction. He finds that electricity is inimical to bacterial life. The constant current may produce complete and permanent changes of the specific type of microorganism, while the faradic current does not leave much lasting changes, although its action for the time being is more energetic. By means of successively influencing several generations of bacteria, the usual type of their functional life may be radically altered, and microbes thus affected produce a new generation which is still more susceptible to the electric current. The action of electricity is stronger when the nutritive conditions are poor. The morphologic characteristics of microbes are not altered, but only their physiologic activity, especially motility, while growth is very little influenced. During the electric influence the development of bacteria is retarded, and their duration of life is subsequently shortened. By means of very frequent and high currents it will perhaps become possible to act on bacteria even within the animal body. [L.J.]

Physiologic Action and Antidotes of Snake Venom.—Leonard Rogers² discusses antidotes to the viperine and colubrine snake venoms. Calmette's antivenene has no efficiency against the viperine venoms. He mentions potassium permanganate which Wynter Blyth first showed would rapidly destroy the power of cobra venom, when mixed with it *in vitro*. Experiments made by Burton and Prayer showed that strong solutions of this substance injected at the seat of the insertion of the poison did not prove successful. They later suggested that a ligature be placed around the limb and that the pure crystals of potassium permanganate moistened with a little fluid be rubbed in through an incision made at the point where the reptile's fangs had entered. The author has carried out a preliminary series of experiments along these lines with the most promising results. In short it consisted of various experiments made upon cats and rabbits into which had been injected not only lethal, but in numerous instances many times the lethal dose of snake venom. In every instance in which the dose received was not more than could be expected from a single bite of the reptile the life of the cat was preserved. Rabbits were more easily killed than cats. In instances in which the potassium permanganate was rubbed in $\frac{1}{2}$ m. after 10 times, 5 m. after 5 times the lethal dose, and 10 m. after 3 times the lethal dose was injected, the cats' lives were saved. Thus it is certain that a very small amount of this drug will neutralize, by actual contact, a lethal dose of snake poison for man. [A.B.C.]

Examinations Concerning Streptococci.—H. Arenson³ has always been of the opinion that there are no specific differences between the streptococci of different diseases, as any streptococci may produce⁴ articular or cardiac lesions in the horse, and as the serum of a horse immunized with a definite culture protects against all streptococci and agglutinates any of them. These examinations referred to cultures which had been made highly virulent for horses by previous passage through mice and rabbits. To prove that streptococcic cultures cannot be differentiated from each other by the agglutination test, as has been claimed by others, he experimented with 27 different cultures without previous intensification, and reports the following results: Even using the most delicate biologic methods, he was unable to separate the various varieties of

¹ Russki Vrach, September 27, 1903.

² Deutsche medicinische Wochenschrift, August 6, 1903, No. 32.

³ Medicine, December, 1903.

⁴ Il Politecnico (sez. med.), Rome, October, 1903.

¹ Russki Vrach, November 29, 1903.

² Lancet, February 6, 1904.

³ Deutsche medicinische Wochenschrift, June 18, 1903, No. 25.

human streptococci. Microscopic examination, culture tests, agglutination methods and immunization failed him in determining the origin of the streptococcal culture. On that account he insists that the streptococci cannot be considered as the cause of a typical and peculiar infectious disease as scarlet fever is, but must insist instead that all its serious complications are due to it. It cannot, therefore, give a specific scarlet fever serum, but must consider any streptococcal serum to be an active agent in the disease. He intends to add to his serum, which is drawn from horses immunized with different and highly virulent cultures, a serum from a horse immunized with streptococcal cultures taken directly from man. [E.L.]

A New Method of Serum-diagnosis.—G. N. Kasarinoff¹ publishes his experience with Ficker's new method of diagnosing typhoid fever. The idea was to obtain an extract from dead typhoid bacilli, as living cultures are impracticable outside of laboratories. Ficker has succeeded in preparing an emulsion of dead bacilli, thus enlarging the field of Widal's reaction considerably. Our author reports favorably on the new method, considering it equal in reliability to Widal's test. [L.J.]

Physiologic Action and Antidotes of Snake Venom.—Leonard Rogers² states that broadly we may divide venoms into 2 classes: (1) The colubrines, of which the cobra is the best known example—these act mainly by paralyzing the respiratory centers in the medulla, and the motor end-plates of the phrenic nerves, more especially combined with a much less important action on the blood, and (2) the viperine class, which have hitherto been thought to act mainly on the blood, producing intravascular clot, as in Russel viper of India, or loss of coagulation, or hemorrhages, as in the rattlesnake of America. He shows that a still more important and constant action of the viperine class is the production of a paralysis of the central vasomotor centers in the medulla, just as the colubrine class paralyzes the respiratory functions of this part of the nervous system. With regard to the chemic nature of the poisons, he mentions that the venoms contain actively poisonous albumose, and that the viperine class are coagulated and rendered inert at a lower temperature than are the colubrine ones, yet the difference is not absolute. There are connecting links between the 2 classes, as he shows by the venom of one variety of snake; this is the branded krait, whose venom is of mixed colubrine and viperine action. There appears to be a gradation by means of connecting links between the main colubrine and viperine divisions. These are set forth in a table, which likewise represents the action of the venom of each of several varieties upon the nervous system, the blood, and the vasomotor system. [A.B.C.]

Congenital Transposition of the Viscera.—F. C. Studley³ reports the autopsy findings in a case of this condition, diagnosed during life. The patient was a man of 44, weighing 200 pounds. All the thoracic and abdominal organs were transposed, including the colon, except the lungs, which were lobed as in ordinary individuals. The man was right-handed. The heart was greatly hypertrophied, weighing 32 ounces (960 gm.), and the arch of the aorta was the site of a large aneurysm which had ruptured into the pericardium and caused death. The patient had exhibited symptoms for only 13 hours before death. The pericardial cavity contained a quart of partially clotted blood. Studley states that a large percentage of cases of transposition of the viscera suffer from aneurysm, death generally being sudden. He is inclined to attribute this to the unusual exposure to dilation of the aorta, due to the twist of the arch in this condition. [A.G.E.]

Symbiosis of Influenza Bacilli.—M. Neisser⁴ cultivated colonies of influenza and xerosis bacilli from a case of measles conjunctivitis on blood agar. He continued the cultivation of the mixed bacteria on ordinary agar, and was successful for 20 generations, a condition which had never passed beyond 2 generations before his work. The influenza bacillus would not grow on ordinary agar without the xerosis bacillus; inoculations were made from the fourth and eighth culture. Artificial

symbioses with other influenza varieties were as successful, thus proving that it was not an accidental property of the one colony. When dead xerosis bacilli were used, the cultivation failed, thus proving that it is not the body of the xerosis bacillus, which aids the growth of the other organism, but rather its fermentative action on the medium, which permits this. [E.L.]

The Mortality Due to Congenital Malformation.—The specific problem investigated by R. Pearl¹ is stated by him in the form of the following question: Is there any evidence that, with respect to all abnormalities sufficiently great to cause the death of the individual possessing them, one sex is more variable than the other? The material used consisted of the returns of the mortality due to malformation in the entire United States as reported by the last census. The entire deaths were 1,469 males and 1,226 females. This mortality has been reduced by Pearl to the frequencies per million of the number of males and females alive at each age period. The totals are 1,499 males and 1,283 females per million, showing that malformations included in these data occur more frequently in men than in women. [A.G.E.]

The Occurrence and the Demonstration of Intracellular Toxins.—Allan Macfadyan,² by a modification of Buchner's method of obtaining intracellular proteids, has succeeded in preparing large quantities of bacterial cellular toxins. Buchner extracted the ferment-principle of yeast cells by breaking them up, by triturating them with sand and then filtering under pressure. The filtrate was capable of producing alcoholic fermentation in sugar. In order, however, to procure the most active intracellular substance, it is necessary to cause as rapid disintegration of the fresh cells as possible; and, at the same time, to avoid all heat or other modifying factors. Moreover, the cell juices so obtained must be employed immediately. Macfadyan's method consists in taking fresh bacterial agar cultures and breaking them up in a special apparatus, which is briefly described in the paper. While the trituration is going on, the apparatus is kept in liquid air, which, by freezing the bodies of the bacteria, facilitates their fracture and prevents changes. Very active substances have been obtained from the bodies of typhoid bacilli and also from those of staphylococci and streptococci. By injecting intracellular typhoid toxins into monkeys, there was obtained a serum active not only against typhoid cultures, but also against their intracellular toxins. This serum not only protected animals against both of these, but also had a distinctly curative power. The method will probably be of value in obtaining bacterial toxins in those diseases the bacterial causes of which do not produce extracellular toxins, but produce their effects by means of the poisons contained in the bodies of the microorganisms; such as cholera, typhoid fever and plague. The author has also extracted and tested the juices of blood-corpuscles. Photogenic bacteria lose their property when disintegrated in liquid air. Photogenesis is, therefore, probably a function of the living cell. The disintegration of the infected nervous system completely destroys the rabie virus—an additional evidence of the organized nature of the virus. [D.R.]

Specific Antibodies after Cutaneous Infection.—F. Kasten³ controlled Hoffman's work, who found that cutaneous infection of rabbits with typhoid fever bacilli produced agglutinins in their blood-serum, and that while this agglutinating strength does not develop so well as when the bacteria are injected intravenously, it is as great as on intraperitoneal injection. He worked with typhoid bacilli, staphylococci and cholera organisms. His results with rabbits showed the truth of Hoffman's conclusions. In no case could organisms be cultivated from any of the tissues of the rabbits, thus proving that they are killed in the superficial structures and that the substances produced in the blood-serum are derived from the poisons in the dead bacteria. The same results as above noted were derived by rubbing dead cultures into the skin. The agglutinins were even present in greater number, than where living organisms were used. [E.L.]

¹ Russki Vrach, November 29, 1903.

² Lancet, February 6, 1904.

³ Wisconsin Medical Journal, January, 1904.

⁴ Deutsche medicinische Wochenschrift, June 25, 1903, No. 26.

¹ Medicine, November, 1903.

² Zeitschr. f. Allgem. Physiologie, Bd. III, Hft. 3, 1903.

³ Deutsche medicinische Wochenschrift, 1903, xxix, No. 36.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 12, 1904:

SMALLPOX—UNITED STATES.			Cases	Deaths
California:	Nacoma.....	Feb. 23-Mar. 3.....	1	
District of Columbia:	Washington.....	Feb. 27-Mar. 5.....	6	
Florida:	Jacksonville.....	Feb. 27-Mar. 5.....	7	
Illinois:	Chicago.....	Feb. 27-Mar. 5.....	4	
	Danville.....	Feb. 27-Mar. 5.....	1	
	Springfield.....	Feb. 25-Mar. 3.....	3	
Louisiana:	New Orleans.....	Feb. 25-Mar. 3.....	7	
			Imported.	
Michigan:	Detroit.....	Feb. 27-Mar. 5.....	1	
	88 localities.....	Feb. 20-27.....	Present.	
Missouri:	St. Louis.....	Feb. 27-Mar. 5.....	13	
New Hampshire:	Manchester.....	Feb. 27-Mar. 5.....	2	1
New Jersey:	Camden.....	Feb. 27-Mar. 5.....	7	
	Trenton.....	Feb. 27-Mar. 5.....	1	
New York:	Buffalo.....	Feb. 27-Mar. 5.....	1	
	New York.....	Feb. 27-Mar. 5.....	1	
	Niagara Falls.....	Feb. 20-Mar. 5.....	2	
North Carolina:	Wilmington.....	Mar. 1-8.....	3	
Ohio:	Cleveland.....	Feb. 26-Mar. 4.....	1	
	Dayton.....	Feb. 27-Mar. 5.....	19	2
Pennsylvania:	Altoona.....	Feb. 24-Mar. 5.....	1	
			Imported.	
	Carbondale.....	Feb. 29-Mar. 7.....	1	
	Johnstown.....	Feb. 27-Mar. 5.....	5	
	Philadelphia.....	Feb. 27-Mar. 5.....	33	6
	Pittsburg.....	Feb. 27-Mar. 5.....	4	
South Carolina:	Greenville.....	Feb. 20-27.....	2	
Tennessee:	Memphis.....	Feb. 27-Mar. 5.....	36	2
	Nashville.....	Feb. 27-Mar. 5.....	7	
Wisconsin:	Milwaukee.....	Feb. 27-Mar. 5.....	4	
SMALLPOX—INSULAR.				
Porto Rico:	San Juan.....	Mar. 8.....	6	
SMALLPOX—FOREIGN.				
Austria:	Prague.....	Feb. 13-20.....	3	
Belgium:	Antwerp.....	Feb. 13-20.....	6	1
Brazil:	Pernambuco.....	Jan. 16-31.....	28	
	Rio de Janeiro.....	Jan. 31-Feb. 7.....	37	27
Canada:	Quebec.....	Feb. 27-Mar. 5.....	3	
China:	Chefoo.....	Feb. 6.....	Present.	
	Shanghai.....	Jan. 16-30.....	3	37
France:	Lyons.....	Feb. 6-13.....	1	
	Paris.....	Feb. 6-13.....	36	1
Great Britain:	Edinburgh.....	Feb. 12-26.....	12	1
	Glasgow.....	Feb. 12-26.....	51	3
	Leeds.....	Feb. 20-27.....	1	
	London.....	Feb. 13-20.....	9	
	Manchester.....	Feb. 13-20.....	1	1
	Nottingham.....	Feb. 6-20.....	35	1
India:	Bombay.....	Feb. 2-9.....	8	
	Calcutta.....	Jan. 30-Feb. 6.....	4	2
	Karachi.....	Jan. 31-Feb. 7.....	4	
	Batavia.....	Jan. 23-30.....	16	2
	Mexico.....	Feb. 6-13.....	1	
	Moscow.....	Feb. 21-23.....	5	4
Russia:	St. Petersburg.....	Feb. 6-13.....	5	2
	Santander.....	Feb. 21-23.....	4	1
Spain:	Constantinople.....	Feb. 14-21.....	4	
Turkey:	Smyrna.....	Jan. 31-Feb. 7.....	1	
Venezuela:	Maracaibo.....	Feb. 7-14.....	1	1
YELLOW FEVER.				
Brazil:	Rio de Janeiro.....	Jan. 31-Feb. 7.....	4	3
Mexico:	Merida.....	Feb. 21-27.....	2	
	Vera Cruz.....	Feb. 20-27.....	1	
CHOLERA—INSULAR.				
Philippine Islands:	Manila.....	Jan. 23-30.....	1	1
	Provinces.....	Jan. 23-30.....	120	90
CHOLERA—FOREIGN.				
India:	Calcutta.....	Jan. 31-Feb. 6.....	14	
PLAGUE—INSULAR.				
Hawaii:	Hilo.....	Mar. 4.....	1	
Philippine Islands:	Manila.....	Jan. 16-Feb. 30.....	5	3
PLAGUE—FOREIGN.				
Africa:	Port Elizabeth.....	Jan. 8-16.....	2	
Brazil:	Pindamonhangaba.....	Jan. 15.....	Several cases.	
	Rio de Janeiro.....	Jan. 31-Feb. 7.....	7	4
India:	Bombay.....	Jan. 2-9.....	419	
	Calcutta.....	Jan. 30-Feb. 6.....	50	
	Karachi.....	Jan. 31-Feb. 7.....	49	37

Changes in the Medical Corps of the U. S. Army for the week ended March 12, 1904:

STONE, RANDALL C., contract surgeon, now on temporary duty at Fort Hamilton, is relieved from further duty at Fort Screven, and will report at Fort Hamilton for duty.

MAUS, Lieutenant-Colonel LOUIS M., deputy surgeon-general, is granted leave for one month on surgeon's certificate, to take effect upon the arrival of Captain Elmer A. Dean, assistant surgeon, at Fort Riley.

DEAN, Captain ELMER A., assistant surgeon, leave granted February 15 is extended fourteen days.

MOSELEY, Lieutenant-Colonel EDWARD B., deputy surgeon-general, is granted leave for one month from about March 1, with permission to apply for an extension of three months and permission to go beyond sea.

HARVEY, Colonel PHILIP F., assistant surgeon-general, is granted leave for one month, with permission to apply for an extension of one month.

WOODRUFF, Major CHARLES E., surgeon, is relieved from duty at Camp McGrath, Batangas, and will report to the commanding general, First Brigade and post of Manila, for assignment to duty at Santa Mesa Garrison.

MCANDREW, First Lieutenant PATRICK H., assistant surgeon, is granted leave for two months, with permission to apply for an extension of fifteen days.

KULP, Captain JOHN S., assistant surgeon, is relieved from duty as attending surgeon and examiner of recruits at Philadelphia, Pa., to take effect upon the completion of his examination for promotion, and will then proceed to Fort McDowell for duty.

HENDERSON, JOHN L., sergeant first class, Army General Hospital, Washington Barracks, will proceed to Fort Worden, to relieve Sergeant First Class Willis S. Yates. Sergeant First Class Yates will, upon expiration of furlough, report at Vancouver Barracks for duty.

FELTS, ROBERT D., contract surgeon, is granted leave for one month from about March 15, with permission to apply for an extension of one month.

COMBE, JOSEPH K., contract surgeon, will be relieved from duty at Fort Brown and proceed to Fort Sam Houston in time to arrive not later than March 15 for duty.

EDGAR, JR., First Lieutenant BENJ. J., assistant surgeon, having reported to the adjutant general of the Army, will upon the expiration of leave proceed to rejoin his proper station at the United States General Hospital, Presidio.

MARRY, WILLIAM C., contract surgeon, leave granted for ten days is extended eight days.

RAYMOND, THOMAS U., surgeon, will be relieved from duty at Jefferson Barracks upon the arrival of Major Wm. B. Banister, surgeon, at that post, and will then proceed to St. Louis, Mo., for special duty at the Louisiana Purchase Exposition, with a view to exercising supervision over the sanitary conditions on the exposition grounds.

Changes in the Medical Corps of the U. S. Navy for the week ended March 12, 1904:

THOMPSON, E., passed assistant surgeon, detached from the Marine Detachment, Culebra, and ordered to the Des Moines—March 4.

FURLONG, F. M., passed assistant surgeon, detached from Naval Station Guantanamo, and ordered to Marine Detachment, Culebra, W. I.—March 4.

ORVIS, R. T., passed assistant surgeon, detached from Marine Detachment, Culebra, and ordered to Naval Hospital, New York—March 4.

ANGONY, G. L., passed assistant surgeon, detached from Panama Marine Brigade, and ordered to Naval Station, Guantanamo, Cuba—March 4.

RICHARDSON, R. R., assistant surgeon, detached from the Amphitrite, and ordered to Naval Hospital, Pensacola, Fla.—March 4.

STEEP, J., assistant surgeon, detached from the Navy Yard, Boston, Mass., and ordered to the Des Moines, temporarily, and then to Navy Yard, Boston, Mass.—March 4.

SPRATLING, L. W., surgeon, detached from the Bureau of Medicine and Surgery, and ordered to the Marine Battalion, on the Isthmus of Panama.—March 7.

Changes in the Public Health and Marine-Hospital Service for the week ended March 10, 1904:

WEETENBAKER, C. P., surgeon, to report at Washington, D. C., for special temporary duty—March 5, 1904.

WICKES, H. W., passed assistant surgeon, granted leave of absence for one day—March 4, 1904.

VON EKDORF, R. H., passed assistant surgeon, to proceed to Delaware Breakwater quarantine for special temporary duty—March 8, 1904. Relieved from special temporary duty at Delaware Breakwater quarantine, on account of sickness and directed to rejoin his station at the Hygienic Laboratory, Washington, D. C.—March 10, 1904.

BOGGER, J. S., assistant surgeon, Bureau letter of March 2, granting Assistant Surgeon Bogger three days' leave of absence from February 18, 1904, amended so that said leave shall be on account of sickness—March 4, 1904.

SIMONSON, G. T., acting assistant surgeon, granted leave of absence for five days from March 15—March 10, 1904.

STATON, L. W., acting assistant surgeon, granted leave of absence for two days from March 3—March 4, 1904.

Boards Convened.

Board convened to meet at New Orleans, La., March 21, 1904, for the physical examination of officers of the Revenue Cutter Service. Detail for the Board: Surgeon C. P. Wertenbaker, chairman; Passed Assistant Surgeon L. L. Lumsden, recorder.

Board convened to meet at San Francisco, Cal., March 21, 1904, for the physical examination of officers of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon W. G. Stimpson, chairman; Assistant Surgeon Carl Ramus, recorder.

Board convened to meet at the Marine Hospital, Port Townsend, Wash., March 21, 1904, for the physical examination of officers of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon J. H. Oakley, chairman; Passed Assistant Surgeon M. H. Foster, recorder.

Board convened to meet at Washington, D. C., on the call of the chairman, for the physical examination of officers for promotion and applicants for admission into the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General W. J. Pettus, recorder—March 9, 1904.

American Medicine ⁴⁹²

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The Campaign against Yellow Fever.—Dr. Kober estimates that since 1793 yellow fever has been the cause of not less than 100,000 deaths in our own country and Cuba—41,348 in New Orleans, 10,088 in Philadelphia, and 7,759 in Memphis. Between 1853 and 1900 it caused 35,952 deaths in Havana. The demonstration of the method of conveyance of the germ, by Reed, Carroll, Agramonte, and Lazear, has made it possible to extinguish the disease in the United States and Cuba, but in Central and South America it still prevails. How it can be rooted out of these countries is shown by Dr. Liceago, President of the Board of Health of Mexico. The facts as to the transmission of the disease by *Stegomyia fasciata* are clear; not so the mechanism of prevention. Dr. Liceago sets these forth as: 1. Isolation of suspects to prevent them from being stung by mosquitos, until they are incapable of infecting the mosquito. 2. Destruction of the infected mosquitos, preferably by means of sulfurous acid. 3. Extermination of the uninfected mosquitos in their native habitat. Stringent execution of the precautions necessary to carry out these possible measures will speedily end the reign of yellow fever in the world. Once absolutely rid of the vicious circle, the disease can never be reproduced anew, and the growth of civilization can be effected in these tropical and semi-tropical countries hindered up to now almost solely by reason of the transmission by the mosquito of the germs of malaria and yellow fever. The article of Dr. Liceago is published in a late number of *Public Health Reports*, and should be read by all who are practically interested in the abolition of the disease. He enters into all the details of the methods of procedure.

"The Pollution of Deep Wells" was the subject of a paper before a scientific society, in which was described an interesting experiment conducted by the United States Geological Survey and the Geological Survey of Georgia, acting in cooperation, to determine the liability of contamination of the deep wells and springs in the vicinity of Quitman, Georgia, by the proposed action of that city in turning the public sewage into an underground stream through a bore hole. To test the matter, the surveys mentioned inserted two tons of salt into the well into which it was proposed to turn the sewage. Samples of water were taken before the experiment to determine the normal chlorin of the

waters, and at short intervals during and for some time after the experiment. The report concludes that, "on analyzing the samples it was shown that the salt had entered all of the deep wells in town, thereby demonstrating that the insertion of sewage would have contaminated all of the wells, and possibly led to a dangerous epidemic." Undoubtedly the water of wells is often polluted by drainage, and the experiment verifies the danger, which should help health officers in their work. One wonders, however, if there is not a slight fallacy in the conclusion introduced by the doubt if microorganisms might not be prevented from passing by the earth filtration, while a solution of salt would be able to permeate the medium. Why not use pathogenic bacilli themselves for a more convincing test?

The campaign against noise promises to become more active than ever during the coming summer, and it is the duty of every physician to aid in it, and of every health board to wage it actively. The wide publication of the morbid results of our morbid method of conducting our Fourth of July celebration, the harvest of death by accidents and tetanus, should help every administrative officer to demand a rigid execution of the law against the deadly toy pistol and every similar noise-making instrument. In New York the Health Commissioner suggests the appointment of a special Cat Inspector, to lessen the nightly eloquence of these sleep-destroyers. But far more important than such measures are those directed against useless street noises which make the well sick, and the sick still more so, from the continuous battering of the ears and nervous system with jars that create a state of overtension and hyperesthesia. Chief among these at present are the trolley cars, which shake the ground and rush through our streets like huge engines of reckless evil, with banging bell and roar. The cars should be run slower, at least during the late hours of night. The keeping of cocks and chickens should be forbidden in cities, and street hawkers, newsboys, etc., compelled to stop their bellowings, and ringings, and screechings. The playing of pianos, and especially mechanical musical instruments, talking machines, etc., must be at least restricted to the day and evening hours.

College Courses Suited to the Needs of Prospective Students of Medicine.—A large proportion

of our profession has appreciated the value of a liberal education for physicians, even though they themselves may have been debarred its advantages. The extra time sacrificed in obtaining a preliminary degree has kept many students from taking an academic course before beginning medical studies and the need of preparing men to enter professional work earlier than was usual with college graduates a few years ago has been recognized by a large number of our more progressive colleges and universities. President Eliot believes that the secondary schools are at fault in not advancing their students as rapidly as they should. The German or French student is ready to enter the university at a much earlier age and with an equally good, if not better, preparatory education, and this is not because he is a brighter boy than an American boy, but because their secondary schools are much more effectual. If our boys were all prepared to enter college at 16 or 17, as is perfectly possible, they might have the liberalizing influence of a college course and the best medical courses offered in this country and still enter the profession at 23 or 24 years of age. But until improvements can be made in the fitting schools, colleges must make an effort to adapt themselves to the needs of the times. Various plans have been devised so that men may enter their professions earlier and still not entirely sacrifice their liberal education. At Harvard the student is allowed to complete the work for the bachelor's degree in three years instead of four as formerly, and in President Eliot's latest report we notice the statement that, "At the present rate of increase in the number of three-year men it will not be long before the majority of each entering class will obtain the degree in three years." At Cornell, Columbia, Michigan, Bowdoin, and a number of other colleges, courses are arranged especially adapted for preparation for medicine, and the student is allowed to enter the professional school at the end of three years, receiving his arts degree after the first year of medical study, thus obtaining the arts and medical degrees in seven years. A number of colleges, such as Brown, Williams, and Princeton, give courses preparatory for medicine, and graduates of these special preparatory courses are accepted as second year students by a number of reputable medical schools. One of the best plans of which we have knowledge is that which has been adopted by Wabash College recently.¹ "The following optional course of study is given students who propose entering professional schools: A four years' course of study, of which three years shall be prescribed work, all electives being reserved for the fourth year. Students taking this option will be permitted, if they so desire, to pursue their fourth year in attendance at a professional school approved by the trustees of the college; retaining in the meantime their college standing and responsibility and being eligible to graduation with their class on presentation of proper credit earned in this way." It seems to us that this will prove the most desirable arrangement for many students. The student gets a satisfactory liberal education and the liberal arts college recognizes the educational value of his professional train-

ing and gives him substantial credit for it. A difference of one year's time will be the deciding factor with many students for or against a preliminary academic education. This will prove a much more satisfactory arrangement to the medical faculties than that of receiving as second year students men who have taken an equivalent of the first year's medical studies in their arts course. Without credit is allowed, the student simply covers the same ground twice, an unnecessary waste of time, and studies like medical chemistry, physiology, etc., can be taken more satisfactorily in some respects at the medical schools than at college. If other colleges of our country will follow the example set by Wabash they will hold a considerable number of students who would prefer to take their arts course in such a college rather than in a large university, but who at present choose some one of the larger universities that have adopted the plan of giving a year's credit toward the art degree for work done in their professional schools. The efforts on the part of colleges and universities throughout the land to adapt their courses to students who expect to pursue professional studies is encouraging, for it shows that our educators are trying to understand the needs of classes of men having widely differing aims. It has seemed a mistake that some so-called liberal arts colleges have so long held to the idea that all men should have their minds shaped in the same mould quite regardless of what their career in life was likely to be. The institutions which have taken the lead in needed educational reforms have not been, and will not be the losers, either in the number and quality of their students or in reputation.

The Hygienic Significance of Marriage.—Nature has invested the gratification of sexual desire with a sensation of pleasure, thus stimulating the individual to perform his procreative duty and contributing to the reproduction and preservation of his species. An unrestrained and thoughtless pursuance of this gratification will lead to baneful results both to the progenitors as well as to the progeny. Ever since the existence of the species *homo sapiens*, the expediency of regulating sexual intercourse has been recognized and methods thereto pertaining, devised and attempted with greater or less success. There can be no doubt that a regulated intercourse, conforming with the laws of nature, is an indispensable mainstay for the lasting physical and spiritual existence and the welfare of a nation. Under our prevailing social conditions, marriage is an institution highly conducive to the health of both husband and wife. Statistics prove that among married men over 20 years of age, and women over 40, the mortality rate is far less than among those who remain single. Among the widowed and divorced the mortality is exceptionally great. Suicides among the unmarried are much more numerous than among the married. The matrimonial state promotes temperance in every form. To the well-regulated and settled mode of living of the married, their limited exposure to venereal infection and their relatively infrequent abuse of alcohol, their greater longevity may be ascribed. Furthermore, the probable duration of life of a married man of 30 exceeds that of his unmarried brother by five years, and the wife, in

¹ Journal of the American Medical Association, March 5, 1904, p. 668.

spite of the dangers of pregnancy and childbirth, may expect to live one year longer than a single woman of the same age. The beneficial results of marriage upon the participants become still more apparent when contemplating the effect upon the offspring. The fruit of marital intercourse is better protected and better able to withstand the dangers of parturition than that illegitimately conceived. Furthermore, legitimate children may expect a more rational and more careful nursing during the crucial period—their first year of life. All statistics agree on this point and it is noteworthy that in Europe 448 children out of 1,000 born in wedlock were stillborn, while 653 were stillborn of those illegitimately begotten. The mortality is also far greater among illegitimate children. Upon studying the causes of their deaths we find that it is very frequently attributable to diseases of digestion, probably due to the fact that such children are rarely nursed at the breast of the mother, and less attention is given to their artificial feeding.

The Detrimental Effects of Marriage.—Marriage between immature individuals is especially injurious to both the male and the female, and in many instances leads to an untimely decease of the one or the other. The same applies to alliances of persons well advanced in years. Men advanced in years have succumbed to the exigencies of the early married state when their cardiac action and blood circulation were no longer strong enough to respond to the abnormal demand. Miscarriages among women who enter wedlock prematurely are of such frequent occurrence that it would be expedient to formulate laws prohibiting ministers and the authorities to sanction wedlock between the insufficiently matured. Cannot the misery of the mother and the subsequent unhappiness of the family often be directly traced to the premature marriage of parents? How often the children evince in their breeding the undeveloped and immature physical and mental state of the parents! How often are they the victims of inexperience and ignorance! Children born of too youthful parents are likely to be feeble, and idiocy and malformation are more common among them than among those born of mature progenitors. Likewise parents in advanced age, mother over 40, father over 50, usually give birth to infirm children. Very young women and those approaching the climacteric are more prone to bring forth twins. Conditions which enfeeble and weaken the organism of the parents naturally affect the offspring similarly—it would seem that the ovum of a weakly mother possesses less vitality or that the embryo is insufficiently nourished. The female system suffers when the intervals between the periods of gestation are too brief. According to data, the third and the fourth child is the most robust, and a decrease of strength is apparent in the fifth. Pregnancy should not occur more than once every two and a half years, for only then the mother is able to nurse the child sufficiently long. The economic circumstances play an important part in the physical condition of the issue. The problem of supporting and caring properly for children becomes more difficult as they increase in age and number. No more children should be begotten than can, in all likelihood, be adequately maintained. The

pernicious effects of alcoholic intemperance in the parents manifest themselves in their children. These show a lack of vigor, retarded development, and a low degree of resistance, and above all, hypersensitiveness and asthenia of the nervous system.

The Selection of the Spouse.—The fact that the offspring may be the heir to the morbid tendencies of the parents, makes it imperative that the greatest care should be exercised in the selection of a spouse, but one should not grow too wary and hypercritical. No generation ever existed which did not possess some abnormality, and a rational mode of life will tend to ameliorate certain untoward affections. The rule of the life insurance companies to inquire into the family history of the applicant would be a prudent course for those intending marriage to adopt. Even if the aspirant to marriage evinces no unhealthy symptoms, a minute study of the physical condition of his immediate relatives might disclose the morbid tendency to which he or she is heir. Whenever anomalies and signs of degeneration repeatedly present themselves in preceding and present generations, thus proving the ascendancy of such morbid affections, we may assume that subsequent generations will not be spared, and marital union with a member of such a family should be emphatically interdicted. Among the lower classes, and for that matter also among those of higher standing, the fact that "there is tuberculosis (or insanity) in the family" is perhaps the only deterrent to contemplated conjugal union, and here it is the graphic and obvious manifestation of the diseases which inspire the dread. Of the nature of the numerous other grave and disastrous affections the public in general is woefully ignorant. Unless the dangers that await them are imparted to them in an intelligible manner there can be little hope for the amelioration of present conditions.

Crime in lying-in homes is becoming more and more evident in the fact of the increase of the number of such institutions, in the brazen methods pursued in advertising them, and in the insinuated temptations and offers made in letters and circulars. The unblushing openness of the statements as to a "division of the spoils," or fees, shows that these fellows are really, though perhaps not legally, outside the pale of the profession, and that every physician should treat them as they in fact are—abortionists and participating criminals. From a circular letter addressed to one of our subscribers by the proprietor of one of these institutions, we quote:

For such cases as demand immediate interference in the early period of pregnancy, whenever in your own and my opinion such steps are indicated, the minimum fee of \$35 does not apply to those who can well afford to pay a fee more in keeping with the requirements of the case. The physician sending such a patient must of necessity give up a considerable portion of his time to the interests of the case, and in recognition of his services and assistance, I make it a rule to remit to him 20% of the gross fees received from the patient.

Blackmail and crime is seen in every hint and sentence of this nauseating literature, and the profession is naturally charged by the lay public with instigating or profiting by the breaking of the law. A few prosecutions carried out by the attorneys of medical societies

would exonerate us, and at least make the nefarious business harder to carry on with profit and success.

Preparations for getting the children into the country are now seasonable, and the large number of organizations devoted to this hygienic purpose deserve the help of the charitable, whether professional or lay. Such institutions as the Children's Seaside Home of Atlantic City, the Sanitarium Association of Philadelphia, and the like, in all our large cities, should be imitated by similar organizations in smaller cities, for in them the children's health often suffers as much from confinement, bad ventilation, and insanitary conditions, as in the slums of the great centers. Last summer was an exceptionally cool one and the use of the out-of-town resorts by children, their mothers and caretakers, was less than usual, but with a probably exceptionally hot summer before us, there would be a great increase of children's diseases, should the little ones not have easy means of reaching the coolness, fresh air, sunshine and bathing of the associations designed to give them outings. The Philadelphia Sanitarium Association has steamers which run daily to and from Red Bank. The number of trips made last year was 946, the total number of admissions being 96,541, the number of bathers 24,958. The economic aspect is shown in the fact that the total annual expenses of its beneficent work amounted only to about \$12,000 or \$13,000.

The Milk-supply of Cities.—At a recent symposium on the character of milk supplied to cities, held under the auspices of the Medical Society of the County of Albany, N. Y., the production of sanitary milk from the standpoint of the producer was discussed by R. A. Pearson, of Cornell University. Lack of consideration of the producer he finds to be one of the causes of the slow advance in the movement for better market milk. Laws are passed to regulate producers; they would welcome such extension of the laws and would prevent dishonest competition by certain of their number who make unwarranted claims regarding the quality of milk offered for sale. Dairy men would also endorse the enactment of regulations regarding the care of milk bottles when in possession of the customer. These are important points, but to our mind a more cogent factor was touched upon in the statement that there is a lack of general public complaint about the character of our market milk. "All milk looks alike and tastes alike to most people, whether it was produced under sanitary or unsanitary conditions, and those matters are not considered." A remarkable feature is the position of institutions, especially hospitals, that buy milk on contract. As a rule they make no stipulation as to sanitary quality. Dairy men naturally think that milk good enough for institutions caring for the sick must be perfectly satisfactory to well people. Why furnish better? A shameful proof of these assertions was recently given by the State Veterinarian of Pennsylvania, who found by inquiry that only three of the hospitals in Philadelphia paid any attention to the purity of the milk they fed their patients. The only determining question with the others was that of price. Fortunately this

deplorable state of affairs has been changed. People get what they demand—and pay for. In the discussion referred to, Dr. Charles Harrington said that because people want early morning delivery of milk, with the cream at the top, milkmen supply them with milk bottled the previous day. If milkmen should suggest bringing the milk in their large receiving cans at ten o'clock on the morning of its receipt, and measuring it into the consumer's pitcher, they would soon lose their family trade. There are two sides to the pure milk question; laws against the producer should be made and enforced with a full appreciation of the position of the consumer.

Quack Nursing Schools.—The trained nurses of the country should hasten to effect their organizations, for it is only through union and corporate power that they and their allies, the medical profession, can secure laws to protect them and the public from quack nursing schools. The astute owners of the schools are financially cunning. The numbers of such institutions are indeed multiplying rapidly, and are pouring out their "graduates" as numerous as possible while yet an unaroused public sentiment may permit. The president of one of these schools is sending out appeals to physicians which show a curious mixture of characteristics. Here is one written upon the official paper¹ of the President's "school," and addressed to himself:

HON. _____

Dear Sir:—I am in sympathy with extending information regarding the nursing of the sick as widely as possible. You are permitted to refer to me in the matter as occasion may arise. It being understood that this permission does not carry with it any financial responsibility. Very truly yours,

To this strabismic letter our correspondent answered:

HON. _____

March 17, 1904.

Dear Sir:—Your letter inviting my signature to the blank form recommending directly the more general dissemination of knowledge of nursing, and indirectly the Philadelphia School for Nurses, is received. The first thought receives my unqualified commendation and support. The second, the Philadelphia School for Nurses, in its present aims and claims, a decidedly qualified support. We can heartily commend this school to wives, sisters, and mothers who desire to minister more intelligently to the needs of the sick ones in their homes, that is, we recommend it to persons who do not intend to make a profession of the art of nursing.

On pages 21 and 27 of the report of your school we note that you distinctly propose that your graduates shall enter the professional field, and shall pose on terms of equality with the women who have worked and studied the practical and scientific art of nursing for two or more years in some well-appointed hospital. A sick person looking for a nurse is not supposed to be acquainted with the kind of equipment possessed by the candidate for the place. He can be deluded by thinking that a trained nurse should naturally mean one thoroughly trained in practical nursing. We are constrained to say we believe your school in this respect is enacting what should be made a criminal role. You are an eminent jurist, and I would humbly ask whether in all fairness there should not be some well-understood public distinction made between a course of ten weeks in theoretic (possibly a semblance of practical) nursing, and one of two or more years painstaking effort in a hospital? Has not sick humanity a right to be protected from such imposition? Wishing the institution all success in its proper sphere, I am

Respectfully yours, H. C. MASLAND.

¹ With a pompous and awe-inspiring array of D.D.'s, Hon.'s, Presidents, Reverends, and one M.D., all "representing the American National Red Cross, etc., Clara Barton, National President."

AMERICAN NEWS AND NOTES.

GENERAL.

Miscellaneous.—Drs. E. Marchoux and P. L. Simond, of the Paris Pasteur Institute, arrived in Rio Janeiro, February 17, to study yellow fever. A fund has also been raised by the merchants and wharf owners of Hamburg to send Drs. Otto and Neumann, of the Institute for Tropical Diseases, to South America to study these diseases on the spot.

Requests to Charity.—Baltimore: By the will of the late John Mohn, \$16,000 is left to a number of charitable institutions, St. Vincent's Male Orphan Asylum receiving the largest sum, being \$5,000.—Philadelphia: By the will of the late Mary P. Wernwag, \$60,000 is left to 2 sons, and upon their death to the Home of the Merciful Saviour for Crippled Children.

Germs in Filthy Money.—Representative Gaines, of Tennessee, who is pushing his bill to compel the use of clean money, asked Dr. Darlington, the Health Commissioner of New York, to make an examination of different kinds of money to ascertain to what extent disease can be transmitted by them. Dr. Darlington has made the examination requested, and has sent a report, in which he says: "Coins, glass and paper were used for the purpose of determining whether germs would live upon them any length of time. Upon the coin, copper, nickel and silver, diphtheria bacilli all died within 48 hours, while upon the glass and paper they were still alive, which proves that the metal had distinct antiseptic properties, while paper did not, so that bills would probably carry disease, while coins would only do so within a short period of time. So far as paper money is concerned, it has no deleterious effect upon pathogenic bacteria. Dirty bills taken at random from stores show enormous numbers of bacteria upon them. Thus from the washings of one bill were obtained 135,000 bacteria, from another 126,000. Comparatively clean bills gave 2,250 and 2,000 respectively. Upon all of these staphylococci were found. Experiments in actually producing disease from these bills are not yet concluded, but it has been sufficiently demonstrated that money may carry disease."

Progress in Science as Related to Crime.—How the progress of scientific discovery may influence the rendering of justice has been shown in a striking way by the recent decision of the Judicial Committee of Revision of Trials in the case of the Parisian chemist Danval. The latter was found guilty 25 years ago of the murder of his wife by having poisoned her with arsenic, and was sentenced to transportation for life. Scientific evidence having since come to light tending to show that he was innocent of the crime, he was granted a free pardon 18 months ago. The Committee of Revision has now unanimously recommended that his application for a new trial, whereby to clear himself finally of the charge, be granted. The remarkable fact of the case is that the evidence on which Danval was found guilty was purely scientific, and that his application has been allowed solely on account of the fact that later scientific investigation has proved the evidence in question to have been erroneous. At the trial, 25 years ago, all the expert witnesses swore that the quantity of arsenic, 1 mg., found in the corpse of Danval's wife, at the postmortem, could not possibly have existed in the system under natural circumstances, and that it was scientifically proved that the presence of such an amount of the poison was incompatible with life. The inference drawn was, of course, that the arsenic had been administered by Danval, and it was largely on this evidence that he was found guilty, with, however, extenuating circumstances. Since the trial the researches of various doctors and physicists, including MM. Armand Gautier, Béhal, and Gabriel Bertrand, have, on the contrary, conclusively demonstrated that the quantity of arsenic mentioned can and frequently does exist in the human body in a normal state. Presumption is thus set up in favor of Danval's defense, which was that the presence of arsenic in his wife's remains was explained by her having been in the habit of taking certain medicines. The decision of the Committee of Revision has been entirely grounded on the recent scientific conclusions above mentioned.—[Paris Correspondence, *London Telegraph*.]

NEW YORK.

Typhoid at Poughkeepsie.—Information March 15 says: Within a few weeks many cases of typhoid fever have developed in this city, and new cases are being reported daily.

Year's Mortality in New York.—A report just issued by the Health Department shows that of 67,864 deaths that occurred here last year, 9,714 were due to pneumonia. The excellent results attained here by proper vaccinations are demonstrated by the fact that during the entire year there were but 43 smallpox cases reported, from which but 5 deaths resulted. During the year there were 31,174 marriages recorded, and 94,755 births.

Health Certificate before Marriage.—A bill has been introduced in the New York Assembly providing that all persons must obtain a physician's certificate before a marriage license can be issued to them. The bill is designed to make

greater restrictions against the marriage of imbecile and half-witted persons, and also to prevent those having tuberculosis and other diseases from marrying.

Measles in New York.—An epidemic of measles and scarlet fever has broken out in the Bronx, and at the present time there are more than 400 cases of measles on record with the Bronx Board of Health, and between 150 and 200 cases of scarlet fever, with a daily increase of cases. The Department of Health in the Bronx is crippled by the need of disinfectors, there being only 4 men to do this work. It is expected that additional funds will be provided soon.

Regard Pneumonia as Infectious.—The Rochester Health Bureau has decided to treat pneumonia as an infectious disease, and to ask physicians to report all cases just as they report diphtheria and smallpox. A new map is to be placed in the Health office, upon which is to be designated all cases of pneumonia and the sanitary conditions accompanying them. Because the cases have not been reported it is not known how many there have been in Rochester this winter, but it is known that pneumonia has been more than usually prevalent.

Ophthalmic Disease in New York.—Trachoma and other eye diseases have again appeared to such an alarming extent that Health Commissioner Darlington has asked the Board of Estimate for an appropriation of \$30,000 for the immediate establishment in one of the hospitals of several wards devoted exclusively to these diseases, the employment of a staff of oculists, special nurses, orderlies and attendants. The Board at once authorized the expenditure. The Health Department is also planning a special hospital on the lower East Side for the treatment of trachoma.

Big Increase in Deathrate.—According to the weekly reports of the Department of Health the severe winter has added alarmingly to the deathrate through the many fatal cases of pulmonary troubles and the diseases contributing to them. The total deaths for the week ending at noon March 14, 1903, were 1,416, the deathrate being 19.79. The report for this year for the week, up to noon, March 12, showed 1,779 deaths, the rate being 24.18. On March 14, 1903, the week's total of cases of tuberculosis pulmonalis was 279. Last week there were 455. Cases of measles, most largely contributing to pneumonia, were 290 for the corresponding week last year and 1,579 this year. In addition to this, scarlet fever is very prevalent, the report for last week being 496, as compared with 319 last year.

Mt. Sinai's New Hospital, which occupies an entire block, was dedicated on March 16, an appropriate address being made by Governor Odell. The hospital cost \$2,500,000 and is arranged on the pavilion plan, except that the 10 buildings are connected by their ground floor corridors. Five of these, the medical, surgical and private hospitals, the children's and the isolating pavilions, are for the housing of patients and contain 456 beds. On the roof of each of these buildings is a glass inclosed solarium for convalescent patients. In the remaining buildings, the central, or administration building, the kitchen and laundry, the pathologic building, the dispensary and the nurses' training school, reasonable provision has been made for the standing needs of progressive medical science and hospital administration.

Low Smallpox Record in New York.—According to copies of Greater New York's deathrate and contagious cases report for 1903, the number of cases of smallpox in New York last year was only 45 and the deaths therefrom 5. There has scarcely been a week in Philadelphia in the last 6 months that the cases and deaths of the dread disease did not exceed the figures of New York for the entire year. The officials ascribe New York's freedom from the disease to be due to a compulsory vaccination law which prevails in that city. It is explained that the vast population of Greater New York is vaccinated, and that the disease cannot secure a foothold. The fact that employers of labor will not employ unvaccinated persons in New York has contributed largely to the success of the vaccination crusade there.

Effects of Open-Air Treatment.—Figures bearing upon the permanency of the good results obtained by the open-air and rest treatment of tuberculosis are contained in the 19th annual report of the Adirondack Cottage Sanitarium, which has just been issued. Of 1,500 patients who have been discharged from the institution from 2 to 17 years, 434 could not be traced, leaving 1,066 which have been traced. Of these 46.7% are still living; 31% are known to be well at present; in 6.5% the disease is still arrested; 4% have relapsed; 5.2% are chronic invalids, and 53.3% are dead. Thus it has been found that 31% of all those discharged from 2 to 17 years ago have remained well. During the last year 296 patients were treated, which is the largest number treated during any year since the sanitarium was established. Of these 298 there remained in the sanitarium at the time the figures were completed 106, leaving 192 to be reported on for the year. Fifty-two of these, or 27%, were discharged apparently cured. Eighty-nine out of the 192, or 46%, were discharged with the disease arrested, and 32, or 17%,

were discharged as improved; 14, or 7%, were discharged as unimproved or failed; 1 case was recorded as doubtful, and 4 patients, or 2%, died.

Prevention of Tuberculosis in New York.—The Committee on the Prevention of Tuberculosis of the New York Charity Organization Society is going about its work of education with a thoroughness and an intelligence which should be a guide and stimulus to every organization which is engaged in the campaign against the great scourge. Its effort to enlist the interest and cooperation of the labor organizations in this work is highly commendable and is practical. If the latter bodies, particularly those comprised in the United Garment Workers of America, take hold of the work in earnest they can accomplish far-reaching results. Nothing they could do to better the conditions of the wage earners would be so beneficial to themselves and to the world at large as would efficient aid in stamping out conditions under which tuberculosis develops and thrives.

Cat and Dog Law.—The New York city authorities have decided to push a dog and cat bill in the Legislature similar to the law now in existence in cities of the second class. The act requires the licensing of all dogs in the city, the owners to pay a license fee of \$2 on May 1 of each year. Each dog must wear a collar on which will be fastened a metal tag showing that the dog is licensed, and any dog running at large without such a tag shall be seized and impounded. The owner will have an opportunity to secure possession of the dog upon the payment of \$2, but if the animal is not claimed it may be disposed of to some other person who will pay the license fee, or it may be destroyed. Cats are to wear a collar upon which will be inscribed the name and address of the owner. If a cat is found without such a collar it will be impounded with the same provisions for its recovery as for dogs. The Mayor, if he deems it necessary for the protection of the public health of the city, shall have power to prohibit dogs from running at large, whether licensed or not, unless they are securely muzzled or led so as to prevent them from biting. All dogs running at large in violation of such an order may be seized the same as if they were not licensed. The enforcement of the proposed new ordinance is placed with the Health Board.—[N. Y. Sun.]

PHILADELPHIA, PENNSYLVANIA, ETC.

Chester to Fight Tuberculosis.—The Board of Health has planned a campaign against tuberculosis in this city and physicians who are treating the disease have been asked to report all cases, so that the houses can be fumigated and better protection offered the community.

Philadelphia Physicians Fined.—Three physicians of Philadelphia have been fined on the ground that they had violated the Act of Assembly of June, 1895, which prohibits the sending of persons having contagious diseases to hospitals and other places in public conveyances and requiring physicians to report such cases to the Board of Health.

Polluted Water and Typhoid in Philadelphia.—The health authorities are not now fully satisfied that the epidemic of typhoid fever in this city is due entirely to polluted water. They suspect that defective drainage systems may be responsible, to some extent, for the outbreak. Accordingly, they are considering the advisability of conducting a house-to-house canvass to inspect the drainage facilities.

Filtered Water for Public Schools.—The Board of Education has decided to ask Councils for a special appropriation of \$2,000 to repair and maintain 42 large filters which are now out of commission. All together there are 100 filters installed in school buildings throughout the city, furnishing pure water in emergency to residents in the neighborhood of the schools. The bill for the special appropriation will be introduced at the reorganization of Councils, April 4.

Medical Students Petition the State Board of Medical Examiners.—The upper classes in the University Medical School have presented a petition to the State Board of Medical Examiners to change the recent ruling by which they refused to accept the New York examinations for admittance to practise in Pennsylvania. The ruling causes considerable trouble, and in the petition it will be asked that the New York examinations be accepted in part, and the only examinations required be those in subjects which are not covered in New York.

The Henry Phipps Institute.—A cable from Professor Maragliano announces his illness and inability to give his lecture under the auspices of the Phipps Institute scheduled for March 25. It has, therefore, been indefinitely postponed. The institute will entertain at dinner on the 28th the delegates who have been called to meet in Philadelphia to consider the question of a national league against tuberculosis, and the holding of an American Congress against tuberculosis. Dr. L. F. Flick will give a luncheon to the delegates on the same day just before the meeting, which has been called for 3.30 o'clock. At this meeting, an abstract from Professor Maragliano's paper will be read.

New Sewage Plan in Municipal Hospital for Philadelphia.—A plan for making harmless the wastes from the new Municipal Hospital now in course of erection, devised by John S. Bross, is believed to contain the germ of success which thus far has eluded hospital managements throughout the country. The details have not yet been made public. Every effort is being made to have the new Municipal Hospital completed so that the old hospital buildings may be destroyed by fire. Advertisements have been made for bids for the erection of the light, heat and power plant for the new institution. The small-pox pavilion is entirely completed, but cannot be used until the power plant is installed.

Smallpox and the Unvaccinated.—In a recent address made by Dr. Jay F. Schamberg, he is quoted with making the following statement: Even in communities in which the majority of the people are vaccinated smallpox still causes a considerable mortality among the unprotected. In this city from 1901 to 1903 inclusive 665 persons died of smallpox. The statement may grieve afflicted families, but it is nevertheless the truth that every one of these lives could have been spared. There is no excuse at the present day for any one to perish from smallpox. The man who refuses to have his children vaccinated is guilty of criminal negligence; more so, indeed, that he who stores in his home dangerous explosives.

Typhoid, Pneumonia, and Smallpox.—Pneumonia and other diseases of the lungs helped swell the deathrate last week, and the officials of the Health Bureau look for no amelioration during March, at least. Pneumonia heads the list of the causes of death for the week, claiming 113 victims. Ever since December last, when the disease became prevalent, it has caused more deaths each week than tuberculosis, which, on account of its ravages, was called "the white plague." Tuberculosis last week caused 79 deaths. The fact that 141 new cases of typhoid fever were reported to the Health authorities last week, a decrease of 1, as compared with the previous week, leads the authorities to think that defective house drainage may be responsible for the outbreak. The deaths from typhoid last week numbered 21, a decrease of 4 from those of the previous week. Smallpox is decreasing, and with the advent of mild weather the authorities hope to have the disease stamped out. The new cases last week numbered 30, a decrease of 18 from those of the previous week.

SOUTHERN STATES.

United States Naval Medical School.—The closing exercises of the second session of the United States Naval Medical School were held in the lecture room of the National Museum, on Monday morning, March 21.

WESTERN STATES.

Fight Against Tuberculosis.—The National Anti-Tuberculosis Association has been incorporated in Springfield, Illinois. The object of the organization is to prevent tuberculosis by legislation and through a campaign of education. According to the incorporators, the Association is purely philanthropic. The association is preparing a list of the physicians and business men back of this movement, and instructive pamphlets will be issued. A subscription will be taken, and a free clinic for the treatment of the poor established.

Iroquois Hospital Proposed in Chicago.—The proposal of the Iroquois Memorial Association to establish an emergency hospital in the business district in memory of the victims of the theater fire was indorsed recently at a meeting of the Chicago Medical Society. The action of the society was embodied in a resolution as follows: "Resolved, That the Chicago Medical Society approves the action of the trustees of the Iroquois Memorial Emergency Hospital in their generous effort to give to the people of Chicago a modern, fully equipped, and endowed hospital capable of rendering prompt assistance to those cases of unexpected injury and sickness, which are of daily occurrence, and be it further Resolved, That we, as a society, tender to the hospital our counsel, advice, and professional services whenever required."

Measles among Indians.—There is an epidemic of measles in Indian Territory. This is not a serious matter so far as the whites are concerned, but it is different with the Indians. The measles, especially at this season, is a terror to them, and many deaths result among the fullbloods. Years ago smallpox was their scourge, but of recent years the constant use of vaccine has reduced deaths from this cause to a minimum. There was a time when smallpox in the prison of Indian Territory was a matter of greatest dread. It is not so now. There is scarcely a jail in the territory which does not have smallpox cases during the winter, but deaths are rare. Measles are more dreaded by the prison authorities. At this time there are measles in the Muskogee prison, and also at the Fort Smith prison. At a trial at Muskogee, Central District, a jury became afflicted with measles during a murder trial, and the trial was broken up. At Sapulpa, Western District, a prisoner broke out with measles, and the entire court was exposed. Some of the officials are

now ill of the disease. The same malady prevails in several towns in the territory, and in several instances schools have had to be closed on that account.—[*Kansas City Journal*.]

Chicago's Drinking Water.—The Bulletin of Chicago's Health Department for the week ended March 5, says: Forecasts from the Laboratory: The city water is still bad, all stations—with only one or two exceptions—showing the presence of contamination every day during the week. This condition and the increasing proportion of positive reactions in the Widal test for the typhoid bacillus—about 6% more than the previous week—foreshadow an increase of typhoid fever, which will, of course, be chiefly among those who have been drinking the contaminated hydrant water. All drinking water at the present time should be sterilized by boiling. Cultures show the diphtheria bacillus in about the same proportion as last week. Influenza is still present to a large extent, but the virulence of the germ is somewhat milder. There is a marked increase of staphylococcus present, the germ that causes tonsillitis. During January and February, 180 physicians sent to the laboratory, 487 throat cultures to be examined for diphtheria, influenza, etc., and 575 specimens of blood, sent in by 283 physicians, have also been examined by the Widal test of typhoid; about 25% of these were positive. The positive reactions declined from 35% during the first week of January to 13% during the last week of February, but are again increasing.

FOREIGN NEWS AND NOTES

GENERAL.

An Expensive Hospital with One Patient.—According to the *Daily Mail* of London, the special hospital for the treatment of ringworm, which the Metropolitan Asylums Board built at a cost of £200,000, remained empty until a few days ago, when the record was broken by the admission of a child from Mile End road.

OBITUARIES.

William Frederick Holcombe, at his home in New York City, March 17, aged 77; a graduate of the Albany Medical School. He had also taken special courses in Paris and Berlin. In 1861 he was appointed lecturer on diseases of the eye at the New York University Medical College; later he was professor of eye and ear diseases in the same college; also in the New York Ophthalmic College and Hospital and in the New York Medical College for Women. He was a member of the medical societies of New York, The American Medical Association and the International Medical Society.

Moreau Morris, at his home in New York, March 17, aged 79; a graduate of the College of Physicians in 1848. In 1866 he was appointed health commissioner and later served as superintendent of the New York City Health Department. In 1871 he became surgeon of the Seventh Regiment, N. G., N. Y., and later was appointed tenement commissioner. He was a member of the American Public Health Association, of the Alumni Association of the College of Physicians and Surgeons, and of the Academy of Medicine.

William H. Hawkes, at his home in Washington, March 15, aged 55; a graduate of the University of Pennsylvania, and at one time assistant army surgeon. He had practised in the District of Columbia since 1882. He was a member of the American Medical Association, and at the time of his death was on the staff of the Emergency Hospital and was formerly a member of the faculty of Georgetown University.

D. P. January, at his home in Crowley, La., March 17, aged 66; a graduate of Tulane University in 1860. At the outbreak of the Civil war he was appointed surgeon in the Confederate army and served with distinction throughout the various regiments during the entire war. He was at one time mayor of Crowley and was a wellknown physician in Louisiana.

W. J. McDermott, at his home in New York, March 12, aged 73; a graduate of New York University in 1853. One time member of the New York Assembly. He was a noted surgeon during the Civil war and a personal friend of President Lincoln and General Grant. He was captured and was confined for a time in Libby prison.

Ralph Schuyler Goodwin, at his home in Thomaston, Conn., March 5, from Bright's disease, aged 64; a graduate of the College of Physicians and Surgeons, New York, in 1868; a member of the American Academy of Medicine and of the American Public Health Association, and health officer of Thomaston.

Peter G. de Saussure, from pneumonia, at Riverside Infirmary, Charleston, S. C., March 8, aged 46; a graduate of the Medical College of the State of South Carolina; a member of the American Medical Association and professor of obstetrics, gynecology and diseases of children in his alma mater.

Phillip H. Brothers, from heart disease, at his home in Zula, Ala. March 4, aged 74; a graduate of Jacksonville Medical College in 1853; a

member of the American Medical Association and one time member of the State Legislature of Alabama.

Douglas J. Cameron, at his home in New York, March 14, aged 31; a graduate of Yale University and of the University of Edinburgh. He confined his practice chiefly to the poor and was known on the East Side as the "Good Samaritan."

B. F. Taylor, at his home in New Orleans, March 18, aged 80; a graduate of the Missouri Medical College in 1848. For several years he held the position of medical examiner of applicants for pension and was wellknown in his home city.

James Brownlee Sanford, at his home in Denver, Col., from appendicitis, March 16, aged 63. He was speaker of the house of representatives at the time of his death and was widely known throughout Colorado and the West.

John Orlando Scott, after a surgical operation in St. Vincent's Sanitarium, at Sherman, Texas, March 8, aged 66; a graduate of the University of Louisville in 1862. A surgeon of the Confederate service during the Civil war.

John Frank Gels, from pneumonia, at his home in Indianapolis, March 7, aged 35; a graduate of the Medical College of Indiana, Indianapolis, in 1891; professor of chemistry, toxicology and forensic medicine in his alma mater.

Henry Alfred Rundlett, at his home in New York, March 9; a graduate of Harvard University. He was professor of dermatology in the New York School of Clinical Medicine; an original thinker and wellknown writer.

Anton F. Blocki, from hepatic disease, at his home in Sheboygan Wis., March 6, aged 37; a graduate of Rush Medical College in 1892. A member of the American Medical Association and health officer of his home city.

Thomas McInnes, of heart disease, at Vancouver, B. C., March 16. He was formerly senator of British Columbia and subsequently lieutenant governor of that province.

Charles H. Richmond, from accidental poisoning by mercuric chlorid, at his home in Livonia, March 2, aged 63; a graduate of the University of Buffalo in 1860.

Justin G. Thompson, at his home in Angola, N. Y., March 6; a graduate of the University of Michigan in 1861 and an army surgeon during the Civil war.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 18, 1904:

SMALLPOX—UNITED STATES.			Cases	Deaths
California:	San Francisco.....	Feb. 21-28.....	5	
District of Columbia:	Washington.....	Mar. 5-12.....	2	
Florida:	Jacksonville.....	Mar. 5-12.....	2	
Illinois:	Belleville.....	Feb. 26-Mar. 12.....	2	
	Chicago.....	Mar. 5-12.....	1	
	Danville.....	Mar. 5-12.....	1	
	Galesburg.....	Mar. 5-12.....	1	
Maine:	Madawaska region.....	Feb. 27-Mar. 5.....	11	
Maryland:	Baltimore.....	Mar. 5-12.....	2	
Michigan:	Detroit.....	Mar. 5-12.....	1	
Missouri:	St. Louis.....	Mar. 5-12.....	11	
New Hampshire:	Manchester.....	Mar. 5-12.....	5	
New Jersey:	Camden.....	Mar. 5-12.....	2	1
New York:	Buffalo.....	Mar. 5-12.....	4	
	New York.....	Mar. 5-12.....	5	
Ohio:	Cincinnati.....	Feb. 26-Mar. 11.....	7	1
	Dayton.....	Mar. 5-12.....	2	4
	Toledo.....	Mar. 5-12.....	1	
Pennsylvania:	Johnstown.....	Mar. 5-12.....	1	
	McKeesport.....	Mar. 5-12.....	1	
	Philadelphia.....	Mar. 5-12.....	48	6
	Pittsburg.....	Mar. 5-12.....	2	
South Carolina	Charleston.....	Mar. 5-12.....	1	Imported.
	Greenville.....	Mar. 5-12.....	9	
Tennessee:	Nashville.....	Mar. 5-12.....	12	
Wisconsin:	Milwaukee.....	Mar. 5-12.....	3	

SMALLPOX—FOREIGN.			Cases	Deaths
Austria:	Prague.....	Feb. 20-27.....	9	
Belgium:	Antwerp.....	Feb. 14-21.....	7	4
Canada:	Ontario			
	24 localities.....	Jan. 1-31.....	108	
	Quebec.....	Mar. 5-12.....	8	
France:	Marseilles.....	Feb. 1-29.....	25	
	Paris.....	Feb. 20-27.....	38	1
Great Britain:	Edinburgh.....	Feb. 20-27.....	16	13
	Glasgow.....	Feb. 26-Mar. 4.....	30	2
	Hull.....	Feb. 20-27.....	6	
	Leith.....	Feb. 20-27.....	3	
	London.....	Feb. 20-27.....	5	
	Newcastle-on-Tyne.....	Feb. 20-27.....	5	
	Nottingham.....	Feb. 20-27.....	14	
India:	Bombay.....	Feb. 9-16.....	5	5
	Karachi.....	Feb. 7-14.....	5	1

Italy:	Palermo.....	Feb. 20-27.....	1	
Malta:	.....	Feb. 13-20.....	1	1
Mexico:	La Cananea.....	Mar. 9.....	Present.	
	Magdalena.....	Mar. 9.....	8	
	Terreeen.....	Feb. 24.....	Epidemic.	
Netherlands:	Amsterdam.....	Feb. 20-Mar. 5.....	2	
Russia:	Moscow.....	Feb. 13-20.....	8	1
	Odessa.....	Feb. 13-20.....	2	
	St. Petersburg.....	Feb. 13-27.....	17	5
Spain:	Barcelona.....	Feb. 1-29.....	7	
	Santander.....	Feb. 22-29.....	4	1
Turkey:	Constantinople.....	Feb. 21-28.....	5	

YELLOW FEVER—UNITED STATES.

Texas:	Laredo.....	Mar. 14.....	1	
It is not yet determined whether this case was imported or not. All precautions taken.				

YELLOW FEVER—FOREIGN.

Mexico:	Merida.....	Feb. 28-Mar. 5.....	1	2
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CHOLERA.

India:	Calcutta.....	Feb. 6-13.....	19	
	Madras.....	Feb. 6-13.....	1	

PLAGUE—UNITED STATES.

California:	Concord.....	Feb. 29.....	1	
Bacteriologically confirmed March 12.				

PLAGUE—FOREIGN.

Egypt:	Alexandria.....	Jan. 30-Feb. 13.....	1	
India:	Bombay.....	Feb. 8-16.....	550	
	Calcutta.....	Feb. 6-13.....	45	
	Karachi.....	Feb. 7-14.....	69	34

Changes in the Medical Corps of the U. S. Army for the week ended March 19, 1904:

EDGER, First Lieutenant BENJAMIN J., JR., assistant surgeon is granted leave for one month.

TORNEY, Lieutenant-Colonel GEORGE H., deputy surgeon-general, is assigned to the command of the U. S. General Hospital, Presidio, to relieve Major William P. Kendall, surgeon.

GOSMAN, First Lieutenant GEORGE H. R., assistant surgeon, is relieved from duty at Fort Duchesne and will proceed to Camp George H. Thomas, Ga., for duty.

SILER, First Lieutenant JOSEPH F., assistant surgeon, is granted leave for fourteen days from about April 6.

Changes in the Medical Corps of the U. S. Navy for the week ended March 19, 1904:

FEREBEE, N. M., medical director, detached from the Navy Yard, Washington, D. C., and granted sick leave for six months—March 14.

PECK, A. E., assistant surgeon, granted sick leave for two months—March 17.

Changes in the Public Health and Marine-Hospital Service for the week ended March 17, 1904:

CARTER, H. R., surgeon, to proceed to New Orleans, La., and attend conference of quarantine officers, March 14—March 12, 1904.

BROOKS, S. D., surgeon, department letter granting leave of absence for four months from April 1, 1904, amended to read four months from April 6—March 12, 1904.

GUIERAS, G. M., surgeon, department letter granting leave of absence for three months from December 19, 1903, amended to read two months and five days from December 19, 1903—March 5, 1904.

MCMULLEN, JOHN, passed assistant surgeon, to proceed to Immigration Depot, New York, N. Y., and report to G. W. Stoner for duty—March 12, 1904.

GRUBBS, S. B., passed assistant surgeon, granted leave of absence for twelve days from March 18—March 16, 1904.

RICHARDSON, T. F., assistant surgeon, relieved from duty at New Orleans, La., and directed to proceed to Laredo, Texas, and assume command of service at that port—March 16, 1904.

FRANCIS, EDWARD, assistant surgeon, to proceed to Delaware Breakwater Quarantine and assume temporary charge of station during illness of Passed Assistant Surgeon C. H. Lavinder—March 10, 1904.

BULLARD, EDWARD, acting assistant surgeon, granted leave of absence for twenty-seven days from March 4—March 9, 1904.

MONCURE, J. A., acting assistant surgeon, granted leave of absence for thirty days from April 1—March 9, 1904.

NALL, R. P., acting assistant surgeon, granted leave of absence for seven days from March 1, 1904, under paragraph 210 of the regulations—March 9, 1904.

SIBREE, H. C., acting assistant surgeon, granted leave of absence for five days from March 15—March 12, 1904.

SIMONSON, G. T., acting assistant surgeon, bureau letter of March 10, 1904, granting leave of absence for five days from March 15, 1904, amended so as to read five days from March 22—March 17, 1904.

STANTON, J. G., acting assistant surgeon, granted leave of absence for thirty days from March 8—March 9, 1904.

THURSTON, E. J., pharmacist, granted leave of absence for seven days from March 9, 1904, under paragraph 191 of the regulations—March 9, 1904.

KOLB, W. W., pharmacist, granted leave of absence for twenty-eight days from April 2—March 14, 1904.

Appointment.

Dr. Melvin M. Hopkins appointed acting assistant surgeon for duty at Ketchikan, Alaska—March 9, 1904.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

METASTATIC OR COINCIDENTAL CANCER?¹

BY

A. L. BENEDICT, M.D.,

of Buffalo, N. Y.

Consultant in Digestive Diseases, City Hospital for Women and Riverside Hospitals, Buffalo.

In ordinary cases of multiple foci of cancerous disease, one can be designated as primary, while the secondary growths follow pretty definite metastatic routes, or extend by continuity, natural or pathologic, of tissues. In the latter growth of cases, it is, of course, often impossible to decide from the specimen of a protracted case, the exact site of the primary focus. Indeed, it is scarcely logical to designate a tumor of the liver, for example, as secondary, when it has simply extended or has been inoculated from a penetrating cancer of the pylorus. It is difficult to draw lines between the extension of a growth in the organ in which it originates, its extension to neighboring organs along normal bonds of union, its extension along pathologic adhesions, and the implantation of cancer by occasional contact, as is commonly seen on the liver and less frequently on other organs, when the original growth is at or near the pylorus and penetrates to the serous covering of the stomach.

I recall only 2 cases of cancer in which there was any question as to the relation of 2 tumors, barring the qualifications already made:

Patient, No. 49, of 1896-7, a middle-aged woman, had had the right breast amputated for cancer, about a year previously. She had some slight recurrence in the scar but died of cancer at the cardia, from gradual asthenia and inanition but without developing absolute closure at the cardia.

Patient No. 43, of 1903-4, had both breasts removed on account of cancer (microscopic demonstration), about 10 years previously. The result was perfect and certainly reflects credit on Dr. J. C. Thompson, with whom I saw the patient, for the necessity of cleaning out the axillary lymphatics was not as generally held at that time as at the present. This patient presented a hard fusiform tumor of the pylorus and obstructive dilation of the stomach. While the patient² is still alive and refuses operation, so that a pathologic diagnosis cannot be made, a tumor of the size and consistence of this, developing in a woman of 50, can scarcely be anything but cancer.

In these 2 cases the question very naturally arises as to whether the original mammary cancer was primary to the subsequent one or whether the two were entirely coincidental. I do not recall ever having seen any other cases which would come under this category, either among the cancer cases seen in private practice and carefully noted, say 100 in the last 10 years, or in cases seen personally but more or less casually, as of skin cancer referred immediately to surgeons, or in hospital wards and clinics. Just how many cases have been seen altogether, it is impossible to state with any approach to accuracy. Obviously, a case with 2 independent or apparently independent cancers, would attract attention. My friend, Dr. Roswell Park, very kindly allows me to quote him as saying that he can recall no case of visceral cancer following skin or breast cancer, which would come under this category, although a careful search of his records might perhaps reveal such.

E. Davie and L. Gallavardin³ discuss a different phase of essentially the same subject, coexisting primary cancer. They divide the possible occurrences as follows:

1. Cancers arising from distinct types of epithelium.
2. Cancers arising from the same epithelium, but themselves, histologically different:
3. Cancers arising from the same epithelium, histologically identical or nearly so, but on account of location or for other reasons, deemed not to be in metastatic relation.

They report 2 cases of the last group, the evidence of one of which is not very convincing, and state that only 7 are found in literature.

¹ Presented to Medical Society of the State of New York, January, 1904.

² This patient died about February, 1904. The tumor had not increased in size nor ulcerated into the stomach. Necropsy was not allowed.

³ Lyon Médicale, May 24 and 31, 1903.

The problem with regard to such cases as have been mentioned, is not the narrow one of perfecting a particular case history, but broadens out to cover much of the domain of cancer pathogeny and it even has a very practical bearing. For example, we may ask whether the various kinds of cancer are essentially the same disease, or whether they are entirely distinct, according to the kind of epithelium involved. This question leads to the next: Does the classification follow the embryonic membranes or, rather, can such a classification be perfected, for it certainly does not exist in satisfactory form at present. As corollaries to this question, there arise the old disputes as to whether renal epithelium is really such or whether it is endothelium, *i. e.*, of mesoblastic origin, and whether the serous surfaces of the body cavities are mesoblastic or not. In regard to the 2 cases mentioned, we can imagine a mammary, epiblastic cancer jumping to the cardia, for the esophageal epithelium is almost certainly epiblastic, but, if there is any truth in the hypothesis that cancers of different embryonic membranes are entirely distinct, we can scarcely apply a similar explanation to the case in which a probable cancer of the pylorus follows a mammary cancer. In this case, too, the lapse of time speaks for a pure coincidence, while, in the former case, the simultaneous occurrence of a recedive in the scar of operation and a cancer of the cardia, is rather suggestive of a genuine relation.

From the standpoint of the germ origin of malignant tumors, the word *germ* is used advisedly because of the widely different forms of life claimed to be causes and the vagueness of the whole matter, several interesting problems arise. Are the various kinds of cancer due to the same parasite, assuming that they are of parasitic origin, or to closely related parasites? Is there a corresponding identity of or relationship between the parasites of cancer and of sarcoma? It may be significant that cancer usually spreads by routes, which suggest a direct colonization of tumor elements, rather than dissemination of germs. Moreover, the extreme rarity of double or multiple primary cancer or of cancer following sarcoma also has a bearing on this question. Only very exceptionally does any form of malignant disease show any tendency whatever to self-limitation. In general, a disease which is not self-limited does not confer immunity against a second attack in case it is spontaneously or artificially ended without the death of the host. Just about 4% of my patients have cancer (of the digestive organs, mainly stomach) not to mention the, to me, quite extraneous occurrence of rodent ulcer, uterine cancer, etc. The United States Census of 1900 tabulates 28 cancer deaths to 1,000 from all causes, beside 3 to 1,000 assigned vaguely to tumors. At this general rate, of approximately 3%, we should expect the same number of patients cured by operation to develop a second primary cancer, not necessarily in the same part of the body. But the mortality from cancer is by no means evenly distributed throughout life. Between 30 and 34, when it first assumes notable proportions, less than 2% of all deaths are due to cancer. The ratio changes approximately as follows (United States Census, 1900):

35-39, total deaths 44,367, cancer deaths 1,417, ratio approximately 3%	
40-44 " " 41,439, " " 2,174, " " 5%	
45-49 " " 40,201, " " 2,943, " " 7%	
50-54 " " 42,666, " " 3,867, " " 8%	
55-59 " " 43,169, " " 3,652, " " 8%	
60-64 " " 48,178, " " 3,746, " " 8%	
65-69 " " 52,190, " " 3,580, " " 7%	
70-74 " " 53,073, " " 2,912, " " 5%	
75-79 " " 46,039, " " 2,037, " " 5%	

It is noteworthy, however, that in the last few quinquenniums "old age," which does not appear before the age of 60, is assigned with increasing frequency as a cause of death. Doubtless, many deaths from cancer are included under this convenient heading. Granting that the numerous errors in death certificates balance themselves, so far as cancer is concerned, and ignoring the fact that, in each quinquennium the cancer mortality must be a trifle less than the cancer incidence, on account of the cure of some patients by operation, it would appear that from 5% to 8% of all patients previously cured by operation of either sarcoma or cancer, ought to die of an independent cancer. Allowance must, however, be made for the fact that sarcoma is usually a disease of early life, and that since the

development of surgery to the present state, as regards radical operations of all kinds, not sufficient time has elapsed for the sarcoma cases to have reached the period of maximum cancer incidence. With regard to cancer, the condition is very different. Throughout the advanced medical world, there must by this time, have accumulated a considerable series of successful radical operations for cancer. Almost every surgeon has had a few such experiences, and some have published quite lengthy lists. In some series the proportions of cures, meaning freedom from recurrence after 3 to 6 or more years, has amounted to almost 50%. In some series, the reporter has modestly recorded as failures, cases in which recurrence has taken place at a distant site and after a considerable interval. Is it not worth while that these series and others should be studied from a slightly different standpoint? If even 1,000 cases of radically treated cancer with no recurrence for, say, 3 years, could be collated, we should expect 50 to 80 of these to develop independent cancer, the original region being involved *pro rata* with other regions, allowing, of course, for the actual removal of certain anatomic units, such as the breast, uterus, pylorus, rectum, etc. A "recurrence" later than 5 years and not in a well-defined area of recedive or metastasis, may well be regarded as an independent incidence. *A fortiori*, is this true of cancers of different epithelium from the original growth? Less than 50 to 80 such reappearances would not only argue that the operation had been successful in the strictest sense, but would suggest an acquired immunity. Here is an inviting field for the surgical and pathologic statistician. It is useless to speculate further in advance of reliable statistics.

"THE MODERN PHARMACOLOGY OF IRON."

BY

WILLIAM J. ROBINSON, Ph.G., M.D.,
of New York City.

To the Editor of *American Medicine*:—Dr. Wilcox's article on "The Modern Pharmacology of Iron" shows a deplorable tendency among some physicians to place half-supported theories, fanciful hypotheses and doubtful test-tube experiments above hard clinical facts, above bedside testimony. To judge from these remarks, one would think that inorganic iron has never been of the slightest value in anemia and chlorosis, but that, on the contrary, it has been injurious by causing gastric disturbances, etc. Have we not seen positive, unmistakable results from freshly and properly prepared Blaud's pills, for instance? Have we not plainly seen the cheeks and lips of young girls lose their pallor under Vallet's mass or Basham's mixture? and even the old Tinctura Ferri Chloridi does excellent service in many cases of anemia. In my opinion the true hematinic value of inorganic iron cannot be denied. The only trouble with the inorganic forms of iron is that they frequently—but not so frequently as some would make us believe—disturb the digestion, produce constipation, headache, etc. But these disadvantages have been done away with by use of the organic forms of iron, particularly the peptonate. If the experience of thousands of physicians counts for anything (and I think in therapeutics this should be our only criterion) we have in the peptonate of iron a preparation which leaves little or nothing to be desired as a chalybeate. Its hematopoietic properties cannot go unnoticed by the dullest observer, and it is free from those disagreeable features which occasionally render inorganic iron objectionable. Whether an iron preparation responds or not to McCallum's test, whether or not it gives a precipitate with silver nitrate is of absolutely no importance to anybody. Neither the physician nor the patient cares a rap for McCallum's or any other test. They all care, however, for therapeutic results, unaccompanied by disagreeable effects. In one sentence Dr. Wilcox shows the fallacy of his own reasoning, and destroys the force of all his arguments. It is when he tells us that hemoglobin is not absorbed as such, but is destroyed so soon as it enters the stomach. What form of iron could be more "organic" than hemoglobin? Dr. Wilcox tells us that, "as a matter of fact, Cloetta as early as 1896 showed that it is not absorbed as such, but is destroyed as soon as it enters the stomach. With this, the theory of the advantage of blood,

or products made from blood, for oral administration, fails." I do not agree with these conclusions of Dr. Wilcox's. But they seem to show beautifully the fallacy of the arguments and requirements, for hemoglobin is (1) of definite chemie composition, (2) does not precipitate with a silver nitrate solution, (3) does not give the blue-black color with McCallum's test. And still we are told that it is worthless as a hematinic!

THE MANUFACTURE OF SERUMS AND VACCINE.

BY

J. W. T. KNOX,
of Detroit, Mich.

To the Editor of *American Medicine*:—It is evident that Dr. Naughton, of Chicago, does not know of the existence of the law regulating the manufacture of serums and vaccine or he would not dispute, in his communication published in *American Medicine*, March 5, the correct statement of Dr. Evans on this question. If he will examine the wrapper of the next antitoxin package that he uses, he will see the words "Manufactured under U. S. Government License No. —," or their equivalent.

The Act of Congress authorizing this control of biologic products was approved July 5, 1902, and the regulations prepared by a board consisting of the Surgeons-General of the Public Health and Marine-Hospital Service, of the Army, and of the Navy, were promulgated February 21, 1903, and took effect August 21, 1903.

Under these regulations, which have the force of law, it is unlawful for any person to carry on interstate commerce in biologic products made at an establishment not duly licensed by the Treasury Department.

Licenses are issued by the Secretary of the Treasury only after inspection of the establishment by a commissioned medical officer of the Public Health and Marine-Hospital Service above the rank of assistant surgeon. The visit of the inspector is unannounced, and he is authorized to examine every portion of the premises, to see the methods used in actual operation, and to interrogate any member or employe of the firm under oath. The inspectors are required not only to investigate closely the methods of preparation, storing, dispensing, and other details in the manufacture and sale of biologic products, but to examine into the construction, and administration of establishments. Under these regulations it is plain that the government practically dictates the equipment of the establishment, and the personnel of its executive staff. Furthermore, the inspectors are required to purchase samples of the biologic products of licensed establishments, either in open market or elsewhere, as may be advisable, and have them examined for purity and potency.

Licenses are issued for only one year, but there is no specified time for inspections, and no licensed manufacturer has the slightest assurance that his plant will not be inspected 20 times a year. The inspection is not by any means perfunctory, but is carried on in rigid adherence to the letter and the spirit of the law. All this is precisely as it should be. The Secretary of the Treasury has the power to revoke any manufacturer's license for any of the following reasons: (1) Faulty construction or equipment; (2) faulty methods of preparation; (3) faulty administration; (4) impurity of products; (5) lack of potency of products, and he is required, whenever a license is suspended or revoked, to publish a circular giving the facts that led to such action.

What better regulation of this important industry could we have?

Laying all question of honor and conscience aside, is any manufacturer of antitoxin and vaccine going to risk financial ruin by marketing an inactive or contaminated product and thus courting revocation of the license, without which he could not do business for a single day? I think not. Immense amounts of capital are invested in the production of antitoxin and vaccine. The leading manufacturers have hesitated at no expense whatever to provide serums of the highest purity and potency. Their plants are open not only to government inspection, but to any member of the medical profession at any time,

and such visits are always welcomed. I have yet to see a physician, who has availed himself of this standing invitation to the medical profession and inspected a modern antitoxin laboratory, who has anything but praise for its splendid equipment, its scrupulous cleanliness, its countless safeguards against contamination, the scientific precision of its methods, and the exacting requirements for purity and activity of its products. I have yet to hear a single valuable suggestion, from any physician, of a possible improvement in any respect, although such suggestions are always asked for.

If all this is merely "dress parade," it is remarkable that no one among the thousands of physicians who visit these places annually, coming at all hours of every day, ever finds conditions otherwise. As a matter of fact, there is but one logical conclusion, and that is that the manufacturers of antitoxin do market thoroughly reliable and trustworthy products—and no other sort. But if Dr. Naughton thinks otherwise, let him call the attention of the Secretary of the Treasury to the offending firm. If he is right, he will have the satisfaction of witnessing a prompt reform, or an equally prompt retirement of that firm from the biologic business.

It is a fact of some interest that the principal producers of antitoxin gave their hearty support to the bill which afterward became the law that regulates their respective establishments. They advocated and welcomed its passage, and there is absolutely no reason to suspect that they are not now working in entire harmony with its rigorous, but wise and beneficent requirements.

REMOVAL OF A PIN FROM THE VAGINA 7 MONTHS AFTER BEING SWALLOWED.*

BY

FRANK C. HAMMOND, M.D.,
of Philadelphia.

Demonstrator of Gynecology, Temple Medical College; and Chief of the Outpatient Gynecologic Department, Samaritan Hospital.

Numerous instances have occurred in which a needle or a portion of one has escaped from various portions of the body, but I have been unable to find in literature a case similar to the following one, of extrusion per vaginam, of an ordinary pin, an inch in length.

CASE.—B. W., aged 28, single, first came under my care in 1899. She gave a history of having run into the right wrist a black-headed steel milliner's pin, which had broken off about $\frac{1}{2}$ inch from the point. Upon examination with the röntgen ray the broken pin was located, point upward, in the tendon of the flexor carpi radialis muscle. It was removed with great difficulty, and only by using the fluoroscope continuously during the operation. During July, 1900, I removed her right tube, ovary, and appendix, for inflammatory disease, and resected the left ovary. In the early part of 1902, while sewing, she ran a needle into the dorsal portion of the left thumb, over the first phalangeal articulation; it broke off about $\frac{3}{4}$ inch from the point, greatly interfering with the motion of the joint. This fragment was easily removed.

For the past few months she has been receiving local treatment for a metritis. On December 13, 1903, she complained of marked throbbing pain in the rectovaginal septum. I made a careful examination, to ascertain if there was any induration or point of suppuration, but failed to find any. While examining the left lateral wall of the vagina, just above the left levator ani muscle, I was surprised to find a sharp point protruding about $\frac{1}{2}$ inch from the vaginal wall, directly downward toward the pelvic floor. An attempt to elevate this gradually, in order to grasp it with a pair of forceps, occasioned considerable pain, causing the patient to "pull away." In so doing the object was drawn back into the vaginal wall, and was no longer palpable.

On December 15 a careful search was again made, and near the same spot in the left vaginal wall a small round object, about the diameter of an ordinary pin, was found protruding through the vaginal wall and embedded in the pelvic floor. The portion within the vagina was seized with a hemostat and pushed upward into the vaginal wall, thus disengaging the point; the object was then pulled out from the vaginal wall, the end offering a little resistance, and proved to be an ordinary pin, 1 inch in length. The pin had not undergone any change during its presence in the body.

Upon inquiry, the patient and her family remembered her having swallowed a pin some 7 months ago. At the time they considered the advisability of her taking castor-oil, and then the incident was dismissed from their minds.

* Read before the North Branch of the Philadelphia County Medical Society, January 14, 1904.

ORIGINAL ARTICLES

ABDOMINAL PAIN.¹

BY

J. H. MUSSER, M.D.,
of Philadelphia.

With the limitations that must be placed on all subjective symptoms, pain is the one which more than all others leads to the recognition and localization of disease within the abdomen. Fortunate is the physician who has the aid of a patient with clear intelligence to describe the character, the mode of onset, the localization, the direction of transmission, the association with altered function, and the many qualities of this valuable clinical expression of disease. Unfortunately, too often, when the aid of the patient is needed the most, as in the toxic period of typhoid fever, it avails not as it should.

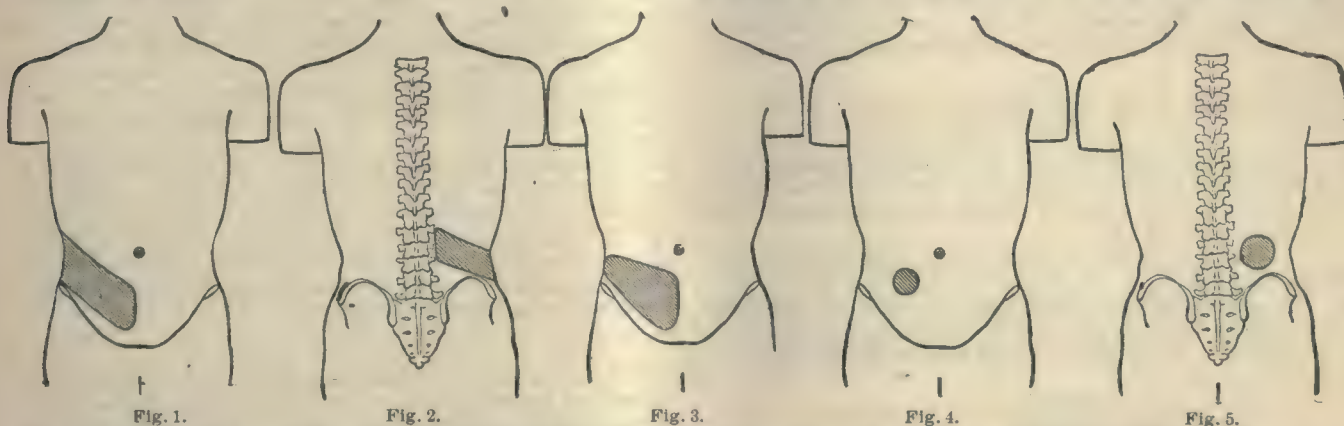
ASSOCIATE EXPRESSION OF PAIN.

Spasm of muscles.—The occurrence of *spasm* of muscles, related by nerve supply to the organic lesion which causes the pain, as indicated by *resistance*, is of great aid in the localization of the lesion. No more valuable indication of the occurrence of irritation or inflammation exists than this symptom. Of much significance under certain

called attention to alterations of cutaneous sensibility in the distribution of spinal nerves related to affected organs within the body. Sherren¹ has called renewed attention to this cutaneous hyperalgesia, elicited by gentle friction or pinching of the skin or by the head of a pin or some blunt instrument. That such hyperalgesia may exist is well known, but the point I wish to make is, if it exists and then disappears, as may also spasm and pain, the change is of ill omen unless all other symptoms subside. The absence of, or rather the disappearance of hyperalgesia means the occurrence of gangrene or perhaps perforation. The accompanying illustrations show the distribution of cutaneous hyperalgesia in appendicitis. They are taken from Sherren's article.

PAIN IN ABDOMEN DUE TO GENERAL CONDITIONS.

The Intoxications.—I shall pass over that due to lead-poisoning, only venturing to reinforce the warning of Janeway, and speak of abdominal pain due to uremia. The French authors have long since called attention to this symptom, and many years ago I made a verbal communication to the West Philadelphia Medical Society on it. I had seen it, as had likewise the French observers, in or preceding the uremic convulsions of puerperal nephritis. In the instances under my observation the pain was in the epigastrium and both hypochondria. Only recently I was asked to see a case of alleged severe indigestion with cramps in a woman who had been



Figs. 1 and 2.—Showing the area of cutaneous hyperalgesia in appendicitis corresponding to the eleventh dorsal area of head (Sherren). Fig. 3.—Showing the "appendix triangle" of cutaneous tenderness. Fig. 4.—Showing the small circular area of cutaneous tenderness occasionally present. Fig. 5.—Showing the rounded patch of cutaneous tenderness in the lumbar region.

circumstances is its *absence*, for often it does not imply under such circumstances the absence of lesion. (a) It is wanting, of course, when there is no muscle, or perhaps very little, to undergo spasm. Hence in atrophied abdominal walls, as occur in women from overdistention, such spasm may not occur. In a case of perforating gastric ulcer with oncoming peritonitis, operated on by Keen, within 6 hours of perforation, no spasm or resistance was detected. Similar cases of such character have occurred in cholecystitis, when often for similar reasons, mural atrophy—the muscle spasm is wanting. (b) It disappears with the onset of toxemia, and hence a rapidly lessening resistance with the slightest evidence of advancing toxemia, as indicated by the expression, the tongue, the pulse-rate, the mental condition, even though the temperature falls, is of grave significance. It may be found that the leukocytes do not increase, but may even fall to a moderate height, as 9,000 to 12,000 or even less, as we also find in grave pneumococcus infections, when a moderate leukopenia may be present.

Tenderness of Cutaneous Surface. Hyperalgesia.—Hilton, Head, Mackenzie, and others have repeatedly

delivered 4 hours previously, and who had nephritis in the latter part of her pregnancy. I warned them of the oncoming of uremic convulsions and coma, which unhappily was too true 4 hours later.

UREMIA SIMULATING PERFORATING GASTRIC ULCER.

In my service of 1902, in the University Hospital, a patient was under my care for well-defined syphilis and nephritis. She had some epigastric pain, constant vomiting, and hematemesis. For reasons a gastric analysis was not made, but the vomitus did not give signs of any definite organic disease. On one occasion, while vomiting was temporarily arrested, sudden pain and shock ensued. The temperature fell to 96° and the pulse rose. I was informed perforation had taken place. Professor Frazier saw her with me a few hours later. As the toxic features of uremia appeared to be increasing, operation was deferred. Temporary recovery from the uremia took place, but death followed within a month.

At the autopsy a marked chronic gastritis, with ecchymosis and abrasions of the mucous membrane, were found, but no ulceration of the stomach. The patient narrowly escaped operation.

The next patient was not so fortunate. I saw him on an afternoon, with well-defined uremia. He suffered very much from abdominal pain. He had an inguinal hernia. I sent him to the hospital, and asked that a surgeon see him to discuss with me the relation, if any, of the hernia to the pain and vomiting. We were prevented conjoint attendance upon the

¹That portion of the symposium on abdominal pain assigned to the author—abdominal pain in general and that due to disease of the stomach, liver and pancreas. Presented to the New York State Medical Association at the meeting in Albany, January 26 to 28, 1904.

¹"On the Occurrence and Significance of Cutaneous Hyperalgesia in Appendicitis." James Sherren, F.R.C.S., Eng., *Lancet*, September 19, 1903.

case, and the surgeon, thinking I had sent him in for operation, performed it without delay. Neither incarceration nor strangulation was found, and later the autopsy showed that pain could not be accounted for by any abdominal conditions. It was evidently toxic.

Hysteria and the Neuroses.—I mention these states for the purpose of disclaiming against the accepted ideas of the frequency of abdominal pain of such origin. Too often we take refuge under the cloak of hysteria; too often such diagnosis is a confession that we are ignorant of the true cause of suffering. As our experience increases I am sure we can "run down" these so-called neuroses. The more I learn of abdominal disease the less I see of hysteria. Not many years ago I saw a seemingly well-defined case of hysteria. The patient had great pain in the region of the liver and the right shoulder, and ill-defined symptoms of gallstones. Her mother had had gallstones. Because of the general symptoms, and especially the nervous symptoms, I gave it as my opinion that the pain was probably a neurosis, and advised against an operation. Later, gallstones were passed, and soon the patient was restored to health. The nonhysterical origin of pain formerly attributed to the neuroses is strongly supported by our increased knowledge of headaches. The ophthalmologist has hunted down many of the headaches formerly described as neurasthenic, and within a few years knowledge of the mysteries and vagaries of sinusitis, giving rise to various forms of headache and neuralgia, to which belongs the headache of early morning, continuing throughout the day, "disappearing as the sun goes down," has deprived hysteria of many accusations.

ABDOMINAL PAIN NOT DUE TO DISEASE BELOW THE DIAPHRAGM.

Speaking to clinicians, it is not necessary to go further than to remind them seriatim of the many cases of abdominal pain due to extraabdominal causes. Thus we have pain due to:

1. Crises of locomotor ataxia and other organic spinal cord diseases.
2. Spondylitis rhizomelique. A case of this nature was brought to me, considered to be cancer of the liver or kidney. Many cases are referred to in the literature of the subject.
3. Caries of the vertebra.
4. Cancer of the vertebra.
5. Aneurysm of the thoracic aorta, especially located above the diaphragm.
6. Diaphragmatic pleurisy and rheumatism of the diaphragm.

A case that caused much interest was that of a robust man, who had been operated on for hemorrhoids. The man was evidently infected at the time of operation in the field of the operation. Fever and a mild leukocytosis were present. After a cold bath 3 days later the patient had a chill, severe pain in the lower thoracic and upper abdominal region, tenderness along the diaphragm, dyspnea, and slight cough. No signs of pleurisy could be brought out. When the liver was brought down by a full breath against the palpating hand it excited pain, which suggested a tender liver. There was some myalgia about the shoulders. The fever and leukocytosis persisted. Although the development of multiple abscess of the liver or subdiaphragmatic infection was suggested, the general picture was that of diaphragmatic pleurisy, or rheumatism, with myalgia in other situations, occurring incidentally in a person with an infected rectal wound. The difficulties of the case can be imagined when it is known the patient was a highly neurotic physician, who bore pain badly, and the attendants, were two brothers, who were maximally sympathetic and keenly alive to pathologic possibilities, the one a leader in ophthalmology, the other a great nose and throat specialist.

7. Pulmonary affections. Pleurisy need not further be considered as a cause of abdominal pain. Of pneumonia much more must be said. During the past 5 years, 2 or 3 cases occurred each winter, in which I was called upon to decide if the anticipated operation for a reputed abdominal affection was or was not required. My notes of 6 cases belong to children,

and it is chiefly in them we find pneumonia with symptoms of some acute abdominal affection, chiefly appendicitis. I have seen cases of pneumonia in older subjects treated as some form of liver disease, because of pain in the right hypochondrium and jaundice.

8. Cardiac affections. I can only refer to the epigastric pain of acute pericarditis, a disease so often void of symptoms and signs; of a congested left lobe of the liver in acute failure of compensation; of angina pectoris. When it is remembered in all these conditions, as well as pulmonary affections, vomiting and also flatulency may occur, we can realize possible difficulties to many.

ABDOMINAL PAIN DUE TO (A) GASTRIC AFFECTIONS.

The pain due to forms of gastritis, that due to ulcer, and that to carcinoma are so well known it is not necessary for me to enter into their consideration. I will content myself with calling renewed attention to the pain of pyloric spasm, due to hyperacidity or to gastric ulcer, and to the pain of the incontinence of retention in cases of mild or perhaps spasmodic pyloric stenosis; to the change in location of the pain due to gastric ptosis; and to the extreme rarity of gastralgia, apart from hyperchlorhydria or organic spinal disease. Alleged gastralgia is so frequently an aberrant form of hepatic or pancreatic colic, that these conditions must be definitely excluded before we rest content with the diagnosis of a functional disorder. I must take this opportunity to urge alertness on the part of the clinician to detect the earliest evidence of shock, for, as an attendant upon perforation, its significance must be realized if we want to diagnosticate the accident. Instead of "shock," in the true surgical sense, a chill, a syncopal attack, some faintness or a hurried pulse may be the only expression of a perforation.

Epigastric Hernia.—It may be proper here to say a word regarding that infrequent condition, epigastric hernia. The occurrence of epigastric hernia gives rise to symptoms which may simulate gastric affections or diseases of the gallbladder and gall ducts. Careful inspection and palpation will disclose the presence of the small subcutaneous tumors characteristic of this lesion.

(B) HEPATIC PAIN.

Only to be mentioned to remind you of the many excellent papers on this subject read by members of this organization, and that the pain of early primary affections should be heeded, for it is the operative relief of these affections that prevents the long series of secondary affections.¹

(C) RENAL PAIN.

This must be passed over with the memoranda that the recognition of renal calculi can be wonderfully aided by radiographs, and to call attention to a rare condition which simulated renal pain.

Phlebitis.—The patient had had a movable kidney transfixed by operation. Obstinate pain followed and simulated in part renal pain, although neither clearly paroxysmal nor attended by hematuria, as in renal calculus. The radiograph showed an apparent calculus in the ureter about the brim of the pelvis. Operation for its relief disclosed varicose veins in this situation with 2 or 3 phlebotitis the size of peas in the veins coursing parallel with the ureter.

(D) PANCREATIC PAIN.

Exhaustively discussed recently, time forbids my going further than to state my conviction that pancreatitis is a more frequent affection than we are wont to believe. We recognize the rarer fulminating cases that are usually fatal. Cases subacute, mild in character, and chronic cases are more common. Pain attends these affections. I fully believe, with the additional experience that comes to us, we can recognize this cause of pain.

The problem for solution in these cases of localized pain is to differentiate the various causes and to recog-

¹ See Trans. American Congress of Physicians and Surgeons, 1903.

nize if the pain is the expression of a mortal lesion, requiring immediate action to save life. For the former it requires a most careful arraignment and analysis of all the facts in the historic diagnosis, of great importance in qualifying the subjective and objective phenomena; an analysis of the symptoms, a careful elucidation of the objective phenomena and the physical signs, and an accurate estimation of laboratory findings. Alteration of function must be correlated with physical conditions. For the latter, not only must such observations be made, but alertness and unceasing vigil must be not only daily, but hourly employed, to estimate properly the degree of danger of nature's outcry, expressed in pain. With breadth of view, nicety of observation, and eternal vigilance, the true significance of abdominal pain can be appreciated, human suffering assuaged, and fortunately much oftener than formerly, life saved.

THE DISAPPEARANCE OF PAIN.

The occurrence of relief to suffering must not lull us into false safety. Such disappearance may be of diagnostic importance. Apart from termination of the disease in its natural course, such subsidence may be due to the (a) onset of gangrene, (b) to an oncoming toxemia, (c) to both, (d) to perforation of a hollow viscus, as the stomach or gallbladder or appendix, or the rupture of an abscess. If pain disappears suddenly there must be gradual, but prompt amelioration of all general and local symptoms if the patient is safe.

Pain due to gangrene is seen in appendicitis, and one must be wary, if he is not to be deluded into a false hope by its subsidence. This is all the more liable, as spasm and cutaneous tenderness may subside simultaneously. To exclude gangrene the clinical course of the disease must be closely analyzed; we must observe if the pulse-rate fall, the temperature fall, the expression improve, the tongue become moist, and the mind perfectly clear. Remember, as with gangrene, perforation usually occurs under manifestly the same symptoms. If pain subsides because of the toxemia, an incident in the course of gangrene, its subsidence is more gradual. We must, therefore, appreciate the very slightest suggestive indication in cardiac, respiratory, or cerebral action, in the temperature, the condition of the skin, and—not readily portrayed, but most important—the expression. I fear many a toxemia has crept on until the patient is within its fatal grasp because of the darkened sick-room.

As evidence of the toxemia, a leukocyte count is of great value. It is probably just as significant when it falls or remains stationary. You know in pneumonia we look upon a leukopenia with much dread, and so it is in abdominal inflammations; if the leukocytes fall or remain at 8,000 or 10,000 it is a more dangerous sign than if they rise, providing in the first instance there is no improvement locally or generally. Hence, a low white blood-cell count, without improvement in symptoms—and especially of the general symptoms due to toxemia—is very grave. I have seen practitioners relieved when with relief of pain any tumor which had been presented disappeared. It is obvious if such tumor does not rupture into the natural passages, its disappearance bodes great evil. Sometimes a tumor will disappear from one region and appear in another. I was asked to explain the occurrence of a tumor in the left iliac fossa shortly after its disappearance from the right. The original tumor, due to pus, was bound down by adhesions, and so the confined pus took the route of least resistance into the pelvis, around the rectum, and up to the opposite side.

PAIN ABSENT IN CONDITIONS IN WHICH IT SHOULD BE FOUND.

Pain is the earlier, more common, and, from its special characteristics, of greater value than the usual symptoms of obstruction when the closure is slow in progress.

The absence of pain enables us to decide upon the nature of the lesion. Thus, in a patient of Dr. Riesman upon whom Dr. Keen operated for intussusception, the symptoms were favorable until 5 days after operation, when causeless vomiting, increasing in frequency, began; at first gastric fluid alone was vomited, followed in about 4 days by the vomiting of the intestinal contents. We gave the opinion that the vomiting was due to obstruction of the bowel of paralytic origin. I quote from Dr. Riesman's notes—which he has kindly placed at my disposal—the appearances found.

Notes of Mrs. V. B.—Operation to relieve intestinal paresis causing intestinal obstruction. An incision was made on the left side, outside the first incision. On opening the abdomen no fluid escaped, but the hugely distended small intestine at once bulged into the opening. It was drawn out, and its color was found to be bluish purple. The vessels were injected; and the caliber of the bowel, that of a man's forearm, or even larger. Peristalsis was not visible, and the intestine dropped upon the table as lifelessly as if it had been that of a corpse. The distention began at about the duodenum and extended far down the intestine, ending abruptly somewhere in the ileum. At the point at which the distention ended, the bowel was contracted to about the caliber of a finger. This contracted bowel was pale and empty. There were no adhesions, no signs of peritonitis, and no exudate. On opening the distended part of the bowel, enormous quantities of yellowish, fluid, fecal material escaped and ran down upon the floor in a stream. Not a peristaltic wave could be seen. Even after the bowel had been emptied, slapping and hot applications failed to evoke any peristalsis. The colon was of normal color, was somewhat contracted, and contained—especially in the ascending portion—putty-like fecal masses that could be moved with comparative ease by applying the finger externally. The transverse colon was prolapsed as far down as the left iliac region. The sigmoid was greatly elongated. Union had taken place between the upper part of the rectum and the abdominal wall, along the line of sutures.

The absence of pain therefore in cases in which the other symptoms of obstruction of the bowel prevail is an indication that such obstruction is due to paralysis, from overdistention, from inhibition of nerve influences or from thrombosis on account of which the blood-supply is cut off.

SOME PRACTICAL POINTS IN ABDOMINAL SURGERY, WITH SPECIAL REFERENCE TO A SIMPLE TECHNIC FOR APPENDICECTOMY AND INTESTINAL ANASTOMOSIS.¹

BY

FREDERICK HOLME WIGGIN, M.D.,
of New York City.

In thinking over the various difficulties encountered in the earlier days of my professional career in an effort to find a suitable subject as a basis for my remarks this evening, it occurred to me that possibly a few words in regard to the general care of patients about to undergo an abdominal section, both before and after the performance of the operation, might prove of use to you, if serving only to impress more deeply on your minds matters that already have been well taught you by your able professors. And as diseases of the vermiform appendix and intestinal injuries are so often associated with pelvic disorders, I propose also in the course of my remarks to describe a simple technic, satisfactorily employed for many years in the removal of the appendix, and that of an easy and uncomplicated method of uniting divided bowel ends.

Many of the details about to be described may seem to some of you unimportant and unworthy of your attention, but I can assure you that they are all of the greatest importance, and, taken in their entirety, have enabled me to reduce the rate of mortality following operations undertaken for the relief of chronic intra-abdominal disorders, from 20% or more, 15 years ago, to 1% or less at the present time.

¹ Address delivered at the Annual Meeting, February 2, 1904, of the Montgomery Gynecological Society of the Jefferson Medical College, Philadelphia, Pa.

Preparation of the Patient.—When the condition for which the operation is to be undertaken is chronic, and all the time desired can be had for the preparation of the patient for the ordeal which she is to undergo, much can be done in the way of preparatory treatment, which will not only diminish the risk about to be incurred by her, but will ultimately hasten convalescence and save the operator many anxious hours. In such a case it is for the patient's welfare that the hospital where the operation is to be performed should be reached, or the trained nurse employed if the patient is to remain at home, at least a week prior to the date fixed upon for the operation. This allows the individual to become accustomed to the attendants or the environment, which is of undoubted importance, as it tends to lessen the dread and nervous tension, both of which are naturally great in such a crisis, even under the best of circumstances. During this week the sufferer should be encouraged to spend the greater part of the time in the recumbent position for the purpose of getting thoroughly rested. During this period massage may be employed to advantage in lieu of physical exertion, as it improves the circulation, promotes digestion and the general bodily welfare. So far as it is compatible with a healthy mental condition, visitors and friends should be excluded. A daily record of the patient's body temperature, pulse and respiration should be kept. An examination of the heart and lungs, and a final analysis of the urine, should be made at this time. As it is of great importance that the intestinal canal should not be distended by gas, at the time of the operation, careful attention should be paid to unloading and emptying the bowels, as well as to getting the digestive organs in good working order. This is best accomplished in my experience by giving at 10 p. m. each evening for the first 3 days, in this week of preparation, 60 cc. (2 oz.) of a mixture of equal parts of castor-oil and glycerin, to which 5 drops of tincture of opium have been added to prevent griping; this in turn is followed, on each of the succeeding days, except that fixed upon for the operation, by an enema of from 2 quarts to 4 quarts of saline solution, the rectum finally being washed out with a pint of the same solution, 6 hours before the performance of the operation. The large enema just alluded to is best given with the patient lying in the dorsal position, with her hips elevated and her shoulders and head depressed, a fountain syringe being used for the purpose, the reservoir of which should not be elevated more than 18 inches above the patient's body.

The fluid should have a temperature of 120° F. when placed in the syringe, and should be introduced into the canal slowly, being allowed to flow for 2 minutes, then intermitted for 5 minutes, and again allowed to flow for 2 minutes; after a pint of the solution has been introduced into the bowel, if the patient has an urgent desire to go to stool it is best to allow her to do so, when, after a short interval for rest, the process just described is repeated until the patient complains of a feeling of distention, intestinal colic, or nausea, which does not pass away within the 5-minute interval. By perseverance in the manner described, several quarts of saline solution can usually be introduced into the colon in the course of three-quarters of an hour, with but slight discomfort to the patient, who should be encouraged to retain the fluid for from 30 to 60 minutes before it is allowed to escape.

The administration of these enemas should be supervised by the physician, as the nurse seldom knows how to accomplish the introduction of the desired quantity of fluid into the intestinal tract, or, if she has the knowledge and experience she has not sufficient authority over the patient to effect the desired result.

The patient's diet during this week of preparation should be of an easily digestible nature and she should be encouraged to partake freely of liquids, for the purpose of getting the bodily tissues well filled with liquid.

Hot baths of 10 minutes' duration should be given daily, not only for cleansing purposes, but to promote the secretions of the skin and kidneys, special attention being paid to the navel and pubic region. The time of operation should, when possible, be arranged for a few days following the cessation of the menstrual flow, and the vagina cleansed by douching. The administration 3 times daily of a hypodermic injection of 2 cc. (30 m.) of aqueous solution of ergot, in which from 1 mg. to 2 mg. ($\frac{1}{30}$ gr. to $\frac{1}{30}$ gr.) of strychnin, or spartein 2 mg. ($\frac{1}{30}$ gr.), is dissolved, will often prove of great benefit in regulating the circulation, overcoming nervousness, inducing sleep, promoting the action of the bowels, in other words, acting as a general tonic to the system and serving to prevent the occurrence of shock at the time of operation, as has been pointed out by Livingston. The formula for the ergot solution is as follows: 4 grams (1 dr.) of Squibb's solid extract to 30 cc. (1 oz.) of sterilized distilled water, to which after the solution is made and filtered, .2 cc. (3 m.) of chloroform is added. In making these injections the needle should be pushed deeply into the muscular tissue and the fluid injected slowly to avoid pain; there need be no fear of a resulting abscess, provided the syringe, needle and solution are aseptic. The best place which I have found for making these injections, is the patient's left deltoid. While the first of these injections, in a person whose general condition is poor, is apt to induce redness and swelling of the part and cause considerable pain, subsequent injections will cause this swelling to disappear and this also can be aided by the application of a wet dressing.

In a recent case the patient, who had a weak heart and consequently feeble circulation, was so generally toned up that at the end of a period of anesthesia, lasting 2 hours, during which time a serious operation was performed, her pulse-rate was no higher than at the beginning.

If, however, circumstances do not permit us to follow the plan of preparation just outlined, the best course to pursue, in my opinion, is to give the patient the day before the operation, 60 cc. (2 oz.) of the castor-oil mixture already mentioned to be followed after it has taken effect by a large saline enema, and the next morning, about 3 hours before the operation, by a small enema of a pint of saline solution, for the purpose of washing out the rectum.

The patient's skin covering the abdomen is prepared for operation on the previous day when practicable by thoroughly cleansing and shaving it, applying a soap poultice for 4 hours over the site of the proposed incision, then replacing it, after the soap has been washed off, by a compress moistened in a 1% formalin solution, which is covered with rubber tissue. This compress is allowed to remain until the patient is placed on the operating table. It is wise to fix upon as early an hour of the day as possible, as the patient in this case has less time in which to become exhausted from want of food, or restless or nervous from the dread of what is to come. It is of great importance that, once the hour has been determined, there should be no postponement, as I have seen patients almost collapse under the extra nervous strain entailed by even an hour's delay.

If the operation is to be performed at an early hour (e. g., 8 a. m.), the patient should be given a peptonized milk punch at 11 o'clock the previous evening, and another at 5 a. m., if she is awake. If an afternoon hour has been decided upon, additional peptonized milk punches may be given to the patient at 8 a. m. and 11 a. m.

If the case is of an acute character, and an immediate operation is demanded, little more can be done than to shave and cleanse the skin in the manner already described, or the skin can be prepared after the patient is placed on the operating table by the use of a germicidal depilatory, which will be referred to again later on. If

the patient is suffering from collapse, due to intestinal perforation, an effort should always be made to stimulate her by hypodermic injections of ergot and strychnin, and intravenous injections of saline solution. If the patient does not respond to this stimulation the operation should not be performed. If, on the other hand, the patient rallies, the operation should be done with as little delay as practicable; but even in these cases it should not be forgotten that we must, to be successful, have plenty of light, assistants, and facilities for intraabdominal irrigation.

When the operation is to be performed in a private residence a room with a north light should preferably be selected. Its furniture should be removed at least 24 hours before the room is to be used for this purpose. After it has been thoroughly cleansed, the windows should be left wide open for 2 or 3 hours, then closed, and the woodwork wiped off with mercuric chlorid solution, 1 to 1,000, the floor being dampened with the same solution. A table, 20 inches wide, and 30 inches high, and varying in length, according to circumstances, will be needed, as well as several small tables or stands, a wooden-bottomed chair; all of these articles should be cleansed before placing them in the room, they should be washed with mercuric chlorid solution shortly before being used; several large pitchers, 4 or 5 basins, several platters, and a fish kettle for sterilizing the surgeon's instruments will also be needed. All of these latter articles not made of metal should be cleansed and immersed in mercuric chlorid solution until needed in the operating-room. The room should be closed after all the articles of furniture have been placed in it, and should remain so until needed. For emergency operations it is best to make no attempt to clean the room in order to avoid vitiating the air with dust; the floor should, however, be covered with a sheet wet with mercuric chlorid solution.

Several dozen towels, sterilized by boiling or by steaming in a sterilizer, and several gallons of cold and of hot water, sterilized by being boiled for an hour, will also be needed. The instruments are sterilized by being boiled 10 minutes in a 2% soda solution, except those with a cutting edge, which are immersed for 5 minutes in carbolic acid, 95%, which is then washed off.

The following satisfactory method for preparing catgut is employed by the general drug department of the City and Bellevue Hospitals of New York City:

Plain or smooth catgut: (1) The fat is removed by boiling in ether in a condenser for an hour; (2) it is then boiled in absolute alcohol for 1½ hours; (3) it is then taken from the flask with sterilized forceps and put in glass jars, containing a 1 to 1,000 chloroform solution of biniodid of mercury. In using rough catgut, each strand is wound on glass or wooden reels or is cut in desired lengths and tied up in figure 8 loops.

The chromicized (rough) catgut is sterilized as follows: (1) The fats are removed from the rough catgut by boiling for an hour in ether, and followed by soaking for an hour in alcohol; (2) the catgut is then soaked in the following chromicizing solution from 24 to 36 hours: Sodium bichromate, 3 gm.; absolute alcohol, 3 liters; then boiled over steam until the bichromate has all been dissolved. The catgut is then removed and dried by being stretched over hooks, the ends being secured by artery clamps and allowed to remain for a week, and is then tied up in figure 8 loops and boiled for 1½ hours in absolute alcohol, and is finally placed in glass jars, containing a 1 to 1,000 solution of biniodid of mercury.

The dressings are sterilized at the hospital in the usual manner by heat, but for private practice these and suture and ligature material are purchased from a reliable manufacturer.

The following method for cleansing the hands has been employed by me for the past 5 years, and it has been found entirely satisfactory:

(1) The hands are thoroughly washed in green soap and are then well rinsed off in hot water; (2) they are then immersed in 65% alcohol and allowed to remain for a few minutes; and (3) they are then washed in a solution of mercuric chlorid, 1 to 300, in alcohol. After this, all traces of the previous washing solutions are removed by immersion in distilled water. The nails are cleaned by the use of aseptic gauze, wet with alcohol.

This being rubbed along the edge of the nail readily finds its way beneath it and removes any detritus that may be there. This is much better than using any sharp instrument for the same purpose, as the gauze so used never injures any of the sensitive tissues beneath the nails and therefore lessens the opportunity for infection that sharp instruments used for this purpose sometimes offer. If there are any abrasions on the hands attention will be called to them by the smarting caused by their immersion in the alcohol and the abraded surfaces can then be cauterized with glacial acetic acid, care being taken to place the acid well between the edges of the cut by means of a wooden toothpick, and an eschar will be formed, which will thoroughly protect the underlying tissues.

After these preparations of the hands have been made, all who are to assist in the operation put on sterilized rubber gloves. However, I do not usually wear them for intraabdominal work, for the reason that even thin gloves tend to diminish the sensibility of the finger tips, which in this class of cases often have to take the place of eyes in furnishing necessary information to the operator.

The patient should be clad for the operation, so as to reduce the bodily exposure to a minimum. The anesthetic should be administered to her, when possible, before she is brought into the operating-room. If for the administration of the ether a Dawbarn inhaler (see Fig. 1) is used and the cage is filled with absorbent cotton, saturated with the fluid at the start, the mouth-piece being rapidly brought down over the patient's nose and chin, so as to exclude the air, the anesthetic state will be quickly induced; the stage of excitement will usually be avoided, and the patient will be made insensible to pain and kept in this condition for an hour with 3 ounces of ether, and for an additional hour with only 2 more ounces.

After the patient has been placed under the influence of the anesthetic agent, and put on the operating table, on which sterilized blankets have been laid in such a manner as to admit of their being folded over the patient's chest and lower limbs, leaving only the abdomen exposed, the compress previously alluded to, is removed and the skin is washed in much the same manner as that already described for the hands, and is as follows:

The tissues are well scrubbed with tincture of green soap, by means of a piece of gauze, which is preferable



Fig. 1.

to the brush ordinarily used, as there is less tendency to injure the tissues, and its use therefore lessens the danger of septic infection; after the soap has been well rinsed off, the parts are washed with 65% alcohol and this in turn is followed by a 1 to 300 alcoholic solution of

The incision in the abdominal wall is made by preference over either one of the recti muscles, but when practicable over the right, the fibers of the muscles being separated in order to reach the peritoneum, a portion of which is grasped by two pairs of thumb forceps, lifted up, and an opening made in it; by so doing the danger of injuring the underlying intestines is diminished. It is of great importance while this is going on that the anesthetist should see to it that the patient is breathing quietly and regularly; much can often be accomplished looking toward this end by removing the inhaler occasionally from the patient's face for the purpose of giving her undiluted air for a little while, embarrassed respiration and rigid muscles being due to the lack of sufficient oxygen.

For the purpose of separating the tissues on either side of the wound, catgut sutures are next inserted in the tissues forming the edges of the wound, and are passed through all of them, between the peritoneum and the fascia covering the rectus muscles. These sutures injure the tissues less than ordinary retractors, and thus leave the wound in a much better condition for primary union.

These same sutures may, when necessary, be used to close the wound temporarily, if by any accident the patient should, during the operation, come out from under the anesthetic and attempt to vomit or cough, thus preventing the forcing of the intestines out upon the abdominal wall.

The abdominal cavity now having been opened, we will assume that the appendix is diseased and requires removal, and that portion of the cecum to which it is attached is therefore brought outside of the abdominal cavity.

After the vessels in the mesoappendix have been ligated and the appendix freed from it by division of the

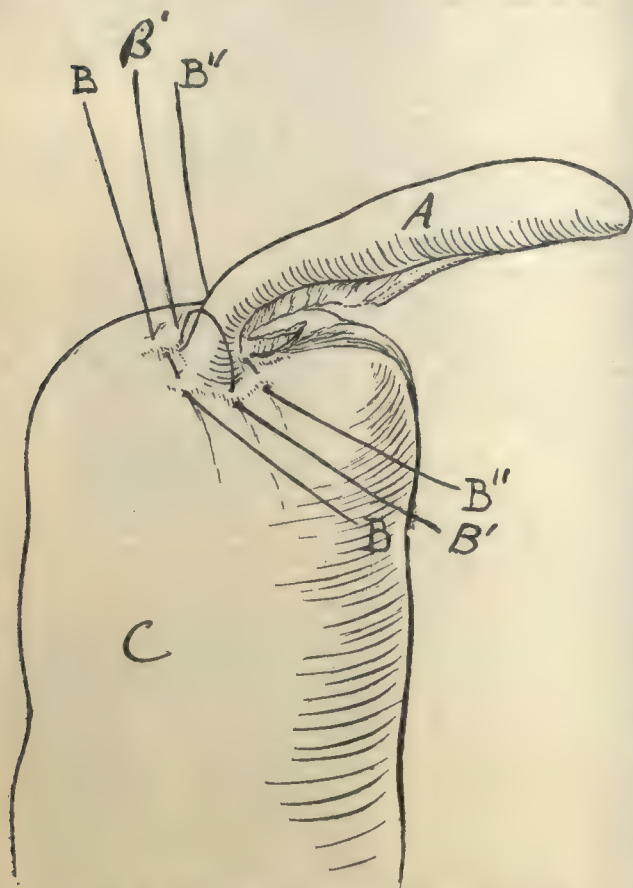


Fig. 2.—A, appendix; B, B', primary sutures; C, cecum.

mercuric chlorid, the parts being finally washed with sterile water. The navel is washed out with a strong solution of hydrogen dioxid, in which 30 volumes of oxygen are dissolved in water. When time does not permit of making these more or less elaborate preparations before the operation, the skin can be prepared in 5 minutes after the patient is placed on the operating table, by the use of a germicidal depilatory, several satisfactory ones being on the market. The preparation is thickly spread over the skin and allowed to remain on for 5 minutes, and is then washed off with sterilized gauze and water, the parts being then ready for immediate operation. The only objection to the use of preparations of this kind for cleansing the skin is that the chemicals of which they are composed occasionally produce an annoying irritation.

While the operation is progressing, the anesthetizer, who should always, when possible, be an experienced physician, should watch the patient constantly, and pay no attention to the operation. As soon as the reflexes have disappeared, he should raise the inhaler from the patient's face, replacing it as soon as they return. As soon as the pulse increases 20 beats to 30 beats a minute, hypodermic injections of ergot and strychnin are administered, and repeated as needed from time to time until 6 cc. (90 m.) of the ergot solution and 5 mg. ($\frac{1}{2}$ gr.) of strychnin have been given. If in spite of these stimulating injections the pulse rises to 150 beats a minute, an intravenous infusion of saline solution is at once resorted to.

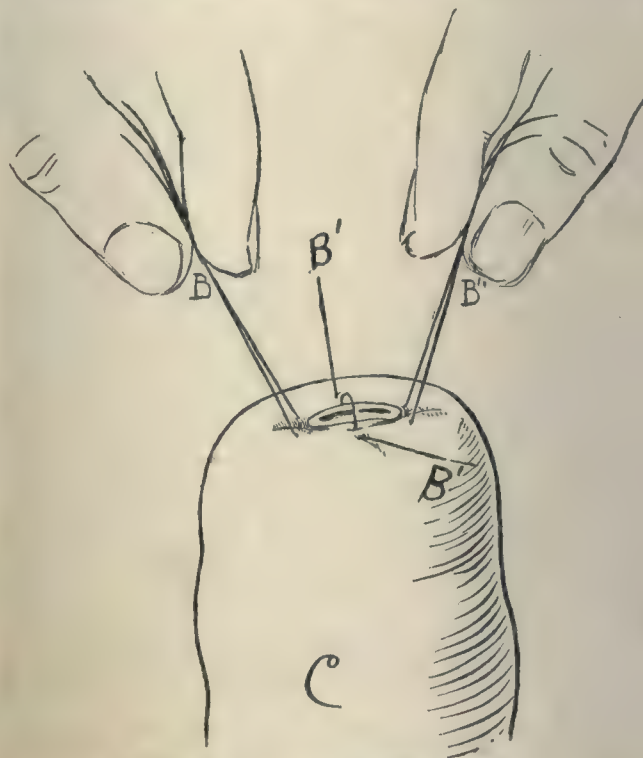


Fig. 3.—B, B', B'', primary sutures; C, cecum.

tissues, the appendix is drawn through an opening made in a gauze pad, which covers the wound and protects it and the abdominal cavity as well. Before the appendix is cut off, which is done as close to the cecum as possible, 3 silk sutures are passed through the cecal tissue, one on

either side of it, and the third midway between these two (as shown in Fig. 2), and the diseased organ is then removed. Before this is done the sutures on either side are given to assistants to hold, in order that the cecal tissue may not retract into the abdominal cavity at this critical stage (as shown in Fig. 3), and also to close the opening temporarily, should the patient partially recover consciousness and attempt to vomit or cough before the opening is permanently closed by tying the sutures.

The tissues are next rendered aseptic by means of a drop or two of hydrogen dioxid, after this the edges of the wound in the cecum are turned in by an assistant by means of a pair of thumb forceps (as shown in Fig. 4,) and the middle suture is tied and its end cut off; the other sutures are then tied and before their ends are cut, the site of the wound having again been disinfected by a few drops of hydrogen dioxid, a second row of sutures, this time of chromicized catgut, No. 00, is placed in the tissues as shown in Fig. 5, for the purpose, when they are tied,

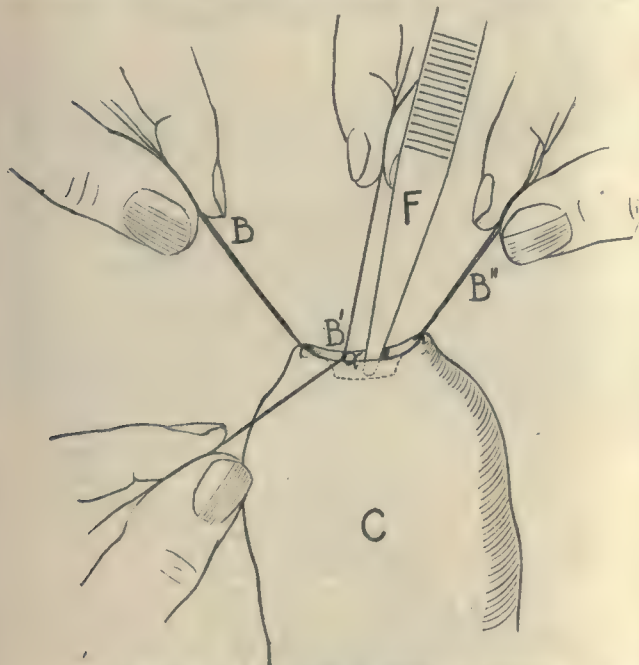


Fig. 4.—B, B', B'', sutures; C, cecum; F, forceps.

of making assurance doubly sure that healthy peritoneal surfaces are in contact (as shown in Fig. 6.)

For the further protection of the parts and to prevent the formation of intestinal adhesions which may cause trouble later, the stump of the mesocolon, when long, is attached to the cecal tissue over the wound by one or two sutures.

The method of intestinal anastomosis, to which I will next call your attention, is a modification of that of the late Professor Maunsell of London, who was the first to demonstrate that divided bowel ends could be safely united by means of sutures passed through all of their coats, and that the knots of the sutures could be placed within the lumen. This he accomplished by bringing the invaginated bowel ends out through a slit made near the end of either one of the sections of the divided bowel, before uniting them by sutures. My experience with this method of anastomosis, which I frequently had occasion to employ between 1893 and 1897 served to show me that this was an unnecessary complication, the sutures being even more easily passed and tied without making the slit and invaginating the ends before placing them, than when it was done, and that as it was safe to close the slit made in the bowel for the purpose of invaginating the cut ends by means of Lembert sutures, that one or two of these sutures could just

as well be used in closing the intestinal wound direct. To this change of technic, the attention of the profession was called in a paper read before the New York State

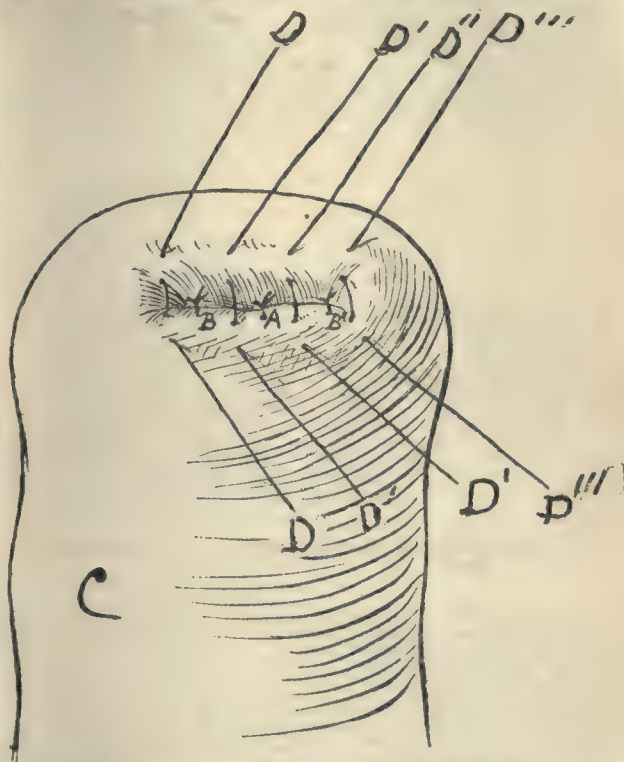


Fig. 5.—A, B, B', primary sutures; C, cecum; D, D', D'', D''', secondary sutures.

Medical Association, October 19, 1898, and published in the *Medical Record* for November 19, of the same year and is as follows:

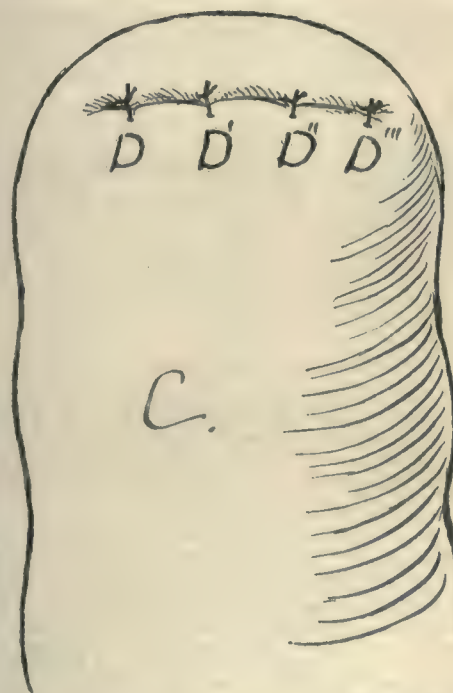


Fig. 6.—C, cecum; D, D', D'', D''', secondary sutures tied.

The portion of the intestines to be excised is brought outside of the cavity, accompanied by about 6 inches of healthy intestine on either side. It is next emptied of its contents

above and below the damaged spot by passing it between the finger and thumb, and gently pressing it. The empty gut should be clamped on either side of the damaged portion of the bowel at a point 6 inches distant, to prevent the escape of fecal matter at the time of excision or during the subsequent manipulation. A useful instrument for this purpose is the McLaren clamp, or strips of gauze may be used for the same purpose. The general peritoneal cavity should be protected with sterilized pads wrung out in hot saline solution. The portion of the intestines to be removed is excised by means of a V-shaped incision, having its apex in the mesentery and its lateral borders on either side of the diseased area. (See Fig. 7.)

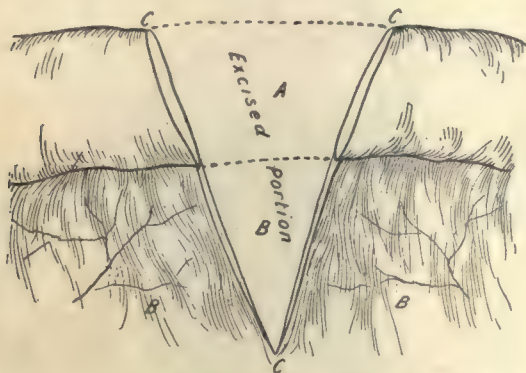


Fig. 7.—A, B, portion of intestines and mesentery removed; B, B, mesentery; C, C, C, lines of the incision.

The mesenteric vessels are tied before being cut, by passing a needle armed with catgut around them and tying them. The wound in the mesentery is closed by means of interrupted sutures. (See Fig. 8.)

After the divided ends of the intestines have been disinfected with hot saline solution, followed by a small quantity of 50% hydrogen dioxide in saline solution, and the resulting foam has been washed off, the proximal and distal ends are united by means of 2 sutures, which are passed through all the intestinal coats. The first suture is placed at the inferior or mesenteric border and is passed in such a manner as to include a portion of the mesentery on both sides, as shown in Fig. 9; it is then tied in the bowel and the ends are left long in order that, by means of it and the next suture to be inserted, the intestinal tissues can be held in place while the other sutures necessary to complete the union are being put in. The second suture is

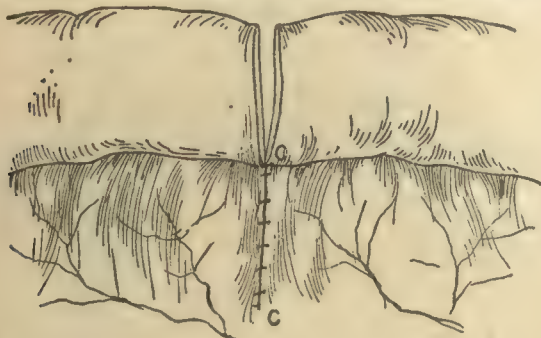


Fig. 8.—C, C, incision in mesentery united by interrupted sutures.

placed directly opposite at the highest point of the superior border and after it has been tied its ends are left long and are held by an assistant, as are those of the first suture; thus the intestinal tissues to be united are held in place while the other stitches are being passed; the third suture is passed for convenience in holding the parts together between the first two and in a similar manner, its ends, however, being cut short after it has been tied; 3 other sutures are passed in the same way through the intestinal tissue which is included between the first and third and between the second and third sutures, the needle going from within outward and piercing all the intestinal coats, then back through the peritoneal, muscular and mucous coats to the interior of the other segment of the bowel; the sutures are then tied in the gut and the ends are cut off short; or these 7 sutures can be conveniently and rapidly placed by partially passing the needle through the intestinal tissues and leaving them there till all are passed, as shown in Fig. 10, when each is drawn through in turn and the sutures are tied.

When these 9 stitches have been placed and tied, half the circumferences of the divided bowel ends have been united, and the process of suturing can most conveniently be carried on

by next placing a suture half way up on the ununited side, leaving its ends long and using them to hold the tissues while the parts are sutured as before. This suturing of the parts is continued till the last one is to be placed, when a Lembert suture is substituted. If the sutures have been properly placed about an eighth of an inch from each other and from the edge and have been tied sufficiently tight, it will be found that the peritoneum is turned in and that the stitches—with the exception of the last one—are not visible (see Fig. 11.)

If some of them have been so loosely tied that the sutures can be seen on the peritoneal coat, it is best to insert a few Lembert sutures at these points. The sutured portion of the bowel should then be washed with a small quantity of a 15-volume solution of hydrogen dioxide, then with saline solution, and returned into the abdominal cavity, which should also be washed and filled with saline solution before the abdominal wound is closed.

By the method of suturing just described any portion of the intestinal tract can be united to any other portion. Anastomosis of segments of ileum and colon may be effected by this method in the following manner:

A suture is passed through all the coats of the greater and lesser intestinal segments at their mesenteric border, care being taken to adapt the border of either segment to the corresponding border of the other; this suture is tied and the ends are left long; a second suture is passed through the side of the larger segment, starting from the lumen at the point where the superior border of the smaller segment touches it and through

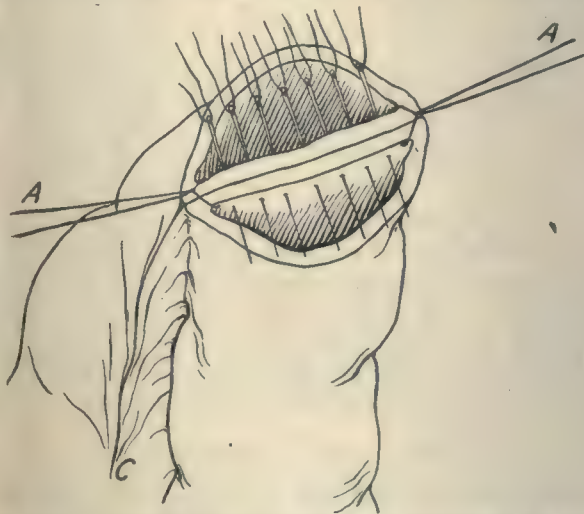


Fig. 10.—A, A, sutures, the ends of which are temporarily left uncut, and by means of which the tissues are held while the needles are being placed; C, mesentery.

which the suture is also passed, and is tied, the ends being left long; a third suture is passed through all coats of the highest free end of the larger segment. The location of these sutures, which are also used to hold the parts in apposition while the other sutures are being passed, and the accurate adaptation of the mesenteric border of segments, are shown in Fig. 12.

The other necessary sutures to unite the divided intestinal edges are placed in the manner already described and the anastomosed bowel ends appear as shown in Fig. 13.

Closure of the Abdominal Wound.—In closing the wound in the abdominal wall I have of recent years been in the habit of uniting the tissues layer by layer, by means of catgut sutures—drainage not being employed, except in those cases in which the cause of the infective trouble could

not be removed—as by this means there is a greater certainty of the wound being properly closed and less danger of the formation of postoperative hernia.

Before finally tying the peritoneal sutures, it has also been my custom for many years past to wash out the abdominal cavity with warm normal salt solution, 120° F. This serves to demonstrate whether or no there is concealed hemorrhage present, and when the water comes away clear, the remaining opening in the peritoneum is closed, leaving the abdominal cavity filled with the



Fig. 11.—This Figure shows the intestines after the completion of the anastomosis: A, line marking the point of union between the ends of the bowel, showing that the peritoneal coat is well turned in and that the sutures and knots are all inside the gut, with the exception of the last, for which a Lembert suture at B is substituted.

solution, the object of this being not only to lessen shock, but also to prevent the formation of adhesions, to aid in the readjustment of the intestines and omentum to their proper position, and to lessen the danger of septic peritonitis. The attention of the profession was called to this point in the technic, as well as to the fact that hydrogen dioxid, in full medicinal strength, could safely be used for the purpose of disinfecting the general peritoneal cavity, when followed by the use of the saline solution, in a paper read before the Society of the Alumni of Bellevue Hospital, November 1, 1893, entitled "Case

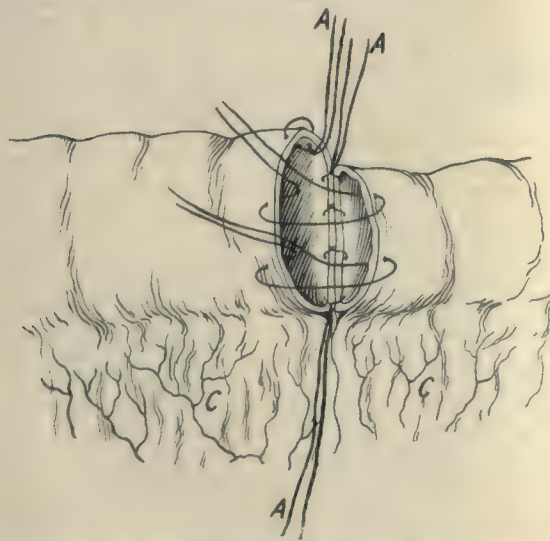


Fig. 12.—A, A, A, sutures, the ends of which are temporarily left uncut; C, C, mesentery.

of Contusion and Rupture of the Ileum with Peritonitis without External Wound, Successfully treated by Celiotomy and Enterectomy Followed by Circular Enterorrhaphy (Maunsell Method)," and published in the *New York Medical Journal*, January 20, 1894.

Since first employing this technic I can remember having had no case of intestinal obstruction due to post-operative intestinal adhesion, while prior to the use in this way of the saline solution in the abdominal cavity, intestinal obstruction from this cause, following

abdominal operations was a frequent source of trouble. My opinion that the leaving in the abdominal cavity of a considerable quantity of normal saline solution tends to prevent the formation of intestinal adhesions, has been confirmed by the opportunity afforded in a few instances of inspecting the intestinal tract of patients in the course of a secondary laparotomy, undertaken months or years afterward for other difficulties, upon whom at the first operation numerous intestinal adhesions had been broken up, and the technic just described, employed, and none being found to exist at the time of the second operation.

In bringing the separated fibers of the muscles together, it is important not to pull the catgut sutures too tight, for by so doing the tissues are damaged and healing retarded; one of the advantages of making the wound in the abdominal wall through either of the recti muscles is that the opening is practically self-closing.

Before the cut edge of the fascia is united by sutures, retention sutures of strong kangaroo tendon are passed and the divided edges of the fascia are then carefully united by sutures of fine chromicized catgut. If this part of the wound is firmly united, it takes the strain off the other tissues and prevents all tendency to hernia, especially during the earlier weeks of the convalescence, when the union of the tissues is comparatively weak. When these retention sutures are used, the patient may



Fig. 13.—Diagram showing the united segments of the colon and ileum. A, line marking the point of union between the ends of the bowel, showing the peritoneal coat well turned in, and that the knots of sutures are all inside the gut except the last one, at point B, which is of the Lembert variety.

be allowed to turn in bed if she is uncomfortable and wishes to do so.

The edges of the skin are next approximated by means of a subcuticular suture of catgut. When this is satisfactorily done and primary union secured, there is practically no scar.

After the wound has been closed in the manner described, the tissues are washed off with a solution of hydrogen dioxid, in full strength, which is followed in turn by a solution of equal parts of absolute alcohol and ether. This serves to disinfect thoroughly and dry the skin, and permits of sealing and protecting the wound by means of a solution of celloidin, the formula of which is as follows: Celloidin, 1 part; absolute alcohol and ether, each 4 parts. Great care must be taken not to spread the celloidin solution too widely over the tissues, as it has strong contractile powers, and continues to draw the tissues together for some time after its application. If the moisture of the skin has been thoroughly removed before the application of the solution, this dressing will prove amply protective to the wound, and no other dressing need be employed. Celloidin is not difficult to obtain, as of late years it has been used considerably for embedding tissues for cutting purposes in the pathologic laboratory. The solution being composed of alcohol and ether is naturally sterile. It is perfectly transparent, so that the slightest inflammation or suppuration in the wound is at once noticed. If too much of the celloidin

solution is employed, it may occasion severe discomfort. A little experience, however, enables the surgeon to determine how much of the solution to employ. If there is cause to fear oozing from the wound, it is best not to employ the celloidin dressing, but if it is decided to do so, it is best in such a case to protect the wound additionally by also covering it with gauze.

Beside other advantages, the use of this form of dressing prevents the discomfort and annoyances of various kinds, which attend the use of bandages which become wrinkled, causing irritation of the skin, or even serious bedsores; they also become soiled, by urine or feces, thus adding to the discomfort of the patient and also to the danger of possible infection. If all goes well the celloidin remains on 10 or 12 days, its transparency as already stated allowing the wound to be thoroughly inspected from day to day.

After-treatment.—Before the patient is removed from the operating table it has been found advantageous for the purpose of preventing the annoying gastritis, which frequently follows the administration of the anesthetic, to wash out the patient's stomach with saline solution, and for the purpose of preventing the occurrence of intestinal paresis; in all cases, except those in which a complete intestinal anastomosis has been done, to place in the stomach, before withdrawing the tube, 4 ounces of saturated solution of magnesium sulfate, it being mechanically difficult for the stomach to throw off so small a quantity of liquid, the result generally being that the patient's bowels act within a few hours, and all danger from this source is over.

If during the operation stimulants have not been required to any extent, a hypodermic injection of the solution of ergot, already mentioned, combined with strychnin and spartein, or without either, according to the exigencies of the case, will tend to prevent the nausea, which frequently follows the administration of the anesthetic, and it will also tend to make the patient comfortable by quieting the nervous system. These injections of ergot may be repeated advantageously from 3 to 8 times each 24 hours, according to circumstances, until the patient becomes comfortable and the temperature and pulse become normal.

The patient is now returned to her bed, which has previously been heated by hot water bottles, which should, however, be removed before the patient is placed in it, as even with care, blisters and burns are often produced by contact with them, even when only moderately heated on account of the patient's sluggish circulation; she should be placed directly within the folds of a blanket. When a quantity of hot saline solution is allowed to remain in the abdominal cavity, the patient generally leaves the operating table in good condition, and with a warm moist skin. If the patient's pulse is weak and rapid, it is wise to raise the foot of the bed somewhat. There is, however, usually little shock, unless there has been much loss of blood during the operation.

During the first 12 or 18 hours following the operation it is usually best not to allow the patient anything by mouth, except a little warm water from time to time. If ether has been administered intelligently in small quantities, and in the manner previously described, there will generally be little or no vomiting or nausea. If the demand for fluids is urgent, which is seldom the case when saline solution is left in the abdominal cavity, it is probably due to gastric irritation, and can usually be successfully combated by 2 or 3 large doses of bismuth salicylate given at intervals of 4 hours. The comfort of the patient during this early period of convalescence will be promoted by passing a rectal tube 3 or 4 inches into the rectum every 4 hours, leaving it in place for a little while, and before its withdrawal placing in the bowels from 10 ounces to 16 ounces of normal salt solution at a temperature of 120° F.; this the patient should be encouraged to retain for a time, as it will tend not only to pro-

mote the passage of gas, but at the same time will serve as a stimulant to the circulation, kidneys, and skin.

As has already been stated, when an intestinal anastomosis has been effected, no cathartic should be placed in the stomach when it is washed out on the operating table, or administered by mouth for 72 hours thereafter; dependence being placed on the saline enemas, already alluded to, to move the bowels, if it is desired to have them act before this time.

Concealed hemorrhage, which manifests itself during the first 24 hours by rapid pulse-rate and increased rapidity of respiration, a falling body temperature, dilation of the pupils, and clammy perspiration, should never occur when catgut is the material used to tie off the vessels, if the ligatures are carefully placed by passing them through the tissues with a needle and the gut is taken directly from absolute alcohol in which it is preserved and tied first with a single knot, and then with a double knot, as pointed out by Frederick, of Buffalo; this prevents the gut from becoming loosened and untied, and is the reverse of the usual manner of tying silk when used for a similar purpose.

If, 15 hours after the performance of the operation, the nausea following the administration of the anesthetic continues, in spite of the treatment outlined, and the patient has not had a movement or passed gas by the bowels, and her abdomen is beginning to be slightly distended, intestinal paresis should at once be thought of, and a seidlitz powder administered in the following manner:

The contents of the blue paper having been dissolved in a tumbler full of water, the contents of the white paper is dropped upon the surface of the solution at the time the patient is ready to drink it, a warning having first been given to the patient of the importance of retaining the liquid. The advantage gained by the administration of the powder in the above described manner is that the acid dissolves slowly, the solution thus maintaining its agreeable taste till it is swallowed, and also that some of the gas being generated in the stomach exerts a counterpressure on the intestinal contents and thus helps to overcome the existing reversed peristaltic current, and to start it once more away from the stomach and toward the anus. The physician should personally supervise the administration of the remedy and remain with the patient until the bowels act, for the time is a critical one, and in a few hours the patient will either pass safely out of the threatened danger or be beyond the hope of recovery. If the saline is retained by the patient, 1½ hours later a tumbler full of hot peptonized milk will often cause the bowels to act freely, and when this occurs all danger is usually over, the patient ceases to regurgitate the stomach contents, passes gas by the bowel, and in a few hours is ready to take 8 ounces of peptonized milk every 3 hours. Should the patient reject the saline I have found it advantageous to administer a second powder within 15 minutes, or while the patient is somewhat exhausted by the act of rejecting the first, the importance of retaining the solution being explained again to the patient, who often must be ordered in rather an imperative manner to endeavor to retain it. The second effort is usually successful, provided the condition has been promptly recognized and treatment instituted. If, however, it is not, a turpentine enema should be given, or one consisting of 6 ounces of saturated solution of magnesium sulfate and 2 ounces of glycerin.

The onset of peritonitis is indicated by a gradual but persistent rise of pulse, increased frequency of respiration, beginning on the second or third day, accompanied by a sharp and persistent pain, gradually increasing in intensity, the body temperature being elevated or not. If the pulse-rate rises and remains, in spite of our efforts, above 120 a minute, the outlook is generally unfavorable. Much may still be done, however, by the judicious use of ergot, strychnin, and other stimulants and

food, also by the introduction of large quantities of saline solution into the system by either mouth or bowel, as well as by promptly recognizing and evacuating accumulations of fluid in the abdominal cavity, whether purulent or otherwise, the pressure from which alone often causing embarrassment of the lungs and heart, and by keeping the bowels well opened by the daily use of castor-oil or enemas.

Infection of the abdominal wound usually manifests itself by the occurrence of a secondary rise of body temperature, 4 or 5 days after the operation has been performed, and should be treated by opening the wound, washing the parts with hydrogen dioxid and following this by the application of a wet dressing. The best treatment for an infected or sluggish wound is to irrigate it with saline solution, to which tincture of myrrh and hydrozone have been added in the proportion of 1 to 16 each, followed by the application of gauze soaked in a mixture of equal parts of Peru balsam and castor-oil.

The wound, as a result of this treatment, will soon be in a condition to have its edges approximated by secondary sutures.

While the various symptoms described have individually to be considered, and their meaning weighed, they also have to be considered collectively, and in judging of the gravity of the patient's condition, the facial expression is of the greatest value to those who have had experience. A depressed and anxious countenance generally denotes a grave condition, and a cheerful one, even if accompanied by an elevation of the pulse and temperature, that the condition is not serious.

In conclusion, I would impress upon your minds that rest and care, looking to the regulation of all of the patient's bodily functions prior to the performance of an intraabdominal operation, lessen the danger during and following it, often changing the convalescent period from a time of great discomfort into one of peace and rest.

And that in the long run the most successful surgeon, other things being equal, will be the one choosing the simplest technical methods and most willing and able to look after all that concern's his patient's welfare.

TORTICOLLIS AND SPINAL CURVATURE DUE TO EYESTRAIN.

BY

GEORGE M. GOULD, M.D.,
of Philadelphia.

The report of the following case should prove of interest alike to the general physician, the orthopedic surgeon and the oculist. To the first because the patient was of tuberculous parentage and it had been feared that she would develop tuberculosis, if she already did not have the disease. The symptoms simulating tuberculosis were soon found to be caused by a false position of the head. In the course of the treatment of eyestrain, it was discovered that the wry-neck had caused spinal curvature. By accident it was learned that the torticollis and spinal curvature were both due to an odd axis of astigmatism. The details are as follows:

In 1901 a young woman of 18 years of age, was sent to me from a distance because of severe and protracted headaches, bloodshot eyes, blepharitis, and pains in the eyeballs. The state of her health had compelled her to quit school. She had breakfast-anorexia, and a poor appetite generally. I found her static refraction was:

R. + Sph. 2.50 + cyl. 0.37 ax. 90° = 20/20 +
L. + Sph. 2.25 + cyl. 0.50 ax. 90° = 20/20 +

without muscle imbalance.

There was no improvement in her general or special ocular symptoms by the use of the glasses that I had ordered. On account of the tuberculous history of her parents and of a continuous cough, I advised that she should be placed under the care of a general physician, to live out of doors, etc. I did not suspect that I had made a blunder in my prescription for glasses. Two years later, i. e., in 1903, I could not find that any

change was required in her glasses, although I made a careful retesting, again under mydriasis. I had evidently repeated my error, however, of two years previous. I then noticed a drooping of the right shoulder, an inclination of the head to the right and downward, a flat chest, round shoulders, etc. (Fig. 1), and urged that the girl should be placed in the care of a teacher of physical training, to correct these vicious conditions. This was finally agreed to, and Miss Devennie, of Philadelphia, took charge of her. As a result of her examination she found the spinal curvature, which is shown in Fig. 2. There was no disease of the bone, and an orthopedic surgeon was not called in. Within a few days after systematic gymnastic training was begun the patient returned to my office with a spontaneously-made and original discovery. It was announced in these words: "Doctor, when I straighten up and hold my

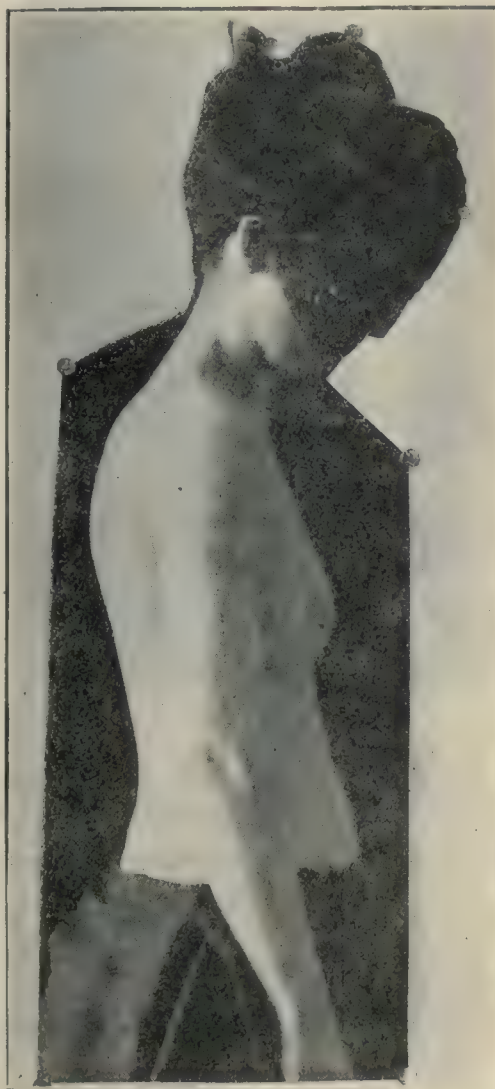


Fig. 1.

head straight as you and Miss Devennie want me to do, I cannot see well." The explanation of the failure of the glasses to cure the headaches, etc., was at once plain, and still clearer the reason for the spinal curvature and torticollis. I had undoubtedly failed in accuracy to correct some odd axis of astigmatism. Painstaking testing now showed that the astigmatic axis of the right eye was 90°, with the head slightly canted down and to the right, and that it was 75° with the head erect. In previous refractions I had stupidly allowed the girl to hold her head in this way while refracting the right eye. Immediate change of the right lens in her spectacles from 90° to 75° (there was no change in the amount of ametropia, and none in the axis of the left eye), produced the noteworthy result that she can now see well only with the head erect. When holding the head canted down and to the right, as formerly, she "cannot see well." The habitual position in reading is shown in Fig. 3. While taking gymnastic exercises her teacher has noticed, without the girl's knowledge of the fact,

that, being without the glasses, the head takes its former abnormal position and the right shoulder droops, the back becomes more humped, etc. With the glasses on, the erect position is at once assumed. The proof seems beyond question that the torticollis, drooping shoulder, bent back, flattened chest, and



Fig. 2.

spinal curvature, are all the product of 18 years of the enforced habit of inclining the head in order to obtain clearer vision with the right eye through an axis of astigmatism differing 15° from that of the other eye in symmetry.

Moreover, since the change in the right lens was made, and the erect position assumed, the patient has been suddenly and entirely relieved of a pain in and about the sternum, which for many years had given her much uneasiness. This pain was not constant, but came on with exercise, deep breathing, coughing, etc. She had not spoken of it much, because of the disinclination to allude to the "consumption" which it was supposed to indicate.

It is needless to add that the headaches, anorexia, etc., which the former glasses failed to cure have also disappeared with the placing of the right axis at 75° instead of 90° . I think this is primarily due directly to the correct lens, which has abolished the reflex, but of course there is a secondary result from the proper position of the body, increased lung-capacity (which is demonstrated), better oxygenation of the blood, etc. The spinal curvature is rapidly disappearing, the head is habitually held erect, the shoulders and back are almost normal and the general health perfect.

The following additional case is confirmatory evidence of the theory:

A patient, herself a professional physical training expert, a woman of 25, of perfect physical form and health (except occasional ocular reflexes) tells me that, for several years, at about the age of 16 to 19, she had a decided curvature of the spine, diagnosed by excellent physicians. She also had torticollis. By the most careful and long-continued physical training under experts in physical culture the head was brought to a normal position and the spine made perfectly normal. She now has a very high degree of astigmatism both axes at 170° —a defect which would not allow binocular fusion with the head in the normal position. I take it that the results of the several years of arduous training could have been more easily and quickly secured by cylindric lenses at proper axes. Several girls in the same col-

lege class with my patient had torticollis and spinal curvature, which has persisted despite all efforts and training, and one of these at least has endured years of wretchedness from headache, sickheadache, etc. (eyestrain reflexes), while her wry-neck and curvature have become worse. I have also had a case that cannot be described as one of torticollis, but rather of abnormal position of the head. This patient, a man of 25, has held his head in the position to be described so long as he can remember. The head is thrown backward in a constrained and unnatural position, and also to the left side. In refracting him it was impossible for me to get him to hold the head downward and forward in a normal position. In a second or two after placing it so, it would return to the retracted and noticeably unnatural poise. This led me to examine the ocular muscular imbalance more accurately, and I found that most rare anomaly which has been called "cyclophoria." He had never had diplopia, but the axis of vision of one eye was so far below and to one side of that of the other that it was only by this abnormal and constrained position of the head that they could be fused and diplopia thus prevented. The patient said that this position of the head prevents him in walking from seeing the ground for some distance in front of him; it also necessitates his holding his book or paper very high. He has never had the usual reflex symptoms of eyestrain, and has only a moderate degree of compound hyperopic astigmatism without anisometropia. Prisms equal to 6° base down right, axis 100° , fused the two images, added greatly to the clearness of vision, and enabled him to hold his head in a normal position. He was right-eyed, with equal acuity of vision. He had never had any spinal curvature.

In order to illustrate the ease with which the ocular cause may be overlooked, I will epitomize the case history of another patient:

A young man was brought to me in 1901 by his father. He

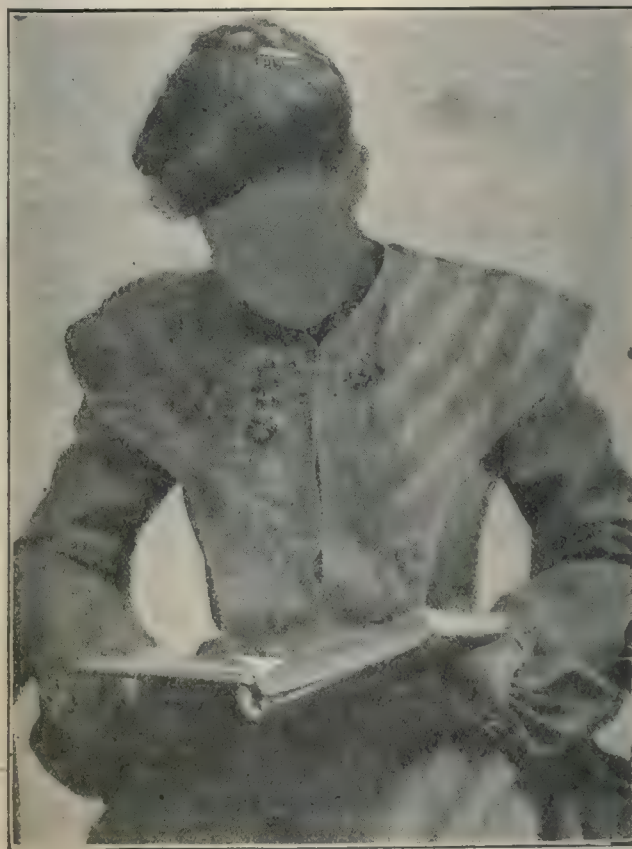


Fig. 3.

had evident symptoms of eyestrain. I found the following error of refraction:

$$\begin{aligned} R. &- S. 0.25 + C. 5.25 \text{ ax. } 75^\circ \\ L. &+ S. 0.50 + C. 6.00 \text{ ax. } 75^\circ \end{aligned}$$

This ametropia was properly corrected. The father incidentally remarked that the boy had spinal curvature. I had noticed that he had a malpoise of the head, but I was too stupid to recognize its significance. I recommended that the boy

should be placed in charge of a good orthopedic surgeon. Dr. H. Augustus Wilson was consulted, verified the diagnosis of spinal curvature, and, by proper treatment, the spinal abnormality and malposition of the head have entirely disappeared. Dr. Wilson had also in mind the possibility of the spinal trouble being due to the eyes, but as the patient was referred by an oculist, he undertook the correction of the defect by orthopedic methods only, and said nothing to me of the possible cause, the ametropia. There is no doubt as to the truth of the theory in this case, and almost none, also, as to the fact that without the correction of the ametropia there would not have been so speedy a cure of the spinal malcurvature.

The possible influence of eyestrain in producing torticollis, so far as I have been able to find, was first suggested by Dr. George T. Stevens. In the June, 1877 number of the *Archives of Ophthalmology* he speaks of the tendency of patients with insufficiency of the superior or inferior recti muscles of the eyes, to carry the head turned to one side. He says that once become permanent, tenotomy of the sternocleidomastoid muscles is necessary, but that "in a much greater number the muscles of the neck will regain equilibrium either speedily or after some time when once the vicious ocular tendency is removed." But no cases are reported by Dr. Stevens, and none definitely referred to. I shall later point out what seems to me the fundamental error in Dr. Stevens' interesting and valuable thought.

In the *Transactions of the American Orthopedic Association* for 1889, Dr. E. H. Bradford reports a case of "Functional Torticollis from Defective Eyesight." The same case is reported by Dr. Wadsworth from the ophthalmologist's standpoint in the *Transactions of the American Ophthalmological Society* for 1889.

Case of Drs. Bradford and Wadsworth, of Boston.—A bright boy of 14, had had wry-neck from infancy, together with lateral spinal curvature to the left. There was no permanent contraction of the muscles of the neck. Although there was a well-marked convexity of the spine to the left, the vertebrae were apparently normal. Long-continued attempts, chiefly of a gymnastic kind, had been carried out in Sweden in the attempt to normalize the position, but without any effect upon it. Dr. E. H. Bradford referred the patient to Dr. Wadsworth. The left eye, from childhood, "rolled up" and the head was tipped to the right. The right shoulder drooped. There had never been diplopia. "Only when the eyes were turned strongly down and to the left, while at the same time the head was inclined forward and to the right, and rotated a little to the right, did he apparently get binocular fixation." Prisms, amounting together to 20° to 25° base down L., base up right, apparently gave binocular fixation with the head nearly in the normal position. Fundus was normal. Vision each eye was $\frac{1}{2}$. Vision under homatropin R. or L. with +0.75 = $\frac{1}{2}$ +. Two unsuccessful attempts to tenotomize the left superior rectus were made, but success was attained at a third trial. The result in one month, was that the boy was much straighter both in head and trunk, and improving. The left eye now turns down as far as the right. Stereoscopic vision was, however, still impossible, and the cover-test showed deviations. A month later there was still drooping of the right shoulder, and the head was slightly tipped. Vision R. with 1 Cyl. 0.50 = $\frac{1}{2}$ +, L. with +0.50 = $\frac{1}{2}$ +. Dr. Wadsworth adds:

"The fact that the distortion did, to all appearance, render binocular fixation possible in one position of the object, led me, in the absence of other discoverable cause to think this supposition (of the ocular etiology) probable. It is within the bounds of possibility also that in earlier life the twisted posture gave binocular fixation over a wider area, and, therefore, for a larger part of the time, and that the posture once become habitual, occasional binocular fixation only was needed to maintain it in permanency. The rapid improvement that took place after tenotomy appears to sufficiently confirm the correctness of the theory." Dr. Bradford says: "To attain binocular vision the boy is obliged to hold the head on one side."

Case of Dr. Lovett and Dr. Cheney.—A boy of 3 years of age had turned his face to the right side for about 6 months. The head resisted manipulation, to place it erect, although the turning was not constant. When looking attentively at any object the child always turns the head. Dr. Cheney found slight convergence of the right eye: Diplopia could not be diagnosed in a child of the age of this one. There was chronic choroiditis of both eyes, with central choroiditis of the right sufficient to impair vision. Idiopathic torticollis seemed the necessary diagnosis of the orthopedic surgeon. Dr. Cheney performed tenotomy of the right internal rectus. There was improvement noted in a month in the position of the head, although there still remained some convergence of the eye, and another operation would probably be necessary.

*Three Cases of Dr. S. D. Risley, of Philadelphia,*³ as re-

ported in the discussion of Dr. Wadsworth's paper. Dr. Risley said:

"I have had the opportunity of studying three similar cases, and do not know of any recorded case. The first was seen in 1880, age 15, a stalwart lad, the son of a physician. The head was carried strongly to the left side, both in reading and walking, but could be readily and voluntarily brought to the upright position. Notwithstanding this fact, a general surgeon had advised a tenotomy of the muscles of the neck. The boy volunteered the statement that when he held his head erect his vision was impaired. His father, therefore, brought him for advice about the eye trouble. In the habitual position the boy enjoyed binocular vision sharpness 20/xx, while in the erect posture the letters were confused by vertical diplopia, which was, however, corrected at 20 feet by a 3° prism placed with its base down over the right eye, and V. = 20/xx. The refraction was for O.D.H. = 1 D., O.S.H.As. = +.50 C + .50 cy. ax. 90°. A tenotomy complete of the right superior rectus was done under ether, assisted by Dr. Randall and the boy's father. The result was to relieve the faulty position in which the head was habitually carried for several years. He was placed as accountant in a badly-lighted counting-room in 1887, and soon developed asthenopia and a return of the faulty posture, but allowed a year or more to pass without seeking advice. I then found not only a return of the former conditions, but a marked lateral curvature of the spine. A complete tenotomy of the left inferior rectus was done, and subsequently a second division of the right superior rectus, which, together with a correcting glass, relieved the asthenopia, but did not affect the ungraceful carriage which was now produced by the permanent deviation of the spine.

"In the other cases, one was relieved by prismatic glasses without operation both from the faulty posture and the asthenopia; the other by a double tenotomy and the subsequent use of weak prisms. It had not occurred to me, however, to place these cases in the category of torticollis."

Case of Dr. J. K. Young, of Philadelphia.—A woman of 30, in 1891 had torticollis, which was cured by a prism of 3° Base down in the right lens. The asthenopic symptoms were also improved. The glasses ordered were:

R. Prism 3° Base Down.
L. + Sph. 0.25.

The head was turned down and to the right. It is not known whether there was any spinal curvature. There was evidence of astigmatism in the right eye, but it was not corrected. In his "Orthopedic Surgery," Dr. Young says: "Compensatory torticollis is met with in lateral curvature, but in many instances of association of these two conditions, the wry-neck will be found to be primary. Of a compensatory nature also are those cases of wry-neck developed from irregularity of the sight of the two eyes—a condition termed by Quignot, *torticollis oculaire*, a not infrequent condition in the writer's experience." And there is another reference under "Treatment," p. 258: "When dependent upon ocular defect the insufficiency should be corrected with prisms, tenotomy only being performed when the deformity amounts to 12° or more. In a recent case of the writer a 1° prism base down, in the left eye corrected the insufficiency, and with the proper correction for hypermetropia relieved the torticollis."

We thus have the following, which so far as I can learn, are all the cases reported or alluded to in literature, as showing that eyestrain may cause torticollis and spinal curvature:

1. Statements of Drs. Stevens and Quignot, which must have been founded on cases observed.
2. Cases of Drs. Bradford and Wadsworth.
3. Case of Drs. Lovett and Cheney.
4. Three cases of Dr. Risley.
5. Cases of Drs. Kilburn and Lovett.
6. Case of Dr. Young.
7. Cases of Dr. Gould.

8. The case of Dr. E. G. Brackett, of Boston, not published, spoken of in a letter to me—"of a child I have just seen in our hospital clinic with a distinct though not severe torticollis and lateral curvature; it has a paralysis of the external rectus, from which the child has developed the necessary habit of holding its head to one side."

In the "Orthopedic Surgery" of Bradford and Lovett, second edition, occurs this sentence: "Ocular torticollis may occur when a difference in the plane of vision of the eyes exists, or when a difference in power of 2 eyes is present." In a personal letter to me, Dr. Lovett writes as follows:

My attention was first called to this subject by Dr. H. W. Kilburn, of Boston, who began referring cases to me when lateral curvature, in his eyes, was associated with unequal astigmatism. From an orthopedic point of view the cases have done very well, and I think I am speaking correctly in saying that it is

¹ Transactions American Orthopedic Society, Vol. II.

² Transactions American Ophthalmological Society, 1889, p. 384.

Dr. Kilburn's opinion that the astigmatism of some of them at least was helped by the improvement of the lateral curvature.¹ Now that lateral curvature is more generally regarded as a purely static problem, it is obvious that anything that causes the head to be held to one side is possibly a factor of importance and any inequality of the vision of the two eyes, as well as an inequality of the two ears, is an important cause.

Dr. Cheney, in the report quoted, says:

The resulting deformity in these cases of muscular insufficiency is due to the fact that the subject suffers from diplopia, and that the double vision can be corrected by turning the normal eye so that its visual axis is made parallel to the visual axis of the deviating eye. To give an illustration, we will suppose a patient, with a marked insufficiency of the rectus externus of the right eye, and as a result a converging strabismus of the eye and diplopia. If the left eye is now turned outward, so that its visual axis is made parallel to the visual axis of the right converging eye, the double vision will, of course, be corrected. If a patient wishes to see an object in front of him he must look directly forward with the left eye and see double; or, what is better, he can keep both eyes turned to the left, at the same time turning the face toward the right shoulder, and see the object single. The turning of the face to the right, if continued for any length of time, would naturally result in more or less contraction of the muscles of the neck and a permanent torticollis.

In the case of Dr. Young, also, the only thought was of prisms for the "insufficiency" for the relief of the torticollis. The quotation from the "Orthopedic Surgery," of Bradford, and Lovett speaks of the ocular cause as being "a difference in power of the two eyes," but it is plain that only the muscular powers of the external ocular muscles was referred to. The theory of the orthopedic and ophthalmic surgeons was that heterophoria alone caused the trouble. The ametropia was not considered. This fact is made clear by the advice and practice only of tenotomy of the ocular muscles, or by the prescription of prisms. But it is also manifest in the fact that the ametropic conditions are held so nonsignificant as to be inaccurately reported or comparatively ignored. In one case the refractive error was found to be + Sph. 0.75 in both eyes, and a month later it was put down as R. + Cyl. 0.50, no axis given, and L. + Sph. 0.50. The astigmatism could hardly have developed during the month, and the designation of the axis of astigmatism would have proved the most important fact of the case.

In the case of Drs. Bradford and Wadsworth the tilt of the head was to the right, and the left eye was the one that "rolled up," and that was tenotomized. In that of Drs. Lovett and Cheney the head was turned to the right with convergence, and tenotomy was performed on this eye. In Dr. Risley's case the head was carried to the left side. The astigmatism was in the left eye, but the right superior rectus was the muscle cut, followed later by cutting of left inferior rectus.

In my case the right was the clearer seeing eye, the head was canted to the right and the right had the unsymmetric axis of astigmatism which caused the false position. There was perfect muscular balance in this case, *i. e.*, 1° of 20-foot esophoria.

Almost every case of refraction demonstrates the truth that the "insufficiency," heterophoria, and even the heterotropia is caused by ametropia. If, therefore, the eyestrain caused these cases of torticollis and spinal curvature the method of treatment should have been by correction of the conditioning ametropia, instead of by surgical operations upon the secondarily affected external muscles, or by prisms, bases up or down. The earlier in life it is done, the more surely the cure or prevention. There is proof of this in the fact that the tenotomies in none of the cases were successful. In the first case there were deviations by the cover-test, stereoscopic vision was impossible, and the head and shoulder still drooped. In the second, convergence still remained after operation, and a second operation was advised. In the third case, two operations were performed, a correcting glass relieved the asthenopia, but the ungraceful carriage and deviation of the spine persisted.

In the fifth case there was perfect cure of headaches,

ill-health, pain in the chest, the tilt of the head, and progressive straightening of the spinal curvature solely by means of the proper astigmatic lens of the affected eye and side.

My own error in not placing this axis correctly cost my patient two years of continued reflex suffering which might have been avoided, made still more inveterate the chronic malposition of head, shoulders, and spine, did not relieve the bad general health, and postponed for two years the discovery of the cause of all these conditions. The diagnosis of the deviated axis of astigmatism was made more difficult by the patient's habitual tilt of the head, and the detection of such a slight asymmetry of the astigmatic axes, in low defects, is already sufficiently difficult. Hence, I am inclined to think such misplaced axes exist more frequently than we suspect, and that they were probably present in at least some of the foregoing cases.

The fundamental and conditioning cause of all such cases is any abnormalism that requires the habitual carrying of the head in an inclined or twisted poise. Consequently when one ear is deaf or partly so, the constant bending of the head so that the hearing ear is directed to the front, may cause resultant torticollis and secondary spinal curvature, as pointed out by Dr. Lovett. Dr. Brackett writes me:

I have also noticed among the blind children in the kindergarten a very large percentage of curves. For instance, at one time, among 36 there were 10 or 12 who had distinct curvatures. Most of these were not completely blind, but were able to see light with one or the other eye, and on account of which they held the head turned to one side, as if in the attempt of seeing a little light in walking.

I wish, lastly, to mention an important causal factor—the existence of right-eyedness or left-eyedness. I am convinced that every one is either right-eyed or left-eyed by inheritance or habit; *i. e.*, uses one eye, usually the one with better or specially trained vision, for certain purposes, exactly as one is right-handed or left-handed. Most people, I think, are right-eyed, but by no means in the large proportion they are right-handed, because of the many accidents of ametropia, which may make the left eye the better seeing eye. The fact that from savage times to the latest military regime of civilization marksmanship with bow or gun is carried out with the "sighting" by means of the right eye demonstrates that the left-eyed exceptions are comparatively few. In my case here reported the right eye, although slightly the more ametropic, was the one most relied on, and its vision was much the sharper. Hence the new astigmatic lens at axis 75° compels the patient to hold the head erect and turning it downward and to the right, as formerly, obscures vision so much that she says she "cannot see."

The practical lessons are so evident that they scarcely need stating:

1. Habitual abnormal position of the head is frequently the cause of spinal curvature.
2. These abnormal positions may be due to some error of refraction, which necessitates the torticollis, wry-neck, cant, or depression, in order to secure clearer vision.
3. The error of refraction is usually a slight asymmetry of the axes of astigmatism, whereby the clearer-seeing or most-used eye (usually the right in right-handed persons), has an axis 10° or 15° to either side of 90° or 180°, *i. e.*, at about axes 75°, 105°, 165°, or 15°.¹
4. The heterophoria, which has been the supposed cause of the functional torticollis, etc., is itself, usually a result of the refractive error, proper correction of which, at a sufficiently early age, cures the heterophoria, the torticollis, and the spinal curvature.

¹ Since this paper has been in type I have discovered several more cases in which a lifelong tilting of the head has been demonstrated as due to these slightly asymmetric axes. I am inclined to think them much more common than supposed, and that the astigmatic cause so easily overlooked in careless refraction work is a more common source of wry-neck than orthopedic surgeons and oculists have suspected.

¹ This is, of course, impossible.—G. M. G.

FATAL PULMONARY EMBOLISM FOLLOWING ASCENDING PHLEGMASIA ALBA DOLENS.

BY

JOHN G. SHELDON, M.D.,

of Telluride, Colorado.

CASE I.—Normal labor; slight fever and abdominal pain and tenderness on the fourth day; temperature normal on the twelfth day; left ankle swollen and tender on the fourteenth day; symptoms very mild until the twenty-second day, then sudden death—doubtless from pulmonary embolism.

Mrs. B., aged 32, Italian, gave birth to a healthy male child. The pregnancy and labor were normal. On the fourth day, following labor, she complained of some abdominal pain and distention. The attending physician found the temperature 100° F. and the pulse-rate 92. A cathartic was given and a douche ordered to be given by the nurse. The patient did very well, and on the twelfth day there was no tenderness and the temperature was normal. The pulse-rate, however, was 84 per minute. On the fourteenth day the patient complained of sudden pain in her left calf. At this time examination showed some edema and swelling of the left ankle. The posterior surface of the left calf was tender on deep pressure. The temperature was 100° F. and the pulse 98. During the next 5 days the patient remained in about the same condition. The swelling and edema extended to the knee, but the pain was slight. The patient's general condition seemed good. The temperature remained about 99° and the pulse-rate about 100. I was called in consultation on the nineteenth day. At this time the patient seemed in good spirits and complained of nothing except the slight pain and tense feeling in the left leg. The left lower extremity was considerably swollen and was firm and pitted on pressure. The limb was not cyanotic. Slight tenderness was present everywhere below the knee. The thigh appeared normal, excepting slight tenderness over the internal saphenous vein. The heart and lungs showed no abnormal changes. The abdomen was not tender or distended. A vaginal examination was not made.

I told the physician and the family that the patient was suffering from a rather unusual, but mild form of milkleg, and that I expected her to recover without complications. I informed them that doubtless the leg would be enlarged and weak for some time, but I did not think the condition sufficiently severe to warn them of the possibilities of pulmonary embolism. On the twenty-second day the patient cried out suddenly, gasped a few times for breath, became slightly cyanotic, and died. A postmortem examination was not made.

In this case the patient was never out of bed from the time of the birth of her child; the affected leg was never subjected to rubbing; and during examinations special care was used in handling the limb.

CASE II.—Primipara; labor normal; puerperium normal till twelfth day; then pain, swelling, and edema in the left ankle; slight fever till twenty-fourth day; swelling disappeared and patient walked on the forty-eighth day.

A healthy girl of 24 experienced a normal labor. Nothing of note occurred till the twelfth day following the delivery. At this time she complained of pain in the left calf. A hot water bottle was applied which gave temporary relief. The next day the limb was still painful and the swelling had increased. There was some discoloration of the leg. I saw the patient on the fourteenth day following the labor. At this time the leg was moderately swollen, was firm, edematous, and tender. The thigh appeared normal. The internal saphenous vein was not indurated, swollen or tender. The temperature was 100° F., and the pulse-rate 88. The remainder of the examination was negative, excepting for the presence of evidences of an old cicatrix in the right pulmonary apex.

I suggested the possibility of pulmonary embolism in this case. The family was much alarmed on hearing this, especially when there was no method to be advised to prevent the occurrence of this serious complication. After the third week the temperature became normal and the swelling gradually disappeared from the leg. On the forty-eighth day following labor the patient was allowed to get out of bed. The limb was slightly swollen, but was useful, and was not tender.

CASE III.—Multipara; normal delivery; curetment on seventh day; right leg affected on sixteenth day; sudden death on twenty-fifth day.

Mrs. H., aged 38, experienced a normal and easy delivery. She was attended by a midwife. On the fourth day she had a chill; the abdomen became distended and tender, and she thought she had fever. On the seventh day a physician curetted her uterus and washed it out with mercuric chlorid solution. She seemed much better till the sixteenth day. At this time she experienced a sudden pain in the right calf. The next day the leg was swollen, tender, painful, and cyanosed. On the twentieth day she was moved a distance of 17 miles on a stretcher. Examination on the twenty-first day, was as follows: Patient rather obese. The right leg was swollen, edematous, painful, and tender. The thigh appeared normal, and the internal saphenous vein was not tender or indurated. Vaginal exam-

ination revealed practically a normal condition. Examination of the abdomen and lungs was negative. The heart was slightly enlarged transversely. A systolic murmur was heard at the apex and in the left axilla. The temperature was 101° F., and the pulse-rate 108 per minute. The patient's local and general condition seemed to improve till the twenty-fifth day, when she suddenly complained of dyspnea, became slightly cyanotic, and died.

Phlegmasia alba dolens, beginning in the ankle and leg, instead of at the groin, is mentioned by most textbooks on the subject. Welch states that the pain is "often first noted, and may remain localized in the calf." He gives further recognition of the ascending variety of milkleg in the following statement: "The cardinal symptom, edema, sometimes ascending, sometimes descending, gives rise to the firm, painful swelling—"

Lusk divides these cases into 2 classes: Primary and secondary thromboses. He says: "In primary thrombosis the swelling usually begins at the ankle, and spreads rapidly to the knee and upward to the inguinal region; in secondary thrombosis, extending from the uterine sinuses, and in the superficial form of phlegmasia, the swelling, on the contrary, travels commonly in the reverse direction, viz., from the inguinal fold to the ankle."

It was my intention, in reading up this subject, to determine the relative frequency of occurrence of the ascending, or peripheral form of phlegmasia alba dolens, and to show the percentage of cases in which death followed. I am unable to find anything in the literature that is of value on these points. My personal experience would lead me to believe that the ascending form of milkleg rarely occurs; but when present is much more apt to be followed by pulmonary embolism and death than is the secondary, or descending, form of the condition: I have seen many cases of descending phlegmasia alba dolens, and have examined many patients who gave a history of having suffered from this affection, but have never known of a case of fatal pulmonary embolism to occur. On the other hand, the 3 cases, herewith reported, are the only cases of ascending phlegmasia alba dolens that I have observed. My experience may be accidental, or it may be that the ascending form of milkleg is likely to be followed by serious complications. The literature, on the subject, is of no value in arriving at a decision.

The symptoms of the 3 cases reported present nothing unusual. The abnormally high pulse-rate in proportion to the temperature stated by Mohler, Wyder and Singer to be characteristic of phlegmasia alba dolens, was not sufficiently marked, in these cases, to be of diagnostic value.

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Although I found nothing in the literature on the points that I wished to discuss, I offer these references as they may be of value to some one looking up this subject from a different point of view.

RAYNAUD'S DISEASE.¹

BY

DAVID G. PEYTON, M.D.,

of Jeffersonville, Ind.

Raynaud's disease was first described by Sir Benjamin Brodie, in 1837, but not until 1862 was it given its proper place in medical nosology by Maurice Raynaud, who described it as a separate entity, calling it symmetric gangrene of the extremities.

It is distinctly a disease of early life, usually occurring between the ages of 18 and 35, and more often in women than men. Examples of gangrene due to endarteritis, embolism, or multiple neuritis, and senile gangrene have been reported as manifestations of Raynaud's disease, and only serve to obscure the strict limitations of the disease, which should be confined to that condition presenting local syncope, local asphyxia, and local gangrene only. Gangrene simulating Raynaud's disease occurring in persons over 50, or in those who are subjects of nephritis, syphilis, alcoholism, or diabetes mellitus, should cause one to suspect endarteritis or multiple neuritis. Gangrene of the extremities also occurs in leprosy, diabetes, syringomyelia, and endarteritis obliterans, but the peculiar characteristic symptoms of each should enable us to distinguish them from Raynaud's disease. However, it would seem from reports that many cases of senile gangrene, as well as other things presenting nutritional disturbances, are often classed under this term. It would seem, in view of the fact that Raynaud's disease is almost always a disease of the young, that we should be able to eliminate senile gangrene. Again, chilblains and angioneurotic edema are sometimes mistaken for the disease. I say, chilblains are sometimes mistaken for Raynaud's disease, for I do not agree with Osler in his statement that "Chilblains are the mildest grade of the stage of asphyxia." I am convinced from my own observation, as well as that of others, that the condition involves organs and tissues other than the extremities.

Local asphyxia differs from local syncope, as illustrated in "dead fingers," by being due to fullness of the small veins; in both, the arteries are more or less affected, being thrown into spasms, but in asphyxia the closure of the lumen is less complete.

The etiology is obscure and complex, due in part to the fact that a number of somewhat widely differing conditions have been confounded under this name. The question in causation that first presents itself for our consideration would be, is it truly and strictly a vasomotor neurosis, dependent upon an exaggeration of the excitomotor powers of the central system, or is it due to certain unknown changes in the trophic nerves? The question arises here as to whether or not we have a distinct anatomic set of trophic nerves, or whether all

nerves, in addition to their functions, exercise a trophic influence. I am of the belief that we do have such a special set of trophic nerves, and the fact is evidenced by the following physiologic phenomena:

In the case of the fifth nerve, we have certain trophic changes in the eye—a slow inflammatory process, which may lead not only to destruction of the cornea but of the entire eyeball. On the other hand, we may have greatly increased vascularity, due to disturbed vasomotor changes which do not lead to the disorders of nutrition mentioned. If both vagi are divided, we have death resulting from a condition known as vagus pneumonia, in which gangrene of the lung substance is a marked characteristic. Here the predisposing cause is the division of the trophic fibers in the pneumogastric nerves; the exciting cause being the entrance of particles of food, etc., into the air passages, which on account of loss of sensation are not expelled. Again we have certain bed-sores, due to long confinement in bed and bad nursing, but another class is due to paralysis from disease of the spinal cord, and comes on suddenly. While the foregoing would seem to prove the positive existence of a separate trophic nerve, yet I am not prepared to say that the conditions met in Raynaud's disease are due to a disturbance of these trophic fibers, but desire only to suggest such a possibility.

On the other hand, practically all authorities are agreed that these conditions are due to vasomotor influences. The disease usually comes on in cold weather, and cold seems to be an exciting cause. The visible contraction of the central retinal artery seems further to support the theory of vasoconstrictor spasm, probably originating in the gray centers of the spinal cord.

In intensity we have the three grades, local syncope, local asphyxia, and local gangrene. Leaving the first stage, or stage of syncope, or dead fingers, it is the purpose of this paper to deal more especially with the conditions of asphyxia and gangrene, the former only in so far as it applies to or bears on the case in mind.

The fingers and toes, tip of nose and lobes of the ears are the most likely points of attack. Elsberg reports a fatal case, due to syphilitic origin. Marsh reports a case in a boy of 12, who was hereditarily syphilitic. He was cured, but lost his toes.

Pospelor points out a new sign of this disease—onychophagy—which accompanies it, and which he holds is characteristic, a veritable cutaneous neurosis, analogous to the trichotillomania of Hallopeau. Hutchison holds we are all subjects of Raynaud's phenomena in a greater or less degree, being liable to coldness of the extremities, not only through exposure, but also through nervous influences.

Thompson reports a case of a male, aged 29, of neurasthenic family, who had always been weak and nervous, occasionally having convulsions, and who had been a sufferer for 9 years from Graves' disease.

Our knowledge of the pathology of this extremely rare affection is little more satisfactory than our knowledge of its etiology. However, we have 3 principal theories as to its pathology: (1) Endarteritis obliterans; (2) peripheral spasm; (3) vascular spasm.

The intermittent character of Raynaud's disease is quite sufficient to disprove the endarteritis obliterans theory, which is progressively increasing in its nature. Just what changes, if any, take place in the trophic nerves is unknown, and the suggestion of Raynaud, that of arterial spasm, followed by relaxation and venous engorgement, and consequent pressure, is probably correct.

The local syncope is supposed to be due to vasoconstriction, followed in the next stage by vasomotor paralysis. From this, it would seem the resulting gangrene is due to the pressure and probably not to any trophic changes, such as we have in syringomyelia and other diseases. It is certain the tissue changes are not confined to the soft parts, but affect the bone as well.

¹ Read before the Indiana State Medical Society, at Richmond, June, 1903.

The third stage is reached in few cases only, and then the parts remain asphyxiated, and the gangrene comes on. The blebs and discoloration of parts appear. Other associate symptoms are scleroderma and edema—at other times cerebral symptoms, as torpor and partial loss of consciousness, epilepsy, mania, delusions, and temporary hemiplegia.

I will now present a case illustrating Raynaud's disease.

CASE.—C. E. C., aged 33, a farmer by occupation, was born of tuberculous parents. His father died at the age of 35, of tuberculous peritonitis, and his mother at the age of 48, of pulmonary tuberculosis. Two sisters died of pulmonary tuberculosis, one at 28 and the other at 24. One brother, aged 35, is living and in good health. One sister, aged 37, is living and in good health. The patient knows nothing of his grandparents. He has lived on a farm all his life until May 3, 1898, when he entered the United States Army as a cavalryman, and served until June 23, 1899, when he was mustered out.

He had the ordinary diseases of childhood, malaria when about 10, and grip when 23. He has been a rather extensive user of tobacco since the age of 11, and has drunk to excess for the past 12 or 15 years—at times drinking pure alcohol. He was apparently healthy until the autumn of 1898, while in the United States Army and stationed in Florida, he had severe pain in back, full length of spine, and shortly afterward his hands and feet became edematous, and blebs filled with a bloody serum made their appearance, extending on the hands to the wrists, and on feet and legs above the knees. There was apparently no fever (so patient states), and the attack lasted about 3 weeks, when the entire cuticle of both hands and feet was shed *en masse*. The attack left the joints of both hands stiff. After this he was again apparently well, until the fall of 1900, when he had a recurrence of the trouble, and was treated in a hospital in Indianapolis, with the same general symptoms. He recovered from this attack in about 3 or 4 weeks, but in this attack he not only lost the skin of both hands and feet, but the finger nails of both hands came off. His third and last attack came on him at his home in the country on February 15, 1903. He had been engaged in gathering corn the day before, and was exposed to the cold. On the following day, the hands and feet presented the same class of symptoms as before. On March 9, I examined the patient for the first time and found all the fingers and thumbs of both hands thoroughly gangrenous, with perfect lines of demarcation formed just below the metacarpophalangeal articulation in the fingers, while in the thumbs, the line was near the middle. Amputation was decided upon and in both hands the evidence of nutritional disturbance was most marked, the soft parts breaking down under the least effort. The bones were soft and spongy. The amputations were completed without the use of Esmarch's bandage or anything to control the hemorrhage, all the fingers of one hand being removed before the flaps were closed. In neither hand was there any hemorrhage. His chart while in the hospital showed nothing of special importance, his temperature never exceeding 101°, and that only for a short time. During the first week following amputation, his temperature ranged from 99° to 101° at the end of which time it became normal and remained so.

Union of the stumps of the right hand was by first intention, but the left hand refused persistently to heal, and even at this writing, is not perfectly healed. One condition especially existed for some 3 weeks following the operation, and that was the tendency to a return of the asphyxiated condition of both hands, and the line would form just above the wrists on both hands. The treatment consisted of frequently douching the hands and arms with hot normal saline solution, and the alternate hot and cold douche along the entire course of the spine and later of the static electricity in the wave current and static spark.

I do not believe that any good is to be gained by any internal medication, as every drug heretofore suggested, was tried in the case with no apparent result.

December 24, 1903. The patient entirely recovered and has been perfectly well for about five months.

Smallpox and Finsen Red Light.—Baer reports 18 cases of smallpox occurring in Strasburg. With the exception of 1 patient, who had been vaccinated successfully 5 years before, and another 7 years before, none had been vaccinated within 12 years; the gravest cases not in 39 years, 40 years, and 46 years. Of the 18, 9 were light cases; of the other 9, 6 were treated by the author according to Finsen's red light theory. The chemically acting rays of daylight were excluded by means of red curtains; in none of them did the vesicles suppurate, thus preventing the secondary stage of suppuration with its grave symptoms. The duration of the disease was very much shortened. They all had glandular enlargement and albuminuria. The scarring danger was reduced to a minimum in all the cases. To produce these good results it is, however, necessary to exclude all daylight during the entire disease.

BRADYCARDIA, WITH REPORT OF AN UNUSUAL CASE.¹

BY

J. WILLIAM WATSON, A.M., M.D.,
of West Hartford, Vt.

It is well known that physiologic slowness of the pulse occurs in the puerperal state, repose, fasting, and old age, and that it is found habitually in certain people running from 40 to 60. For example, Napoleon, is reported to have had a pulse of only 40, which undoubtedly was a family trait, as a slow pulse may be inherited. These cases in which even after death no appreciable lesion is found, are cases of "essential bradycardia."

Butler designates that we rarely find a pulse regularly below 40, concomitant with health, but cases are on record showing the pulse to have sunk below 20 down to 8 or 9, and even as low as 4 beats per minute. All such cases are no doubt pathologic, and this is where the proper study of bradycardia comes in, although even here a doubt may arise. For instance, in a man, about 80, with the sclerosed arteries which are apt to occur at that age, and with occasional symptoms of Stokes-Adams' syndrome, brought on probably by excitement or overexertion, the pulse which had previously been nearly normal, may suddenly drop below 30, and remain regularly there for nearly 6 months. In a case like this it would appear that the organism is trying to adjust itself to a new order. Therefore, can it properly be called pathologic? I desire to report an interesting case in which such conditions were present.

The patient was a man prominent in mercantile affairs, and had always led a very active life. Two years ago he had some gastric trouble, but at the present time, aside from a habitual cough, supposed by some to be due to fibroid tuberculosis, he seemed in a fairly good physical condition for a man of 78. His pulse was normally 66. I was called to see the patient, and found him in a very alarming syncope, apoplectic form or epileptiform condition; pulse was 18, and he presented every symptom of Stokes-Adams' disease. I was told he had 2 previous attacks; the first occurred 2 years previous, while the patient was running a horse-rake in the hay-field. He fell under the horse and was picked up unconscious. The condition of the pulse at that time is not known, as he was not attended by a physician. The second attack, which only lasted a few minutes, occurred a week ago. The third attack, for which I was called, was more severe than the others, and occurred one Saturday night after his return home from an unusually hard day at his place of business. He responded promptly to stimulation, but his pulse would not go above 24. He was put to bed, but soon insisted on going up stairs to his own room, which he did almost unassisted. He passed a comfortable night, but his pulse still remained low even though cardiac stimulants were used continuously. His fourth and most severe attack occurred 18 hours later. I was hastily called, and found him in an apparently dying condition with a pulse down to 16. He responded, however, to the same treatment of the previous evening, and soon laughed at our fears, and told us that he was a hard man to kill. He was closely watched night and day for a month, and the attacks grew less and less severe, and only occurred at long intervals. At no time during the month did his pulse go over 32, and usually it remained at 26 or 24. He was now allowed to leave his bed. He did not seem to suffer any bad effects in the upright position, even though the bradycardia was excessive. However, he was repeatedly cautioned against overexertion, and was told that he must have absolute rest, and under no circumstances go back to his place of business. These cautions were of no avail, for he was soon spending a few hours daily at his office and store, and now and then taking a ride in his carriage. Often these rides were taken alone. Occasionally he was seen socially by me, and would permit his pulse to be counted. At no time did I find it over or even up to 30, and it was usually 24. The only inconvenience that he complained of was that he felt faint on exertion, and that he tired easily. He was again cautioned against overexertion, and was advised to continue taking a cardiac tonic, to which he replied that he had not much use for medicines or doctors.

He continued in this condition about 3 months, with pulse regular and slow. His system seemed to be properly adjusting itself to this new order. Up to this time his death had been expected at any moment, but now it appeared as though he might live indefinitely (so far as his pulse was concerned) with this acquired physiologic bradycardia. Aside from arterio-

¹ Written especially for *American Medicine*, but the first draft was read in a discussion on tachycardia before the joint meeting of the White River Medical Association and Windsor County Medical Society, held at White River Junction, Vt., December 8, 1903.

sclerosis, no trouble of his circulatory system was discovered. On auscultation of the heart only the classic sounds were heard, but so far apart (2 to 3 seconds between beats) as to make one feel that it had almost stopped.

One evening he heard a noise in his stable, and contrary to his physician's orders, went out to investigate. He did not return as soon as was expected, and as everything seemed quiet in the stable, a search was made and he was found behind one of the horses in a syncope condition. He soon revived and complained of no unpleasant sensation aside from faintness. This spell had undoubtedly been brought on by the excitement and some probable exertion in controlling the horses. Treatment consisted of the administration of glonoin .2 mg. ($\frac{1}{200}$ gr.) in solution every 5 minutes and inhalations of strong ammonia.

During the next 2 months he continued to superintend his business and rode considerably (generally alone) to oversee the work on the farms he was interested in. While in a hay-field, but doing no manual labor, another attack occurred. He recovered promptly on being vigorously fanned. In speaking of the event, he told me that he was much perturbed over the way hired help worked now-a-days. They did not try to see how much work they could do for their employer, but they did try to see how much time they could get in on him. This mental perturbation was evidently the cause of this attack. Anything that tended to unbalance his circulation seemed likely to produce an attack. As a rule, his family had no trouble in bringing him out of them, so a physician was not called in after the first month or 6 weeks.

During the first few days of the sixth month after his first attack he did not feel so strong as usual, so he remained quietly at home. On the fourteenth day of this month he had a "bad spell" in the morning, but recovered with the usual family treatment. In the afternoon of the same day he had another attack, and not recovering so promptly as heretofore, the physician was quickly summoned. His pulse was down to 18, only beating 3 times in 10 seconds. He was cyanotic and was having epileptiform convulsions. His condition was very much the same as when first seen nearly 6 months previous. The same treatment was followed, consisting of the administration of strychnin, nitroglycerin, and digitalin subcutaneously, aromatic spirits of ammonia by mouth, and strong ammonia inhalations. Much to our surprise his pulse went bounding up to 60 and 66 as in health, but his breathing did not improve as heretofore. Artificial respiration was tried, but was of no avail. The pulse gradually dropped down to 18, where it lingered for a few moments, and finally, while the patient continued to breathe slightly, it stopped altogether, but all the time it had been strong. This rise of the pulse from 18 to 66 and then the change back to the 18 and below, seemed to produce a severe shock to the system, from which it could not recover. At any rate, the patient died within 15 minutes after the arrival of medical aid. There was no necropsy.

This case gives a chance for much speculation. Another physician and myself think it possible that the patient might have lived could he have been subjected to a rigid Weir Mitchell course. Probably in this way the Stokes-Adams' syndrome could have been avoided. According to Osler, his old age and arteriosclerosis would account for these unpleasant symptoms, which were usually brought on by overexertion or mental excitement. The fact that the patient lived comfortably so long (5 months and 14 days) with such a low pulse seems to indicate that it was becoming physiologic and that his arteriosclerosis was concomitant with his old age and not otherwise necessarily pathologic in producing or being a part of the Stokes-Adams' syndrome. Butler says that these symptoms may occur from time to time when the bradycardia is excessive (20 to 30), which condition existed in this case.

To me this does not appear to be a case of true Stokes-Adams' disease. By some unaccountable cause the pulse was lowered and the economy made a strong fight to adjust itself to the new arrangement. At all events, it appears that this low and continued regular pulse must have had some symptomatic etiology, occurring, as it did, in an active man and one of exceptionally good habits, whose pulse had ranged heretofore between 60 and 70. In reviewing the case, it appears to me that the rest treatment after the first 6 weeks was more efficacious than drugs. For the condition of slow pulse, Osler says that little can be done. He also adds, that a great majority of the cases are not dangerous.

In closing this paper I wish to thank the neighboring physician for the early notes in this case. Of late years considerable interest has been aroused in bradycardia, and this paper has been written to place on record a very interesting, if perchance, not a very rare case.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

March 19, 1904. [Vol. XLII, No. 12.]

1. The Treatment of Lobar Pneumonia. W. GILMAN THOMPSON.
2. Tumors Involving the Cauda Equina: With Report of Case. GEORGE GILBERT DAVIS.
3. Recent Advances in Actinotherapy. WILLIAM S. GOTTHEIL.
4. Examination of the Blood of Pneumonia Patients for Pneumococci. FRANK C. KINSEY.
5. The Use of Silver Foil to Prevent Adhesions in Brain Surgery. M. L. HARRIS.
6. A Method of Dispensing with Rubber Gloves and the Adhesive Rubber Dam: A Preliminary Note. JOHN B. MURPHY.
7. Simultaneous Extruterine and Intrauterine Pregnancy: Report of a Case. CHARLES A. STILLWAGEN.

1.—Treatment of Lobar Pneumonia.—W. G. Thompson endeavors to emphasize what has seemed most satisfactory to him in his individual work. Good nursing and watchfulness outweigh polypharmacy and specifics. He notes specially the importance of not crowding an over-taxed heart with too much stimulation and of selecting the stimulant according to the balance between vascular tone and the effort the heart is already making; the uselessness of the so-called specifics for pneumonia, and as a rule of expectorants; the importance of prevention of indigestion, and particularly of tympanites; the great value of hypodermoclysis in certain cases; the uselessness of topical applications except in relieving pleuritic pain; the necessity of prescribing proper intervals of rest free from incessant efforts at medication. [H.M.]

2.—Tumors Involving the Cauda Equina.—G. G. Davis notes that these tumors originate in the nerve-trunks or the meninges, or in the structures outside, especially in the vertebral column. Those in the nerve-trunks are not numerous, those from the meninges less common and the tumors are small. The greater number are extradural producing symptoms by pressure and infiltration. The majority are sarcomas generally of the small-celled variety and very malignant. Differential diagnosis from disease of the conus medullaris is important as the latter is not amenable to surgical treatment. It is proper to assume that the upper limit of the caudal lesion is just above the exit of the highest nerve disturbed. In the writer's case reported in detail this was the fourth lumbar, the growth being sarcoma, removed by operation, but without relief of symptoms. [H.M.]

3.—Actinotherapy.—W. S. Gottheil limits the term to the method using only the violet and ultraviolet rays, phototherapy including all kinds of light treatment. It practically includes treatment only with concentrated sunlight and the various forms of the electric arc, not incandescent bulbs, the latter having little actinic power and penetration. The rays employed are bactericidal and capillary dilation is invariable, a distinct endovasculitis resulting after a time, followed by atrophy. There are remoter effects in the stimulation of oxidation and connective-tissue formation. The tissue changes are moderate and controllable; rapidly brought about, and without remote effects. It is the most effective treatment in lupus vulgaris, tuberculosis verrucosa cutis, tuberculous ulcer, postmortem tubercle, etc. The cicatrix is often hardly apparent. Lupus erythematosus is a new field with an encouraging showing. Results in alopecia areata have been satisfactory, as also in birthmarks, carcinoma, epithelioma, rodent ulcer, Paget's disease, acne rosacea, and parasitic skin diseases. It has been recommended in hay fever and pulmonary tuberculosis. [H.M.]

4.—Examination of the Blood for Pneumococci.—F. C. Kinsey began the investigation with 4 questions: 1. Can pneumococci be found at any time in pneumonia? The results answer this in the affirmative. 2. With what frequency may they be found in all cases? In the first series there were 3 positives in 25 patients, or 12%. In the second series, with a method more favorable to the growth of the organism, there were 19 cases, or 76%. Of 6 negative cases, 2 were unfavorable for recovery of the pneumococcus from the blood on account of the condition of the patient at the time of examination. One was negative with a temperature of 99.6° during a pseudocrisis, and the other was negative with a temperature of 99.8° after a crisis the previous day. Had an examination been made during high temperature, the pneumococcus might possibly have

been isolated. On the other hand, 2 cases were positive with subnormal temperature. In the other 4 negative cases no explanation can be offered. From the results it is probable the pneumococcus may be found in every pneumonia patient, negative results being due to unfavorable conditions for growth or failure in technic. 3. What is the simplest method of finding them? Take from 3 cc. to 6 cc. of blood, with a dilution of over 1 to 12 of a liquid culture medium, preferably bouillon. 4. What is the prognostic value of the results? Of 19 positive cases, 69% recovered and 31% died. Of negative cases, 33% recovered and 67% died. Hence no worse prognosis attaches to positive than negative findings. [H.M.]

5.—Silver Foil to Prevent Adhesions in Brain Surgery.

—M. L. Harris discusses the failure of operation to relieve symptoms permanently in many cases owing to the subsequent formation of adhesions and also the employment of different methods and materials to prevent this with their disadvantages. Whether organic substances such as egg membrane, prepared ox peritoneum, etc., will prove of value remains to be determined. Thin rubber has been used with good results, but tends to roll up after insertion; it may also be disintegrated by granulations. Heavy plates may tilt and act as irritants or work their way to the surface, or suppuration may occur necessitating their removal. The author believes thin foils are the best and of these he prefers silver because so thin and soft and smooth, conforming to all irregularities of the surface. As many layers may be applied as necessary to secure an unbroken surface. It exerts a beneficial influence on healing surfaces. [H.M.]

6.—A Method of Dispensing with Gloves and Rubber Dam.

—J. B. Murphy has succeeded in finding an application which practically seals skin surfaces, preventing the escape or admission of secretions, and yet does not interfere with the sense of touch or impair the pliability of the skin. This is a 4%, 6% or 8% solution of gutta-percha in benzine or acetone. The benzine solution wears the better. For the abdomen the acetone solution has the advantage of drying in 3 or 4 seconds, while it takes the benzine solution from 2 to 3½ minutes. The acetone coating is only slightly adhesive, while the benzine coating is sticky. The coating may be renewed between operations if it wears off the tips of the fingers. The coating will resist soap and water and is removed by washing in benzine. The solutions must be made in sterile menstrua and do not stand subsequent boiling. The skin is soft and smooth after removal. [H.M.]

7.—Simultaneous Extrauterine and Intrauterine Pregnancy.

—C. A. Stillwagen reports a case. That fecundation is practically simultaneous in the majority of cases is borne out by unimpeachable reports. It is the phenomenon of a twin pregnancy with one ovum arrested in its course. No pathologic condition can be specially charged with its occurrence, except those which obtain in ordinary cases. It is looked on as a rare condition, but no doubt many cases occur which are overlooked. The extrauterine pregnancy may terminate without attracting enough attention to make a diagnosis, while the intrauterine pregnancy continues to term or aborts; or death may occur from rupture of the sac and the intrauterine pregnancy remain undiscovered. Sometimes abortion is mistaken for expulsion of the decidua. Sometimes the intrauterine gestation may be destroyed by curetment. In order to save the intrauterine fetus, early diagnosis and removal of the pregnant tube is most important. [H.M.]

Boston Medical and Surgical Journal.

March 3, 1904. [Vol. CL, No. 9.]

1. The Relation of Some Special Causes to the Development of Neurasthenia. ROBERT T. EDES.
2. The Intraabdominal Rupture of Ovarian Cysts, with Report of a Case. ERNEST BOYEN YOUNG.

1.—The Relation of Some Special Causes to the Development of Neurasthenia.—R. T. Edes defines neurasthenia as a paresis of the attention and will, the result of long-continued overfatigue, which in its turn is the consequence of enforced and often unsuccessful overaction of some motor activity carried on under emotional stress. He enumerates some of the

special causes considered by other writers as potent and comprehensive, including overwork and worry, lithemia, eyestrain from ametropia or from muscle imbalance, sexual diseases and abuses of the sexual organs, and abnormal sexual feeling, ovarian irritation, and enteroptosis. The psychic, not the muscular effort, is the important factor in fatigue. The exhaustion from monotony comes from fatigue of the will in forcing one's self to keep on in spite of want of interest, disgust and ennui. He points out the relation of emotional stress to the break downs attributed to overwork in teachers of physical culture, in school children, college students and business men. He believes that sexual overexercise and suppression have been exaggerated as sole determining causes of neurasthenia, and that while neurasthenia may be much benefited by local treatment of pelvic diseases, local lesions are much aggravated by nervous and general debility. He discusses the vicious circle formed by neurasthenia and dyspepsia and the lack of intimate connection with enteroptosis and floating kidney, and the absence of fixed relation between headaches and excess or diminution of uric acid. He points out the relation of imperfectly functioning eyes to psychic strain under feelings of failure and disappointment during ambitious attempts at overuse. He thinks that the continued use of any muscle at a high grade of tension and attention may possibly cause headache, refers to the fatigue from excessive effort to hear distinctly, and cites a case of neurasthenia in which headaches were brought on by reading raised type with the fingers. [H.M.]

2.—Intraabdominal Rupture of Ovarian Cysts.—E. B.

Young reports a case seen in the Boston City Hospital, occurring in an unmarried woman, aged 42. The abdomen was distended by a hard, symmetric tumor rising from the pelvis and extending to the umbilicus. Her poor physical condition delayed operation and on the fifth day vomiting began, pulse was poor, and collapse supervened. She complained of abdominal discomfort and showed signs of free abdominal fluid with a diminution in the size of the cyst. She died the next morning and at the autopsy a great quantity of yellowish fluid containing leukocytes flowed out. The omentum was firmly adherent to the abdominal wall and to the intestines. The lower half of the abdomen was filled with a multilocular tumor with many adhesions. The etiologic factors in rupture may be predisposing causes, such as thin friable walls, rapid rise of internal pressure and formation of firm adhesions, changes in cyst walls which occur especially in papillary cystomas, and trauma, either internal or external. The symptoms of rupture are a sensation of something giving way and the outpouring of fluid into the abdomen, pain, tenderness of the abdomen, collapse, nausea and vomiting, fever, disappearance of tumor and change in form of the abdomen, free fluid in the abdomen, palpation of the remains of the tumor, increased urinary secretion, tendency to sweat, loss of friction of tumor upon abdominal wall, presence of peptones in the urine. As to treatment, Young considers operation indicated in every case in which surroundings will permit. [W.K.]

Medical Record.

March 19, 1904. [Vol. 65, No. 12.]

1. A New Treatment for Fracture of the Neck of the Femur. ROYAL WHITMAN.
2. The Soluble Ferments of Cow's Milk. JOSEPH LESPERANCE.
3. Some Operative Methods for the Fixation of Movable Kidney and their Result. ALEX. B. JOHNSON.
4. Asthenopia and Headache from Eyestrain. JAMES R. NELSON.
5. Dilation of the Bladder in Suprapubic Cystotomy. E. BLASUCCI.
6. Gastroenterostomy for Carcinoma of the Stomach. W. P. MCINTOSH.
7. Primary Pyelitis in Infants. MARCELL HARTWIG.

1.—Treatment of Fracture of the Femoral Neck.—

Royal Whitman asserts that such fractures, even among children and adults in middle life, are more frequent than is commonly supposed. Many instances are unrecognized because the fracture is not complete. In Hamilton's series of cases, treated at the Bellevue Hospital, 37% were more than 60, and 40% were less than 50 years of age. In Scudder's 16 cases, 7 were between 40 and 50, and but 3 were over 60. Whitman believes that our method of treating these cases accounts for the deformity, pain and impaired function almost universal after

such treatment. Whether the fracture be complete or incomplete the tendency of the iliopsoas, gluteus maximus and other detached muscles is to produce an upward displacement of the great trochanter, and if union does not occur there is deformity, limited abduction and impaired function. The method of treatment suggested by him is that the leg should be placed in abduction and held so in a plaster cast. In fact, the position of the leg with the means of retaining it is very similar to that employed by Lorenz in his method of treating congenital dislocation of the hip. Whitman says that this treatment is especially indicated whether the fracture be complete or incomplete in childhood and at any time up to old age, and his belief is that it could be employed with advantage even among elderly people. A few cases which he has so treated in childhood have recovered most satisfactorily, while in 2 cases which he has treated recently among elderly people sufficient time has not elapsed to be sure of the result. [A.B.C.]

2.—Soluble Ferments of Cow's Milk.—J. Lesperance refers to animal experimentation, showing that artificial mixtures of albumins, fats and sugars in the same proportion as in milk will not sustain life beyond a limited period, the enzymes being absent from the fluid used. This explains why sterilized foods have not fulfilled expectations. Seeds will not grow in sterilized earth on account of the absence of bacterial secretions. The breathing of sterilized air is disastrous to animals. The ferments of milk originate both in the organic and the bacterial cell. The writer traces the steps that led to the discovery of these and the differentiation of one from another. Those that have been definitely determined are trypsin, pepsin, the lipase and oxidizing ferments, and a glycolytic ferment. [H.M.]

3.—Fixation of Movable Kidney.—Alex. B. Johnson reviewed the literature of this subject. More than a score of different methods is described rather briefly, and some statistics given as to the result. The author has had the rare opportunity of examining several kidneys *in situ* that had previously been operated upon by the Riedel method, in which the fibrous capsule is incised along the convex border of the kidney, separated for a moderate distance on either side of the incision over the parenchyma and sutured to the muscular sutures on either side of the wound. In each instance the kidney was found very firmly fixed in its new position. He believes, after an observation of some 20 cases operated upon by this method, that so far as fixation of the kidney is concerned, and freedom from the risk in operation, the method leaves little to be desired. The methods employed by Senn, Jacobson, Edebohl, Tuffier, Morris, and others are commended. Henry Morris uses an oblique lumbar incision, removes a portion of the fatty capsule about the kidney, and passes 3 sutures deeply into the posterior surface of the organ, one near each pole, and one midway. Each suture is buried 2 cm. ($\frac{1}{2}$ in.) within the renal substance, and penetrates 1 cm. ($\frac{1}{2}$ in.) into the thickness of the organ; the upper suture passes through the fatty capsule, the transversalis fascia, and the deep muscles. The lower suture is similarly passed, while the middle suture is passed through both edges of the wound, including the fascia and muscles. The 57 cases operated upon by this method, as reported by Morris, resulted in 57 cures. [A.B.C.]

4.—Asthenopia and Headache from Eyestrain.—J. R. Nelson divides headaches into toxic and reflex. Eyestrain acts reflexly, and through lowering nervous energy invites toxic conditions, especially in the digestive tract. He discusses the mechanism and symptoms of eyestrain. It is the province of the oculist not only to make out the refractive error and give proper glasses, but to give or suggest proper treatment for the morbid conditions disclosed by his examination. It is as rational for the general physician to send his eyestrain patients to an optician as to send his fracture cases to a manufacturer of splints, etc. [H.M.]

5.—Dilation of the Bladder in Suprapubic Cystotomy.—E. Blasucci recites some of the dangers in dilating the bladder previous to a suprapubic cystotomy and states there are cases in which distention cannot be practised. These are operations on the female, fistulous bladder, fracture of the urethra and rupture of the bladder by trauma, and stone impacted in the prostatic urethra. An injection of 200 cc. to 250

cc. ($\frac{1}{2}$ oz. to 8 oz.) of liquid under complete anesthesia in an adult is harmless; in many instances much more may be injected. An injection of 200 cc. raised the peritoneal culdesac about 1 cm. ($\frac{1}{2}$ in.) above the pubis, whereas with an empty bladder this culdesac is $\frac{1}{2}$ cm. (1 in.) below the pubis. Injections postmortem and antemortem give different results, on account of the physiologic resiliency of the bladder. His conclusions are: 1. A careful injection is of no danger to the bladder. 2. A limited dilation of the bladder is preferable to none. 3. Anatomic researches in regard to the ascent of the peritoneal fold are of little or no value for the surgeon, and in practice we find more working space than by these researches, we should suppose. 4. There are practically no cases in which suprapubic cystotomy is indicated, in which dilation of the bladder cannot be carried out. [A.B.C.]

6.—Gastroenterostomy for Cancer of the Stomach.—W. P. McIntosh reports the case. A man of 43 gave the history and symptoms which led to a diagnosis of cancer of the pylorus. Laparotomy was performed with the hope that pylorotomy could be done. The extent of the disease prevented such an operation, and posterior gastroenterostomy was performed, the jejunum, about 20 inches below the pylorus, being anchored to the posterior wall of the stomach by means of a Murphy button. The patient made a good recovery and lived in comfort for 3 months after the operation without having passed the button. A postmortem examination showed the button had remained in the stomach. At death the pyloric opening was almost completely closed and the mesenteric glands were enlarged. [A.B.C.]

7.—Primary Pyelitis in Infants.—Marcell Hartwig has seen few cases reported in the literature. He has had 4 such cases under his care within the past 2 years. The symptoms very much resemble those of typhoid fever in the infant; nothing points especially to any urinary trouble, and in one instance he happened upon the diagnosis after a negative Widal test was made. Examination of the urine showed the fluid to contain all of the characteristic microscopic elements of pyelitis. The duration of these cases is generally several weeks; the best results are obtained by the use of turpentine, urotropin, and other drugs to allay the irritability of the urine. He urges practitioners to be on their guard against this disease when the child has the symptoms of typhoid fever. [A.B.C.]

New York Medical Journal.

March 12, 1904. [Vol. LXXIX, No. 11.]

1. A Simple Method of Intestinal Anastomosis. H. M. HEPPERLEN.
2. Tertiary Syphilis of the Nose and Pharynx. W. SCOTT RENNER.
3. Senile Pneumonia: Value of Persistence in Treatment: Correct Method of Using Oxygen. SOLOMON SOLIS COHEN.
4. A Study of the Affection, "Writer's Cramp." GUSTAF NÖRSTROM.
5. Rectocolonic Lavage, with Description of New and Improved Tubes. DWIGHT HENDERSON MURRAY.
6. The New Biologic Test for Human Blood, with a Report of Its Employment in a Recent Murder Case. A. ROBIN.

1.—Intestinal Anastomosis.—H. M. Hepperlen has devised a stitch and new support for the bowel to be used in intestinal anastomosis. He uses a cylinder made of gelatin which serves as a firm support, takes a very short time to introduce, and, when the work is completed, becomes absorbed, leaving no after-trouble. The same material may also be used for gastroenterostomies or gallbladder work, by having it moulded in requisite sizes. When the capsule is placed in position, he inserts a few interrupted sutures through all the coats of the bowel to hold the parts in coaptation. He then completes the work by using a fine intestinal silk, 24 inches long, doubled, with a needle on each end. He starts the first suture under the mesentery attachment, inserting a needle with each hand at the same time through the 2 outside coats of the bowel, an eighth of an inch from the cut margins; he then picks up a loop about a twelfth of an inch in length, according to the method of Lambord, draws the parts together and ties them at each stitch. Continuing thus until he has completely encircled the bowel, he closes the mesentery opening with the same suture. The advantages claimed for this suture are: 1. Its simplicity. 2. It can be introduced practically without handling the parts, in about a fourth to an eighth of the time required for any other stitch. 3. When the bowels are sewed together by this method they are held more firmly than with any other stitch known to the author. [C.A.O.]

3.—Senile Pneumonia.—This article, by S. S. Cohen, is a

clinical lecture, in which the author discusses the subject of senile pneumonia, and illustrates the value of persistence in the application of wellknown principles and wellknown measures under apparently unpromising circumstances. The author says he is but little influenced by statistics in determining upon a line of treatment in a given case. The record of the case discussed shows that from time to time, in accordance with the indications of the particular moment, the drugs used, singly or in combination, were nitroglycerin, digitalis, strychnin, atropin, and alcohol. Previous to this a mixture of ammonium chlorid and ammonium carbonate was used coincidentally with strychnin and whisky. The author says that aged patients needing alcoholic stimulation usually receive better service from champagne. It is less likely to disturb the stomach, and it is usually more readily accepted. Hot flaxseed poultices, well made so as to retain their heat for 4 hours, were kept about the thorax during the day, and at night were replaced by lamb's wool jacket, for the better part of a week. At one time in the course of the case, oxygen was given. The author gives in detail the method of administering oxygen in such cases. In many cases it should be given freely. In a severe case, let it run for an hour, or for 6 or 12 or 48 hours if necessary, removing it only when needed to give the patient rest or sleep, to feed the patient, or to carry out other portions of the treatment. After 2 or 3 hours of continuous administration of oxygen there will usually be sufficient improvement to warrant its intermission for a couple of hours. In milder cases a half hour's use of the oxygen every second or third hour may suffice. [C.A.O.]

4.—Writer's Cramp.—Gustaf Norstrom maintains that a large percentage of cases of writer's cramp is secondary to chronic myositis and that many of them may be cured by massage. He says there are sometimes cases in which no deposits are found in the muscles in spite of the most careful examination and that there are others, although exceptional which cannot be cured by massaging the deposit. He has treated 47 cases. In 34 cases he found muscular inflammations and in 13 he did not find anything. In the majority of cases the patients presented the tremulant form in a more or less pronounced degree. The only treatment applicable in the affection mentioned is massage. This latter must be applied to the muscular inflammations, which are the most frequent cause of the ailment. The manipulations which are necessary are effleurage and proper frictions. Two cases are reported in detail. [C.A.O.]

6.—The new biologic test for human blood, with a report of its employment in a recent murder case, is given in detail by A. Robin. He says, in conclusion, that human blood can be distinguished from that of other animals, except, perhaps, monkeys, by means of antiserum. Antiserum may be obtained by immunizing rabbits' against human blood. For immunization it is most convenient to employ the blood obtained from human placenta. From 6 to 8 injections, 8 cc. to 10 cc. each, should be made at intervals of 3 to 5 days and the serum secured at least a week after the last injection. At the end of the immunization period it is well to test the potency of the antiserum by securing a small quantity of blood from the ear vein or any of the deepseated vessels. To obtain the serum from rabbits for testing purposes, it is not necessary to sacrifice the animal, as sufficient serum can be secured from any of the large veins or arteries, the femoral being the most accessible. Care should be taken to have all solutions perfectly clear and the blood sufficiently dilute. The antiserum should be used pure. Control tests on blood from different domestic animals should invariably be made. With all the precautions observed, a distinct clouding within 30 minutes and a precipitate within 2 hours is certain evidence that the blood is human. In medico-legal cases, the tests should be repeated at least twice, so as to exclude any possible error. [C.A.O.]

Medical News.

March 19, 1904. [Vol. 84, No. 12.]

1. The Individual Equation of the Patient in Surgical Operation. W. L. ESTES.
2. Valvular Disease of the Heart and Its Treatment: Case of Mitral Obstruction and Insufficiency, with Tricuspid Regurgitation and Pulsating Liver. STEPHEN SMITH BURT.

3. The Clinical Significance of Pain in the Epigastrium. FRANK H. MURDOCH.
4. The Significance of Pus and Blood in the Urine. RICHARD DOUGLAS.
5. Neurasthenia. HUBERT RICHARDSON.
6. The Theatrical Profession as a Factor in the Dissemination of Disease. S. H. BROWN.
7. Instrument Hanger for Glass-shelved Cases. FREDERIC GRIFFITH.
8. Forensic Eye Aspect of Tabes. JAMES G. KIERNAN.

1.—Individual Equation in Surgical Operations.—W. L. Estes gives a lengthy discussion with regard to the general condition of the patient in reference to habits, environment, age, sex, physical condition, extent and location of the operation, etc., and holds that it is particularly important to know when *not* to operate. He asserts that preventive surgery is just as possible and just as important as preventive medicine. It is generally conceded by pathologists as well as surgeons that even after a lesion has started there is a period which may be called the precancerous period, during which a tumor which may subsequently be most malignant has the qualities of a benign tumor, and may be removed with assurances that it will not recur. It is of the greatest importance that every tumor shall be removed as soon as it develops. People generally are not thoroughly impressed with the tremendous importance of this fact. Surgeons should endeavor to educate the people to thorough appreciation of this. Cancer may be prevented, at least in some instances. Surgeons first should teach family physicians, and they in turn their families, how to prevent and to stop the progress of cancer. Temporizing in surgery will not do. [A.B.C.]

2.—Valvular Disease of the Heart.—S. S. Burt emphasizes the importance of an ability to discriminate clinically between adequate and inadequate compensation. Ordinary occupations and recreations not too strenuous need not necessarily be abandoned, systematic outdoor exercise, preferably walking, is indispensable. Violent exertion, exciting emotions, and excessive eating and drinking are positively injurious. Temperateness should be the watchword. With failing compensation rest is of paramount importance, and sometimes all that is necessary. Digitalis in this condition and irrespective of the valve affected is the sole remedy that cannot be dispensed with. Large doses may be given for a short time and small doses for a long time or indefinitely. Ruptured compensation is the beginning of the end, however, long deferred by intelligent management. [H.M.]

3.—Pain in the Epigastrium.—F. H. Murdoch notes that pain may be due to hyperacidity, hypersecretion, hyperesthesia, nervous gastralgia, biliary colic, certain affections of the spinal cord, cancer, gastric ulcer, pancreatitis, some forms of appendicitis, and Addison's disease. He discusses briefly the points of differentiation, and reports a few cases. [H.M.]

4.—Significance of Pus and Blood in the Urine.—Richard Douglas first discusses pyuria, and gives various directions as to how to find the seat of suppuration in case pus is found in the urine. If the urine be alkaline, the pus is possibly of bladder origin. Rosenfeld claims that the greatest differentiating point is the quantity of albumin in the urine. If the pus comes from the bladder, the albumin is low—about 1.5%; if from the kidney, 3% or more. After infection, particularly in the use of the catheter in old men and pus from prostatic abscess and suppurating seminal vesicles in young men, the foreign body in the bladder, usually in the form of the calculus is the most frequent cause of vesical pyuria. Renal suppuration inducing pyuria may be recognized by seeing the purulent flow in the bladder when using the cystoscope, and by microscopic examination of urine from each kidney separately. Pyelitis in children is considered at some length, likewise pyonephritis and pyonephrosis. The latter portion of the article is devoted to a consideration of blood in the urine, and is such as is ordinarily found in the textbooks on this subject. The common causes of hemorrhages from the bladder being cystitis, stone, neoplasm, and tuberculous ulceration; while from the kidney they are calculus, traumatism, tumors, tuberculous nephritis, and movable kidney. [A.B.C.]

5.—Neurasthenia.—H. Richardson finds in practically all cases the disease affects those who work with their brains, its rarity in the laboring classes suggesting that want of physical exercise is a factor in its etiology. Headache occurs in 90% of patients, worse in the morning, decreasing as the day advances.

The pain is a dull, numb feeling, occasionally lancinating or causing intense agony. Insomnia is of 2 kinds, profound sleep for several hours followed by restlessness, with numbness, which may be unbearable, and with perhaps sensations of emptiness in the epigastrium and frequent micturition; or there may be uncontrollable desire to sleep, which disappears as soon as the patient lies down, the entire night being spent in short snatches of semiconsciousness. There is vertigo, with empty feeling in the head, weakness of the limbs, a cloud before the eyes, with all objects on the same plane. Sometimes there is agoraphobia. In some cases there are pains in the spinal column. The reflexes may be normal or exaggerated. The digestive functions suggest autointoxication. There is continuous secretion of HCl, with want of motility, therefore feedings should be frequent, but small in amount. The urine is clear and large in amount. Maximum blood-pressure compared with the mean is low, and falls on taking the erect position. Primarily, neurasthenia is due to decreased sensibility or power of the vasomotor system. The genital and mental functions are depressed. Restlessness is often marked and sometimes irritability. It is not the pressure of responsibility but lack of physical exercise which has increased the disease in the life of today. There is no specific treatment. Drugs should be used as little as possible. [H.M.]

6.—The Theatrical Profession as a Factor in the Dissemination of Disease.—S. H. Brown discusses this question at some length, and concludes as follows: 1. That the theatrical profession is a factor of great importance in the dissemination of scabies, pediculosis, syphilis, and gonorrhea, by reason of its peculiar sociologic position. 2. That this influence is greater in traveling troupes than in companies located permanently in the large cities on account of the lack of accommodations and unhygienic conditions under which they live. 3. Living apart from the rest of the world as they do, to a great extent they are deprived of the medical education which is becoming so popular with the rest of the laity. 4. Lack of time prevents the members of this profession from consulting able medical men in the large cities except when physically incapacitated, and in consequence they fall into the hands of unscrupulous and ignorant physicians or charlatans. [A.B.C.]

8.—Forensic Eye Aspects of Tabes.—J. G. Kiernan calls attention to the fact that while neurologists lay stress on the Argyll-Robertson pupil in the differential diagnosis of locomotor ataxia it has been temporarily noted after railroad accidents and other shocks, in cases in which no subsequent evidence of grave neuroses had occurred. Exceptionally it has been found in alcoholism. It occurs early in locomotor ataxia, parietic dementia, and constitutional syphilis. As it is frequently absent in the latter disease it may be an expression of intercurrent toxic states. In the writer's opinion locomotor ataxia due to traumatism does not exist. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Adiposis Dolorosa: Dercum's Disease.—The clinicopathologic entity now known to the medical world as *adiposis dolorosa*, or *Dercum's Disease*, is one of the most notable of the additions made to our scientific knowledge during the latter years of the nineteenth century. Its discovery, as nearly all our readers know, originated in this city. It continues to occupy a large share of the attention of the clinicians and pathologists of the foremost scientific centers of the world. A very excellent summary of the present state of our knowledge on the subject has just been issued by Drs. Paul Sainton and Dean Ferrand, of Paris. And, not long ago, a most interesting account of a typical and instructive case was published in the antipodal area of our globe, by Dr. E. Angus Johnson. The patient in this case was, as usual, a female, aged 32, who had been married 18 years, but still remained a nullipara. At the date of her marriage she weighed 7 st., 9 lbs. "Eight years ago she noticed that her stomach was getting larger, and very tender on

pressure (the pain being compared to that of a bruise). Then the hips, chest, arms and legs got bigger; pains of a neuralgic nature under the left shoulder, which have been worse since the influenza; also neuralgic pains on crown of head, across the forehead, and particularly over the left temporal region. There are frequent hot flushes of the face, followed by cold, clammy sensations; also giddy sensations, with a feeling as if she is going to fall backward. Locomotion is difficult, and a very short walk is followed by great breathlessness and palpitation, her nervous equilibrium being upset over most trivial matters. When she 'catches a cold,' the pain in the chest is so severe that she cannot sleep on its account. Standing for any length of time causes severe pain in the ankles and knees (which do not swell); this also prevents sleep." The face is not affected, and on that account has the curious aspect of looking too small. The thyroid gland, so far as its outlines can be made out, appears to be unaffected. The thoracic and abdominal walls present a great deposit of adipose tissue; on the latter "whilst in the recumbent position big folds of fat are produced. This is tender on manipulation or slight squeezing, the pain, as already noted, is likened to that which follows a bruise, the skin bruising on very slightly squeezing it." The temperature and heart's action appear to be normal; pulse 96. The hands and feet appear normal, except for a slight fulness of the thenar, hypothenar and plantar eminences. No muscular wasting can be detected; the headache, palpitation, vertigo and sleeplessness are intensified at menstruation. The *tout ensemble* suggested to Professor Watson, who saw the case in consultation, the happily descriptive epithet of *ambulatory lipoma*. The series of cases collected by Drs. Sainton and Ferrand for their recent communication on Dercum's Disease does not include the Australian one. They were able to find reports of 42, up to the latter part of August of last year. Having been first described in 1888, the amount of attention and comment which it has continuously elicited since that date is a proof of the great interest which attaches to it. And not being a condition in itself destructive to life, there have been but six post-mortem records obtained. The various lesions found in those specimens have entirely failed to illuminate its pathology. The physical character of the fatty deposit presents few, if any, distinctive features. Perhaps the most suggestive is a report of interstitial neuritis affecting the cutaneous filaments, with consequent atrophy, and not involving the nerve-trunks. It must, however, be noted that in six reported autopsies there were lesions of one or more of the vascular glands. In four the thyroid body was the seat of extensive morbid changes; in two, the pituitary. Dr. Dercum found in one case marked atrophy of the columns of Goll, and noted the presence of myelin fibers in the corresponding part of the pia mater. These he regarded as a product of an effort toward regeneration. In his original description of the disease with which his name has now become inseparably connected, Professor Dercum defined it to be a "dystrophy" of the subcutaneous connective tissue of the arms and dorsal region, associated with "symptoms analogous to those of myxedema." It has since been remarked by other observers that dystrophy was an unfortunate term to use, as the condition was rather one of hypertrophy; and, with more justice, that myxedema differs widely in its features, but that having certain points of resemblance, the reference might tend to some diagnostic confusion. Of the cases hitherto reported, the great majority (6 to 1) have been females, and the usual period of occurrence is toward the time of the menopause. Nevertheless, the cases of Hale White and Spiller were observed at the respective ages of 11 and 22; and those of Achard and Laubry commenced at the individual (ripe) ages of 70 and 79. In 1891, Dr. Henry, of Philadelphia, reported the case of a woman of 63, which appeared to resemble the condition described by Dercum. He even expanded the maladroitness comparison

with myxedema, giving the clinical syndrome the appellation of myxedematous paratrophy. But, in the following year, the original describer published another case which he sharply differentiated from myxedema—by the characteristic pains and swellings—and gave the morbid entity the happily descriptive appellation of *adiposis dolorosa*. In 1894, the first French case was published; the Philadelphia cases were recorded in 1895 and 1898; and Dr. Hale White published a true British case in 1899. Since that date, the clinical records of *adiposis dolorosa*, have undergone a process of hyperplasia, almost as significantly rapid as that of its connective tissue—the neurotic land of France almost necessarily supplying a large proportion. The balance of clinical evidence now available clearly goes to show that the theories of a thyroid or pituitary lesion being the essential factor in the production of the pathologic series of changes characteristic of this disease must be given up. In the early years of its history the attempt to separate the essential from the accidental symptoms present in Dercum's disease caused some confusion, which in the presence of the collective record now before us need no longer exist. Two types of subcutaneous fatty deposit are clearly recognizable. The *diffuse* and the *localized*. But there are intermediate and mixed forms. The diffuse engages the trunk, neck and limbs; but always respects the face, hands, and feet. The localized type produces a number of subcutaneous fatty tumors; which might be taken for multiple lipomas, had it not been for the characteristic pain and tenderness and the tendency to form adhesions, both to the skin and the deep structures. The immunity of the face would by itself exclude the diagnosis of myxedema; and taken with that of the hands, feet and abdominal viscera differentiates it from general obesity. The invariable presence of pain and tenderness gives, of course, absolute confirmation. The latter presents variable characters; it is sometimes confined to the affected areas, and sometimes radiates along the course of the nerves. It is also variable in its nature and degree; and in the great majority of instances is intermittent and paroxysmal. In a few of the cases in which multiple swellings existed, some of the tumors were painful while others were not. In certain cases pain was not apparently spontaneous; it was only complained of when elicited by pressure. The skin is, in the early period noticeable over the swelling, but always becomes adherent after a time; and in some instances patches of scleroderma formed over the most prominent parts. Failure of motor power does not appear to be an essential feature at any stage. Nor do the anesthetic patches (or zones) sometimes observed present a distinctive character. No characteristic changes appear in the blood. Various other symptoms which have been noted do not appear to have been more than coincidences. Although with regard to sex and age, the condition displays elective affinity for the menopause, it does not appear to be determined by or accompanied by any special menstrual derangement. Hereditary taint or special constitutional diathesis does not seem to predispose to its development. The only special habit of body which has appeared prominent in this connection is alcoholism, of which there was a history in many of the cases. It is a remarkable fact that in a few cases, the onset of the disease followed with significant promptness the occurrence of local traumatism. In a case published by Eshner, the formation of tumors began from 15 to 20 days after the occurrence of the injury. And a patient of Dr. Féré did not cease to suffer from the local pain which began with the injury till the tumors appeared. Indeed in the light of our present knowledge we may probably—in the absence of ideas sufficiently luminous for translation into English—refer to its pathogeny with the nearest available approximation to truth as a “trophoneurosis;” perhaps some may prefer to explain its genesis in the language of Dr. Sallerin by “*un simple trouble dynamogène du système nerveux*.” Beyond

the effect of anodynes in relief of pain, none of the methods of medication hitherto essayed have given satisfactory results, although temporary diminution of the swellings have been reported in some instances, during the employment of salicylates, arsenic, and thyroid extract, respectively.

REVIEW OF LITERATURE

Mercurial Nephritis.—J. M. Swan¹ reports the case of a woman of 31, who had been treated for a skin eruption several times. It usually disappeared after several months' treatment, to return again some time later. A diagnosis of syphilis by a dermatologist caused her to be put upon a mixture of mercury biniodid, $\frac{1}{2}$ gr., and potassium iodid, 15 gr. thrice daily; she also took $\frac{1}{4}$ gr. of the yellow iodid 4 times daily, and 2 dr. of mercurial ointment daily by inunction. Symptoms of mercurialization several times during the next few months caused temporary cessation of treatment. About the fifth month after beginning on these drugs, edema developed; she had photophobia, headache, dyspnea, increased urination, and precordial pain; the urine contained albumin, casts and leukocytes. A scaly rash covered her body. A condition of renal syphilis was thought to prevail and antisyphilitic treatment was persisted in, in conjunction with digitalis and nitroglycerin. This was continued for 1 week, the patient getting worse steadily; mercury iodid, of which she was now taking 2 gr. daily, was stopped for a week, when inunctions were used for 3 days. The symptoms, which had been slowly disappearing, returned with renewed force, but the eruption did not yield in the slightest. Examination of the urine showed the presence of mercury in large amounts and the diagnosis was modified to mercurial nephritis, the eruption diagnosis to psoriasis. The treatment now tended toward the elimination of the mercury, and the patient steadily improved. Mercury could be found in the patient's urine 13 months after the last dose was given. [E.L.]

The Pathogenesis of Gout.—Chalmers Watson² states that the old theory of the etiology of gout was that a derangement of the intestinal tract with the absorption of toxins was the primary factor in the disease. Since 1847, when Garrod discovered the presence of uric acid in the blood in cases of gout, this old theory was abandoned. In 1901, however, Watson revived the old theory in the following terms: 1. There is ample evidence to prove that uric acid in the blood is not the primary factor in gout. 2. Uric acid can be deposited in the cartilages and other tissues in considerable amounts without the association of any inflammatory phenomena. He says the last named point proves that uric acid is not the factor which causes the characteristic phenomena of gout. He then enters into a discussion as to what the etiologic factor really is, and he believes as before announced that some derangement of the alimentary tract is in reality the cause of the trouble. As evidence in support of this belief he records the postmortem findings in a cock which had died of a typical form of gout in the fowl. The article gives a detailed account of the pathologic findings in the various tissues of the body, which appear to substantiate the autointoxication theory. He further suggests that, in addition to disturbed alimentary canal, bacteria in this canal probably play a large part in the causation of this disease. [A.B.C.]

Roux' Antistreptococcic Serum in Bronchopneumonia.—Bouttiaux³ has employed Roux' antistreptococcic serum in 6 cases of bronchopneumonia and draws the following conclusions from the results: 1. Roux' antistreptococcic serum is of no value in bronchopneumonia complicating whoopingcough. 2. The deaths from bronchopneumonia in whoopingcough cannot be claimed to have been due to the serum as no local reaction was noted at the point of injection; and as the first patient died 8 days after the injection, the second 4 days after. 3. The serum injection produces generally an aggravation of symptoms during the following afternoon, but this is without any importance. 4. In simple primary pneumonia the serum gives good results. 5. The temperature falls about 48 hours after the injection; bronchial breathing may persist for some time. 6.

¹ American Journal of Medical Sciences, 1904, Vol. cxxvii, No. 116.

² British Medical Journal, January 9, 1904.

³ Ann. de la Soc. Med.-Chir. de Liege, 1903, xliii, 615.

The dose of the serum employed at one time is 20 cc. no matter what the age of the child is. 7. The serum has not produced either local or general serious complaints. [E.L.]

Education against Pulmonary and Tuberculous Diseases.—Claude C. Pierce,¹ an assistant surgeon of the U. S. Hospital Service, states that the 4 important factors brought out by the experts in the great congress at Berlin and later at London, are these: 1. Tuberculosis is a communicable disease, due to Koch's tubercle bacillus acting on an organism prepared to receive it, or unable to resist the bacilli when present in large numbers. 2. Tuberculosis is not to any great extent hereditary. 3. Tuberculosis may be prevented by reducing the sources of infection, by improving the environment, by strengthening the individual. 4. Tuberculosis, in many even of its severest varieties, can be cured. He outlines certain requirements, which he thinks should be placed in statutory form in all States. He would make it illegal for any person to spit on any sidewalk, in any church, hotel corridor, theater, grocery, or market, or in any railway station, public building, steamboat, railway car, street car, or licensed vehicle, except in spittoons or other receptacles. It should be the duty of Boards of Health, so soon as notified of the existence of a case of tuberculosis, to take all proper precautionary measures, whether applied to the individual or the house itself, against the spread of disease. He would make it the duty of such boards to distribute to interested parties circulars containing instructions in regard to the sanitary management of the patient, the sick room, and the family surroundings. A proper registration of all cases, with the sanitary history of the infected house, as far as practical, should be kept with the sanitary authorities. Upon the death or removal of the patient suffering from tuberculosis the house or quarters should be thoroughly disinfected by the Board of Health. He suggests the principal modes by which communicable diseases are disseminated, and also prevented, taught in the public schools. [A.B.C.]

Serous Meningitis and Lumbar Puncture.—M. Blumenthal² reports the case of a boy who, 3 weeks after a fall, developed very severe cephalalgia, which existed without interruption day and night for a week. The boy held his retracted head very stiff, and whined constantly; he made a snuffling noise with nose and mouth. Nothing could be seen locally excepting very prominent veins. As nothing seemed to improve his state, a lumbar puncture was resorted to; 40 gm. (1½ dr.) of serous fluid was removed. Within 3 days the boy seemed well. After 14 days the head pains returned; 100 gm. (3½ oz.) was removed this time; perfect recovery resulted. Blumenthal sees in the fall the exciting cause of the condition, but a previously existing and healed rachitis (the boy had markedly bowed legs) leads him to suppose the preexistence of a chronic hydrocephalus as predisposing cause; the possibility of an acute serous meningitis after trauma is also mentioned. [E.L.]

Akinesia Alger.—A case is reported in a child of 10. Only 8 cases are on record in Italy, and these have been adults. Fiorentini³ traces the girl's history, and concludes that the syndrome is a manifestation of hysteria "monosymptomatic" in form; this is also the opinion of other writers. [T.H.E.]

Laughing-gas and Chloroform-ether Narcosis.—After discussing the advantage of the combination of chloroform and ether narcosis, which the Braun apparatus permits us to enjoy, Kroenig⁴ calls attention to the disadvantages of either or both at the outset of the anesthetization, especially the prolonged stage at the beginning, until the patient is under the influence of the anesthetic. He proposes to overcome this by starting the narcosis with laughing-gas. For this purpose he combines the Bennet inhaler with the Braun apparatus. After describing the combination apparatus, the method of application is set forth. The patient is first given pure air to inhale, which quickly sets his apprehension at ease; laughing-gas, which is odorless, is then substituted; after from 40 seconds to 60 seconds the patient is unconscious, and takes the chloroform-ether mixture readily. At the end of 5 minutes, without any struggle whatsoever, the patient is ready for the operation. He has

employed this method successfully thus far in over 500 cases. [E.L.]

The Pancreatic Duct in Relation to Icterus.—Andrea Borri¹ says the pancreatic function is evident on account of its relation to fat digestion, but for control tests the hepatic secretion, as well as that of the mucosa intestinalis, must be considered. The writer gives details of 3 cases, in 2 of which the pancreatic duct was entirely occluded, and in the third, the ductus communis choledochus. By contrast, the separate influences on certain food products is assured. Latest opinions conclude that the pancreatic steapsin saponifies and emulsifies the fats—these being already influenced by the alkalinity of the hepatic secretion. The emulsified fats in turn are acted on by the bile, and the fatty acids reduced to neutral salts of potassium, and especially of sodium. The succus entericus, with the aid of bacteria normally present, is able to convert a small proportion of fats into saponaceous material in the absence of both pancreatic and hepatic products. The intestines absorb none but neutral salts and soaps. These facts are essential to a study of fecal saponaceous matter. In cases of pancreatic insufficiency, in direct ratio will the feces discharge undigested fat, not saponified. In the absence of bile, with the pancreatic juice alone at work, the succus entericus seems to fill, in a measure, the need of an alkaline diluent, but the process of fat conversion is labored; and fecal matter containing imperfectly chosen fat derivatives marks the hepatic neglect; saponification is fairly well under way—but the potassium and sodium compounds deficient. The writer discusses clinical histories in addition, to show that the state of the liver and the pancreas may be indicated to the watchful observer. [T.H.E.]

Hitherto Unknown Effect of Röntgen Rays on the Organism of Animals.—Albers-Schoenberg² exposed male rabbits and guineapigs for varying periods of time to powerful röntgen rays, with the result of depriving them of the power of reproduction; it is undetermined whether this inability is transient or permanent. The general health remains undisturbed. As regards sexual instinct and ability to copulate, these animals do not in the slightest differ from normal untreated animals. This sterility is due to necrostermia, which after some time terminates in absolute azoospermia. Eleven such male animals (5 rabbits and 6 guineapigs) were paired with 14 untreated females for periods varying from 10 days to 5 months, without producing a single conception. Some of these females had borne young ones prior to this period, when being brought together with untreated males. Azoospermia was produced after 377 minutes' exposure, 195 minutes produced oligo-necrostermia. [E.L.]

Intravenous Collargol Injections in Septic Affections.—G. T. Harrison³ reports the case of a woman suffering from pyemia and who under ordinary treatment for the affection was progressively growing worse. She had a serous effusion into the knee-joint, and an abscess of the gluteal region. An intravenous injection of collargol was followed by an improvement in temperature, pulse, and general condition. Two more injections were given in the course of the next 2 weeks. A large abscess in the thigh developed in spite of this, requiring operative interference; an immense quantity of pus was evacuated. From the next day on only serous fluid was discharged from the wound, and it healed very rapidly. The effusion in the knee-joint disappeared spontaneously. The author sees in this, as well as in the rapid healing of the thigh abscess, the action of the collargol, and expresses his belief that it should be used in all septic infections. [E.L.]

The Cause of Turbidity in Milky Ascites Fluids.—J. Joachim⁴ finds that there are collections of fluid, milky in color but devoid of fat, in which the cause of the turbidity is to be looked for in a globulin, which is in firm combination with lecithin, without, however, the presence of free lecithin. He has studied a case in which lecithin could be found in the pseudoglobulin, thus showing that the turbidity is due to the pseudoglobulin, and always to that part of it which is insoluble in water. [E.L.]

¹ Mobile Medical and Surgical Journal, November, 1903.

² Archiv für Kinderheilkunde, 1903, xxxviii, 18.

³ Il Policlinico (Rome), No. 8, 1904.

⁴ Münchener medizinische Wochenschrift, 1903, I, No. 42.

¹ Il Policlinico (Rome), No. 4, 1904.

² Münchener medizinische Wochenschrift, 1903, Vol. I, No. 43.

³ Virginia Medical Semimonthly, January 24, 1904.

⁴ Deutsche medizinische Wochenschrift, 1903, No. 44.

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

Increasing Frequency of Appendicitis and its Causes.—Not only the laity but many members of the medical profession are asking today, why is appendicitis so much more common than it used to be? There is apparently no trustworthy data on which to base an answer to this question. It seems doubtful whether appendicitis is really more common than formerly or only apparently more common because not only the profession is now on the alert to make a diagnosis, but at the present time the majority of people recognize at once the classic symptoms of appendicitis and in many cases insist on operation even against the wishes of their more conservative medical advisers. One cause for appendicitis which we have never before heard mentioned is suggested by Villaret,¹ who states that in Germany many people believe that the increasing frequency of appendicitis is due to more general use of glazed earthen dishes which were not in common use formerly; that splinters are supposed to be broken off these dishes which get into the appendix and cause inflammation. On this side of the Atlantic the distrust of grape seeds is quite general. In a recent address before the Syracuse, N. Y., Academy of Medicine, Dr. Howard A. Kelly said that he had been able to collect reports of over 70 cases in which a pin lodged in the appendix was the cause of trouble, and pins are the most frequent foreign body mentioned in literature as a cause of appendicitis, he facetiously remarked that it would be wise for people to avoid swallowing pins instead of grape seeds in order to avoid the danger of appendicitis. One surgeon of large experience among our acquaintance has a firm belief in the danger of eating too many peanuts. Some have thought that appendicitis has only become a common disease since the appearance of the grip and that possibly there may be some connection between infection with the influenza bacillus and the prevalence of appendicitis. These causes will appear fanciful to most people and of the many other causes which have been suggested it is often difficult to select an adequate one to account for the origin of a given case. Probably there are a great number of factors predisposing to, or directly causing most cases of appendicitis and in many it is impossible to definitely estimate the relative importance of such causes. Villaret further contributes to the question of appendicitis by quoting the statistics of the German army during the past 27 years. He believes that in the past the conditions most frequently mistaken for appendicitis were various stomach and liver diseases and peritonitis. During the 27 years from 1873-74 to 1900-01 the percentage of cases of appendicitis has increased in relation to the whole number of soldiers in the German army about 70%, while the number of cases reported as stomach, liver, and peritoneal inflammations has decreased almost correspondingly. We take it, of course, that Villaret means appendicitis when he speaks of perityphlitis, the old-fashioned erroneous designation of this disease which is so commonly used in Europe. These statistics have some value inasmuch as the number of soldiers in the German army has ranged from 298,876 in 1873 to 528,489 in 1901. This number of men is large enough to give quite reliable data. Whether appendicitis has really greatly increased in prevalence in recent years will perhaps never be definitely settled, but we do know that it very common at the present day, and whatever may have been the frequency in the past, or whatever may be the most important etiologic factor causing the inflammation at present, there is no doubt in the minds of the majority of the profession in America today that our greatest

safety lies in early removal of the offender when it gives trouble. Timely operation gives us definite proof of the frequency of appendicitis and this evidence of the accuracy of diagnosis was not at hand in the olden times when the diagnoses of "inflammation of the bowels," idiopathic peritonitis and stomach and liver trouble were more frequently given than now.

REVIEW OF LITERATURE

Treatment of Tuberculous Peritonitis.—A. Groves¹ says that if direct infection of the peritoneum can be demonstrated from a primary focus, this should, if possible, be removed, as a preliminary measure. Emphasizing the value of sunlight in the treatment, he states that the abdominal walls should be exposed to the direct action of the sun's rays daily for hours at a time. When medical measures fail, the question of operation comes to be considered and this is one of the conditions in which early operation is seldom to be advised. When other organs are involved operation is indicated only to give temporary relief from large accumulations of fluid. Laparotomy is followed by the best results in chronic cases when there is a quantity of fluid, but the disease is quiescent. In certain of the cases, cure follows simple tapping, hence when cure follows or appears to follow laparotomy it may be that the disease has run its course and the operation only removes the products of the disease, a most necessary thing. Chronic cases cured by either laparotomy or tapping and acute cases terminating in death, despite operation, are cited. In conclusion, the writer states that an experience of 30 years of practical work shows that where previous arrest of the disease has been accomplished recovery follows operation; where the disease is acute, no improvement results. [A.G.E.]

Excochleation of the Prostate.—Riedel² has excochleated the prostate in several cases with success. The operation is performed by making an inverted T-incision through the structures of the perineum, the patient being in the lithotomy position. In this way the prostate gland is exposed without injury to the rectum and urethra. The lateral lobes are not exposed, their capsule opened, and portions of it removed with a sharp spoon. He advises the performance of the operation at a time when the bladder is still healthy, and especially therefore, in younger men who are just beginning to be disturbed by the condition. It may be necessary in such cases to repeat the operation on account of a regrowth of the glands. He relates the details of the cases of 5 patients; the first had catheterized himself for 2 years. On the evening after the operation he voided his urine spontaneously. He has remained well for 15 months. The second patient had a 2-chambered bladder as the result of a diverticulum. This was not recognized at the time, and he died during the second operation. Patient number 3 was improved slightly; in numbers 4 and 5 the operation was successful even though the urethra was injured. [E.L.]

Surgical Interference in Renal Affections, Especially for Nephralgia and for Idiopathic Hematuria.—A. Perez³ says our views are still empiric. But the cases observed indicate the advantages of the "Edebohls' procedure." Israel gives 14 cases of which 3 were fatal. He operates under the opinion that congestion exists. The incision through the renal substance allows immediate relief. And later there is established an anastomosis between the inner and surrounding renal circulations which acts to reduce the possibilities of a return of the morbid state. Harrison notes improvement in bilateral cases when but one kidney is interfered with. He explains the improvement by the assumption that when one kidney acts normally it will exert a beneficial effect on the other. Leguen and others operate when there occurs any sudden arrest of kidney excretion. Pousson claims there is a synergic function which unites the 2 organs. When one kidney exerts a malefic influence through an incurable lesion, it is wiser to do a nephrectomy than to permit injury of the other organ. Rovsing does not believe that the congestion occurs entirely from inter-

¹ Deutsche medizinische Wochenschrift, 1904, Vol. xxx, p. 16.

² Canada Lancet, February, 1904.

³ Deutsche medizinische Wochenschrift, 1903, No. 44.

⁴ Il Politecnico, Rome, No. 5, 1904.

nal causes. The pressure on the kidney by its capsule is an energetic, additional source of renal disease, and a division of the capsule very satisfactory. The fact that the capsule may, or may not, be adherent is important. Many surgeons agree as to the value of the surgical treatment regardless of the cause of the trouble and of the exact method of rehabilitation. Among these: Lennander, Kuemmel, and Rumpel. It is usual in most idiopathic cases to effect a permanent cure. Edebohls records 51 cases of nephritis in which about 10% showed great improvement, if not cure. In 22 other cases much relief was experienced. The writer will give personal results in a subsequent paper. [T.H.E.]

Leukocyte Count as an Aid in Decision for or against Immediate Operation.—E. S. Van Duyn¹ reports 50 cases in which it was endeavored by the leukocyte count to determine the presence of infection, its severity, its extent, and progress, and the necessity or urgency for operation. Of the 50 cases, 20 showed no pus and 30 contained pus. In the first 20 the count ranged from 5,600 to 14,600; in 11 of them the count was below 9,400, while the higher counts without pus in the remaining 9 were explained by other conditions present. The count in the 30 pus cases ranged from 7,000 to 37,000. Enough of these were below the maximum count in the cases not containing pus to make 40% or 80% of the entire series overlap. This would seem to preclude the possibility of determining accurately, from the leukocyte count, the character of the infection present. But Van Duyn shows that by dividing these cases into series according to the presence of factors which are known to affect the leukocyte count, they can be reduced to remarkably uniform findings instead of contradictions. He then emphasizes the necessity of the surgeon knowing and considering these accessory factors when interpreting the leukocyte count in any individual case. [A.G.E.]

Strangulation of the Ileum in 2 Places.—Max Hofmann² describes a case of this rare condition in a woman of 64, who for 20 years had suffered from an inguinal hernia. A day and a half prior to her first examination the hernia became painful, tender, and swollen. For 2 days she passed neither gas nor feces. There was no vomiting nor eructations. The patient was operated upon, but died 21 hours later. One part of the incarcerated intestine was 13 cm. (5 in.) from the ileocecal valve, while the second portion was 50 cm. (20 in.) farther up. Hofmann could find only 6 similar cases in the literature. [J.H.W.R.]

First Case of Successful Ligation of Aneurysm of the Hepatic Artery.—H. Kehr³ reports the following case: A man of 29, who had been suffering with cramps of the stomach for some time, was taken suddenly with jaundice and bloody vomiting. The liver was enlarged. Attacks of colic, jaundice, and hematemesis occurred frequently during a period of 15 months, since which time the patient complained only of constant pressure in the hepatic region. Operation revealed an aneurysm of the right branch of the hepatic artery, which necrosed and connected with the cystic duct. The gallbladder was tapped and then removed; the cystic duct was split open, and the hepatic artery ligated with double threads in 2 places, and severed between. The aneurysmal sac was then fully exposed, cut open, and cleaned out. The wound was firmly tamponed; the liver closed with several sutures, and the wound closed. The patient made a good recovery, only a very superficial part of the liver becoming necrotic. This good result was probably due to the fact that the long duration of the condition produced a good collateral circulation. The diagnosis in this case was only made on the operating table, but should this symptom-complex (colic, icterus, gastric hemorrhage) occur again, Kehr would feel justified in diagnosing hepatic aneurysm. [E.L.]

Interilioabdominal Amputation for Sarcoma of the Ilium.—W. W. Keen and J. Chalmers DaCosta⁴ report this case, the patient being a man of 42. Keen describes the operation employed—a modification of that of Savariaud, with a long internal flap. The internal iliac artery, but not the vein, was

ligated. The horizontal and descending rami of the pubes were divided and the ilium sawed through from the crest to the great sciatic notch. The operation consumed 1½ hours. The patient reacted quite well from the operation but died 33 hours later from almost complete suppression of urine and unexpected gangrene of the parts supplied by the internal iliac artery. Experience in this case leads Keen to concur with the views of Morestin published in a recent article, at least in the disarticulation at the hip and sawing of the bone. He is, however, still more inclined to abandon the interilioabdominal operation in cases in which it is possible to substitute resection of more or less of the innominate bone, even up to its entire removal, without amputation of the entire lower extremity. The tumor in this case proved to be an osteosarcoma. The paper contains a table of all the cases of the extensive operation in question that are on record—16 for sarcoma and 3 for tuberculosis. Only 6 terminated in recovery of the patient. [A.G.E.]

New Method for Cholecystotomy.—W. W. Lynch¹ removes the stones from the gallbladder in the usual manner, but in closing the wound he first closes the incision in the gallbladder except a small opening for a tube. He then closes the peritoneum with a continuous suture except at the upper extremity of the wound, where he attaches the edges of the peritoneum to the gallbladder by a circular suture, which surrounds the opening left for the tube. The parietes are then closed as usual, except that untied sutures are placed over the opening for the drain. A tube is carried into the gallbladder and this is surrounded by gauze which lies in the wound but is extraperitoneal. In from 48 to 72 hours all drain is removed and the sutures tied down. The operation has the following to commend it: 1. The parietal membrane yields with the movements of the gallbladder during respiration, coughing or vomiting and the tension thrown on it is probably no greater than that used while suturing it. 2. The peritoneal membrane rapidly and abundantly throws out a plastic exudate, strengthening the walls of the fistula and barricading the general peritoneal cavity against extravasation and infection every hour after the operation. [A.B.C.]

Fistula of the Urachus in an Adult.—Emil Stangl² describes a case of congenital fistula of the urachus in a man of 21. The umbilical region was prominent, and the umbilicus itself larger than normal. The fistula closed spontaneously when the patient was 14 years old. Until that time when the bladder was filled the urine dropped from the navel. Seven years later the patient began having pain in urination, associated with a swelling to the left of the navel, which contained fluid. From the umbilicus flowed an abundant red foul-smelling secretion. The entire inflamed urachus was removed, and the patient made a speedy recovery. [J.H.W.R.]

Direct Pains Associated with Appendicitis.—W. D. Spanton³ states that the pain of appendicitis is, in many instances, referred to the epigastrium. This epigastric pain is almost invariably associated with peritonitis and is one of the most valuable indications for the operation. He calls attention to the frequency of appendicitis occurring at the catamenial period in young women. A goodly proportion of the cases of appendicitis with localized swelling without marked constitutional symptoms recover without operation. The absence of such swelling, however, indicates little, for the appendix may be gangrenous and hidden in the pelvis or it may be behind the ileum. In regard to operation, every case must be a law unto itself. Several rules may be laid down. With definite indication of general peritonitis or of increased prostration no time should be lost; when the temperature rise and fall, is irregular with weakening of pulse and increase of abdominal tension operation is demanded; likewise any persistent sickness, obstinate constipation with typhoid symptoms, localized swelling, painful and tender to touch with steady rise and fall of temperature denoting pus, of course demands operation. Many of these pus cases are extracecal and can safely be opened and drained from outside the peritoneum. Far more lives are lost by deferring operation until it is too late than by operating unnecessarily early. [A.B.C.]

¹ Buffalo Medical Journal, January, 1904.

² Wiener klinische Wochenschrift, 1903, No. 41.

³ Münchener medizinische Wochenschrift, 1903, I, No. 43.

⁴ International Clinics, Vol. IV., Thirteenth Series, 1904.

¹ From Author's Reprint.

² Wiener klinische Wochenschrift, No. 40, 1903.

³ British Medical Journal, February 6, 1904.

Fibromas of the Spermatic Cord.—A. Bruneau and H. de Satriano,¹ in the report of a fibroma of the spermatic cord, state that the condition is a rare one, only 4 classic cases being previously recorded. One other doubtful case is mentioned and one of a fibrofatty tumor. The personal case reported was in a man of 45, who gave no history of previous trauma. The tumor was 12 cm. (5 in.) long and had an average diameter of 5 cm. (2 in.). The weight was 190 gm. (6 oz.). Microscopic examination showed it to be a pure fibroma. The subjective symptoms of these tumors are usually uneasiness with a dragging sensation. Rarely there is violent pain, as in one of the reported cases. The growth is slow and the general health of the patient is not affected. The diagnosis is usually easy. When the tumor is of inguinal origin and projects from the anterior orifice of the canal, it may be impossible to differentiate it from a hernia. The prognosis is favorable, but the possibility of malignant change must be borne in mind. The operation of choice is that of castration, as in the case of tumors of any size dissection from the dissociated elements of the cord is impossible. [A.G.E.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

EDITORIAL COMMENT

The Hemorrhage in Carcinoma Uteri.—Hemorrhage is one of the most constant symptoms of carcinoma of the uterus, as is well known. Sometimes it amounts to an ordinary metrorrhagia, the amount of blood lost is increased and the duration of the menses is longer than usual. At other times the patient suffers from intermenstrual losses of blood which lead her to suppose that the menses occur several times a month. The amount of blood lost is not in large enough quantity to be termed a hemorrhage, and intrauterine and vaginal packing may diminish the intensity of the flux without causing it to entirely disappear. In some cases, however, it may be necessary to operate. Olshausen recommends hysterectomy in cases of uterine hemorrhages which continue in spite of all the usual measures employed to control them, when they are sufficient to endanger the patient's life. The necessity for operating for the hemorrhage rarely occurs, but the early appearance, frequent repetition and increased amount of the blood imparts a rapid progress to the affection. Beside these hemorrhages, which merely belong to the nearly constant symptomatic ensemble of carcinoma of the cervix, one should recollect that these patients are always exposed to accidental hemorrhage of serious proportions. In cases of the cauliflower variety of neoplasm in which the phenomena of necrobiosis reach the highest intensity, a fatigue, a long walk or a rough examination is sufficient to lacerate the tissues and open the bloodvessels. A large artery may thus be opened, the hemorrhage being really alarming, but usually the blood will amount to a free oozing from the veins. The occurrence and gravity of the hemorrhages are consequently an indication for hysterectomy, which not only has an immediate curative action but also a far-reaching one as well, because the recurrence of the neoplasm arises usually behind the vaginal cicatrix, and only ulcerates through the vagina toward the end of the malady. On the other hand, in those cases where the neoplasm recurs in the cicatrix, the hemorrhage will not have its former severity. Hemorrhage is an indication for hysterectomy, which should be undertaken in all cases in which no unfavorable conditions are present which would oblige one to resort to a palliative treatment. Now, when should one interfere? Sometimes the anemia is so marked, the pulse so weak, that the slightest loss of blood would not be withstood, so one must temporize, and by proper treatment directed

to the control of the hemorrhage, and endeavor to strengthen the patient until she has sufficiently recovered as to enable her to stand the shock of an operation. To control temporarily the bleeding, curetment and cauterization of the neoplasm is by far the surest way, and then rest in bed for several weeks with liberal feeding, will place the patient in a condition suitable for the radical operation. Temporizing is certainly prudent, but has the serious inconvenience of necessitating a relatively long period of time, during which the neoplasm progresses with all the greater rapidity, because the patient is in a weakened condition. For this reason one should be encouraged to interfere at an early date, because at present we are better armed against the loss of blood by the use of saline injections, and other methods too well known to require mention here. According to our way of thinking, one should take into consideration two eventualities, namely: Either the neoplasm is at its debut, so that hysterectomy will be easy and rapid, and only a trivial amount of blood is lost, in which case the operation is urgently indicated. The shortness of the operation greatly diminishes the danger of the anesthesia, and if done by the vaginal route, can be accomplished in several minutes. In other cases, on the contrary, the uterus is bound down, and the operation will be long and probably difficult. Under these circumstances a palliative procedure should be adopted, but which will nevertheless have a most effective action on one of the most menacing symptoms, and later the uterus and anexa may be removed, if not too late.

REVIEW OF LITERATURE

The Chorioectodermal Epithelioma.—L. Pick,¹ after a thorough study of the structure of these peculiar growths, reaches the conclusion that there are developed, especially in very young individuals, in the ovaries and testicles, solid cancer-like or solid cystic benign tumors of complicated structure—epithelioma and chorioectodermal cystic epithelioma. The connection of these neoplasms with their congenital teratomatous origin is shown: 1. Through the usual condition of the characteristic syncytium in the tissue of the tumor. 2. Through the general connection with the tissue of the teratoma. 3. Through the direct continuity of tumor cells with other ectodermal cell forms. In these 3 facts, added to other morphologic and biologic differences, lies the complete morphologic and biologic distinction of the chorioectodermal epithelioma as distinguished from the ordinary chorioepithelioma or deciduoma malignum of Marchand. This chorioectodermal epithelioma of testicles and ovaries belongs to the category of benign forms of tumors of congenital origin. [W.K.]

Gloves in Obstetrics.—A. S. Rashkes² has given rubber gloves a conscientious trial in about 600 obstetric cases. Every precaution was taken to insure an unvitiated verdict. The final results as to puerperal fever show that the use of rubber gloves in examinations and operations during labor does not in any way diminish the danger of puerperal fever. Therefore the extreme opinion expressed by Döderlein to the effect that the ungloved hand is the sole source of puerperal infection, must be looked upon as unwarranted. There must be other sources of infection, possibly among others the transmission of germs by the examining finger from the lower into the upper genital tract. [L.J.]

Vesicular Mole of Unusual Size.—T. S. Jones³ reports the case of a woman of 48, who had had 8 children and who when he first saw her had had no menses for some months and was having strong labor pains, with copious, sanguinous discharge, in which could be seen an occasional cyst of the hydatidiform mole. Under chloroform, the mass of cysts was removed from the uterus by the hand, without much difficulty. The whole mass of cysts weighed 5½ pounds, and presented somewhat the appearance of grapes, the cysts being attached one to another, instead of to a common stem, and varying in

¹ Revue de Chirurgie, January 10, 1904.

² Berliner klinische Wochenschrift, February 15 and 22.

³ Journal Akousherstwa, November, 1903.

⁴ British Medical Journal, February 13, 1904.

size from 1½ inches in length to the size of a pin's head. The patient made an uneventful recovery. Five years before she passed a similar, though smaller mole, since which time she had borne a child at full term, though decidedly syphilitic. [W.K.]

Mammary Glands in the Newborn.—H. Raubitschek¹ describes a series of preparations from the mammary glands in the newborn. They go to show that the secretion frequently seen at this age ("hexenmilch") is the result of a necrosis and separation of epithelial cells in the acini and ducts of the glands. The mammary glands at this stage are thus analogous to the sebaceous glands. The secretion of colostrum immediately preceding lactation in the puerperium is of similar origin. The true milk secretion, however, consists of the formation of fat within the cells, without necrotic destruction of the latter. [B.K.]

Extrauterine Pregnancy with a Living Child.—A. Czyzewicz, Jr.,² reports a case of extrauterine pregnancy delivered of a living child at term. A striking point in the case was the fact, that although there was no uterine distention and nothing to be expelled from the uterus, yet the patient suffered the usual typical labor pains. When the abdomen was opened there lay a uterus corresponding in size to a 2-months' pregnancy; and lying between the sacral bone and the uterus, and adherent to its posterior wall and to the entire lower part of the abdominal cavity, was a tense, whitish tumor with many hemorrhagic points on its walls, containing the child and the amniotic fluids. The child still living was extracted, the placenta was removed; but to remove the sac was out of the question because of its extensive adhesions to omentum, intestines and adjacent parts. The loosened parts of the tumor wall were removed, the entire cavity packed with iodoform gauze arranged for drainage, and the rest of the wound closed. Death followed on the third day. The writer concludes that in such cases toward the approaching end of pregnancy, when the operation cannot be easy for the mother, the physician by constant watchfulness must at least aim to secure the conditions most favorable to the life of the child. [W.K.]

General Peritonitis and its Treatment.—J. B. Seldowitch³ graphically presents the contrast between the treatment of peritonitis some 20 years ago and at the present day. It appears that the field of diffused peritonitis has been steadily invaded by the surgeon. Not all forms of the affection, however, have been successfully treated by operation, the so-called gynecologic peritonitis (secondary to gynecologic diseases) having shown poor results under the knife. The author, believing that surgical treatment is the method of choice in purulent diffuse peritonitis caused by gynecologic disease, contributes a considerable statistical material of his own, showing a percentage of cures equal to 29. Although this does not at first thought seem very encouraging, his remarks make it probable that under medical management the rate of recovery would have been far lower. He pleads for more optimism in this field. [L.J.]

Fifty Consecutive Intraabdominal Operations on the Ovaries, Tubes and Broad Ligament.—James Swain,⁴ after citing in detail some of the more interesting of these 50 cases, remarks that he does not allow any sponge or swab to be passed directly from an antiseptic solution into the abdomen; for such solutions are irritating, and by damaging the peritoneal epithelium they hinder the absorptive power upon which we depend for the removal of the exudation which necessarily follows upon operation. Therefore, it is his custom to pass all sponges and swabs through a solution of 1 to 5,000 mercury biniodid, and then to have them washed in a normal saline solution before being used in the wound. In regard to after-treatment, pain after the first 24 hours is nearly always due to flatulence and the best remedy is a turpentine enema which may be given night and morning if necessary. If there are symptoms of peritonitis give a dose of calomel followed by dram doses of sodium sulfate every 2 hours as long as necessary to keep the bowels moved about twice daily. Hot water may be given by

mouth, as it relieves thirst and helps vomiting better than any other remedy. [W.K.]

The Treatment of Dysmenorrhea and Sterility, Due to Stenosis of the Cervix by Incision.—B. Fenwick¹ restricts himself to the consideration of the congenital form, in which the cervix is abnormally long with a "pinhole os." He discusses the operative treatment of the past 50 years, noting that in nearly all cases in any of the methods used the severed lips of the cervix reunited. He presents a method of keeping the lips apart while healing is going on. After dilating the canal he passes one blade of the scissors half way up, that is, from ½ in. to ¾ in., and makes an incision to that extent on each side. He then passes catgut suture through the left side of the anterior lip close to the upper angle of the incision, and then across and through the corresponding point on the right side. A similar stitch is inserted about midway between the former and the tip of the cervix. First the upper, and then the lower stitch is tied. The result is, that the anterior lip is indrawn together, the raw surface being closed completely, while the posterior lip is left flat and open; 2 or 3 wool plugs are tightly applied to prevent hemorrhage and are removed in 16 hours. In all the author's 87 cases the first subsequent period was free from pain, and in 91% the relief has been complete and permanent. Out of 41 cases of sterility 24 have been heard from, and of these, 18 have become pregnant after an average sterility of 5½ years. [H.M.]

Puerperal Sepsis.—P. Horrocks² draws attention particularly to the fact that the streptococcus is the most usual cause of puerperal sepsis. Krönig, in 1894, by careful investigation, found that the vagina was aseptic in all cases of pregnant women not contaminated by digital or instrumental examination, or by coitus. Later, Krönig introduced germs into the vagina and found that they were speedily killed in 2 or 3 days, and that antiseptic douches weakened or destroyed this natural antiseptic action. Hence Horrocks recommends no vaginal examination before or during labor unless some symptoms indicate something abnormal, and then with as great antiseptic precautions as if for an invasion of the peritoneal cavity. Neither does he approve of intrauterine or vaginal douching as routine measures under normal conditions, and 90% of labors are normal. But when in the puerperium abnormal symptoms appear and sepsis develops, then, if sapremic in character, at once introduce the disinfected finger into the uterus and remove any decomposing matter, and follow this by a copious intrauterine douche of some antiseptic solution. He has large experience in antistreptococcal serum in the septicemic type of asepsis, and while in some cases it acted wonderfully well, yet it so often failed that he considers it very unsatisfactory. [W.K.]

Adrenalin in Gynecology.—N. N. Fensmenoff³ has used adrenalin in operating upon the vagina and the uterus. He found that adrenalin has no hemostatic effect on the vaginal mucous membrane. On the other hand, in operations upon the uterus the drug has been very serviceable in stopping hemorrhage. The drug was applied on pledgets of gauze in the strength of 1 to 5,000 or higher (up to 1 to 1,000). The author has also employed adrenalin with success in removing mucous polypi of the cervix, and he intends to try the same agent in the treatment of hemorrhagic endometritis by means of intrauterine injections, etc. He adds a word of caution as to the possible toxic by-effects of the remedy. A number of animal experiments undertaken by the author has also resulted in a favorable verdict for adrenalin. [L.J.]

Disadvantages of Ventrofixation.—G. W. Maly⁴ gives the history of 2 cases of ventrofixation, showing how each patient suffered repeated pregnancies, ending in abnormal deliveries, in most cases, of asphyxiated children. Also in both cases, united with other consequences, there was a hemming in of the intestines. Maly remarks that since in later times gynecologists have ceased to see any pathologic condition in a movable reflexed uterus, but only in the complication of its fixation in the backward position, it may at least be desig-

¹ Zeit für Heilkunde, Bd. xxv, Heft 1, p. 16.

² Zentralblatt für Gynäkologie, January 30, 1904.

³ Russki Vrach, January 17, 1904.

⁴ British Medical Journal, Feb. 13, 1904.

¹ Medical Press and Circular, December 23, 1903.

² British Medical Journal, February 13, 1904.

³ Journal Akousherstva, October, 1903.

⁴ Zentralblatt für Gynäkologie, January 30, 1904.

nated as illogical to convert a fixed retroflexed uterus into a fixed antelexed one, since the pathology lies in its fixed condition. In the second case reported, the os uteri was drawn up above the promontory and the external os uteri, which normally opens in the direction of the pelvic axis, opened backward against the promontory. After the objections mentioned, Maly will not entirely condemn ventrofixation, which at times offers great advantages to the patient, but deems it necessary to call attention to the real dangers and disadvantages which belong to the unphysiologic position of the uterus resulting from this method. [w.k.]

Treatment of Placenta Prævia.—B. A. Libow¹ reviews the accepted methods of dealing with this formidable condition. About 50% of the children are born dead under the usual management, which disregards the fetal life. The ideal method must offer the greatest chance to both mother and child, and such a method is, according to the author, cesarean section. This operation is no longer a novelty in obstetric surgery, and if laparotomy is indicated in extrauterine pregnancy, why is it not called for in placenta prævia, the difference being only in the form of hemorrhage? [L.J.]

After-effects of Deep Cervical Incision in Labor.—Hofmeier² directs attention to the fact that the scar made by a deep cervical incision during labor may prove a great disadvantage in subsequent labor by interfering with the elasticity of the cervix. He reports 2 cases to illustrate this view. In the first case, during labor the severe pain produced no change in the cervix and, had the child been living, he would have performed hysterotomy; but as it was already dead, he dilated the cervix artificially, perforated the head and delivered with forceps with considerable laceration of the cervix. The second case was remarkable because after the deep cervical incision the patient had 2 normal deliveries, but in the third labor there was incomplete rupture of the uterus apparently due to the cervical scar. After some hours of hard labor a dead child was spontaneously delivered with no apparent hemorrhage. A few hours later the patient was in a state of collapse. Under anesthesia the placenta was removed manually when a rupture was found in the uncovered uterine wall just above the cervical scar. After death, which soon followed, examination showed a large subperitoneal hematoma in connection with the tear in the uterus, and apparently this bleeding had begun some hours before the delivery of the child. Hofmeier thinks that since in both these cases very serious complications followed as the result of the cervical incision, only a very great and positive advantage can justify its use. And in each case it would have been advisable to make the incision anterior or posterior, whereby at least the larger vessels would have been avoided and left intact. [w.k.]

Uterine Fibroma and Pregnancy.—M. Lepage³ states that formerly the coexistence of pregnancy and a uterine fibroma was considered very grave. This is an error. When the tumor is small or when it is situated at a favorable point, we should not interfere. It is only when position or size renders the tumor troublesome that it becomes necessary to resort to an operation. Usually the pregnancy goes to term and labor occurs normally. Abortions are but little more frequent than in pregnancy, which is not complicated by a fibroma. Premature labor is perhaps a little more frequent than abortion although the conditions which produce it are rare. After delivery, menstrual disorders and leukorrhea are frequent. If a fibroma is recognized at the beginning of pregnancy, it is well to call the attention of the family to the liability of the patient to these disorders after delivery. The diagnostic sign which should fix the attention of the physician is the suppression of menstruation. A woman who has a fibroma has always suppression of menstruation at the beginning of pregnancy; later, usually at the end of 2 months, it returns in the form of more or less irregular losses; but there is always complete suppression at a given time. The presence of retroversion of the uterus may render the diagnosis difficult. Under these circumstances, a careful examination should be made. The diagnosis is usually easy in the last 4 months of pregnancy, as the tumors

can readily be felt. A pedunculated fibroma may be confounded with an ovarian cyst. Fibromas of the uterine wall may be confounded with the fetal parts. These may be differentiated during uterine contraction; if they are the fetal parts, the nodules will disappear during contraction. The treatment consists in frequent examination of the urine; at the least sign of albumin, a milk diet should be prescribed. The author believes that abortion should not be performed. Surgical intervention is rarely necessary. It consists in removing the fibroma and, if necessary, total hysterectomy. [L.F.A.]

Ovariectomy During Pregnancy.—Karl Heil⁴ adds 66 cases of ovariectomy to the 175 given by Orgler and Gräfe. In the collected cases a mortality of 2.1% shows that the prognosis in ovariectomy is not unfavorably influenced by the contemporaneous pregnancy. The pregnancy was interrupted in about 20% of the cases. Heil concludes that each pregnant woman upon complaint of pain in the uterus, or unusual or irregular pain in other parts of the genital sphere, should undergo a genital examination. The diagnosis oscillates between extrauterine pregnancy on the one hand, and intrauterine pregnancy with an ovarian tumor on the other hand, and celiotomy is absolutely indicated. When possible the tube should be left upon the side operated upon, in order to avoid rupture or tear of the uterus, and for like reasons he prefers the abdominal route. And in his experience the abdominal scar has suffered no injury from the pregnancy or labor. [w.k.]

Gonorrhea in the Female.—In a scholarly series of articles, A. N. Alexandroff,⁵ presents the up-to-date condition of our knowledge of gonorrhea in women. No aspect of the complicated subject is omitted. Speaking of the prognosis, the author takes a position midway between those who assert that the disease can be radically cured in the initial stages, and those pessimists who, like Noeggerath, look upon gonorrhea in women as incurable. Among the therapeutic measures recommended, we find the usual drugs and means, and as a novelty, the warm praise bestowed in the efficiency of the electric current in killing the gonococci. The current has the signal advantage over all other remedies in that it is able to reach the cocci in the deeper structures, beneath the mucous membrane. The details of the electric treatment are promised in a future essay. [L.J.]

The Influence of Gynecologic Operations upon Menstruation.—Josef Bondi⁶ made a special study of the influence of curetment and of one-sided ovariectomy upon menstruation. In the great majority of cases of curetment for menorrhagia, etc., the operation was without any influence upon the type of menstruation, which has been known to return as early as 5 or 6 days after the operation. The mucous membrane, or executive organ of menstruation, may be restored to its normal condition in a very short time, as shown in a case in which the uterus was removed 5 days after the curetment and the mucosa was found completely regenerated. In some rare cases the menses may be delayed for several months, owing to peculiar complications. After onesided ovariectomy, also after other operations, such as those for hernia, for gallstones, or removal of tumors, the menses are usually more delayed, the duration of the postoperative amenorrhea being proportioned to the severity of the operation, the degree of shock, and the vital or recuperative power of the patient; again in some cases the nervous irritability of the patient plays an important role in the matter. [w.k.]

Obstruction in Labor.—Ernst Puppel⁷ reports several instances in which normal delivery was obstructed in different ways, and concludes that since it is known that ovarian tumors may be removed without interfering with pregnancy, therefore, when an incarcerated tumor cannot be replaced, one does well to remove it. Even if reposition is successful, because of changed circulatory and physical conditions there is great inclination to twisting of the pedicle, and this is an added reason for removal of the tumor. So he concludes that all ovarian tumors may be operated upon during pregnancy in order that all obstruction to labor and delivery may be avoided. [w.k.]

¹ Russki Vrach, December 27, 1903.

² Münchener medizinische Wochenschrift, January 19.

³ Journal des Praticiens, Vol. xvii, No. 42, 1903.

⁴ Münchener medizinische Wochenschrift, Jan. 19, 1904.

⁵ Journal Akousherstwa, October, 1903.

⁶ Wiener klinische Wochenschrift, January 28, 1904.

⁷ Deutsche medizinische Wochenschrift, December 17, 1903.

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

School Gymnastics.—According to Gulick,¹ the normal development of the body may be left to nature if a suitable environment is provided. The demands of school life are that children shall remain measurably still for 5 hours a day, most of the time seated at a desk. In most schools the desks are not adapted to the length of the spinal column and of the arms and legs of the individual, so that unsymmetric sitting postures are constantly assumed, and growth of the body is correspondingly unsymmetric. The constant sitting still deprives the muscles of that activity which we have shown to be natural to childhood. By insisting on quiet, we have interfered with nature in 2 ways: (1) By taking away a great deal of time that she usually gives to exercise; and (2) by keeping the child for long hours in a more or less unnatural position. The aim of school gymnastics must be to remedy these 2 alterations of the environment which are rendered necessary by the demands of civilization. This combating of the effect of the school desk upon the body can best be done by a few minutes' vigorous exercise of the large groups of muscles at frequent intervals. Except when the ventilation in the building is perfect, the windows should be opened at the end of every hour and the pupils should all be given vigorous exercise for 5 minutes. These exercises should be especially directed to the maintaining of a correct carriage and to the vigorous exercise of the large muscles of the back and thighs. There will naturally be introduced accessory movements of the arms and legs to add variety and increase the interest. The essentials of school gymnastics are correct carriage of the trunk and exercises calculated to strengthen the back and thighs. This will involve increased cardiac and respiratory activity. Such a scheme of exercise as this does not involve difficult exercises or expert teachers; they can be carried on by the regular teachers. They do not make a very heavy demand on the time given to definite intellectual achievement. On the other hand, the attempt to secure by school gymnastics complete motor education must fail, because of the limited time that under the best of conditions can be given to gymnastics during the school period, as well as because of the limited range of material available as compared with that available during play. The complicated motor development, which forms the basis of later skill in life, even including that of an intellectual character, comes chiefly through the development of the hand, lips, tongue, and larynx. The development of the hand, as shown by Dr. Seguin and others, is of the greatest importance; hence, in motor education, manual training, Sloyd, marbles, work with jack-knife, tools, machinery—all seem to have a definite and important place. They are basal to education in the individual as they have been in the race. The object of school gymnastics is to combat the effects of long sitting at school desks. For true motor education, we must depend on play and manual training. Children out of school hours must be given full opportunity to play. In school they must be given opportunity to combat the special conditions presented by sitting still at the school desk. Scoliosis is far more common among girls than among boys. It is rarely found among those who have a fair degree of muscular development of the back. Such simple school exercises as proposed will in Gulick's judgment largely prevent scoliosis in the developing child. When children can have a suitable amount of free play in properly appointed playgrounds, special gymnasiums are not necessary before the twelfth year of age. The same general position might be taken for adolescents, but here, unfortunately, the conditions are somewhat different. Public sentiment does not allow girls to indulge freely in games; the formal exercises of the gymnasium seem to be more suitable. Playgrounds for adolescents are almost entirely eliminated from cities of moderate size, so that in connection with every high school there should be a gymnasium under competent expert supervision, in which all the pupils should take vigorously daily

exercise. This exercise should be directed to general invigorating of the bodily organs rather than to the acquirement of technical skill in any one direction. The kind of technical skill secured by gymnastics is of no particular hygienic or educational advantage; but good carriage of the body, with vigor and endurance, is of the greatest advantage to health.

Therapeutic Applications of Fluorescent Substances.—

It has been found that if fluorescent substances are applied to cultures of living organisms or diseased tissue cells, which are then exposed to the action of sunlight or diffuse daylight, death occurs within a relatively short time; an action which could not be traced to either agent alone, but only to their combination. Toxins and enzymes were robbed of their characteristic properties by this combination. Eosin was found to be the most powerful of these fluorescent substances and to determine the value of this method from a therapeutic standpoint, Tappeiner and Jesionek¹ tested it with epitheliomatous growths, tuberculous disease of the testicle and scrotum, lupus, syphilitic condyloma and chancre. Of the epitheliomas, one as large and deep as a dollar was completely healed after 60 days' treatment; in 2 other cases there was improvement, one having existed 18 years. No untoward symptoms were noted and pain disappeared even before signs of healing showed themselves. In lupus they could not report cures yet, but the result thus far promises the same ultimate result as in epithelioma; only the superficial lesions, however, were influenced favorably. Syphilitic lesions disappeared with marvelous rapidity, and in the 2 cases in which the initial lesion was treated the glandular inflammation disappeared spontaneously. One was not followed by secondary symptoms at all. The eosin was applied in a 5% watery solution by means of a brush and the surface exposed to sunlight; on cloudy days a powerful arc light was used instead. Moist boric acid dressings were applied between treatments. In some cases the eosin was injected subcutaneously with very good result. It was also given internally, but the reports from this are not yet complete. [E.L.] [Morton and Tracy, of New York, have likewise reported good results from the use of fluorescent substances similarly. The matter deserves extended investigation. S.S.C.]

Correction of Flat-foot by Manual Force.—According to H. A. Wilson,² flat-foot offers a good field for forcible manipulations in overcoming the acquired ankylosis resulting from the long-continued altered positions in which the bones have been placed. It is manifestly impossible to induce muscular development in stiff joints. It is first essential to establish full motion preliminary to physical culture. The heel is held fixedly between the thumb and index-finger, which are placed upon the lateral aspect of the os calcis, at the same time pressing the palm upon the posterior superior part of the bone. The other hand is used to draw down the toes and the distal extremities of the metatarsal bones. The thumbs should press upward under the middle of the arch of the foot. Very great force can quite easily be exerted in this manner, often beyond the patient's endurance. Alternate relaxation and application of corrective force will be most effective. This will gradually loosen the fibrous attachments that resist overcorrection. No anesthetic is required except in severe cases, or when it is found difficult to obtain the cooperation of the patient. Still greater manipulative force, when required, may be exerted upon a flat-foot by using the knee as a fulcrum. The operator's hands are placed on the posterior aspect of the os calcis and over the tarsometatarsal articulations, changing the direction of pressure as the exigencies of the case may demand. In still more rigid cases far greater force can be exerted by resorting to the method of Dr. J. T. Rugh, whereby the supplemental force of the operator's legs is utilized. The hands are used to control the force and to add special features as the case may require. The right hand is used with fingers pulling on the outer aspect of the os calcis while the wrist is pushed against the plantar surface of the foot. The other hand is used on the dorsum of the foot in such a manner as to assist in the correction of the deformity and in securing relaxation of the joints.

¹ Münchener medicinische Wochenschrift, 1903, 1, No. 47, November 24.

² Corrective Manipulations in Orthopedic Surgery, Blakiston, 1904.

¹ System of Physiologic Therapeutics, Vol. VII.

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"**Simultaneous or Consecutive Polygamy**" is the capital phrase coined by Dr. Dix to denote two methods of reaching the same result. A newspaper caricaturist has hit off the same thought in a picture representing a plebeian old Mormon with his string of wives behind him offering his hand to the haughty millionaire with his string of divorced wives trudging off in the distance. The American does not like the invitation of the Mormon to "Shake, Pard!" The Smoot case at Washington has many lessons, not the least being the attention that is thereby directed to the license that is running riot in the lax divorce laws of our States. It is fast resulting in a condition of "consecutive polygamy," hardly less, and sometimes decidedly not less, injurious to social well-being and the reproduction problems of the race than the Mormon or "simultaneous" method of meeting the problem. If the family is the basis of a healthy and prosperous nation, if the family is the condition of the creation and proper care of children, then it is evident that the Mormon's social philosophy may even be superior to that of some of our American upgrowths. Neither, of course, in any true analysis, will bear the question. The hypocrisy shown by the votes of some of our national legislators, plus their private practises, by no means lessens our duty and shame, but really doubles both.

Sanitary regulation of restaurant kitchens and bake-houses is a public need which our health officers will soon have to undertake. We are making great and expensive attempts to eliminate disease from our public supplies of food, but know absolutely nothing of the filthy conditions of kitchens and bakeries, which cannot help but disseminate disease. The Medical Officer of the City of London recommends a thoroughgoing system of regulations for restaurant kitchens and bake-houses, with inspection by officials, and licenses only of such as govern themselves according to the hygienic rules laid down. These are to concern the scouring and washing of the walls and of the floor; the remedies for damp walls; perfection of drain pipes, and sanitary fittings; the height of the room; the number of cubic feet of air space per person, and the ventilation; the lighting; the temperature; the storage of food and flour; the care of the lavatories; the water-supply; the cleansing of all utensils; the dress and cleanliness of the cooks, etc. As

to kitchens, one of the best methods of securing cleanliness of the cooks and of the food, so long at least as it is being cooked, is the growing custom of doing much of the cooking in the presence of the diner. This plan is extensively practised in Paris, and has worked admirably also where it has been put in practice in our country. We may add that there are certainly the most disgusting conditions and unimagined filthiness in some of our cracker and "ginger-snap" factories. The materials used are sometimes revolting; the workmen are often unimaginably dirty, and not infrequently afflicted with the most loathsome diseases. We have been nauseated by some of the descriptions given by workmen of the practices and conditions that a health officer might find if it were his duty to spy them out.

Boots and Shoes as Disseminators of Disease Germs.—The trailing skirts of women's dresses have been justly railed at as carriers of filth and bacilli, but few have suspected the similar role played by boots and shoes. In cholera epidemics, it is said, a disproportionate number of cases have occurred among boot-blacks. The Mohammedan and Oriental custom of forbidding the worshipers to enter the house of prayer or a guest's house wearing the street shoes, is ascribed not only to the effects upon the floors, etc., that would result, but to the fact that disease is thereby spread. Of course one cannot walk in our dejecta strewn streets and filthy roads without bringing home upon boots millions of bacteria. Not seldom the cleansing of the boots is done in the kitchens or near them. The methods of cleansing moreover are such as to scatter every germ through the air of the house. No one seems to have ever given a moment's thought as to a less offensive and dangerous method of cleansing, blacking and polishing boots and shoes. They are certainly never purified on the inside from the first to the last day they are worn. A more evil-smelling thing than an old boot is hard to find, and odor is not a bad indication of sanitary and unsanitary qualities. He would be a public benefactor who should devise antiseptic methods of cleansing boots and shoes and of blacking and polishing them.

The Meaning of the Word "Cure."—Objection is made from time to time by medical writers to the advertisements of quacks, in which the ability to cure certain incurable diseases, or diseases usually incurable,

is heralded in the newspapers. Doubtless a great deal of harm is done to the ignorant by these mendacious pretenders, but it is well for the profession to look to its reputable members for a correction of such laxity of language. Possibly some are animated by the same spirit as that of Professor James Jackson, of Harvard, to whom Oliver Wendell Holmes referred in one of his essays, saying, "He used to insist on one small point with a certain philologic precision, namely, the true meaning of the word 'cure.' He would have it that to *cure* a patient was simply to *care* for him. I refer to it as showing what his idea was of the relation of the physician to the patient." We have before us the annual report from a large hospital mainly devoted to surgery, in which are tabulated the various operations with their results. The results are classified under four heads—cured, improved, unimproved, died. We find that of 77 operations for carcinoma in various parts of the body, 75 resulted in cure. Of eight operations for sarcoma, all were cured. Of 45 operations for tuberculosis in various situations, 42 were cured. One hundred and thirty-eight operations were performed for the radical cure of hernia, of these 138 were cured. Gastro-duodenostomy was performed in 12 cases, 10 being cured and 2 improved. Gastroenterostomy was performed in 55 cases, of which 46 were cured, 3 improved, and 6 died. Pylorectomy was done in 13 cases, of which 11 were cured and 2 died. A somewhat closer study of these statistics shows the meaning which attaches to the word cure in these tables, as there is no attempt to classify the result in the case of such operations as exploratory trephining without further operation, aspiration and injection of tuberculous abscesses, injection and aspiration of diseased joints, etc. In these cases, the disease was not removable by the knife, and the result of the operation is therefore considered unsettled. It is evident that in every case in which a diseased area was removed by operation, and the patient recovered, the result was tabulated as a "cure." With equal propriety the medical practitioner might tabulate as "cured" a case of pulmonary tuberculosis in which the cough, for which the patient entered the hospital, was for the time being allayed. Such statistics are manifestly of no value whatever. It is regrettable that they are published in this form, as they may serve as the incentive to similar reports from less trustworthy sources where the purpose of the report might be called in question. It happens that the one we refer to comes from a source which does not admit of any suspicion of an improper motive. This makes the fault all the greater. We offer no suggestion as to the manner in which such tabulations should be made. The innocent terms, "operative cure," or "recovered from operation," might be employed; either would convey more of truth than the term here used. We recall the anecdote told by Dr. John Brown of "one of our Gallic brethren," who discovered a specific remedy for a skin disease and used it so vigorously over the patient's surface that the patient perished just when the disease did. "On going into the dead house, our conqueror examined the surface of the subject with much interest and some complacency—not a vestige of disease—or life, and turning on his heel, said, 'Il est mort

guéri!' Cured indeed! with the disadvantage, single, but in one sense infinite, of the man being dead; dead, with the advantage, general, but at best finite, of the scaly tetter being cured."

The United States Association for the Study of Tuberculosis, the foundation stone of which was laid this week in Philadelphia, is, we predict, destined to exercise a profound influence in the profession of medicine and among the people of America. As our readers know, the unfortunate conditions that have arisen in consequence of a multiplicity of societies directly or indirectly interested in the study of tuberculosis, rendered it inevitable that some union should be effected among the best and most representative physicians of the nation in the war against the disease. The names of the formers and committee of the Association mentioned, are guarantees that scientific zeal and the good of humanity are the primary and impelling motives of this newly-formed body, and are not to be secondary to other motives less worthy or at least less partisan and exceptional. The committee to effect the organization is made up of Drs. Trudeau, Sternberg, Welch, Flick, and Biggs. Dr. Osler was made the chairman. There were some who favored joining forces with one or more of the antituberculosis associations already formed, but the wiser conclusion was reached not to do this. As Dr. Ravenel said, "there was no need of taking on the ready-made war" which such affiliation would result in. The committee will meet in June to complete the organization, in conjunction with the Atlantic City meeting of the American Medical Association. It is hardly necessary to urge upon physicians the duty of helping the new Association in every possible way.

The International Role of the Medical Missionary is one that would scarcely have been suspected, but which is manifested in the report of Presbyterian work in Korea. According to *The Outlook*, the first treaty ever made by Korea with a foreign nation was made with America (1882). A young American physician, Dr. H. N. Allen, felt the call to go to a country which was apparently emerging from heathenism, to find out whether his medical skill could keep him there and could perhaps open a path for the preaching missionary to follow. He went to Seoul, the Korean capital, and General Foote, the first American Minister to Korea, promptly made him physician to the Legation. No Korean could object to that. Thus was seized the first opportunity, says the report. A second came two years later, when the Presbyterian Board obtained sufficient funds to found a Protestant mission in Korea. Within a few months thereafter Seoul was distracted with insurrection. In it, Prince Min Yong Ik, a near relative of the King, was terribly wounded and brought to death's door. Though General Foote and all the Europeans fled as soon as possible to Chemulpho, the port of Seoul, Dr. Allen did not. He wrote:

We couldn't if we would and we wouldn't if we could. I came to do just such work. I can't leave these wounded people. . . . We shall live in the Legation with the old flag flying.

As Dr. Allen anticipated, he was summoned to attend the Prince, and withstood 13 Korean so-called physicians,

who wished to pour their black wax into the gaping wounds. They looked on in wonderment while Dr. Allen sewed up the wounds and tied the arteries. A Chinese general was among the bystanders, and had the wit to engage Dr. Allen's services for twenty of his wounded soldiers who had been concerned in the riot. The surgical operations were in the main successful. Thus was opened a third wide door of opportunity. A fourth came when the King, influenced by Prince Min's recovery, proposed to establish a hospital to be conducted on principles of American and European science. Within a few months of its establishment a missionary reported four to six operations every morning and about 70 dispensary patients in the afternoon.

Medical Origin of the Japanese Empire.—One of the traditional accounts of the origin of the Japanese Empire mentioned by the famous Jesuit traveler, Pere de Charlevoix, refers it to the emigration thither of a Chinese colony—under rather peculiar circumstances. Sinosik was ascended the throne of China in the year 246 B. C., and at once entered on a career of cruelty and tyranny. He was, nevertheless, most anxious to enjoy the privileges of his position for as long a period as possible. For the purpose of endeavoring to obtain some specific agent by which the duration of human life could be prolonged, he dispatched trusted messengers and explorers into all the countries with which he held any communication, or of the whereabouts of which he could obtain any knowledge. Taking advantage of the circumstances, one of his medical attendants—who was living in hourly dread of a sudden sentence of death, told the Emperor that he had learned that such an agent existed in the juices of a plant which grew only in the islands which now form the Japanese Empire. The plant in question was also reported to be one of so delicate structure and sensitive nature that, if not plucked with pure hands and special precaution, it would lose all its mysterious virtues before arriving within the limits of the Chinese Empire. It was suggested that 300 young men and the same number of girls—all of spotless physical health and moral purity—should be selected to proceed to Japan for the purpose of procuring a sufficient supply of the precious plant. The suggestion was promptly acted on. The medical adviser also patriotically volunteered to conduct the expedition himself, and the offer was accepted. The expedition embarked, as speedily as possible, for the Japanese Islands, but not one of its members was ever seen within the bounds of the Chinese Empire again. The previously unoccupied parts of Japan were rapidly populated with a race more fresh and vigorous in body and mind than the average inhabitants of the land of the "Celestials" itself! The medical chief of the expedition of course created himself king of the country, and soon had a magnificent palace erected for his residence, which he called Kanjoku (*i. e.* "grande maison, semblable aux cieux"). We are further told that the Japanese mention the historic fact in their annals; that they point out to visitors the spot on which the medical founder of their empire landed; and also show the ruins of a temple which was erected in his honor.

Japanese Medicine and Surgery.—Like their Chinese neighbors, the Japanese—up to the time of their recent adoption of western civilization—practised medicine a good deal, but surgery hardly at all. In fact, there were no recognized surgical practitioners. Their surgical armamentarium—like that of the practitioners of the Celestial Empire—consisted almost, if not wholly, of the *acupuncture needle* and the *moxa*. Their medical practitioners were also druggists and botanists. Each was accompanied in his rounds by an attendant, who carried a small chest in which were 12 drawers. Each of the latter was furnished with 144 compartments containing herbs and drugs. After examining a patient, they selected from this reservoir the required remedies, and prepared and mingled them *secundum artem*. Their science of the pulse was the most complex of any known to medical history, except, perhaps, that of their Chinese neighbors. An examination of the pulse occupied half an hour; at the conclusion of which they professed to know all the conditions and the causes of the malady. As a rule, they used but few remedies. They never let blood. They gave their patients none of the ordinary cooked forms of diet—on the ground that the stomach in diseases was unable to digest anything suitable to the healthy state. Otherwise, they gave them as far as possible what they wished for; relying on the view that nature was always the safest adviser, and never demanded what was hurtful to the constitution. The great object of their practice was the prevention of disease; and to this they believed that nothing contributed more effectively than the frequent use of the bath. There were three varieties of smallpox distinguished in Japanese practice. The first corresponded to that known in Europe by that name. The second appears to have been identical with our measles. The third was a special disease of the country—characterized by an eruption of "pustules aquenses," which Pere de Charlevoix was disposed to attribute to the excessive use of cold drinks by the Japanese. None of the varieties appear, however, to have been regarded as a very fatal disease. According to the early Japanese explorer, Koempfer, the only treatment that was considered necessary was to envelop the patient in red cloth. This traveler states that when one of the family of the Emperor was attacked with smallpox, not only was his bed and the walls of the bed-chamber curtained with red, but all the attendants were obliged to wear garments of the same hue. An interesting anticipation, indeed, of the experimental practice of the English John of Gaddesden, and its recent resuscitation, on the most advanced scientific grounds, by some European and American physicians!

R. The Bicycle.—With the opening of spring it is felt that there will be an end of the overlong period of fashionable disapproval of the bicycle. There is no instrument capable of giving so much exercise, movement, and fresh-air breathing, at so little expense, as the bicycle. The opinions of many physicians, educators, etc., are unanimous in urging the readoption of this hygienic device for many kinds of disease and as an antidote for the long winter's insanitary life. A capital article has been published by Dr. Gulick,¹ of

¹ Boston Medical and Surgical Journal, January 14, 1904.

New York, which epitomizes the medical arguments under the title of *The Bicycle as a Therapeutic Agent*. The author shows a most commendable caution in advising against the ill-considered or heroic doses of this therapeutic agent, and urging discrimination and professional guidance in this excellent new article of the modern materia medica. But under wise limitations all will agree that it should be more frequently prescribed.

Notes on Beriberi in the Malay Peninsula and on Christmas Island.—In these notes, Herbert E. Durham,¹ of the Beriberi Commission of the London School of Tropical Medicine, records numerous personal observations, and some that were communicated to him by other observers, the voluminous literature of the subject being as far as possible excluded. His very readable article contains many points that may be of service in aiding to elucidate the nature of this obscure disease, the cause of which is not claimed to have been discovered. The notes are made up of considerations under the following headings: Conditions of life affecting the prevalence of beriberi; experiments on animals; observations on man; remarks on the epidemiology of beriberi; current theories of the epidemiology of beriberi. Many of the notes are exceedingly suggestive, although not proving any theory of the cause of the disease. We present in full the conclusions of Dr. Durham as being one of the most recent contributions to the literature of beriberi, and a conservative summary of what we regard as a most rational and commendable series of observations:

It would seem, from my observations, that certain of the current theories of the causation of beriberi will not account for the conditions which have been encountered by me. The dietetic or physiologic, the unsound food, the arsenical, and the emanation theories all appear to be insufficiently in accordance with the attendant circumstances to have accounted for the spread of the disease. It is suggested that certain articles of diet, by virtue especially of containing phosphorized and fatty matters, may tend to ward off the disease when given in sufficient amounts. So far as there was any semblance of a positive result in the observations, it is suggested that beriberi is communicated from person to person more or less directly, or through fomites as an actual infection. This infection is not of the nature of a septicemia (since the internal organs at death prove sterile), but to a surface condition about the upper air passages. From the observation of the throats of a number of patients, it is surmised that the redness which is therein seen, especially in early cases, may be intimately connected with the disease. The appearances and disappearances of beriberi and the more or less seasonal waves of prevalence of the disease are not unlike those which are seen in the case of the infective diseases which we meet with in this country. The proneness of the newcomer to suffer, fits in also with such a view. The difficulty in tracing out the source of infection in a disease like diphtheria is often great, especially since we know that the causative organism may be carried by unsuspected refractory or immune persons or animals.

With considerations such as these it is held by the writer that there is no inherent impossibility in explaining many of the circumstances connected with the spread of beriberi. Observed facts seem to show that beriberi should rather be considered in the light of a "gang" or "institutional" disease than as a "place" or "house" disease.

¹Journal of Hygiene, January 1904.

BOOK REVIEWS

A Manual of General Pathology.—By SIDNEY MARTIN. Philadelphia: P. Blakiston's Son & Co. 1904.

The basis of this recent addition to the list of textbooks on pathology is the lectures on General Pathology delivered at University College during the past 6 years. The author states that it is a book for students, the aim being to furnish such an account of the processes of disease that the student may be enabled to follow the study of scientific medicine. The first chapter is devoted to the consideration of inflammation, the second to pyrexia; the four following chapters deal with infection in its various phases, 34 pages being devoted to the question of immunity. This difficult subject is admirably presented, the underlying principles being concisely stated instead of dealing with the various theories, although the latter, principally Ehrlich's, are briefly set forth. Degeneration and Regeneration are then discussed, as are changes in Circulation and Respiration; changes in the Blood occupy several chapters, many points usually referred to special pathology being very briefly considered. Chapters on Disease of the Liver, Kidney, and Ductless Glands, on Metabolism, and Disease of the Nervous System complete the book. In many respects it is a very good book for students beginning the study of pathology; it is well written, concise, plain; it shows evidence of having been written by an excellent teacher. We wish it were possible to endorse the illustrations as we have the text. But many of them are disappointing. This is particularly true of those intended to illustrate tissue changes in the various conditions discussed. We hope that this defect will be remedied in future editions of the work.

A Nonsurgical Treatise on Diseases of the Prostate Gland and Adnexa.—By GEORGE WHITFIELD OVERALL, A.B., M.D. Chicago: Rowe Publishing Co.

Though this book is written by an ardent advocate of the use of electricity in diseases of the prostate, it does not present the earmarks of medical quackery that is so characteristic of many of the present day brochures along somewhat similar lines. The author applies the combined properties of medicine, electrolysis, and cataphoresis in many prostatic conditions for which others resort to surgical measures. For some neglected conditions he also recommends the knife. The first 7 chapters of the book, which contains 207 pages, are devoted to a consideration of the various inflammations, neuroses, and hypertrophy of the prostate and to the seminal vesicles. An appendix of 2 chapters is occupied by the discussion of electrophysics. Many case histories are related. Electricity is not vaunted as a cure-all. The book may be recommended as a contribution to the results of conservative treatment of diseases of the prostate by one who recognizes the limitations of the means that he employs.

A System of Physiologic Therapeutics.—A practical Exposition of the Methods, other than Drug-giving. Useful for the Prevention of Disease and in the Treatment of the Sick. Edited by SOLOMON SOLIS COHEN, A.M., M.D. Vol. VII. *Mechanotherapy and Physical Education including Massage and Exercise.* By JOHN K. MITCHELL, M.D. And *Physical Education by Muscular Exercises.* By LUTHER HALSEY GULICK, M.D. P. Blakiston's Son & Co., Philadelphia, 1904. Eleven volumes, \$27.50.

This volume comprises a discussion of a variety of subjects: The principles, methods, and therapeutics of massage, and exercise as a remedial measure, by Dr. John K. Mitchell; physical education by muscular exercise, by Dr. Luther H. Gulick; orthopedic apparatus, by Dr. James K. Young; corrective manipulations in orthopedic surgery, by Dr. H. Augustus Wilson; and physical methods in ophthalmic therapeutics, by Dr. Walter L. Pyle. The motive of the volume is well expressed in the following sentence from the preface: "Exercise as a therapeutic method has suffered so much discredit from the wild theories and the fantastic and exaggerated overstatement of its value by excited enthusiasts that any one who would write usefully on it must constantly endeavor to make his work not only precise and scientific, but modest and rational

in its claims and practical in its methods." So ample has been Dr. Mitchell's experience that what he has to say on the technic and effects of massage, and on the therapeutics of general and local massage, may well be regarded as authoritative. Such are the interest and importance attaching to his remarks concerning exercise as a remedial measure that they must be read to be appreciated. They comprise a consideration of the methods and effects of exercise, free work for home exercise, systems of physical culture, exercises for obesity, gout, heart disease, and deformities, precision exercises in tabes dorsalis and infantile spastic paralysis, and training for deficient function. Concerning the osteopath and osteopathy ("rather rude massage"), he says: "It hurts his" (the osteopath's) "feelings to call the proceeding massage, and it is indeed rather hard—on massage; but that is what it is—a fact which is not altered by the claim of its having been invented in Missouri." Dr. Gulick's two chapters on exercise and development, and materia gymnastica, sports and games, and systems of gymnastics, are not only interesting and instructive, but also opportune. The editor has been led to give them a separate place "in order to emphasize the importance of the theoretic views advanced by Dr. Gulick, especially as to the correlation between the development of the race and that of the individual, and the necessity for guiding the physical training of individuals on evolutionary and historical lines." The special chapters by Dr. Young, Dr. Wilson, and Dr. Pyle are of a high order of merit. Dr. Wilson's discussion of corrective manipulations in orthopedic surgery, in which he discusses, among other topics, the Lorenz method of reducing congenital dislocations of the hip, will be read with interest, and Dr. Pyle's chapter will be generally conceded to be a conservative statement of the indications for, and the results to be expected from, the use of physical methods in ophthalmic therapeutics. The value of the volume is much increased by a large number of excellent illustrations.

A Handbook on the Prevention of Tuberculosis.—Published by The Charity Organization Society, New York City, 1903.

The contents of this book make up the first annual report of the Committee on the Prevention of Tuberculosis of The Charity Organization Society of New York City. This committee consists of 16 physicians and 16 laymen, all of whom are to be congratulated upon the work accomplished during their first year. The first task assigned the committee was an exhaustive investigation of some of the social aspects of tuberculosis. The result of this, based on a study of statistics, takes up about 80 pages of the report. The remainder is devoted to articles on various aspects of the tuberculosis problem, particularly the prevention, a list of lectures delivered under the auspices of the society, plans for municipal sanatoriums, a partial list of hospitals and sanatoriums for the tuberculous in the United States and Canada, and a brief list of important works regarding tuberculosis. The handbook will prove of value to those contemplating similar organization and also as a means of general education.

Die Faeces des Menschen in normalen und krankhaften Zustände, mit besonderer Berücksichtigung der klinischen Untersuchungsmethoden.—By PROFESSOR DR. AD. SCHMIDT and DR. J. STRASBURGER. August Hirschwald, Berlin, 1903, pp. 325.

This, in many respects one of the most valuable, if not the most valuable, contribution to our knowledge of the feces, is now completed. The entire subject is dealt with systematically. Part I comprising a discussion of the macroscopic examination of the feces; Part II the microscopic examination of the feces; Part III the chemic investigation of the feces, and Part IV the microorganisms of the feces. The work represents in large part the result of original observations; but the thorough consideration of the literature and the many references injected throughout the text add materially to the value of the book as a work of reference. To the student and general clinician the book will appeal with much force, and there is scarcely a physician that would not be much benefited by a reading of the many diagnostic observations appended to the discussion of almost each phase of the subject of the feces in normal and dis-

eased conditions. A number of excellent illustrations add much to the elucidation of the text and the attractiveness of the volume.

A Laboratory Manual of Physiologic and Pathologic Chemistry.—By DR. E. SALKOWSKI. Authorized translation from the second revised and enlarged German edition by W. R. Orndorff. John Wiley & Sons, New York.

English laboratory workers owe a debt of gratitude to Dr. Orndorff for his translation of Salkowski's manual of chemistry. The ability of the author is well known and the translator has made valuable additions and changes to adapt the book more thoroughly to workers in this country. That part of the original volume dealing with inorganic chemistry has not been translated. The arrangement of the text is the best that we have seen. The points to be investigated under each subject are outlined as headings of chapters and the directions are models of brevity and clearness. Nearly 100 pages are devoted to quantitative analysis. Appendices contain lists of reagents, elaborate tables of specific gravities and of international atomic weights. The book should be in the armamentarium of every laboratory worker.

First Report of the Trypanosomiasis Expedition to Senegambia.—By J. E. DUTTON and J. L. TODD. Longmans, Green & Co., London, 1903.

This report is Memoir XI of the Liverpool School of Tropical Medicine, and is a further instance of the valuable work being done by that institution. It includes a description of laboratory methods of studying the trypanosoma, the distribution and prevalence of human and of equine trypanosomiasis in the Gambia, with report of cases, the morphologic characteristics of the parasites, and the results of inoculation experiments. Elaborate studies of human blood are detailed. The report contains many tables dealing with the experiments, and several colored plates of the parasites. While later investigations have still further extended our knowledge of this disease, the present report will remain as one of the most valuable contributions to the brilliant series of studies that are tending toward the determination of its true nature.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Transactions of the Luzerne County Medical Society for the year ending December 31, 1903. Volume xi. E. B. Yordy Company, Wilkesbarre, Pa.

Transactions of the Maine Medical Association, 1903. Volume xiv. Part III. Stephen Berry, Printer, Portland, Me., 1903.

A Laboratory Manual of Physiologic and Pathologic Chemistry: For Students in Medicine.—By E. SALKOWSKI, M.D., Professor in the University, and Director of the Chemical Laboratory of the Pathological Institute, Berlin. Authorized translation from the second revised and enlarged German edition. By W. R. ORNDORFF, A.B., Ph.D., Professor of Organic and Physiologic Chemistry in Cornell University. With 10 figures and a colored plate of absorption spectrums. First edition. John Wiley & Sons, New York; London, Chapman & Hall, Limited, 1904.

Progressive Medicine, Vol. I, March, 1904: A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences.—Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 337 pages, 7 illustrations. Per annum, in four clothbound volumes, \$9.00; in paper binding, \$6.00, carriage paid to any address. Lea Brothers & Co., Publishers, Philadelphia and New York.

New Eclectic Medical Practice Designed for Students and Practitioners.—By H. T. WEBSTER, M.D., Professor of the Principles and Practice of Medicine in California Medical College. Volume I. Webster Medical Publishing Company, Oakland, Cal.

Obstetrics for Nurses.—By JOSEPH B. DE LEE, M.D., Professor of Obstetrics in the Northwestern University Medical School, Chicago; Lecturer in the Nurses' Training Schools of Mercy, Wesley, Provident, Cook County, and Chicago Lying-in Hospitals. 12 mo. of 460 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, \$2.50 net.

A Practical Treatise on Nervous Diseases: For the Medical Student and General Practitioner.—By F. SAVARY PEARCE, M.D., Professor of Nervous and Mental Diseases in the Medico-Chirurgical College of Philadelphia; Fellow of College of Physicians of Philadelphia; Neurologist to the Philadelphia and Howard Hospitals, etc. With 91 illustrations in the text, many in colors. D. Appleton & Co., New York and London, 1904.

Saunders' Medical Hand-Atlas: Atlas and Epitome of Operative Gynecology.—By DR. O. SCHÄFFER, of Heidelberg. Edited with additions, by J. CLARENCE WEBSTER, M.D. (Edin.), F.R.C.P.E., Professor of Obstetrics and Gynecology in Rush Medical College, in affiliation with the University of Chicago. With 42 lithographic plates in colors, many text cuts, a number in colors, and 188 pages of text. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, \$3.00 net.

AMERICAN NEWS AND NOTES

GENERAL.

Requests to Charity.—**Stamford, Conn.:** By the will of Mrs. Mary Hoyt, a bequest of \$10,000 is given to St. Christopher's Home, and \$5,000 to the Flower Hospital, New York.

American Neurological Association has fixed the time of its meeting at St. Louis for September 15, 16, and 17; and this will be immediately followed by the sessions of the various medical departments of the Congress of Arts and Sciences, beginning September 19.

Will Seek Germ of Scarlet Fever among the Simian Tribe.—It is reported that Dr. Ludwig Hektoen, head of the Memorial Institute for Infectious Diseases, will go to Europe about April 1, for the purpose of making extensive experiments on apes, in the hope of finding the scarlet fever germ. He will undertake the trip because of the difficulty and expense of bringing the animals to this country.

Academy of Medicine.—The twenty-ninth annual meeting of the American Academy of Medicine will be held at the Shelburne, Atlantic City, beginning on Saturday, June 4, at 11 a. m., and continuing through Monday the sixth. Among other things the program includes the report of the committee to investigate the teaching of hygiene in our public schools. In order that this report may be discussed intelligently, the committee will publish the laws relating to the teaching of hygiene now in force in the United States, in the Bulletin of the American Academy of Medicine, to be published in April, 1904. It is believed this is the most complete and accurate compilation of these laws published, and the only compilation issued in an easily accessible and low priced publication. (Any number of the Bulletin will be sent to any address upon receipt of 50 cents.)

Professor Paul Ehrlich Visits the United States.—The visit of Professor Ehrlich, who, on April 1, read a paper before the association of pathologists and bacteriologists in Baltimore, is an event of marked interest in scientific circles. Professor Ehrlich, though still in middle life, has been for years one of the foremost figures in medical research. His visit to this country is to deliver, at the Johns Hopkins University, the Herter lectures for this year, the lectures having been founded by Dr. Charles Herter, of New York City. Since 1896 Professor Ehrlich has been director of the Institute of Serum-Therapy at Frankfurt-on-the-Main, where the German government maintains a splendidly equipped laboratory. He has a staff of assistants, and the German government spends \$16,000 annually for the expense incurred by Professor Ehrlich's laboratory. He is allowed to pursue original investigations in any field which he sees fit. The only provision in this country for original research that at all resembles Professor Ehrlich's laboratory which is sustained by the German government, is the Carnegie Fund; and the Rockefeller Institute lately established in New York.

Miscellaneous.—**Cambridge, Mass.:** Professor H. C. Ernst, of the Harvard Medical School, has recently appeared before a committee of the Massachusetts Legislature, in opposition to the bill to restrict animal experimentation in the State. At a meeting of the Massachusetts Medical Society, March 23, the section for obstetrics and diseases of women elected Daniel H. Craig president.—**New York:** The resignation of Dr. Frederick W. Peterson, as president and member of the New York State Commission in Lunacy, has been announced. Professor Frederic S. Lee, who has recently been promoted to a full professorship of physiology at Columbia University, has been granted leave of absence for the academic year of 1904-05, and will spend the time in European laboratories.—**North Carolina:** Dr. R. O. E. Davis, instructor in chemistry in the University of North Carolina, having been granted a year's leave of absence, sails on April 16 for work in the laboratories of Professors Ostwald and van't Hoff.—**Philadelphia:** The new medical laboratories of the University of Pennsylvania will be dedicated on June 11. The laboratories cost \$700,000. The principal addresses will be delivered by Dr. H. P. Bowditch, professor of physiology at the Harvard Medical School; Dr. R. H. Chittenden, director of the Sheffield Scientific School, Yale University; Dr. George Dock, professor of medicine at the University of Michigan, and Dr. Horatio C. Wood, professor of materia medica and pharmacy at the University of Pennsylvania.—**St. Paul, Minn.:** Dr. Jacob E. Schadle has been appointed professor of rhinology and laryngology in the College of Medicine and Surgery of the University of Minnesota, to succeed Dr. Laton, resigned.—**Foreign:** The Turin Academy of Science has awarded one-half of the Vallauri prize of \$6,000 to Professor Giovanni Battista Grassi, of Rome, in recognition of the value of his researches on malaria.—**The Russian Government** has offered a prize of about \$25,000 for the discovery of some method to make alcohol undrinkable.—**Germany:** The number of medical students in Germany has decreased 22% in the last decade.

Organizations for the Study of Tuberculosis in This Country.—For the purpose of discussing the question, the following met at the College of Physicians, Philadelphia, on the afternoon of March 28: Howard S. Anders, Philadelphia; J. M. Anders, Philadelphia; Wm. M. Angney, Philadelphia; Henry G. Beyer, United States Navy; Herman M. Biggs, New York; Jno. J. Black, New Castle, Del.; Oliver A. Blumenthal, Syracuse, N. Y.; Vincent Y. Bowditch, Boston; M. J. Brooks, New Canaan, Conn.; Herbert C. Clapp, Boston; L. Solis Cohen, Philadelphia; Solomon Solis Cohen, Philadelphia; W. M. L. Coplin, Philadelphia; Frank A. Craig, Philadelphia; Alex. H. Davison, Philadelphia; B. H. Detweiler, Williamsport, Pa.; A. H. Doty, New York; J. W. Ellenberger, Harrisburg; W. B. Fetterman, Jr., Philadelphia; Lawrence F. Flick, Philadelphia; F. Forchheimer, Cincinnati; Albert C. Getchell, Worcester, Mass.; William B. Hackenbourg, Philadelphia; H. A. Hare, Philadelphia; Charles J. Hatfield, Philadelphia; Henry D. Holton, Brattleboro, Vt.; A. Jacobi, New York; Henry Barton Jacobs, Baltimore; Edward G. Janeway, New York; Herbert M. King, Liberty, N. Y.; S. A. Knopf, New York; Alexander Lambert, New York; H. R. M. Landis, Philadelphia; Charles M. Lewis, Philadelphia; Daniel Lewis, New York; D. J. McCarthy, Philadelphia; James Alex. Miller, New York; Charles H. Miner, Wilkesbarre, Pa.; Charles H. Minor, Asheville, N. C.; J. H. Musser, Philadelphia; Estes Nichols, Augusta, Me.; George W. Norris, Philadelphia; William Osler, Baltimore; Jay Perkins, Providence; W. H. Peters, Providence; C. O. Probst, Columbus, Ohio; John H. Pryor, Ray Brook, N. Y.; Mazzyck P. Ravenel, Philadelphia; DeLancey Rochester, Buffalo; Milton J. Rosenau, Washington; J. T. Rothrock, Mont Alto, Pa.; W. B. Stanton, Philadelphia; George M. Sternberg, Washington; Elwell Stockdale, White Haven, Pa.; Arthur K. Stone, Boston; J. Edward Stubbert, New York; J. M. Taylor, Boise, Idaho; James Tyson, Philadelphia; T. Mellor Tyson, Philadelphia; Josephus T. Ullen, Germantown, Pa.; Agnes C. Vietor, Boston; Joseph Walsh, Philadelphia; Samuel B. Ward, Albany; William H. Welch, Baltimore; J. M. Willcox, Philadelphia; Francis H. Williams, Boston; J. C. Wilson, Philadelphia. Professor William Osler, of Baltimore, presided, and Dr. Henry Barton Jacobs, of Baltimore, acted as secretary. After a full discussion participated in by Doctors Daniel Lewis, Minor, Flick, Knopf, Solomon Solis Cohen, James Tyson, Stubbert, Pryor, Holton, Biggs, Rothrock, Jacobi, Janeway, Hare, Sternberg, Welch, Forchheimer, Ravenel, Rochester, and Ward, Dr. Lawrence F. Flick, of Philadelphia, offered the following resolution, which was seconded by Dr. Forchheimer, and carried unanimously: *Resolved*, "That we here assembled do now organize ourselves into a United States Society for the Study of Tuberculosis." It was then moved by Dr. George M. Sternberg, of Washington, and seconded by Dr. Hare, of Philadelphia, "that the chair appoint a committee of five to prepare a constitution and by-laws for such a society." This motion was carried unanimously. The chair appointed Dr. Edward L. Trudeau, Dr. Herman M. Biggs, Dr. Lawrence F. Flick, Dr. William H. Welch, and Dr. George M. Sternberg as that committee. It was further moved by Dr. Sternberg, and carried unanimously, "that the chairman and secretary of this meeting be ex officio chairman and secretary of the committee." Dr. Ravenel then moved, and it was unanimously carried, "that it is the sense of this meeting that the committee call us together for organization, at Atlantic City, during the week of the meeting of the American Medical Association."

NEW YORK.

The Medical Society of the State of New York has issued a circular letter to the officers of the County Medical Societies of that State, which is as follows: Action has been taken for consolidation of the medical profession of the State by both the State bodies. The committee thereon deems it advisable to take the necessary legal steps before the Supreme Court in May. Before doing this it is important that every county society shall take action upon the ratification resolutions, which were sent to you in February. Less than half of the societies have acted. We urge you, therefore, to secure a special meeting of your society during April, getting a quorum at least together after due notice to all members, and to act in this matter, using the form of resolutions which has been sent to you. All are interested in having no obstacle in the way of perfecting this unification, and we hope you will secure speedily this action by your society.

The Need of a Municipal Tuberculosis Sanatorium.—Arguments for the erection of a municipal sanatorium for the care of the tuberculous of New York City is advocated in *Charities*. The mere statement that the existing hospitals and sanatoriums to which patients may be sent can accommodate not more than 1 out of every 20 persons in the tenements who are suffering from tuberculosis would seem to be sufficient to establish the imperative need of further provision. It follows from this premise that the other 19 out of every 20 must remain in their tenement homes; the advanced cases to spread infection; the earlier cases, which might, and therefore should, get well, to grow worse and die. For the New York tenement, at its best, can hardly be transformed into an ideal sanatorium; and the patient who is one of a family of 5 living in 3 small rooms must be most intelligent and most conscientious to avoid

endangering the rest of the family. Private relief agencies can, and do, to an increasing degree, mitigate the unfavorable surroundings, but they realize, probably more keenly than do others, the suffering that might be prevented if there were a suitable place to send every poor tuberculous patient who is willing to go to a sanatorium. The number of persons in the city who would benefit by sanatorium treatment is not, of course, equivalent to the effectual demand for sanatorium treatment, since there are many who cannot be persuaded to leave home. The history of the Tuberculosis Infirmary on Blackwell's Island is convincing evidence of an increasing willingness on the part of the poor of the city to avail themselves of the facilities at their disposal.

School Children Utilized by the Health Board in the Educational Campaign against Tuberculosis.—A New York exchange says: In an attempt to check the dissemination of pneumonia and germs of other diseases of the respiratory organs, President Darlington, of the Board of Health, has enlisted the aid of half a million school children. His idea is that they will not only help greatly in the enforcement of laws prohibiting expectoration on sidewalks and in public conveyances, but that, in educating the child he will be educating the man. Great quantities of slips are being printed by the Department of Health for distribution among the children, and at the same time the teachers will be expected to explain the seriousness of the dangers involved in the practice of spitting in public places. It is designed that both boys and girls carry a little pad of the warning slips, and that when they see a man violating the ordinance they will hand him a card warning him of the heavy fine to which he is liable. Public school teachers also will be directed to take particular pains in pointing out to their charges the dangers of violations of the sanitary code.

PHILADELPHIA, PENNSYLVANIA, ETC.

Lectures on Tropical Diseases.—Since somewhat more than a year ago, when Captain Charles Keiffer delivered, in Philadelphia, the first series of lectures on the subject of tropical diseases at the Jefferson Medical College, the subject has assumed increased importance. At present the medical department of the University of Pennsylvania has provided for a similar course, and Major Guy L. Edie will deliver a course of 10 lectures on this subject, beginning Wednesday, March 23. Medical students and physicians in the city are invited to be present.

The Henry Phipps Institute.—The anniversary dinner was given by the staff of the University Club on March 28. The delegates to the convention, which was called to consider the question of forming a national organization for the study of tuberculosis, were all invited as guests of the occasion. Sixty-two persons were present, among whom were many of the most eminent physicians of the United States. The feature of the evening was the presentation of a silver pitcher to Dr. Lawrence F. Flick, the director of the Henry Phipps Institute, by the members of the Staff. The founder of the institute was present, and made the presentation in the name of the staff.

Morbidity and Mortality in Philadelphia.—Physicians report that a rare form of grip has made its appearance in the city. Its most predominant symptom has reference to the brain and nervous system. It closely resembles cerebrospinal meningitis, with the exception of the unconsciousness, and runs for a period of 3 or 4 weeks. During the week ended March 26 there were 88 new cases of diphtheria, as compared with 67 during the previous week; 116 new cases of scarlet fever, as compared with 101 of the previous week; 148 cases of typhoid fever, as compared with 141 of the previous week; and 35 cases of smallpox, as compared with 30 cases during the previous week.

Physical Examination of Would-be School Teachers.—The Board of Education proposes to institute a standard of physical qualification of applicants for admission to the Normal School or the School of Pedagogy and of all other applicants for certificates of qualification to teach in the schools. Similar health standards have already been adopted in other cities. The proposed rule sets forth that all such applicants shall be required to furnish a certificate of physical fitness in accordance with prescribed forms, to be signed by a physician. The fourth section of the proposed rule reads: "No person who shall be certified as having phthisis, any contagious disease of the skin or mucous membrane, or any defect in hearing or in sight which will probably disqualify him or her from efficiently performing the duties of a teacher shall be admitted to the Normal School or School of Pedagogy or be permitted to attend any examination of applicants for certificates of qualification to teach in the Philadelphia schools. Nor shall any such person receive a certificate of qualification to teach upon completion of the course of study prescribed for the Normal School or the School of Pedagogy. If, however, the disease or physical defect which disqualifies the applicant shall not be incurable, the person temporarily disqualified shall, upon a certificate from the physician that the disqualifying cause no longer exists, be eligible for admission to the Normal School or the School of Pedagogy, or to receive the certificate of qualification which he or she has earned at either of said schools."

Schuylkill County Insane Asylum Unfit for Use.—Dr. George I. McLeod, secretary of the State Lunacy Commission, sustains the diverse criticism of a grand jury, which recently viewed Schuylkill County Insane Asylum, and is quoted as saying: The buildings are old, dilapidated, and overcrowded. They are in such a condition as to render them totally unfit for occupancy. The laws of sanitation are violated in several ways, and as many as 8 men are compelled to occupy a room 9 by 16 feet. I think the conditions are a disgrace to Schuylkill county. They are worse than any in this State of which I have knowledge. The accommodations are such that the authorities have refused to take in any more patients, but when they are sent there by order of the Court, it is obligatory to accept them. Thus conditions are becoming worse. The house and bedding are clean, but this is not all that is needed in a well-regulated hospital for the insane.

To Enforce Vaccination.—An exchange states that a bill will be introduced into the next Legislature giving the Department of Health power to enforce vaccination. Pennsylvania's only Compulsory Vaccination law applies exclusively to children and prohibits their attendance in any public, parochial, private or Sunday schools unless they have been successfully vaccinated. In the case of cities of the second and third class there are partial compulsory vaccination acts which may be enforced by the Boards of Health. It is enacted that in cities of the second class (Pittsburg) the Bureau of Health may, when it shall be deemed necessary to prevent the spread of smallpox, issue an order requiring all persons in the city to be vaccinated. Failure to comply with such order subjects offenders to a fine of not less than \$5 nor more than \$25. Similarly, as amended May 16, 1901, the act of May 23, 1889, providing for the incorporation of cities of the third class, empowers the Boards of Health of such cities to enforce vaccination and to make and enforce all needful rules and regulations to prevent the introduction and spread of infectious and contagious diseases.

Filters Will Lower Typhoid Rate.—The Bureau of Health of Philadelphia is sanguine that the installation of the filter plant now under course of construction will very materially reduce the mortality from typhoid fever in the city. Chief Hill of the filtration bureau assumes that the mortality will be reduced 80%. In confirmation of this view he states the number of cases of typhoid fever in the twenty-first and twenty-second wards, where filtered water is now being used, as compared with the rest of the city which is using unfiltered water. In the section using filtered water the average weekly morbidity from typhoid fever for 11 weeks beginning January 1 and ending March 18 was 3.73 per 100,000 of population, whereas in that portion using unfiltered water the morbidity was 10.46 per 100,000 of population. As showing the further pollution of the Schuylkill River water as compared with the Delaware River water, the morbidity in the section supplied by Schuylkill River water for the same period of 11 weeks, was 13.82, and in the section supplied by Delaware River water it was 11.53 per 100,000 of population.

SOUTHERN STATES.

A Cantata: Hygeia.—At the second public concert of the Washington Saengerbund, held Sunday evening, March 20, 1904, a noteworthy feature of the occasion was the rendition of a cantata, "Hygeia," composed by Dr. John C. Hemmeter, of Baltimore, and dedicated to Professor W. H. Welch of Johns Hopkins Medical College.

Maryland Tuberculosis Bill Reconsidered.—The failure of the tuberculosis bill recently to pass the Senate in the Maryland Legislature was a distinct disappointment to the friends of that measure in the city. The reason assigned by the opponents of the bill was that the information to be secured by the appointment of a commission and the appropriation of \$2,000, for investigating the subject, could be obtained from the medical colleges of the city without such commission and appropriation. It appears, however, that the friends of the measure came to the rescue in time and on the presentation of a strong plea by Drs. Osler, Fulton, Young and others the Senate was induced to reconsider the measure. It was made plain by the physicians named that the work of the commission cannot be carried out by the medical schools.

WESTERN STATES.

Antitoxin and Diphtheria in Chicago.—The experience of Chicago's Health Department in 7,435 cases of diphtheria shows that the mortality when antitoxin is used is 6.5%. The mortality without antitoxin is still about 35%.

Sealed Milk Cans in Chicago.—A proposed ordinance provides that all milk cans must be sealed by the proper shipper before he delivers them to the railroad, and a fine of from \$10 to \$100 is provided for the Chicago dealer who receives a can which is not sealed or the seal of which is broken. The object is to locate the responsibility for impure milk. When the health department now finds bad milk the dealer blames the farmer who shipped it, and the farmer in turn accuses the railroad men of tampering with it while in their charge. They charge that railroad men often take milk from cans and fill them with water.

FOREIGN NEWS AND NOTES

GENERAL.

Fighting Yellow Fever at Guayaquil.—Information from Guayaquil, March 25, says: An active campaign against the spread of yellow fever and malaria, involving the destruction of mosquitos, has been started here as the result of suggestions of Dr. Gruver, the resident officer of the United States Marine-Hospital Service. The municipality is printing thousands of pamphlets for general distribution, embodying the regulations of the United States Marine-Hospital Service for the prevention of the spread of yellow fever.

OBITUARIES.

David Mackay, surgeon-general of the National Organization of the G. A. R., at his home in Dallas, Texas, March 23, aged 72; a native of Glasgow, Scotland. He served in the Crimean war, later settled in New York where in 1881 he enlisted in the Seventh and Ninety-fifth New York Volunteers and served as surgeon throughout the war. He was physician to the city of New Orleans and surgeon of the Marine Hospital in that city from 1866 until 1870.

Amos Seip, at his home in Easton, Pa., March 21, aged 81; a graduate of the University of Pennsylvania in 1848. He had practised medicine for more than a half century. Three years ago a stroke of paralysis caused him to retire from active practice. He attained prominence during the cholera epidemic in Lehigh county in 1855 and was in charge of a soldier's hospital at Easton, Pa., during the Civil war.

Dr. Francisco de P. Chacon, at his home in Mexico City, February 9. He was professor of the chair of surgical anatomy in the Mexican National School of Medicine in Mexico City and had been for many years, one of the most prominent figures in the medical profession of Mexico. A contemporary says that "the history of his labors will be the history of the progress of medicine in Mexico."

John D. Young, at his home in Winthrop, Mass., March 25, aged 63; a graduate of the Pennsylvania Medical University in 1864 and of the Eclectic Medical College of Massachusetts. He was prominent among Odd Fellows and Masons of which organizations he was a member.

Alfred Duperier, at his home in New Iberia, La., March 24, aged 80; a graduate of the University of Michigan. He was prominent in political affairs during the Civil war and rendered effective service in the yellow fever epidemics of 1853 and 1857 in southwest Louisiana.

James S. McCorkle, at his home in Newbern, Tenn., March 11, aged 66; a graduate of the University of Nashville, in 1861. He served several terms as mayor of Newbern, was a Confederate veteran and for many years president of the local Board of Education.

William Gulick, of pneumonia, at his home in Watkins, N. Y., March 16, aged 90; a graduate of the College of Physicians and Surgeons of the Western District of New York, in 1837; one time president of the State Board of Health of New York.

Frank K. Irving, at the City Hospital, Newark, N. J., March 19, aged 35. It was asserted that he died from tuberculosis to which he had subjected himself in his search for a means of curing that malady by reaching the germs with an electric current.

Nathaniel T. Palmer, at his home in Brunswick, Maine, March 18, aged 87; a graduate of the Medical School of Maine, Brunswick. He was one of the founders of the American Medical Association and practised in Brunswick for nearly 60 years.

Hans Hermann Behr, at his home in San Francisco, March 13, aged 85; a graduate of the University of Berlin in 1843. He was the vice-president and curator of the San Francisco Academy of Scientists in 1864 and a well-known scientist.

Spottswood W. Carmichael, at his home in Fredericksburg, Va., March 18, aged 73; a graduate of the Jefferson Medical College, Philadelphia, in 1852 and a surgeon in the Confederate service during the Civil war.

G. Henry Chebot, from a complication of diseases, at his home in Baltimore, March 24, aged 43. He was a native of Baltimore and a member of the Medical and Chirurgical Society and the Shield of Honor.

M. Thomas Brennan, from pneumonia, at his home in Montreal, March 12, aged 42; a graduate of the Laval University, Quebec, in 1884. He was gynecologist to Notre Dame Hospital, Montreal.

John Edward Janney, from an overdose of chloroform which was mistaken for whisky, at his home in Winchester, Va., March 20, aged 50; a graduate of the University of Virginia in 1874.

John Marion Watkins, at his home in Opelika, Ala., March 12, aged 60; a graduate of Tulane University, New Orleans, in 1871 and a member of the American Medical Association.

R. Edgar Zakery, after an operation for appendicitis at the James Walker Memorial Hospital, Wilmington, N. C., March 12; a graduate of the University of North Carolina, in 1898.

William O. Osgood, at his home in Chicago, March 20. During the Civil war he was lieutenant-colonel of the Seventh Kansas Cavalry. He resided in Chicago nearly forty years.

Josiah S. Duff, aged 49, March 22, suddenly as result of swallowing a dose of carbollic acid which he mistook for essence of pepsin. Aid was hurriedly called but proved futile.

Thomas E. Moore, at his home in Bolivar, Tenn., March 10, aged 86; a graduate of Transylvania University, Lexington, Ky., in 1841.

Leander Swartwout, at his home in Prospect, N. Y., March 11, aged 61; a graduate of the Albany Medical College in 1880.

Edward P. Woodward, at his home in Bristol, Conn., March 23, aged 67; a graduate of the Yale Medical School in 1860.

Lawrence L. Glover, at his home in Haddonfield, N. J., March 25; a graduate of Jefferson Medical College in 1882.

William Moseby Mercer, at the home of his son in Baltimore, March 24, aged 76.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 25, 1904:

SMALLPOX—UNITED STATES.			Cases	Deaths
California:	San Francisco.....	Mar. 6-13.....	4	4
Delaware:	Wilmington.....	Mar. 12-19.....	1	1
District of Columbia:	Washington.....	Mar. 12-19.....	1	
Florida:	Jacksonville.....	Mar. 12-19.....	2	
Illinois:	Chicago.....	Mar. 12-19.....	5	
	Danville.....	Mar. 12-19.....	1	
	Galesburg.....	Mar. 12-19.....	3	
Kentucky:	Covington.....	Mar. 12-19.....	1	
Louisiana:	New Orleans.....	Mar. 5-19.....	3	
			2 imported.	
Maine:	Bradley.....	Mar. 18.....	2	
	Madawaska region.....	Mar. 12-19.....	7	
Maryland:	Baltimore.....	Mar. 12-19.....	1	
Massachusetts:	Fall River.....	Mar. 12-19.....	1	
	Lowell.....	Mar. 12-19.....	1	
Michigan:	Detroit.....	Mar. 12-19.....	1	
	Grand Rapids.....	Mar. 12-19.....	1	
Missouri:	St. Louis.....	Mar. 12-19.....	6	
New Jersey:	Camden.....	Mar. 12-19.....	6	1
	Trenton.....	Mar. 12-19.....	1	
New York:	Buffalo.....	Mar. 12-19.....	1	
	New York.....	Mar. 12-19.....	1	1
	Niagara Falls.....	Mar. 12-19.....	4	1
Ohio:	Cleveland.....	Mar. 11-18.....	3	1
	Dayton.....	Mar. 12-19.....	8	1
	Hamilton.....	Jan. 30-Feb. 6.....	1	
Pennsylvania:	Allentown.....	Mar. 12-19.....	2	
	Altoona.....	Mar. 12-19.....	2	1
	Carbondale.....	Mar. 14-21.....	2	
	Philadelphia.....	Mar. 12-19.....	30	17
	Pittsburg.....	Mar. 12-19.....	1	1
	Williamsport.....	Mar. 12-19.....	1	
Tennessee:	Memphis.....	Mar. 12-19.....	21	
	Nashville.....	Mar. 12-19.....	13	
Wisconsin:	Milwaukee.....	Mar. 12-19.....	6	

SMALLPOX—INSULAR.

Philippine Islands:	Antimonan.....	Feb. 5-12.....	Present.
	Cebu.....	Jan. 1-31.....	5 1

SMALLPOX—FOREIGN.

Austria:	Prague.....	Feb. 27-Mar. 5.....	4
	Trieste.....	Feb. 27-Mar. 5.....	1
Belgium:	Antwerp.....	Feb. 27-Mar. 5.....	7 3
	Brussels.....	Feb. 27-Mar. 5.....	2
Brazil:	Bahia.....	Feb. 13-20.....	1
	Pernambuco.....	Feb. 1-15.....	17
	Rio de Janeiro.....	Feb. 7-14.....	128 17
China:	Shanghai.....	Feb. 3-10.....	16
	Tientsin.....	Feb. 3-10.....	Reported.
France:	Lyons.....	Feb. 20-27.....	1
Great Britain:	Edinburgh.....	Feb. 27-Mar. 5.....	6 2
	Glasgow.....	Mar. 4-11.....	10 1
	London.....	Feb. 27-Mar. 5.....	13
	Manchester.....	Feb. 27-Mar. 5.....	1
	Nottingham.....	Feb. 27-Mar. 5.....	14 1
	Sheffield.....	Feb. 20-27.....	4
	South Shields.....	Feb. 27-Mar. 5.....	1
India:	Bombay.....	Feb. 16-23.....	4 20
	Karachi.....	Feb. 14-21.....	4
Java:	Batavia.....	Feb. 6-13.....	10 9
Mexico:	Mexico.....	Feb. 28-Mar. 6.....	9 5
	Vera Cruz.....	Mar. 5-12.....	1 1
Netherlands:	Amsterdam.....	Feb. 5-12.....	1 1
Russia:	Moscow.....	Feb. 17-24.....	13 1
	Odessa.....	Feb. 27-Mar. 5.....	1
	Warsaw.....	Feb. 28-Mar. 6.....	11
Spain:	Barcelona.....	Mar. 1-10.....	9
	Santander.....	Feb. 28-Mar. 7.....	3
Turkey:	Constantinople.....	Feb. 28-Mar. 6.....	5

YELLOW FEVER.

Brazil:	Rio de Janeiro.....	Feb. 7-28.....	15 4
Mexico:	Merida.....	Mar. 6-12.....	1 2
	Tehuantepec.....	Mar. 6-12.....	4
	Vera Cruz.....	Mar. 5-12.....	1

CHOLERA—INSULAR.

Philippine Islands:	Manila.....	Jan. 30-Feb. 6.....	2	2
Provinces.....	Jan. 30-Feb. 6.....	53	35	

CHOLERA—FOREIGN.

Turkey in Asia:	Basta.....	Feb. 6-12.....	6	3
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PLAGUE—INSULAR.

Philippine Islands:	Manila.....	Jan. 30-Feb. 6.....	3	2
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PLAGUE—FOREIGN.

Brazil:	Para.....	Feb. 15.....	2	
	Rio de Janeiro.....	Feb. 7-28.....	13	6
India:	Bombay.....	Feb. 16-23.....		718
	Karachi.....	Feb. 14-21.....	97	74

Changes in the Medical Corps of the U. S. Navy for the week ended March 26, 1904:

GREEN, E. M., medical inspector, detached from the Kentucky and ordered to the New Orleans—March 21.

FITZSIMONS, PAUL, medical director, ordered to Navy Yard, Washington, D.C.—March 21.

BISHOP, L. W., assistant surgeon, detached from the Annapolis and ordered to Naval Hospital, Mare Island, California, for treatment—March 21.

MUNSON, F. M., assistant surgeon, detached from the Frolic and ordered to Naval Station, Pollok, P. I.—March 21.

TRAYNOR, J. P., assistant surgeon, detached from the Naval Station, Pollok, P. I., and ordered to the Frolic—March 21.

MCCLANAHAN, R. K., assistant surgeon, ordered home and granted sick leave for three months—March 21.

LEDBETTER, R. E., assistant surgeon, detached from the Newark and ordered home to wait orders—March 21.

RENNIE, W. H., HOEN, W. S., VERNER, W. W., GRIEVE, C. C., DEBRULER, J. P., DEAN, F. W. S., DYKES, J. R., GEIGER, A. J., assistant surgeons, detached from the Naval Museum of Hygiene and Medical School, and ordered to the Asiatic Station, via Solace—March 21.

SCOTT, S. L., assistant surgeon, detached from the Naval Museum of Hygiene and Medical School, and ordered to the Massachusetts—March 21.

The following named medical officers, also, having been detached from the Naval Museum of Hygiene and Medical School, have received orders as follows: Assistant Surgeon B. H. Dorsey to the Illinois, Assistant Surgeon A. D. McLean to the Alabama, Assistant Surgeon J. D. Manchester to the Columbia, Assistant Surgeon C. E. Rider to the Missouri, Assistant Surgeon W. S. Pugh, Jr., to the Prairie, Assistant Surgeon T. N. Pease to the Hartford, Assistant Surgeon I. S. K. Reeves to the Minneapolis, Assistant Surgeon R. L. Sutton to the Bureau of Medicine and Surgery, Assistant Surgeon C. F. Ely to the Naval Academy, Assistant Surgeon P. T. Dessez to the Naval Academy, Assistant Surgeon J. S. Woodward to Indian Head Proving Ground, Assistant Surgeon E. E. Higgs to Newark, Assistant Surgeon W. B. Smith ordered to the Olympia, Assistant Surgeon F. G. Abeken to Training Station, San Francisco, Assistant Surgeon P. S. Rossiter to Baltimore Recruiting Station, Assistant Surgeon O. Kohlbase to the New York, Assistant Surgeon J. A. Randall ordered to the Maine—March 22.

PRYOR, J. C., passed assistant surgeon, detached from the Bancroft and ordered home to wait orders—March 22.

MCDONNOLD, P. E., assistant surgeon, detached from the Olympia and ordered home to wait orders—March 22.

PLUMMER, R. W., passed assistant surgeon, ordered from the Maine to the Bancroft—March 23.

Changes in the Public Health and Marine-Hospital Service for the week ended March 24, 1904:

CARTER, H. R., surgeon, to report at Bureau for special temporary duty—March 19, 1904.

PECKHAM, C. T., surgeon, detailed for duty on Revenue Cutter Service Retiring Board at New York, N. Y.—March 21, 1904.

SMITH, A. C., passed assistant surgeon, detailed for duty on Revenue Cutter Service Retiring Board at New York, N. Y.—March 21, 1904.

ROSENAU, M. J., passed assistant surgeon, to proceed to Boston, Mass.; Albany and New York, N. Y., for special temporary duty—March 22, 1904.

McMULLEN, JOHN, passed assistant surgeon, bureau order of February 29, 1904, directing Passed Assistant Surgeon John McMullen to report to chief quarantine officer of Hawaii for duty, revoked—March 22, 1904.

FOSTER, M. H., passed assistant surgeon, granted leave of absence for ten days from March 30—March 19, 1904.

LUMSDEN, L. L., passed assistant surgeon, relieved from duty at New Orleans, La., and directed to proceed to Vera Cruz, Mexico, for duty in office of the United States Consul—March 21, 1904.

KING, W. W., assistant surgeon, granted leave of absence for six days from March 18—March 19, 1904.

GOLDBERGER, JOSEPH, assistant surgeon, relieved from duty in Hygienic Laboratory, and directed to proceed to Tampico, Mexico, for duty in the office of the United States Consul—March 22, 1904.

ROBERTS, NORMAN, assistant surgeon, relieved from duty at San Diego, Cal., and directed to proceed to New Orleans, La., and report to medical officer in command for duty and assignment to quarters—March 23, 1904.

SALMON, T. W., assistant surgeon, relieved from duty at Philadelphia, Pa., and directed to proceed to New York, N. Y. (Stapleton), and report to medical officer in command for duty and assignment to quarters—March 18, 1904.

BAKES, E. C., acting assistant surgeon, granted leave of absence for three days from March 19, 1904, under paragraph 191 of the regulations—March 18, 1904.

MACRALL, B. McV., acting assistant surgeon, granted leave of absence for fifteen days from March 31—March 17, 1904.

TIDD, E. M., acting assistant surgeon, granted leave of absence for fourteen days from April 1—March 19, 1904.

Board Convened.

Board convened to meet at Washington, D. C., March 25, 1904, for the physical examination of an officer of the Revenue Cutter Service.—

Detail for the board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General W. J. Petrus, recorder.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

GOVERNMENT INSPECTION OF ESTABLISHMENTS MANUFACTURING VIRUSES, SERUMS, TOXINS, ANTITOXINS, AND SIMILAR PRODUCTS.

BY

M. J. ROSENAU, M.D.,

of Washington, D. C.

Director of Hygienic Laboratory.

To the Editor of American Medicine:—In your issue of March 5 appears a letter from Dr. M. T. Naughton, of Chicago, in which he states that the United States Government does not require an inspection of establishments manufacturing viruses, serums, toxins, antitoxins, and similar products. I write this in order to correct the wrong impression in Dr. Naughton's mind as well as to give the medical profession an opportunity of knowing just what is being done along these lines.

On July 1, 1902, the President signed a law entitled "An act to regulate the sale of viruses, serums, toxins, and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes." This law is too long to quote verbatim, and I therefore give you some of its main features.

It first of all requires establishments, whether in the United States or foreign countries, manufacturing therapeutic serums, toxins, antitoxins or analogous products applicable to the prevention and cure of diseases of man, to hold an unsuspended and unrevoked Government license.

This law forbids, under penalty of a fine and imprisonment, the interstate traffic in any such product made in an illicit and unauthorized manner. It also requires that each package of such virus, serum, toxin, antitoxin, or similar product be plainly marked with the proper name of the article contained therein, and the name, address and license number of the manufacturer, as well as the date beyond which the contents cannot be expected beyond a reasonable doubt to yield results.

A fine not to exceed \$500, or imprisonment not to exceed one year, or both, in the discretion of the court, attaches to the person who shall alter or falsely label or mark any package or container of any virus, serum, toxin, antitoxin, etc.

The law further provides for the detail of an officer of the Public Health and Marine-Hospital Service (Treasury Department) to inspect establishments propagating these products for sale, barter or exchange from one State or Territory to another.

A board consisting of the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Surgeon-General of the Public Health and Marine-Hospital Service, is provided by the law to promulgate such rules as may be necessary in their judgment to govern the issue, suspension, and revocation of licenses for the maintenance of these establishments. In accordance with this provision of law, regulations have been drawn up and approved February 21, 1903, covering in detail the form of license, which is good for only one year from the date of issue and is not reissued without another inspection.

The inspection of an establishment is made by an inspector or a board of inspectors detailed by the Secretary of the Treasury upon the recommendation of the Surgeon-General of the Public Health and Marine-Hospital Service. The report of this inspection is reviewed by the Sanitary Board and the Surgeon-General, and licenses are issued by the Secretary of the Treasury.

Licenses may be suspended or revoked for cause, such as faulty methods of manufacture, faulty construction, or administration of establishments; or if impurities or lack of potency of the products is demonstrated by the laboratory examination.

The director of the Hygienic Laboratory is charged with the examination of samples of vaccines, toxins, antitoxins, and similar products of all manufacturers holding a license in order

to see that they maintain their standard, and no establishment is given a license until samples of their products have been examined with this end in view in the Hygienic Laboratory.

It will be seen from the foregoing brief review of the law and its regulations that Congress has provided a complete system for governing the manufacture, sale of and interstate traffic in vaccine, serums, and antitoxins, in order to standardize dosage, control the technic, and give the physician who uses these products a reasonable assurance of their purity and potency.

I may state that since the enactment of this law, which has been in operation a little over one year, 4 establishments have been refused licenses and have therefore been compelled to go out of business, because the inspectors found they were manufacturing biologic products without due precautions to prevent contamination, or because they did not have competent scientists to test properly their vaccines and antitoxins in accordance with modern methods. Other manufacturers who were granted licenses were first required to improve their methods, rebuild their laboratories and barns, or otherwise change their system so as to insure a safe, pure and standard product.

The operation of the law has already resulted in a great improvement in the vaccines and antitoxins found on the market, and as the workings of the law, which is still comparatively new and evidently little known, become better known, further improvement may be expected.

The Hygienic Laboratory is now preparing a standard unit for diphtheria antitoxic serum for distribution to various manufacturing establishments, laboratories and original investigators especially interested in this subject. This unit is based upon that established by Ehrlich and will be maintained and distributed free of cost as the American standard.

THE AORTIC REFLEX.

BY

ALBERT ABRAMS, A.M., M.D.,
of San Francisco, Cal.

To the Editor of *American Medicine*.—The recent commendous though exhaustive article on "Thoracic Aneurysm," by Dr. Burt (*American Medicine*, February 2, 1904), emphasizes the difficulties besetting the clinician in the early diagnosis of this affection and confusion is further abetted in diagnosis in tortuosity of the aorta. What I have called the "aortic reflex" has been employed for some months in diagnosis. My reference to the reflex in question, at this time, is in the nature of a preliminary report, with the hope that others may determine its value either in a positive or negative direction. The manipulation of the vertebrae, by the osteopath, and the effects on the patient, are not wholly a question of suggestion; on the contrary, the osteopath unknowingly elicits many visceral reflexes which may operate for good or evil. Concussion of the spinous processes will induce palpable lung, heart, liver, stomach and intestinal reflexes, dependent on the vertebrae subject to concussion. To elicit dilation of the aorta, in a normal subject, I employ an S. S. White dental mallet, weighing about 4 oz., and a pleximeter of felt (Fig.). In the absence of the latter, a percussion hammer and a wide rubber cork may be used, although less effectively. Next, mark with a dermatograph the spinous processes of the eighth, ninth, tenth, eleventh and twelfth dorsal vertebrae, striking the latter through the pleximeter in rapid succession a series of sharp, vigorous blows. Immediately thereafter (for the reflex is of short duration, from a half to one minute), percuss with a strong percussion blow the region of the thoracic aorta and the course of that vessel may be defined. Concussion of the spine of the seventh cervical vertebra after the same manner causes the dulness to evanesce at once (the counterreflex of aortic contraction). That alternate dilation and contraction of the aorta follow the concussion maneuvers already mentioned, may be controlled by the röntgen rays. The course of the upper surface of the normal aorta (Fig. 2) in the adult of middle life may be projected on the thorax by drawing a

curved line, beginning at a point corresponding to the right sternal line in the middle of the first intercostal space and ending at the point of insertion of the first left rib to the sternum. The highest point of the aortic arch is distant about 5 cm., and the beginning 2 cm. from the anterior thoracic wall, hence a forcible percussion blow which is propagated to a depth of about 5 cm. cannot fail to elicit the dulness of the aortic arch if dilated. In a patient with aneurysm of the thoracic aorta, who was recently examined by Dr. J. B. Frankenhimer, of this city, and myself, the aortic reflexes were specially pronounced, and this, despite the fact that theory would have dictated otherwise, considering the suppositious annihilation of the vessel's elasticity. The interrupted lines are the areas of percussion dulness (Fig.) of the aneurysm: (1) before elicitation of the aortic reflexes; (2) after elicitation of

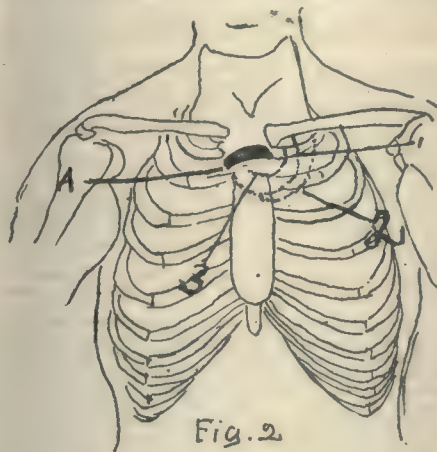


Fig. 2



Fig. 1.—Mallet and pleximeter for producing the aortic reflexes.

the reflex of dilation, and (3) after evoking the aortic reflex of contraction. Control investigations demonstrated that the lung was in no wise implicated in the percussion changes. The röntgen rays employed for control purposes failed to correspond in degree with the decided changes noted by percussion, and this was fully in accord with reason, considering the fact that while percussion adduced results varying with the approximation of the aneurysmal sac to the thoracic wall, with the rays, the sagittal diameter of the sac was not taken into account. The aortic reflexes are, in my experience, fairly constant, but variable in duration, and if the observations of others confirm my results, the reflexes in question may serve a useful purpose not only in diagnosis, but in treatment.

A DISCLAIMER.

It has just come to our notice that one J. Sills Daniels, M.D., of Roanoke, Va., the proprietor of a so-called Cancer-cure Sanitarium, and Sanitarium for the Treatment of Diseases of Women, especially obstetric cases, an asylum for the unfortunate, etc., who also offers a diploma as a member of the Hospital Staff, for a consideration to any physician desiring it, has without our knowledge or authority, announced us as consulting physicians of the said sanitarium. We desire to stamp such a statement as a piece of unwarranted impertinence, and absolutely without any foundation in truth.

[Signed]

J. N. UPSHUR, M.D.
JACOB MICHAUX, M.D.
LONDON B. EDWARDS, M.D.
RAMON D. GARCIN, M.D.
B. L. TALIAFERRO, M.D.

ORIGINAL ARTICLES

FIFTEEN YEARS' EXPERIENCE WITH UTERINE FIBROIDS.

BY

WILLIS E. FORD, M.D.,

of Utica, N. Y.

Fellow American Gynecological Society; Gynecologist St. Luke's Hospital, Utica, N. Y.

The methods of dealing with fibroid tumors of the uterus are so thoroughly agreed upon by the profession of this day, and the methods of operating for their removal have become so perfected that there is but little disagreement as to what is best to do for a woman who has a fibroid. Such was not the case, however, even a few years ago, and those of us who have lived long enough to hear the question discussed as to whether an operation was justifiable or not, and what operation was attended with the least mortality, and what the ultimate results of these various procedures have been, marvel at the accounts written 15 years ago by the very best men in our profession. I have had in mind for a long time the idea of collecting my own cases of fibroid tumors, especially for the purpose of giving the after-history of the patients, whether treated by the conservative or tentative method or by radical means. While I have been working on this for some time I have found it a very difficult thing to do, and I finally excluded all the cases in my private practice and am able to present only part of the cases that have occurred in my services at St. Luke's Hospital during the past 15 years. The number is not large enough to draw many definite conclusions from, and I shall make no attempt to do this; but the fact that I have been able to follow the history of so many patients after they have left the hospital, and to know of their condition years later, has seemed to me a matter worth recording.

My impression is, that there was a greater number of fibroid tumors of the uterus 15 years ago than at the present time—just as there were many more cases of ovarian tumors in the community 25 years ago than at the present day. Both kinds of tumors had been neglected for so many years that there was what might be called an accumulation of cases. There are now so many excellent operators throughout the country who remove these growths when they are comparatively small that the very large ones are seldom found.

In 1888 I was an enthusiastic believer in the treatment of these tumors by means of electricity, and it is fair to say, that I discovered very early that those fibroids that had a pedicle and those that were called subserous growths were affected but little, or not at all, by electricity, and that, therefore, the patients I actually treated had cases of the intramural variety. While I had done some abdominal surgery, and occasionally had found a fibrocyst or a suppurating fibroid which I had mistaken for an ovarian tumor and had attempted an operation for its removal, I had not done up to this time a deliberate operation for a solid fibroid by abdominal section. It is true, that as far back as 1884 the question of the removal of fibroid tumors by abdominal section was engaging the attention of a few men, especially Tait, Keith, Bantock, and Martin, but the operation was not looked upon with favor by any considerable number on this side of the Atlantic. In 1884 Dr. Stanbury Sutton read a paper before the American Gynecological Society upon this subject.¹ In this paper he enthusiastically advocated the extirpation of these growths by surgical procedure. He had recently returned from abroad, where he had witnessed these operations in the hands of the masters of the profession, and was convinced that it was the coming method. The operation at that time was done by bringing the stump of the amputated uterus out of the wound and fixing it,

generally with a *serre-nœud* or some variety of clamp, known as the extraperitoneal method. The other procedure for the relief of fibroids was oophorectomy, with the idea of stopping the growth of the tumor; or in the submucous varieties the evulsion of the tumor from its bed and its delivery through the vagina.

In 1887, Bantock, of London, read a paper before the American Gynecological Society in New York,² and in the discussion, such men as Martin, of Berlin, and Simpson, of Edinburgh, took part. The methods of operating were extraperitoneal mainly, and he reported 57 cases of his own, with 12 deaths by supravaginal hysterectomy and by the extraperitoneal method. It is not strange when so few men were operating for the removal of fibroids with such a high deathrate, that Keith, of Edinburgh, said that the method of operating must be so improved that the deathrate from operation would be less than the deathrate caused by fibroids that were left unmolested, before the operation could be justified. It is not strange, therefore, that those of us who at that time had a limited experience in abdominal surgery, and that mainly for the removal of ovarian tumors, tried every method other than abdominal section for the treatment and cure of these growths. In 1884, Keith³ advocated electricity vigorously, and the lesser operation of removing the ovaries. I quote from page 430. "The ultimate result of the complete removal of the ovaries in small tumors is extremely beneficial. The symptoms are cured, the growth is arrested, and in a considerable number of cases the uterus gradually returns to its natural size."

I have just glanced at the attitude of the medical profession at that time regarding these growths in order to explain why I was so zealous in the use of electricity for a number of years subsequent to 1888, for at this time, as shown in the repeated discussions on this subject by such men as Emmet, Lusk, Thomas, and Wilson, a reluctant assent was given to the operation, as is shown by the "Transactions of the American Gynecological Society" in 1884, 1886, 1887, 1892, and 1893. Dr. Seth Gordon, of Portland, Maine, one of the most successful abdominal surgeons, and at that early time an enthusiastic advocate of the method of treating these tumors by operation, made the following statement as late as 1893.⁴ "One year ago I read a short paper before the American Medical Association (Section on Obstetrics and Diseases of Women), in which I claimed that hysterectomy for uterine fibroids is the only proper conservative surgery, and that it can be made equally safe with that of ovariectomy at the present day. In the course of the discussion I found but 1 or 2 who were favorable to this presentation of the case, while the general tenor of the arguments was that only in a comparatively few cases were such radical measures justifiable, inasmuch as the mortality and suffering were so very insignificant when the cases are left to run their course." The most notable papers to my mind that were presented on this subject, either before or since that time, were read in 1892 before the American Gynecological Society by Dr. William M. Polk and Dr. Baer. The former advocated total hysterectomy, and the latter advocated what he called the "new method" (as it practically was) by supravaginal amputation, after tying off the broad ligaments and the uterine arteries—the operation which is today the most popular in the hands of all operators. Since that time American operators have been generally agreed that the proper treatment of fibroids which give symptoms is hysterectomy or myomectomy.

While I had done a few operations by the extraperitoneal method previous to 1884, it was in January of that year that I did my first operation by Baer's method, which I have steadily adhered to in all operations of this kind since. The whole number of patients with fibroid tumors whom I have treated at St. Luke's hospital since 1888 for a sufficient length of time to enable me to say that they were under treatment long enough

to get a definite result, and whose subsequent histories I have been able to ascertain, is 162. Of these, 114 were married, 37 were single, and 11 were widows. One was under 20 years of age, 13 were between 20 and 30, 56 were between 30 and 40, 57 were between 40 and 50, 24 were between 50 and 60, and 8 were between 60 and 70. Of this number 96 were treated by galvanism, most of them during the early years of my experience. It is fair to say that the treatment by Apostoli's method I had witnessed in his clinic, and that the current I used was a 6-ampere, 40-volt current, with the milliamperemeter in circuit registering from 50 to 100 milliamperes. Seven of these patients recovered as indicated by the disappearance of the symptoms and the tumor. Twenty-six were improved as to the symptoms of hemorrhage, pain, etc., so as to be able to resume their duties in life. Some few of this class suffered relapse and after a year or two were treated again in the same manner, and then remained well for a period of 5 years at least afterward.

The next class of cases, and by far the most important, numbers 25 patients whose histories I have been able to follow for at least 5 years subsequent to their treatment, and who were improved, as indicated by the facts that the tumor was smaller and continued to diminish in size after treatment was discontinued, and who remained in good health and were able to do their work. I could add materially to this list from my private practice. Six were unimproved in any particular. One patient died as the direct result of infection. The cause of death in this one case was due to the lighting up of an acute inflammation in an old gonorrheal salpingitis, which in those early years I did not have the skill to diagnose, and which produced a rapid sepsis. This is the only instance of accident or injury of a serious nature that has occurred to me in my use of this very heavy current of electricity. During that time when the discussion as to the treatment of these tumors by surgical means was hottest, and along about 1890 to 1895, it was charged by many who advocated operative procedure and who were skilled operators, that electricity had done harm in a number of the cases in which they operated afterward, and had lessened the chances of recovery by operation. I was not so well qualified to speak at that time on this question as I am now, but my impression was that the changes found in the tumors operated, and which were attributed to the deleterious influences of electricity, were not due to the current, but were caused either by an infection from its improper use or to the degenerative changes in the ovaries, tubes, or the tumor itself, which we now know to be most common in patients who have had no treatment until the operation for the removal. I still have this opinion, and while I now practise the operative treatment of fibroids, I cannot condemn the use of electricity on these grounds.

In the next group of 31 cases the patients were treated by curetment by tying the uterine arteries by vagina, and the medicinal treatment by ergot, thyroid extract, etc. Of these, 24 were temporarily improved, and 7 were unimproved, though in the improved cases the tumors were not appreciably diminished in size. I have grouped together the cases thus treated by various means, because I consider that one method is not much more important than another—or, at least, the results obtained were about the same, though, of course, the same method was not applicable for all cases.

The use of the curet in hemorrhagic cases gives temporary relief, providing the operation is carefully done. It is a safe procedure if carefully performed, but might prove a great danger unless the cases were carefully selected. I have seen a sloughing fibroid after a miscarriage, in which a curet had been vigorously used, and I thought with great harm. The hemorrhage comes from a diseased endometrium in these cases oftener than from a split capsule and hemorrhage from the tumor direct. I would not use the curet if I found

the tumor projecting into the cavity and its capsule ruptured. I do not think that ergot ever starved out a fibroid tumor so that it could be said to be of any permanent help. It is true that in a few cases in which the tumor is intramural and has a tendency to force its way into the cavity of the uterus, a long use of ergot aids this process so that a small tumor is thus forced forward and may be caught and removed through the dilated uterine canal. It seems to me, however, that this is the limit of the use in the administration of ergot.

So far as the theory of tying off the uterine arteries for the purpose of starving the tumor is concerned, my own experience is that the operation, which I tried faithfully in a few cases, was not fortunate. In the first place, it is a very difficult thing to catch the uterine arteries by vagina, especially if the tumor is low down. I abandoned it soon as a useless process, and one that was hazardous and difficult. Regarding the use of thyroid extract, I am in doubt now as to whether I got any permanent results or not. I do not think it lessened the hemorrhage in any considerable number of cases. I have been able to stop the bleeding lately by the use of adrenalin or the extract of suprarenal capsule, and I am quite positive that this animal extract has a decided influence in checking uterine hemorrhage, though none of these things has any special bearing on the cure of the tumor. As for other medicines, I cannot say positively that I have had any results worth reporting, though I have tried various things.

The number of patients operated upon is 61. Six of these were my early operations by abdominal section, with external treatment of the stump. Two of these died. It is fair to say that in one case the operation itself could not be wholly blamed, because the woman had an apoplexy a few days afterward, and I then learned that she had had a cerebral hemorrhage several years before, though I did not know this at the time of the operation. The other was a very large tumor in a woman who had been operated on before in New York for the removal of the ovaries, and the fibroid was sloughing, and death was caused by sepsis. Since that time all abdominal operations have been done by supravaginal amputation, after Baer's method. These numbered 34, with 4 deaths. By vaginal hysterectomy I have removed 10, with 1 death. These cases were attempted for tumors of considerable size, and soon after the reading of Jacob's paper in this country, and after I had seen him operate in Brussels, and Segon and Richellot, in Paris, for very large fibroids, by morcellement. I think too much was expected from this operation, and the American method by abdominal section proved to be safer. The 1 death was due to hemorrhage. Eleven patients were operated upon by dilation of the uterus and the enucleation of the tumor. Two of the tumors were very large, the others being small in size—that is to say, not larger, perhaps, than an orange. My experience with the operation, however, was not satisfactory, excepting in women who had borne children and had a large, short vagina, and in whom the tumor could be easily mapped out by the finger after dilating the uterus. Of course, I do not refer to the polypoid growths protruding into the vagina and held by a pedicle. It was harder to perform than abdominal section, and I think more dangerous. In 1 case I got a very large tumor detached and could not deliver it, and the hemorrhage was so profuse that I had to tampon the entire cavity and wait until the next day, when by slitting the cervix extensively I was able to deliver the tumor with forceps. I had no deaths from this procedure.

The number of patients operated upon out of the whole number shows a larger ratio than is normal. These cases were selected from a larger number seen in private practice and sent to the hospital for treatment. It is generally conceded that the majority of fibroids do not need treatment and that radical operation is demanded only when there are well-marked symptoms

due to pressure, hemorrhage, etc., or some peculiarity of the growth which threatens life. I think the following statement by Dr. Barton Cooke Hirst fairly represents the attitude of the best men in the profession today.⁵

"There is no excuse for dogmatism, prejudice, or self-interest in deciding this important question. A conscientious surgeon who carefully considers the interests of the patient alone, will probably not operate in much more than 20% of his cases. Malignant degeneration, telangiectasis, cystic degeneration, and necrosis are positive indications, but, as Olshausen points out, all these dangerous degenerations together do not affect more than 5% of all cases. A bleeding that is reducing the woman to invalidism or endangers her life, and that is not controlled by palliative treatment, indicates an operation. Impaction of the tumor in the pelvis, with pressure symptoms in the bowels and urinary tract, may demand operation. A steady growth which promises the attainment of great size by the tumor indicates an operation before the bulk of the growth becomes excessive."

The complications of fibroid tumors are seen more frequently in private practice. Pregnancy is perhaps one of the most serious complications, and 3 cases occurred in the hospital during the period reported, though only one is included in the number having radical operation with recovery. The fetus was about the third month. In this case the fibroid was so low down in the neck of the uterus that it blocked the birth canal. One other came in for radical operation, the tumor being rather large, springing from the uterus in front, about on a level with the internal os, and was locked under the symphysis pubis. She was in the fifth month, had some fever and was decidedly sick. Under ether the tumor was disengaged without operation. The cervical canal was comparatively free and she was allowed to go to time. She was delivered of a living child without accident. The third patient had a small fibroid near the fundus and required no treatment.

I have seen a number of cases in private practice in which women with large fibroids have been safely delivered. As a rule I believe that fibroid tumors grow very much less, and in one case a very large fibroid has entirely disappeared 12 years after I delivered the patient of a living child. I have already made a report to this society on the complication of fibroids, and I will not take time for its discussion now.⁶

The most serious complication that occurred during all this time is not reported in these cases because the woman was not operated upon for fibroid but was operated upon for appendicitis. The fibroid was not touched.

The woman, aged 34, was nulliparous, and the fibroid which was very symmetric, round and hard, extended as far as the umbilicus. She had no symptoms from this growth and was in perfect health and refused to have anything done for it. She had an ordinary attack of catarrhal appendicitis which ran along until the appendix became infected; an abscess formed and she was very septic when admitted to the hospital. Fecal matter was passing out from the bladder as well as from the rectum. The mass was as large as an orange. I did not touch the fibroid but opened down upon the appendix, washed out the pus cavity and found that the opening of the intestine into the bladder was beyond my reach unless I removed the fibroid. I tamponed the opening with gauze and left her with an open wound. She was pretty sick for several weeks but recovered without any fistulous opening and had perfect control of the bladder with quite a decided diminution in the size of the fibroid. She has now been in very good health for some 3 years. In a case like this, operation ought to be done early in the history of the appendicitis and the tumor dealt with afterward.

Another complication of fibroid for which I operated several years ago, was one with extensive adhesions so that the tumor could not be raised out of its bed, and no cleft could be found between the layers of the peritoneum and the capsule of the tumor, even when I had cut down half an inch from this almost

fibrous mass of adhesions. I only saw this one case, and after working half an hour with no success I closed the wound up and the woman recovered not only from the operation, but her fibroid rapidly diminished in size, and she returned after a few years to good health.

It is certain that fibroid tumors have a definite period of growth, but the law which governs this growth is not yet clearly understood. There seems to be in a large number of such tumors a long period of what may be called maturity or a stationary state, in which there are no symptoms given by the patient that refer to the fibroid, and in some cases (but not a large number) the fibroid disappears, leaving the woman well. It is not possible to tell in advance what will happen to a medium-sized tumor when it is first found. My rule now is to remove by operation any fibroid that is threatening life by hemorrhage, any soft myoma that is rapidly growing, any very large tumor that causes pressure upon the adjacent organs so as to make an invalid of the woman, or any tumor that seems to be undergoing a degenerative change, as is evidenced by general sickness, and especially by rise of temperature and soreness across the abdomen.

On the other hand, small fibroids have remained almost stationary under my personal observation for 15 years and are still in pretty much the same condition as I first found them. A few tumors have disappeared without my knowing the adequate cause. It is my firm conviction that no treatment other than surgical is of much service; but if a patient declines for any reason, such as heart lesion or kidney disease, to have surgery done, then galvanism will do more than any other remedy in intramural growths. In those that are most likely to require emergency treatment in hemorrhage, etc., galvanism, if intelligently and persistently used, relieves a large number of women of their symptoms, and cures a few patients.

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ELECTRICITY IN MEDICINE.¹

BY

JAMES J. WALSH, M.D., PH.D.,

of New York City.

Every new discovery in electricity has been enthusiastically welcomed by certain medical men as sure to be of great service in the treatment of diseases. Over one hundred years ago, when Galvani observed the twitching of a frog's legs, he considered that the phenomenon was due to the presence of animal electricity in the tissues, and great hopes were at once raised that at last an important therapeutic secret had been discovered, and that some method for treating the disease would surely result. Notwithstanding the repeated failures since then, each new advance in electricity is still welcomed as sure to give great medical results. The makers of toys say that there is no need to make new toys each year, as there are new babies for whom the old toys are quite a novelty. Successive generations of medical men have found new toys in electric appliances and will doubtless continue to do so.

It is needless to review the rise and fall of waves of interest in electric therapeutics. Some of the recent phases of the subject, however, are of especial interest. A decade or so ago d'Arsonval, a distinguished French electrician, showed that it was possible to subject human beings to electric currents of very high frequency and

¹Read before the Celtic Medical Society, of New York City, November 25, 1903.

so place them in the midst of a highly charged electric field. I remember seeing in Paris the apparatus for this purpose, a series of wire coils forming a sort of cage, within which the patient sat. During the course of the treatment the individual within the coils became so highly charged with electricity that an incandescent light held between his hands, though unconnected with the source of electric energy by any system of wire or other metallic circuit, glowed just as if it were in circuit. For a time at the Salpêtrière great results were expected from treatment by this electric method. It is now almost entirely abandoned, and is only in use by those who find wonderful curative effects in all forms of electricity.

When the röntgen rays were discovered the assurance came that great therapeutic possibilities were about to be accomplished. Exaggerated and premature accounts of benefit derived in deep-seated malignant disease and in Hodgkin's disease seemed to justify the great expectations. We are now once more in the period of reaction and realize most of the limitations of the application of the röntgen ray, though not very clearly, and with many alluring, inexplicable results to tempt us to continue their use even in apparently hopeless cases.

From another standpoint some very interesting sidelights on electricity have been thrown. The new physical chemistry seems to show that atoms do not act in chemistry merely as masses of matter, but as masses of matter bearing a certain charge of electricity. These are the so-called ions of the modern ionic theory of the constitution of matter, and here once again there seems to be ground for hope of electric applications in medicine. About a year ago, however, I heard Professor Loeb, then of the University of Chicago, now of the University of California, in a series of lectures at Columbia in which he discussed the application of the ionic theory to physiology and biology, declare that nature had so safeguarded the electric conditions, and especially the equilibrium of electric forces within the body, that any disturbance of this by external electric force was utterly impossible. We are so constantly placed in varying electric conditions because of alterations in the electricity in the earth and the air, that if this were not the case, animal life would be in almost constant danger from the magnetic storms that are so frequent.

Professor Loeb also declared that whatever effect the röntgen rays had was not due to the fact that they were electric phenomena, but that they were related more closely to light than to electricity. Finsen's experiments and demonstrations on light, Loeb considered of very great interest, as furnishing the reason for the effects produced by the röntgen ray in animal tissues.

Physiologic investigations, as well as recent progress in physical chemistry, seem to confirm entirely Galvani's original idea of the existence of animal electricity apart from any external electric energy. This is a curious confirmation, nearly 125 years after Galvani's original announcement of his ideas, which, for at least a century of the intervening period, were considered, in this at least, to be without foundation. If such animal electricity exists it is easy to understand how thoroughly protected from external electric influences it must be for life to persist in spite of the varying magnetic field of earth and air. Even when men or animals are killed by electricity it is not by a disturbance of the electric equilibrium within them, though disturbances of the electric equilibrium may occur rather easily and indeed represent an important element at least of the mode of action of vital force in the tissues. Death from electricity is usually considered to take place from shock and consequent absolute inhibition of the large nerve cells of the central nervous system.

All of this, then, would seem to add to the improbability that external electric energy can ever be employed

successfully for the modification of diseases and vital processes in such a way as to bring about a natural cure, for animal electricity is necessarily thoroughly isolated from all outside influences, and we cannot hope to bring about any important modification of it.

It would seem, then, that no wondrous effects are to be hoped for from electricity in medicine, yet this does not proclaim it as absolutely useless. There is undoubtedly an important suggestive element in treatment by any form of electricity. This will produce a mental influence that reacts upon the physical condition of the patient. Hence the employment of different forms of electricity may do great good, especially in functional nervous diseases. It must not be forgotten that the eddyites claim to have many thousands of cures to their credit. Their statistics would compare very favorably with those of the electric therapists. To my mind, the improvement noted in such cases may have been brought about in the same way. The physician, however, cannot use the wonderful power that the religious instinct has over people to effect cures. He can and should use the suggestive influence that electric effects of various kinds undoubtedly do produce.

It is well known that static electricity will, under many circumstances, raise blood-pressure and cause an increased flow of blood to the cutaneous surface of the body. This of itself may be extremely important. Meltzer showed recently that the circulation in nerves depends on free connection with two portions of the body, the central nervous system and its peripheral branches. An increased circulation in the skin, then, may mean great improvement in nervous nutrition. Undoubtedly many of the improvements noted in nervous diseases are due to this hitherto not well understood circulatory mechanism.

In spite of this more or less pessimistic view of the present and possible effects of electricity in medicine, there are many interesting therapeutic prospects on the electric medical horizon at the present moment. Recent thoroughly authentic reports show that some of the intractable facial neuralgias, which have hitherto constituted one of the most serious problems in neurology and surgery, yield promptly to the röntgen ray treatment. Upon the severe and almost unbearable pains which accompany certain of the internal cancers when approaching their fatal termination the röntgen rays seem to have a like wonderful effect. This alone demands their employment, though no hope of even temporary improvement of the actual physical condition of the patient may be entertained. During the present year, beside favorable reports in Hodgkin's disease, in which, unfortunately, the good results are now recognized as only temporary, there have been some very promising results obtained in splenomedullary leukemia. There was a marked reduction in the size of the spleen after three weeks' treatment, and the blood showed corresponding improvement with this favorable splenic progress.

Apparently we are getting to know more about the class of rays, whether light or electric, or on the borderland between these two modes of energy, which somehow affect cellular energy in animals very powerfully. It is possible then that the very near future, seeing the rapid progress of electric science in these matters in recent years, may bring us some form of electricity that will prove alterative, not directly of the animal electricity of the tissues, but of certain modes of cell life. We may thus possibly secure physical remedial agents of many kinds. There are at least three different kinds of rays in the radium emanations. We are only on the threshold of our knowledge of radioactivity and the development of this interesting department of science may bring us physical remedies quite as powerful as the various chemical substances that we have used empirically, yet very successfully withal, for centuries, without quite knowing their mode of action.

THE PRELIMINARY REPORT OF A SERIES OF METABOLISM OBSERVATIONS MADE IN ATROPHIC ARTHRITIS, HYPERTROPHIC ARTHRITIS, OSTEITIS DEFORMANS AND THE NORMAL.

BY

JOEL E. GOLDTHWAIT, M.D.,

AND

CHARLES F. PAINTER, M.D.,

AND

ROBERT B. OSGOOD, M.D.,

of Boston, Mass.

The following communication represents a part of the work which has been carried on by, or under the direction of, the writers during the past few years in the endeavor to gain a better understanding of the etiology, pathology, and treatment of the so-called rheumatoid diseases. That the knowledge of these diseases is very unsatisfactory no one can question who has taken time to look over the literature as it appears today, and although a paper upon this subject may seem strange coming from men who are practising orthopedic surgery, it, nevertheless, represents work which seems to be necessary, as the treatment of these various joint conditions cannot be intelligently planned until the etiology and pathology is known.

As a part of the systematic study of these diseases, Mr. F. H. McCrudden has been, during the past 3 years, conducting a series of metabolism observations in the various types of this disease.

The work has been carried on in the physiologic laboratory of the Massachusetts General Hospital, and in its development Dr. Franz Pfaff and Dr. Elliot P. Joslin have been most helpful with their suggestions.

The report of the work performed by Mr. McCrudden during this period is here presented. It is naturally preliminary in character, as many more observations must be made before any conclusions can be reached, but it is presented in this form in the hope that others may be interested to undertake similar lines of work and that the time which it was necessary to spend in the preliminary experimentation may be saved to them. It is also probable that these reports, studied in connection with similar work which may be undertaken by other observers will have additional value.

In order that the report may be properly understood it will be necessary to state briefly the clinical characteristics of the diseases designated by the terms "atrophic arthritis," "hypertrophic arthritis," and "osteitis deformans." There has been much confusion in the use of terms, and it will be necessary, until the whole subject is placed upon a definitely scientific basis, for each writer to explain the terms used by him to indicate the various types of the disease.

Atrophic or rheumatoid arthritis is used to designate a type of disease seen in both men and women at any period of adult life; progressive in character and showing in the active stage an increase of the normal joint fluids as well as swelling and infiltration of the periarticular structures. In the fingers the first or proximal row of phalangeal articulations is chiefly involved, the swelling giving the spindle-shaped appearance. In the other joints the swelling presents different appearances, depending upon the anatomic conditions, but in all as soon as the process begins, atrophic changes in the cartilage and other joint structures appear. This is clearly shown in the röntgen ray, and becomes more noticeable as the disease progresses. The joints, as the result of the gradual absorption of the swelling, become smaller and ultimately are smaller than normal, owing to the atrophy in contrast to the permanent increase in size, as is seen in hypertrophic arthritis.

Any of the joints may be affected, and without treatment there is usually a gradual progression of the dis-

ease until all are involved, although as a rule only a few joints are actively affected at one time. The disease naturally produces contractures and deformity, and is one of the most crippling of the various rheumatoid diseases.

Hypertrophic or osteoarthritis is the term used to designate a type of disease seen in both men and women at any time during adult life, but most commonly at or past middle life, in which there is thickening of the edges of the articular cartilages with ultimate ossification, a true hypertrophy instead of the atrophy as seen in the rheumatoid type. There is, aside from this thickening, little, if any periarticular swelling and no increase of the joint fluids, unless from the mechanical irritation which the nodes or hypertrophied edges of the cartilage may represent. Any joint may be involved, and while usually only one or two joints are affected, occasionally the process is quite general. In the fingers the distal row of articulations is the one chiefly affected, and the nodes as they appear are in marked contrast to the soft spindle swellings of the atrophic type. In hypertrophic arthritis the hypertrophy is apparent very early in the process, the same as the atrophy in atrophic arthritis, when examination is made with the röntgen ray.

Osteitis deformans, or Paget's disease, needs less description, as there is usually less confusion in the use of this term. The disease is characterized by marked thickening with bowing of the shafts of the long bones, and with thickening of the flat or squamous bones. It is slowly progressive in character, and results in considerable deformity, but with comparatively little involvement of the joints, the joint symptoms being due to strain resulting from the bowed or distorted bones.

In connection with this work, in order not to duplicate that which has previously been done, it has been necessary to review carefully all the literature bearing upon the general subject of metabolism.

This has involved much labor, and as many of the papers are without value unless studied in connection with others, they have been carefully abstracted, and will be published shortly in the hope that in this form they may be of assistance to others who are doing similar work. After such a study the need of further work must be apparent at once, if any real progress is to be made in the treatment of these crippling diseases.

The report of the chemic work, the description of the technic, and a brief outline review of the literature covered by this investigation follows.

* * * * *

Before performing any experiments on rheumatic patients, it seemed advisable to make a thorough study of the literature concerning the metabolism in gout. Since the subject of gout and that of uric acid are so intimately connected in the literature, an especially exhaustive treatment of the bibliography of the chemistry of uric acid and of the status of uric acid in the physiology and pathology of mammals and birds was taken.

The present time seems an appropriate one to undertake such a work. For some years it has been known in a general way that the nucleoproteids have great influence on the excretion of uric acid. The recent experiments of Burian and Schur¹ have defined this influence and have given us a quantitative expression of its importance. These authors, too, have given the proof that it is the purin bases of the nucleoproteids, and, in fact, the purin bases alone, free or combined in nucleoprotein that have any influence on the excretion of uric acid so far as the food is concerned.

The last article by Emil Fischer² on the subject of the purin bodies shows us that uric acid and the purin bases are all simple derivatives of purin and that uric acid is the highest oxidation product of the purin group. It is clear then why the purin bodies are of such importance as a source of uric acid.

W. His³ has recently applied the methods of the

science of physical chemistry to the determination of the behavior of uric acid in solutions. As a result of his work, some views concerning the solubility of uric acid in pure water, in various solutions, and in urine, and the effect of various agents on the solubility, which have been generally held for many years, have been overthrown.

Physical chemistry has shown us that the acidity and alkalinity of many solutions of complex mixtures of electrolytes such as blood and urine can not be determined by titration methods. Only recently has an accurate electrochemic method been offered by which we could determine the acidity of urine and the alkalinity of blood.

By means of this method Höber⁴ has found that the prevailing views concerning the acidity of the urine and the alkalinity of the blood are far from correct. The work of His and Höber taken together puts an end to many theories concerning the uric acid in the blood and urine, and to any scientific basis for the alkali therapeutics in gout.

We have undertaken to make a thorough study of the pure chemistry of uric acid and its decomposition products, and of those purin bodies which have any physiologic importance; of the behavior of uric acid in solutions of pure water, in solutions of simple and mixed electrolytes, and of organic compounds and in urine and blood.

We have attempted to study all the research that has been done on the physiology of uric acid—the effects of food, and of qualitative and quantitative changes in the food, the effects of alcohol, exercise and other physiologic functions—and also the research on the uric acid in pathologic conditions of all kinds, especially in gout and the rheumatic diseases. We hope also to make a study of the literature of the physiologic and pathologic metabolism of the inorganic salts.

When this work is done we shall be in a position to undertake research in the most profitable directions. The amount of literature covered so far has indicated many lines of valuable work.

Another point of importance only recently established by the work of Burian and Schur,⁵ Soetbeer and Ibrahim⁶ and Salkowski⁷ is the fact that uric acid is excreted in great part unchanged by mammals. This is certainly a final death blow to the old view that uric acid is an antecedent of urea in the destructive metabolism of proteid.

The method of carrying on the metabolism experiments will be described first with the details of the methods of analysis of the food, urine, and feces.

Technic.—The general method of performing the experiments, finally developed, was that of McCrudden.⁸ The details of the technic used in the earlier experiments were not quite the same as in the later ones, but they did not differ in any principle that would tend to vitiate the earlier results.

The experiments were generally carried on through 8 days. Each patient was weighed before and after the experiment.

Food.—The patient was in each case allowed to have what he wanted to eat and drink both in regard to quality and quantity. The food he ate was weighed and the same weight of each food was taken for analysis. Only food which was practically homogeneous throughout was given so that the sample taken for analysis would presumably have the same percentage composition as the portion eaten by the patient. The food taken for analysis was well mixed, and, after addition of a little HCl to retain any nitrogen which might tend to escape as ammonia, the mass was evaporated to dryness. It was then well mixed with alcohol and evaporated to dryness again and the mixing with alcohol and evaporation was repeated once. This last device brings the food into a very dry condition so that it can be finely powdered in a grinder. The fat was sometimes extracted with naphtha if it interfered with the process of grinding.

The naphtha does not extract any calcium, magnesium, sulfur, or nitrogen. "A" and "B" are the results obtained by the analysis of 2 equal fractions of the same food mass which had been extracted with naphtha. "C" is the result of the analysis of an equal fraction of food to which a corresponding fraction of the naphtha solution had been added.

After the food was crushed so that it would pass through a fine-meshed sieve samples for analysis were obtained by quartering. The food was thoroughly mixed with a large spatula and then made into a little circular pile a couple of inches high.

The pile was divided into 4 nearly equal quarters. Two opposite quarters were rejected, and the other 2 well mixed, made into another little pile, and quartered again. The mixing and

	CaO.	MgO.	S.	N [expressed by $\frac{N}{16}$ H ₂ SO ₄ used (Kjeldahl.)]
"A".....	.1370	.0852	.1451	39.62 cc.
"B".....	.1356	.0858	.1480	39.76 cc.
"C".....	.1354	.0848	.1452	39.68 cc.

quartering were repeated until there was about enough food left for 1 set of analyses. Samples for duplicate and triplicate analysis were obtained in the same way.

The following results show that the mixing can be very complete. The samples "D," "E," and "F," represent as nearly as possible entirely different portions of the food.

	CaO.	MgO.	P ₂ O ₅ .	N [expressed by $\frac{N}{16}$ H ₂ SO ₄ used (Kjeldahl.)]
"D".....	.1026	.1128	.1672	20.41 cc.
"E".....	.1012	.1112	.1680	20.64 cc.
"F".....	.1016	.1120	.1659	20.46 cc.

Urine.—The urine was analyzed daily, instead of in bulk for the week, in order to see if there were a daily variation in the amounts of any of the constituents. It was collected from eight each morning until eight the following morning. If it were collected from evening to evening considerable of the elements in it might have come from the previous day's food. The patient emptied his bladder just before eight each morning, for complete separation of the different days' urines, and just before stools, in order to separate the stools and the urine.

Feces.—The stools were saved and analyzed. The patient was starved from noon of the day before the experiment until the following morning, in order that the feces which came from the food given before the experiment could be separated as much as possible from that given during the experiment. Half an hour before breakfast on the first day of the experiment, a mixture, consisting of 10 gm. charcoal, 10 gm. acacia, and 60 cc. peppermint water, well shaken, was given the patient. This blackens the first stool belonging to the experiment. The patient was starved from noon of the last day of the experiment until the following morning, and a charcoal mixture was given him half an hour before breakfast on the day after the experiment. The feces was saved until it began to come black. The stools were all mixed together and, after addition of a little HCl to retain nitrogen, the mass was evaporated to dryness, powdered, well mixed together, and placed in a weighing bottle, preparatory to taking samples for analysis. Weighed amounts of filter-paper, nearly free from ash, were used after stools, and the same weight of the paper was mixed with the food used for analysis to offset the small amount of ash introduced into the feces in the paper.

Methods of Analysis.—The urine was first made up to a definite volume, 1,000 cc., 1,500 cc., or 2,000 cc., according to the amount voided. All analyses were made in duplicate.

Potassium and Sodium.—The method of Salkowski⁹ and Munk¹⁰ was used for the determination of the alkalies. To 100 cc. of urine, ammonia and about 25 cc. barium hydroxid solution were added. The solution was shaken and CO₂ was passed through it to precipitate all the barium. It was then made up to 200 cc. with distilled water and passed through a dry folded filter. One hundred cc. of the filtrate was made acid with HCl and evaporated to dryness in a platinum dish. After the residue was thoroughly dry, it was placed in a muffle furnace and incinerated at a low red heat. The charred mass was treated with water, to dissolve the sodium and potassium salts. A little (NH₄)₂CO₃ and ammonia were added to precipitate any remaining trace of barium, and then the solution was filtered. The filtrate was made acid with HCl and evaporated to dryness. The ammonium salts were volatilized at a low red heat, and the residue of potassium and sodium chlorids weighed.

To determine the amount of each of these alkalies present two different methods were used—the gravimetric method, and the volumetric method.

In the gravimetric method the chlorids were dissolved in a little water, and some PtCl₄ was added to the solution. This solution was evaporated at a low temperature to a syrupy consistency. Fifteen cc. of alcohol was then added and the solution was allowed to stand about 15 minutes. The potassium is precipitated as K₂PtCl₆. The precipitate was filtered off and washed by decantation through a filter, care being taken to get as little of the precipitate as possible on the filter paper. The K₂PtCl₆ on the filter was washed back into the dish. The liquid was evaporated and the potassium salt dried to constant weight in a hot closet. From the weight of the K₂PtCl₆ the weight of the corresponding amount of KCl can be calculated. The weight of the combined sodium and potassium minus the weight of the potassium chlorid gives the weight of sodium chlorid. The corresponding amounts of the oxids are calculated from the chlorids.

In the volumetric method the amount of chlorin in the mixed chlorids was determined by titration with a solution of AgNO_3 containing a known percentage of Ag. From the weight of the combined chlorids and the weight of the chlorin, we can calculate the amounts of potassium and sodium present.

Calcium.—An aliquot part (50 cc., 100 cc., or 200 cc.) urine was made slightly ammoniacal until a precipitate of phosphates came down. HCl was then added drop by drop until the precipitate just disappeared. After that ammonium oxalate was added to precipitate the calcium as oxalate and considerable sodium acetate to lessen the dissociation of the HCl and make the precipitation complete. The solution was then allowed to stand over night on the water-bath. In the morning the calcium oxalate was filtered off, washed with hot dilute ammonium oxalate solution, dried, ignited to constant weight in the blast lamp, and weighed as calcium oxid.

Neubauer and Vogel in their textbook of urine analysis give this method, but state that the results are a trifle lower than the results obtained by the long Frezenius methods. Richards, McCaffrey, and Bisbee¹¹ have recently shown that the older methods are inaccurate. These authors have given us a very accurate method for the determination of calcium in the presence of magnesium. We compared the results obtained in the method used by us with the results obtained by the Richards, McCaffrey, and Bisbee method.

A solution was made up containing both MgCl_2 and CaCl_2 . Five portions of 50 cc. each were measured out. To the first 3 portions, sodium phosphate was added and the calcium determined by precipitation in a dilute HCl solution containing sodium acetate. Numbers 4 and 5 were analyzed by the method of Richards, McCaffrey, and Bisbee.

1.	2.	3.	4.	5.
.0935	.0940	.0942	.0939	.0938
		.0939	.0939	

The results seem to indicate that the method is as accurate as that of Richards, McCaffrey, and Bisbee, and therefore more accurate than the Frezenius method.

Analysis of the precipitate of calcium oxalate after incineration shows that it sometimes contains a very little P_2O_5 . This is what probably makes up for the very slight solubility of the calcium oxalate in the dilute acetic acid solution. The table shows how much P_2O_5 was found in weighed quantities of CaO .

CaO .	P_2O_5 .	CaO .	P_2O_5 .	CaO .	P_2O_5 .
.0654 gm.	.0006 gm.	.0604 gm.	.0005 gm.	.0716 gm.	.0002 gm.
.0680 "	.0008 "	.0610 "	.0006 "	.0724 "	.0005 "
.0505 "	.0009 "	.0650 "	.0007 "	.0542 "	.0004 "
.0502 "	.0006 "	.0650 "	.0008 "	.0564 "	.0004 "
		.0652 "	.0008 "		

Magnesium.—The determination of magnesium was carried out by a method given in Neubauer and Vogel's book on urine analysis. The filtrate from the calcium oxalate (see determination of calcium) was evaporated to rather small bulk. Enough ammonia was added until the solution contained one-third its bulk of ammonia of specific gravity .096. Sodium ammonium phosphate slightly in excess of the amount required to precipitate the magnesium was added drop by drop with constant stirring of the solution. The solution and precipitate were then allowed to stand in contact over night. The next day the precipitate of magnesium ammonium phosphate was filtered off, washed with a solution consisting of 1 part alcohol, 1 part ammonia and 3 parts water, dried, ignited, and weighed as $\text{Mg}_2\text{P}_2\text{O}_7$. From this the amount of MgO was calculated.

Total Phosphorus.—This consists of the phosphorus as phosphate and the phosphorus in organic combination.

Three different methods have been used to oxidize the organic matter in order to get the organic phosphorus in the form of phosphate, so as to precipitate it with ammonium molybdate.

In the fusion method, the standard method by which to test the accuracy of other methods, 50 cc. of the urine was mixed with 3 gm. of KNO_3 and 1 gm. Na_2CO_3 and evaporated to dryness. The residue was fused until it was colorless and dissolved in water. After slightly acidifying with HNO_3 , ammonium molybdate, prepared according to Blair,¹² and ammonium nitrate were added.

The solution was allowed to stand at a temperature of 45°C . for about 24 hours. It was then filtered and washed free of calcium and magnesium by decantation through a small ashless filter with an acid solution of ammonium nitrate. This solution is made by mixing together 100 cc. of ammonia (sp. gr. 0.96), 325 cc. of nitric acid (sp. gr. 1.2), and 100 cc. water. This precipitate of ammonium phosphomolybdate was then dissolved in ammonia. After neutralization with acid, ammonia was added until the solution contained one-third of its volume dilute ammonia (sp. gr. .096). Magnesium mixture, pre-

pared according to Blair, was added drop by drop with constant stirring and the solution was allowed to stand over night. The next day the magnesium ammonium phosphate was filtered off and washed with a dilute solution of alcoholic ammonia, consisting of 1 part ammonia, 1 part alcohol, and 3 parts water, until free from chlorids. The precipitate was then dried, ignited to constant weight, and weighed as $\text{Mg}_2\text{P}_2\text{O}_7$. From the weight of $\text{Mg}_2\text{P}_2\text{O}_7$ the amount of P_2O_5 can be calculated.

Ammonium molybdate, according to Blair, is prepared as follows: 100 gm. of pure molybdic anhydride is thoroughly mixed with 400 cc. of cold distilled water, 80 cc. of strong ammonia (.90 specific gravity) is added and when the acid is all dissolved the solution is filtered. The filtrate is poured slowly, with constant stirring, into a solution of 400 cc. strong nitric acid (specific gravity 1.42) and 600 cc. distilled water. After allowing it to settle for 24 hours the solution is filtered. It is then ready for use.

Magnesia mixture, according to Blair, is prepared as follows: 110 gm. of crystallized magnesium chlorid ($\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$) is dissolved in water and the solution filtered. A second solution is prepared by dissolving 28 gm. of ammonium chlorid in water. A little Br. water is added and the solution is boiled, to oxidize any iron present, and to the hot solution a little ammonia is added, to precipitate the iron. This solution is filtered and the filtrate mixed with the solution of MgCl_2 . Enough ammonia is added to make the solution smell decidedly ammoniacal and the whole is diluted to about 2 liters, well shaken and allowed to stand several days. It is then filtered again and is ready for use.

A second method which was used to oxidize the organic matter was to boil the urine with nitric acid and potassium permanganate. The KMnO_4 was added a little at a time until a brown precipitate of MnO_2 showed that all organic matter had been oxidized. A little sulfurous acid was used to dissolve the MnO_2 and then the SO_2 was boiled off. Ammonium molybdate and ammonium nitrate were then added to the solution and the analysis continued in the same manner as before.

A third way was to oxidize the organic matter with potassium chlorate and hydrochloric acid. Hydrochloric acid was added to the urine, the solution was heated to boiling and potassium chlorate crystals were added a little at a time to the boiling solution until it became colorless. Ammonia was then added until the solution was nearly neutral. Ammonium nitrate and ammonium molybdate were added and the analysis carried on from this point in the same way as in the other methods.

That the permanganate method gives the same results as the fusion method can be seen from the following table:

	1	2	3	4	5	6	7	8
Permanganate .....	.0886	.0788	.0684	.0546	.0537	.0561	.0570	.0538
Fusion .....	.0886	.0778	.0693	.0548	.0544	.0568	.0582	.0542

The following tables show that the chlorate method gives the same results as the permanganate method:

	9	10	11	12	13	14	15
Permanganate .....	.0742	.1444	.0836	.1410	.1414	.1540	.1486
Chlorate .....	.0750	.1456	.0850	.1420	.1397	.1558	.1452

	16	17	18	19	20	21	22
Permanganate .....	.1658	.0704	.0790	.0798	.0898	.0762	.0644
Chlorate .....	.1674	.0690	.0808	.0806	.0908	.0756	.0654

The figures represent the P_2O_5 in 50 cc. of 22 different urines. One determination was carried out by each method. The time at our disposal did not permit us to carry out double analyses by each method. The results, however, show that for our purposes the methods are accurate.

Phosphates.—To 50 cc. of urine, ammonia was added until the solution contained about a third its bulk of dilute ammonia (specific gravity, .096). A few cubic centimeters of magnesia mixture were then added and the solution was allowed to stand over night in order that the phosphates might precipitate completely. The next day the precipitate was filtered and washed with dilute alcoholic ammonia until free from chlorids, and then dissolved in dilute nitric acid. The phosphate in this solution was determined in the usual manner by precipitation with ammonium molybdate, solution of the precipitate in ammonia and reprecipitation of the phosphate with magnesia mixture.

Total Sulfur.—Two methods were used in the determination of the total sulfur in urine. One method is that of Mohr;¹³ 50 cc. of urine was evaporated to dryness and then heated for

some time with concentrated HNO_3 . The nitric acid was then evaporated and the solution treated with hydrochloric acid and evaporated to dryness several times to get rid of the nitric acid. The residue was taken up in a little dilute hydrochloric acid and filtered. The filtrate was heated to boiling and BaCl_2 was added drop by drop. The boiling was kept up for about an hour and then the precipitate was allowed to settle in a warm place for a few hours. It was then filtered off, dried, ignited and heated to a constant weight. From the weight of BaSO_4 the amount of S can be calculated.

In the other method the sulfur is oxidized by hydrochloric acid and potassium chlorate exactly as in the oxidation of the phosphorus in the chlorate method.

Both methods give about the same results.

	1	2	3	4	5	6	7
HNO_3 method.....	.0401	.0282	.0369	.0502	.0476	.0466	.0450
Chlorate method.....	.0397	.0226	.0356	.0504	.0485	.0478	.0442

The figures show the sulfur in a measured amount of 7 different urines. One determination was made by each method.

Nitrogen.—The determination of nitrogen in urine was carried out by the following modification of the Kjeldahl method:

Five cubic centimeters of urine was boiled with 15 cc. H_2SO_4 , 5 gm. K_2SO_4 , and 5 cc. CuSO_4 until colorless. The solution was made alkaline with sodium hydroxid and the ammonium distilled over into 50 cc. of tenth normal H_2SO_4 solution. The excess of H_2SO_4 was titrated with tenth normal NaOH .

ANALYSIS OF FOOD AND FECES.

Analyses were made in duplicate and sometimes in triplicate.

Calcium and Magnesium.—An aliquot part of the food or feces usually about 15 gm. to 20 gm. food or about 1 gm. feces, was incinerated in a platinum dish. The ash was treated with concentrated HCl and evaporated to dryness a couple of times. The residue was heated for 2 hours in the hot closet at 110°C . to make the silica insoluble, then extracted with a little dilute HCl , filtered and washed. In the earlier experiments the calcium and magnesium were determined in the filtrate by the long Frezenius method of double precipitation of calcium after getting rid of iron and phosphoric acid. The method used for the determination of calcium and magnesium in urine was found, however, to give results which agree with the Frezenius method, and with the newer Richards, McCaffrey, and Bisbee method, so that it was used in the later experiments.

Phosphorus.¹⁴—An aliquot part of the food or feces, about 5 gm. to 10 gm. food or 0.5 gm. to 1.0 gm. feces, was allowed to stand in the cold for about 24 hours with 30 cc. to 40 cc. of concentrated sulfuric acid. The mixture was then heated and NH_4NO_3 was added in small portions until the solution became light yellow in color. It was then cooled, diluted slightly, and made almost neutral with ammonia. The phosphate was precipitated by addition of ammonium nitrate and ammonium molybdate, and the analysis proceeded with from this point as in the determination of P_2O_5 in urine.

Nitrogen.—An aliquot part of the food or feces, about .7 gm. to 1.0 gm. food, or about .5 gm. feces, was heated with 20 cc. concentrated H_2SO_4 , 5 cc. CuSO_4 , and 10 gm. K_2SO_4 until solution was colorless. The solution was then made alkaline with sodium hydroxid, the ammonia distilled into 50 cc. tenth normal sulfuric acid solution, and the excess of acid determined by titration with normal sodium hydroxid.

Sulfur.—An aliquot part of the food or feces, about 1 gm. to 1.5 gm. feces, or about 1.5 gm. to 3.0 gm. food, was oxidized by fusion with 15 gm. NaOH and 3 gm. KNO_3 . The mass was dissolved in HCl and evaporated to dryness several times with concentrated HCl to get rid of the nitrate. The residue was heated 2 hours in the hot closet at 110°C . to make the silica insoluble, and then extracted with dilute HCl and filtered. The filtrate was heated to boiling and the sulfate precipitated by addition of BaCl_2 solution drop by drop. The BaSO_4 was allowed to settle in a warm place for about 4 hours, then filtered, washed free from chlorides, dried, and ignited to constant weight. The NaOH and KNO_3 used in the fusion were supposed to be pure, but blank analyses of the reagents were always made, since there was always obtained a slight blank test for sulfur due in part, perhaps, to the S in the gas.

Results.—Before beginning metabolism experiments the urines of a number of patients with arthritic diseases were examined quantitatively for Ca , Mg , P_2O_5 , K , and Na . The following table shows the results of the analysis of several urines. The quantities are those found in the urine for 24 hours.

The normal amounts of these inorganic constituents in the urine are very variable. The total P_2O_5 varies from 1.5 gm. to 5 gm. per day, and averages 3.5 gm. according to Neubauer and Vogel.¹⁵ The CaO varies

from .12 gm. to .25 gm., the MgO from .18 gm. to .28 gm., Na_2O from 4.2 gm. to 7.4 gm., and K_2O from 2.3 gm. to 3.9 gm., on an ordinary mixed diet.

Name.	K_2O .	Na_2O .	MgO .	CaO .	Total P. as P_2O_5 .	Phosphates as P_2O_5 .
M. P.....	3.71 gm.	7.70 gm.	.10 gm.	.26 gm.	1.13 gm.	1.05 gm.
Mrs. J. P.....	2.07 "	4.67 "	.09 "	.19 "	.93 "	.87 "
Mrs. S.....	1.02 "	1.98 "	.12 "	.38 "	1.41 "	1.17 "
B.....	4.50 "	4.29 "	.13 "	.32 "	1.47 "	1.47 "
Mrs. E.....	4.81 "	.05 "	.28 "	.95 "	.92 "	
Mrs. B.....	2.63 "	4.42 "	.13 "	.05 "	1.36 "	1.34 "
Mr. S.....	9.41 "	.16 "	.24 "	1.94 "	1.71 "	
Mr. I.....	4.84 "	2.28 "	.10 "	.26 "	1.72 "	1.70 "
A normal urine.....	3.80 "	4.07 "	.19 "	.18 "	1.87 "	1.86 "
Mr. R.....	7.82 "	1.95 "	.27 "	.15 "	1.93 "	1.93 "
McM.....	8.20 "	2.44 "	.15 "	.12 "	2.15 "	2.15 "
A normal urine.....	7.82 "	8.93 "	.26 "	.51 "	2.56 "	2.55 "

It will be noticed that in our cases the quantity of potassium in the urine is nearly always greater than the quantity of sodium. The magnesium is low, and the phosphorus low.

REPORT OF THE METABOLISM EXPERIMENTS.

First experiment on Mary P., April 27 to May 4, 1901. A case of atrophic arthritis in the active stage. Weight of patient at beginning of the experiment, 125 pounds. Weight of patient at end of the experiment, 123 pounds.

FOOD.—FIRST DAY. Water 320 cc.

Breakfast.	Dinner.	Supper.
Corn bread..... 58.5 gm.	Roast beef 78.0 gm	Bread..... 76.0 gm.
Butter..... 7.0 "	Potatoes..... 99.0 "	Butter..... 19.0 "
Milk..... 200 cc.	Bread..... 37.0 "	Milk..... 200 cc.
Charcoal mixture of 10.0 gm. charcoal, 10.0 gm. acacia, 60 cc. pepper-mint water.	Rice..... 89.0 "	
	Butter..... 18.0 "	
	Milk..... 200 cc.	

SECOND DAY. Water 120 cc.

Breakfast.	Dinner.	Supper.
Bread 55.0 gm.	Roast beef 49.0 gm.	Bread..... 53.0 gm.
Butter..... 15.0 "	Stewed corn..... 109.0 "	Butter..... 15.0 "
Milk 200 cc.	Baked potatoes. 97.0 "	Cookies..... 41.0 "
	Bread..... 44.0 "	Milk..... 200 cc.
	Butter..... 15.0 "	
	Milk..... 200 cc.	

THIRD DAY. Water 600 cc.

Breakfast.	Dinner.	Supper.
Bread..... 25.0 gm.	Milk 200 cc.	Bread..... 50.0 gm.
Butter..... 10.0 "		Butter..... 15.0 "
Oatmeal..... 127.0 "		Milk..... 200 cc.
Milk..... 260 cc.		

FOURTH DAY. Water 800 cc.

Breakfast.	Dinner.	Supper.
Bread..... 49.0 gm.	Roast beef..... 78.0 gm.	Bread..... 50.0 gm.
Butter..... 16.0 "	Potatoes..... 119.0 "	Butter..... 10.0 "
Oatmeal..... 159.0 "	Boiled onions..... 129.0 "	Milk..... 200 cc.
Milk..... 260 cc.	Bread..... 29.0 "	
	Butter..... 20.0 "	
	Milk..... 200 cc.	

FIFTH DAY. Water 600 cc.

Breakfast.	Dinner.	Supper.
Bread..... 45.0 gm.	Corned beef..... 67.0 gm.	Bread..... 60.0 gm.
Butter..... 10.0 "	Potatoes..... 132.0 "	Butter..... 15.0 "
Oatmeal..... 156.0 "	Cabbage..... 100.0 "	Milk..... 200 cc.
Milk..... 280 cc.	Bread..... 20.0 "	
	Butter..... 15.0 "	
	Milk..... 200 cc.	

SIXTH DAY. Water 600 cc.

Breakfast.	Dinner.	Supper.
Oatmeal.....206.0 gm.	Boiled mutton... 67.0 gm.	Bread..... 60.0 gm.
Bread..... 67.0 "	Bread..... 29.0 "	Butter..... 10.0 "
Butter..... 15.0 "	Potatoes.....113.0 "	Milk.....200 cc.
Milk.....260 cc.	Spinach.....127.0 "	
	Butter..... 15.0 "	
	Milk.....200 cc.	

SEVENTH DAY.

Breakfast.	Dinner.	Supper.
Oatmeal..... 225.0 gm.	Codfish.....105.0 gm.	Bread..... 66.0 gm.
Bread..... 48.0 "	Potatoes..... 67.0 "	Butter..... 14.0 "
Butter..... 15.0 "	Bread..... 36.0 "	Milk.....200 cc.
Milk.....200 cc.	Butter..... 20.0 "	
	Milk.....200 cc.	

EIGHTH DAY.

Breakfast.	Dinner.	Supper.
Corn bread.....101.0 gm.		
Milk.....200 cc.		
Butter..... 15.0 gm.		
Salt for the week 5 "		
Sugar " " 49 "		

RESULTS.

Urine.	P ₂ O ₅ .	CaO.	MgO.
First day.....	.995 gm.	.194 gm.	.074 gm.
Second day.....	.894 "	.217 "	.078 "
Third day.....	.835 "	.078 "	.052 "
Fourth day.....	1.098 "	.219 "	.070 "
Fifth day.....	.772 "	.132 "	.042 "
Sixth day.....	1.199 "	.273 "	.088 "
Seventh day.....	.841 "	.108 "	.048 "
Total.....	6.63 gm.	1.22 gm.	0.45 gm.
Feces.....	8.07 "	6.31 "	1.46 "
Total excreted.....	14.70 gm.	7.53 gm.	1.91 gm.
Food.....	18.20 "	6.64 "	2.07 "
Retained by body.....	+3.50 gm.	-.89 gm.	+1.16 gm.

The phosphorus in the urine seems to be low, the calcium nearly normal, the magnesium low. It will be noticed that although there was a retention of some of the phosphorus and magnesium of the food by the body, yet more calcium was excreted than was taken in the food.

Mrs. E. A case of atrophic arthritis in the active stage.

FIRST DAY. Water 800 cc.

No breakfast.	Dinner.	Supper.
	Fried swordfish. 75.0 gm.	Bread..... 40.5 gm.
	Potatoes.....62.5 "	Butter..... 9.0 "
	Bread.....15.0 "	Cake..... 39.0 "
	Butter..... 2.5 "	Strawber-ries.....105.0 "
	Beans..... 46.0 "	Milk.....200 cc.
	Indian pudding.....28.0 "	Tea.....100 "
	Cold sauce.....23.0 "	

Breakfast.	Dinner.	Supper.
Omelet..... 50.0 gm.	Roast lamb..... 36.0 gm.	Sliced banana.....77.5 gm.
Fried potatoes..... 43.5 "	Potatoes..... 78.0 "	Plain cake..... 32.5 "
Cantaloupe pulp..... 28.5 "	Pudding.....137.5 "	Bread..... 51.5 "
Toast..... 31.0 "	Butter..... 17.5 "	Butter..... 16.0 "
Tea.....100 cc.	Butter..... 4.5 "	Tea..... 90 cc.
Milk..... 20 "	Green peas..... 44.5 "	Milk..... 15 "

SECOND DAY. Water 1,000 cc.

Breakfast.	Dinner.	Supper.
Omelet..... 50.0 gm.	Roast lamb..... 36.0 gm.	Sliced banana.....77.5 gm.
Fried potatoes..... 43.5 "	Potatoes..... 78.0 "	Plain cake..... 32.5 "
Cantaloupe pulp..... 28.5 "	Pudding.....137.5 "	Bread..... 51.5 "
Toast..... 31.0 "	Butter..... 17.5 "	Butter..... 16.0 "
Tea.....100 cc.	Butter..... 4.5 "	Tea..... 90 cc.
Milk..... 20 "	Green peas..... 44.5 "	Milk..... 15 "

THIRD DAY. Water 1,200 cc.

Breakfast.	Dinner.	Supper.
Scrambled egg.....105.5 gm.	Beefsteak.....61.5 gm.	Bread..... 54.0 gm.
Toast..... 39.0 "	Boiled potatoes.....55.5 "	Butter..... 11.0 "
Hanana..... 90.0 "	Beans..... 43.0 "	Sliced peaches..... 62.0 "
Tea..... 90 cc.	Bread.....21.0 "	Plain cake..... 40.0 "
Milk..... 15 "	Butter..... 4.5 "	Tea..... 100 cc.
	Sherbet..... 82.0 "	Milk..... 20 "
	Plain cake.....31.5 "	

FOURTH DAY. Water 700 cc.

Breakfast.	Dinner.	Supper.
Beefsteak..... 51.0 gm.	Salmon.....76.0 gm.	Bl'kberries..... 53.5 gm.
Sliced pears..... 42.0 "	Potatoes.....69.5 "	Bread..... 45.0 "
Potatoes..... 51.0 "	Bread.....14.0 "	Butter..... 5.5 "
Bread..... 43.0 "	Butter..... 6.5 "	Ginger bread..... 38.5 "
Butter..... 4.5 "	Beans..... 68.0 "	Tea..... 100 cc.
Milk.....200 cc.	Blanc mange.....75.0 "	Milk..... 20 "
Tea.....100 "	Cream.....15 cc.	

FIFTH DAY. WATER 1,000 cc.

Breakfast.	Dinner.	Supper.
Fried ham..... 20.0 gm.	Roast chicken..... 32.5 gm.	Beans..... 81.5 gm.
Sliced peaches..... 33.0 "	Boiled potatoes..... 66.5 "	Rasp'berries..... 39.5 "
Plain omelet..... 74.5 "	Bread..... 21.0 "	Bread..... 50.0 "
Toast..... 32.0 "	Butter..... 4.0 "	Butter..... 11.5 "
Butter..... 4.5 "	Boiled custard.....158.0 "	Tea..... 100 cc.
Potatoes..... 60.0 "		Milk..... 20 "
Tea.....100 cc.		
Milk..... 20 "		

SIXTH DAY. Water 1,000 cc.

Breakfast.	Dinner.	Supper.
Shredded fish..... 73.0 gm.	Roast beef..... 43.0 gm.	Sauce..... 34.0 gm.
Sliced plums..... 42.0 "	Potatoes..... 77.0 "	Bread..... 53.5 "
Toast..... 21.0 "	Beans..... 43.5 "	Butter..... 8.5 "
Butter..... 6.5 "	Bread..... 18.0 "	Cake..... 28.0 "
Tea.....100 cc.	Butter..... 8.0 "	Tea.....100 cc.
Milk..... 20 "	Lemon sherbet.....101.5 "	Milk..... 20 "
	Plain cake..... 30.0 "	Lemonade later.....200 "

SEVENTH DAY. Water 1,000 cc.

Breakfast.	Dinner.	Supper.
Beefsteak..... 57.0 gm.	Roast chicken.....30.0 gm.	Currants..... 73.5 gm.
Potatoes..... 44.0 "	Boiled potatoes.....79.0 "	Bread..... 31.5 "
Toast..... 23.5 "	Bread.....15.5 "	Butter..... 6.0 "
Butter..... 7.0 "	Butter..... 6.0 "	Cake..... 26.5 "
Tea.....100 cc.	Green peas.....57.5 "	Tea.....100 cc.
Milk..... 20 "	Pudding.....73.5 "	Milk..... 20 "
		Lemonade.....200 "

EIGHTH DAY. Water 800 cc.

Breakfast.	Dinner.	Supper.
Lamb chop lean 28.0 gm.	Fish.....75.0 gm.	Bl'kberries.....52.0 gm.
Toast..... 33.0 "	Potatoes..... 84.0 "	Bread.....46.0 "
Butter..... 4.5 "	Bread.....25.5 "	Butter..... 11.5 "
Tea.....100 cc.	Butter..... 6.0 "	Cake..... 29.5 "
Milk..... 20 "	Jelly..... 71.0 "	Tea..... 80 cc.
	Cream.....10.5 "	Milk..... 15 "

RESULTS.

Urine.	P ₂ O ₅ .	CaO.	MgO.
First day.....	.863 gm.	.214 gm.	.0568 gm.
Second day.....	.684 "	.1805 "	.0396 "
Third day.....	1.061 "	.203 "	.0567 "
Fourth day.....	1.017 "	.2515 "	.0780 "
Fifth day.....	.979 "	.206 "	.0550 "
Sixth day.....	.863 "	.214 "	.0566 "
Seventh day.....	.832 "	.2875 "	.0486 "
Eighth day.....	.602 "	.1565 "	.0455 "
Total.....	6.90 gm.	1.718 gm.	.468 gm.
Feces.....	4.90 "	1.824 "	1.041 "
Total excreted.....	11.80 gm.	3.542 gm.	1.494 gm.
Food.....	11.10 "	1.876 "	1.50 "

The phosphates and magnesium in the urine seem to be low, the calcium high. It will be noticed that although the ingoing and outgoing P_2O_5 and MgO very nearly balanced each other, twice as much CaO was excreted as was taken in the food.

METABOLISM EXPERIMENT ON A NORMAL INDIVIDUAL.

Total amount of sugar taken during the experiment, 372.5. Total amount of salt taken during the experiment, 24.5.

FIRST DAY. Water 940 cc.

Breakfast.	Dinner.	Supper.
Baked beans.....136.0 gm.	Roast lamb..... 88.5 gm.	Cold lamb. 41.5 gm.
Brown bread.....	Potatoes.....185.0 "	Bread..... 27.5 "
Butter.....	Corn.....159.0 "	Butter..... 4.5 "
Bananas..... 68.0 gm.	Bread..... 46.0 "	Cake..... 20.5 "
Coffee.....100 cc.	Butter..... 19.5 "	Sliced ap- ple..... 82.0 "
Preceded by	Blanc mange.....115.0 "	Potatoes..... 75.0 "
Charcoal..... 10.0 gm.	Milk..... 40 cc.	Tea.....150 cc.
Acacia..... 10.0 "	Sliced apples.....227.0 gm.	
Peppermint wa- ter..... 60 cc.		

SECOND DAY. Water 840 cc.

Breakfast.	Dinner.	Supper.
Oatmeal.....125.5 gm.	Roast lamb..... 73.5 gm.	Bread.....145.5 gm.
Sliced peaches... 50.0 "	Potatoes.....161.0 "	Butter..... 22.5 "
Eggnog..... 200 cc.	Corn..... 65.5 "	Cake..... 38.5 "
Doughnut..... 24.5 gm.	Rice.....123.0 "	Rice.....100.0 "
Bread..... 68.5 "	Syrup..... 40 cc.	Syrup.....
Butter.....16.5 "	Butter..... 5.0 gm.	Tea.....200 cc.
Coffee.....180 cc.		
Milk..... 40 "		

THIRD DAY. Water 1,050 cc.

Breakfast.	Dinner.	Supper.
Oatmeal.....202.0 gm.	Beef..... 65.0 gm.	Bread..... 56.0 gm.
Bread.....112.5 "	Potatoes.....142.0 "	Butter..... 22.0 "
Butter.....15.5 "	Corn..... 69.0 "	Peas..... 54.5 "
Doughnut..... 46.5 "	Bread..... 32.5 "	Corn..... 81.0 "
Eggnog..... 200 cc.	Butter.....12.0 "	Cake..... 47.0 "
Coffee..... 200 "	Eelce pudding.....106.5 "	Tea.....200 cc.

FOURTH DAY. Water 840 cc.

Breakfast.	Dinner.	Supper.
Oatmeal.....143.0 gm.	Steak..... 83.0 gm.	Steak..... 98.5 gm.
Bread..... 57.5 "	Potatoes.....112.0 "	Bread..... 55.5 "
Butter.....10.0 "	Bread..... 38.0 "	Butter..... 14.5 "
Doughnut..... 23.0 "	Butter..... 7.0 "	Potato..... 74.0 "
Eggnog..... 200 cc.	Doughnut..... 22.5 "	Soup..... 20.0 cc.
Coffee..... 200 "	Squash pie mi- nus crust..... 39.5 "	Pie.....260 gm.
		Tea.....200 cc.

FIFTH DAY. Water 420 cc.

Breakfast.	Dinner.	Supper.
Oatmeal.....209.0 gm.	Lamb chops..... 79.0 gm.	Steak..... 37.5 gm.
Bread..... 57.0 "	Beans.....112.0 "	Bread.....106.0 "
Butter.....10.0 "	Potatoes.....120.0 "	Butter..... 19.0 "
Doughnut..... 26.5 "	Bread..... 29.0 "	Squash pie
Eggnog..... 200 cc.	Butter..... 5.5 "	min's crs't 33.0 "
Coffee..... 200 "	Doughnut..... 20.0 "	Tea.....200 cc.
Milk..... 60 "	Tea.....190 cc.	

SIXTH DAY. Water 840 cc.

Breakfast.	Dinner.	Supper.
Oatmeal.....179.0 gm.	Steak.....114.5 gm.	Bread..... 72.5 gm.
Bread..... 47.0 "	Potatoes.....171.0 "	Butter..... 9.0 "
Butter.....10.0 "	Bread..... 60.0 "	Cake..... 55.5 "
Doughnut..... 27.0 "	Butter..... 10.0 "	Tea.....200 cc.
Eggnog..... 200 cc.	Pudding.....145.0 "	
Coffee..... 200 "	Milk..... 200 cc.	
Milk..... 80 "	Tea.....160 "	

SEVENTH DAY. Water 1,200 cc.

Breakfast.	Dinner.	Supper.
Oatmeal.....174.0 gm.	Soup.....200 cc.	Steak.....102.0 gm.
Bread..... 49.5 "	Steak..... 93.0 gm.	Bread..... 79.0 "
Butter..... 7.5 "	Potatoes.....141.5 "	Butter..... 15.5 "
Doughnut..... 49.5 "	Bread..... 84.0 "	Beets..... 93.5 "
Eggnog..... 200 cc.	Butter..... 1.5 "	Cake..... 59.5 "
Coffee..... 200 "	Pudding..... 80.0 "	Fruit.....193.5 "
Milk.....100 "	Milk..... 60 cc.	

EIGHTH DAY. Water 830 cc.

Breakfast.	Dinner.	Supper.
Sliced pears..... 65.0 gm.	Roast lamb.....119.0 gm.	Bread..... 63.0 gm.
Beans.....149.0 "	Potatoes.....195.0 "	Butter..... 11.0 "
Bread.....209.0 "	Corn.....116.5 "	Squash pie
Butter.....15.5 "	Bread..... 32.5 "	min's cr'st 37.5 "
Coffee..... 200 cc.	Butter..... 5.0 "	Sliced
Milk..... 50 "	Pudding.....146.5 "	peaches... 97.5 "
		Corn..... 61.0 "
		Tea.....200 cc.

NINTH DAY.

Breakfast.	Dinner.	Supper.
Oatmeal.....140.5 gm.		
Bread.....117.0 "		
Butter.....10.0 "		
Beans..... 99.0 "		
Coffee..... 200 cc.		
Eggnog..... 200 "		
Milk..... 60 "		

RESULTS. NORMAL PERSON.

Urine.	P_2O_5 .	CaO .	MgO .
First day.....	1.874 gm.	3.250 gm.	2.985 gm.
Second day.....	2.238 "	3.285 "	3.040 "
Third day.....	1.794 "	2.520 "	2.115 "
Fourth day.....	2.428 "	3.035 "	2.500 "
Fifth day.....	2.419 "	3.250 "	2.440 "
Sixth day.....	2.406 "	3.600 "	1.320 "
Seventh day.....	2.278 "	3.270 "	1.590 "
Eighth day.....	1.885 "	2.720 "	2.220 "
Ninth day.....	2.021 "	2.890 "	2.245 "
Total.....	19.34 gm.	2.782 gm.	2.041 gm.
Feces.....	7.80 "	5.158 "	2.444 "
Total output.....	27.14 gm.	7.94 gm.	4.49 gm.
Food.....	24.86 "	7.84 "	5.39 "

The phosphates in the urine in this case were rather higher than in the arthritic cases. They were still rather lower than the average, according to the text-books, however. The calcium in the urine was considerably higher than the average, according to the text-books. The magnesium in the urine was about normal.

The calcium excreted seems to just about balance that in the food. There was a slight retention of magnesium and a considerable loss of phosphorus.

[To be concluded.]

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[To be concluded.]

SARCOMA OF THE NASAL PASSAGES. AN INDUCTIVE STUDY BASED ON THE RECORDS OF 150 CASES.

BY

J. A. WATSON, M.D.,
of Minneapolis, Minn.

Professor of Laryngology, Medical Department Hamline University.

Brief reports of the histories of 4 hitherto unreported cases of this disease which have come under my own observation will form a fitting introduction to the subject matter of this article. These 4 cases are included in the 150 upon the report of which the article is based.

CASE I.—A boy of 10 consulted me on October 26, 1901. He had suffered for a month from attacks of epistaxis, becoming steadily more frequent and more severe. The bleeding was always from the left side, through which side also he was unable to breathe freely, a fact attributed by himself and his friends to the presence of clotted blood in the passages. On examination the left naris was found occluded by a rather soft, bluish-gray mass, bleeding freely on even gentle manipulation with the probe. A persevering examination, however, enabled me to conclude that it was pedunculated and attached to the outer wall of the nasal fossa, a more precise determination of its origin being impossible. With the aid of cocaine and adrenalin I removed the growth in 2 pieces by the cold wire snare. It bled freely after the first manipulation, but on severing the pedicle all hemorrhage immediately ceased. Its origin was found to be from the anterior portion of the inferior turbinate. Removal was so complete and injury to the mucous membrane so slight that it was barely possible to discover its point of origin. No cauterization or curetment was attempted. Under the microscope the growth proved to be a typical small round-celled sarcoma with large vascular spaces. There has been no recurrence in almost 2 years.

CASE II.—On March 28, 1902, a girl of 10 was brought to my office by her father. For nearly a year she had been complaining of a steadily increasing stenosis of the left nasal passage. It was now complete. There was not, and had not been at any time either pain or hemorrhage. External deformity, however, had become evident some months before. The bridge of the nose was widened, the left antral region prominent. The left nasal chamber was found to be completely filled with a reddish-gray, rather firm growth, extending to the posterior naris, apparently sessile and attached to the outer wall. The septum was free, but was pushed to the right. The growth did not bleed readily on manipulation.

Under chloroform anesthesia as much as possible of the growth was removed by snare, forceps and curet. The operation was, however, necessarily incomplete. Several successive operations were then performed under cocaine. There seemed to be no end to the growth, the quantities removed being astonishing. Finally an enormous mass was pulled away in one piece, the antrum having been apparently filled by it. The external wall of the nasal fossa was now found to be almost completely destroyed, the fossa and antrum forming one large cavity apparently entirely free from the growth. The microscopic structure was that of fibrosarcoma. There has been no recurrence in a year and a half.

CASE III.—Mrs. B., aged about 43. I saw this lady first on December 26, 1901. During the previous 2 years she had suffered and was still suffering from obstruction of the left nasal duct. She had been treated by a specialist, who passed a probe frequently, and told her that she should have an operation done in the nose, as there was a growth in the nasal passage. There was obstruction to respiration through the left side, gradually increasing until it was now complete. At times she suffered from slight pain in the face. There had never been any hemorrhage. She had recently had two attacks of facial erysipelas. There was noticeable protuberance of the left side of the face and nose, with slight exophthalmos and displacement outward of the left eye. The left nasal cavity was completely occluded by rather firm tissue, not differing much in color from that of

the normal mucous membrane. The vestibule was, however, free. It was not very easy to excite bleeding by manipulation. As much as possible of the tissue was removed during a few weeks' treatment by snare, curet, scissors and cutting forceps. Radical operation was refused. Great relief was, however, experienced, free breathing room being obtained. Microscopically the growth proved to be a typical fibrosarcoma. The patient is still under observation and the disease appears to be stationary or nearly so. The retardation of its growth may be due partly at least to the attacks of erysipelas, and it is possible that much good might be accomplished by the toxin treatment, but the patient is unwilling to have it tried at present. She has lately gone successfully through the ordeal of pregnancy and lactation, which may have had some effect on the course of the disease.

CASE IV.—A boy of 10 or 11. This case was observed by the writer several years ago in the New York Polyclinic. I have seen no report of the case elsewhere, and feel justified in recording it here. The boy complained of obstruction in the left side, and repeated epistaxis. A reddish-gray growth, half the size of a walnut, filled the cavity. It was attached by a pedicle to the quadrangular cartilage. It was removed by the cold snare, and pronounced a round-celled sarcoma by the pathologist of the institution. There was no return in several months.

Since the middle of the last century there have been reported about 200 cases of sarcoma of the nasal passages. The literature prior to that period contains many references to cases which were undoubtedly instances of this disease, but which, owing to the immature condition of the science of pathology, were reported under such titles as "bleeding polyp," "malignant polyp," "recurrent tumor," "enormous polyp causing deformity of the nose and exophthalmos," etc. The disease, then, can no longer be considered so very rare as many of our textbooks would have us believe. Gibbs, in 1902, collected the reports of 111 cases, 49 of which had been collected by Bosworth, in 1889. The present series of 150 cases, collected or reported by myself, includes all of Gibbs' cases, except a few, the reports of which were not full enough to be of any value for purposes of study or comparison. I am indebted to Gibbs' article for all the information I was able to obtain in regard to some 40 cases of the series, as I did not have access to the original reports.

Any of the different varieties of sarcoma may be found in this region. Round-celled sarcoma, and particularly small round-celled sarcoma, is of the most common occurrence. Fibrosarcoma comes next in order of frequency. Myxosarcoma occurs about half as often as fibrosarcoma. Then, in decreasing order, come spindle-celled sarcoma, melanotic sarcoma, angiosarcoma, adenosarcoma. Two cases of the series were reported as osteosarcoma, while there was 1 case of myeloid, alveolar, and lymphosarcoma. There were also 2 cases of mixed carcinoma and sarcoma, while one of the melanosarcomas was "undergoing carcinomatous degeneration." It is questionable whether the comparative frequency of melanosarcoma (about 7%) is paralleled in any part of the body except the skin and choroid. The series included a number of mixed types. In microscopic characteristics these growths differ in no respect from similar neoplasms elsewhere. In gross appearances they vary very greatly. The statement of Bosworth that they are invariably pedunculated is by no means correct. Price-Brown is probably also mistaken when he asserts that they are usually sessile, at least if he refers to the earlier stages of their growth. Many cases, sessile when they come under observation, were undoubtedly pedunculated at an earlier period, the change being brought about by pressure necrosis, ulceration, and union of opposed surfaces, almost necessary consequences of the tumor's enlargement in a practically closed cavity. I say almost necessary, but I must admit not absolutely necessary consequences, since in several instances, though the tumor filled the nasal fossa and some, at least, of the accessory sinuses, and was at all points in contact with the walls of these cavities, there was actual attachment only at its point of origin. The number of cases in which there is a distinct statement that the tumor was sessile is about equal to those in which there is a distinct

statement to the opposite effect. On the whole, it is likely that a majority of these growths are pedunculated at first.

Sarcomas of the nasal passages, like sarcomas elsewhere, are usually soft, succulent, and vascular. Not a few, however, particularly of the fibrosarcomas, are described as "rather firm," "firm," "dense," or "hard." They are very commonly of a bluish-gray or reddish-gray color, but may be pink, red, dark brown, or almost black.

The particular point of origin of nasal sarcomas is of interest from both a pathologic and a therapeutic point of view. Among those cases in which it could be determined at all—and when determined was reported—the middle turbinate and ethmoid region was the most common site, though followed closely by the septum. The growth arises comparatively infrequently from the inferior turbinate and from the floor of the nose, and still more rarely from other situations. The cases in which it commences in any of the accessory sinuses are certainly very infrequent.

The proximate cause, or causes, of sarcoma in this region is, of course, as little understood as in the case of other regions, and it is, if anything, more difficult to decide with certainty what conditions may be considered as predisposing. We look on sarcoma, as a rule, as a disease of youth and early adult life, and Bosworth maintains that this generalization holds true in the case of sarcoma of the nasal passages, that the average age of its victims is a little less than 39, and that "the very large proportion of cases" occur before 40. In 123 cases of the present series in which the age has been reported, his average of a little less than 39 holds exactly true, but a little consideration will convince us that an estimation of averages is of little value in such a case. So far from "the large proportion of cases" occurring before 40, 62 cases only occurred before that age, against 61 occurring after it. The cases were distributed as follows in the different decades of life:

	Cases.
First decade	4
Second "	18
Third "	20
Fourth "	20
Fifth "	23
Sixth "	18
Seventh "	12
Eighth "	3

The first decade appears to be comparatively exempt from, the fifth comparatively liable to the disease. Further than this, age has little or no influence. The apparent comparative immunity of the seventh and eighth decades must be due principally to the comparative rarity of life in those periods.

But the matter is different when we come to consider the question of sex. Here at least there appears to be a clear indication of predisposition in that the male sex is very much more commonly affected than the female, there having been 81 cases in males, against 46 in females. In 23 cases the sex was not reported. Whether this predisposition of the male sex to the disease is due in any degree to its greater exposure to injury and to the irritative effects of adverse atmospheric conditions is a question worthy perhaps of some consideration. In the present series however, there was a history of injury, excluding the injury of surgical operations, in three cases only, all males. In one of those cases the injury occurred 12, and in another 20 years before the onset of the disease, and can hardly be held responsible.

Let us now advert to the vexed question whether sarcoma of the nasal passages ever arises, spontaneously or as the result of operative interference, from preexistent mucous polypi, or whether such a process as malignant transformation of these neoplasms ever does occur. And first it is pertinent to inquire what degree of improbability attaches to such a transformation. I believe a very small degree. For have we not perfectly analogous

processes in the wellknown phenomena of metaplasia? Nay, further, is it not in this very type of tissue that metaplasia commonly occurs? Since we know, *e. g.*, that fibrous and myxomatous tissue may, and do under certain conditions become actually converted into bone or fat or cartilage, or other forms of connective tissue, why should it be considered incredible that they might also become converted into embryonic connective tissue, especially since the latter transformation implies nothing more than a reversion to the type from which they are admittedly derived. If it be objected that such a morphologic transformation does not imply a transformation from benignancy to malignancy, I reply, first, that the ground is not well taken, since our knowledge of the essential conditions of malignancy is so immature that the one transformation might very well involve and quite possibly does involve the other; and second, that certain morphologic characteristics are practically always accompanied by and accepted as an evidence of malignancy. But evidence of a more positive character may be discovered by an examination of the present series. Polypi are distinctly stated to have been previously present in 24 out of the 150 cases, and since a great many of the records are very incomplete, it is a fair presumption that they existed in an indefinitely larger number. This is a large proportion if it be borne in mind that the argument is, not that sarcoma frequently arises from polypi, but that polypi occasionally and rarely undergo this malignant transformation. This consideration also destroys the force of the argument that if such a transformation took place, sarcoma of the nasal passages would be very much more common than it is, owing to the prevalence of polypoid disease. While it is true that in many instances neoplasms, malignant from the commencement, might have been mistaken for polypi, it is nevertheless unlikely that such was always the case, especially as in several cases the chain of evidence seems very complete, many microscopic examinations having at first declared emphatically for the presence of benign polypi only, while later examinations demonstrated the presence of sarcomatous tissue.

As might, of course, be anticipated, nasal stenosis is the most constant symptom of this disease. Sooner or later, it occurs in practically all cases. Not only, however, does it occur more frequently than any other symptom, but it nearly always occurs earlier than any other, a fact which is of some importance, as substantiating to a certain degree the view that these growths have their origin almost invariably in the nasal fossa itself, rather than in any of the accessory sinuses. Spontaneous hemorrhages constitute the next most common symptom. Occurring alone, neither of these symptoms is any more suggestive of this disease than of many other intranasal disorders, but in combination they should invariably arouse a strong suspicion. Pain is a symptom mentioned but 24 times in the not infrequently meager records of the series. I am inclined to believe that it occurs much more frequently than this. In many instances it is distinctly stated to have been absent through the whole course of the disease. Pain, when it does occur, is very varying in type and location in different cases, sometimes severe, sharp, and neuralgic, again dull, aching, boring. Commonly it is referred directly to the growth and its immediate neighborhood, but in many cases it radiates widely and distantly. Offensive purulent, mucopurulent, or sanguinopurulent discharge greatly increases the patient's misery, and not infrequently, even in comparatively early stages, the sense of smell is impaired or destroyed. If the patient's life is sufficiently prolonged, external deformity infallibly adds to the horrors of the situation. Serious impairment of the general health is often postponed until late in the history of the disease, and a cachexia such as commonly accompanies carcinoma is rarely seen.

A consideration of the subjective symptoms, and objective appearances of the disease, as collected from the

reports of this series, makes it evident that there ought rarely be any difficulty in arriving at a positive diagnosis. It is most often confounded with angioma, fibroma, carcinoma, and mucous polypi, but all of these growths, with the possible exception of fibroma, which is in any case of great rarity, possess characteristics and manifest symptoms which ought almost invariably to make it possible to avoid such confusion. The relative dependence to be placed upon microscopic evidence, provided always that many sections have been examined from different parts of the growth, both deep and superficial, depends largely on the side upon which this evidence is arrayed. If it is corroborative of a previous and carefully formed diagnosis, based on clinical grounds, the question may be considered as settled. On the other hand, but little weight should be attached to any microscopic testimony which contradicts a well-founded clinical diagnosis of malignancy, a circumstance, of course, which occurs but very rarely. If, however, the state of the case is reversed, the microscope declaring for malignancy, whether the clinical evidence to the contrary be doubtful or positive, there can be no doubt but that its testimony is in such a case of much more value than that of any symptom, or probably than any group of symptoms, and the wisest course is to call the disease malignant and treat it as such. We should not fail to remember that while a certain definite structure is probably infallible evidence of inherent malignancy, physiologic resistance, or even less understood conditions of environment, may explain the apparently benign tendencies of some essentially malignant growths; and further, that those adverse conditions may, for aught we know, become at any time so modified as to allow the tumor to manifest the most baneful characteristics.

It is probably true that sarcoma of this region manifests, on the whole, a less malignant tendency than when occurring elsewhere. Certainly, though usually considered one of the most important manifestations of malignancy, the occurrence of metastasis is an extremely rare event. I have found it mentioned but 3 times. In two of those cases the cervical glands were involved, in the other—Warthin's case—there was universal metastasis, including even the formation of a free sarcomatous mass in the right ventricular cavity of the heart. The ultimate history of 45 cases of the present series does not appear in the records. Of the remaining 105 cases, 62 patients are stated to have recovered. In only 28 of these 62 cases, however, does the history subsequent to treatment extend over a period of longer than 6 months' duration, a circumstance which renders the statement of recovery in the remaining 34 cases almost useless. The average duration of life in the fatal cases appears to be about 2 years from the first appearance of symptoms.

Apart from surgical measures, the only treatment worthy of consideration is that by toxins, either of *Streptococcus erysipielatis* or mixed toxins of *Streptococcus erysipielatis* and *Bacillus prodigiosus*—Coley's fluid. In none of the cases of the present series, however, in which this treatment was tried was there any noticeable improvement, even when marked reactions were obtained. This corresponds with my experience in a case of sarcoma commencing in the alveolar process of the right superior maxillary bone, and secondarily invading the antrum and nasal fossa. Nevertheless, I am inclined to attribute the retardation of growth in my own third case to the attacks of erysipelas. Plicque and others strongly condemn any attempt at intranasal operation on malignant neoplasms, on the ground that it is nearly always impossible to eradicate the growth completely through the natural channels and that such ineffectual interference is likely to become an excitant to greater malignancy. The cases under consideration bear on this question as follows: Out of 48 cases stated to have been submitted to radical operation, the subsequent history was unknown, or unreported, in 13. Nineteen patients recovered and were free from recurrences for a variable

period. In 16, recurrence or death took place. The percentage of cures thus obtained by radical external operation was 39.58. In 64 cases, in which the patients were treated by intranasal operation, the figures stand thus: Result not stated, 8; recovery, 35; recurrence or death, 21; percentage of recoveries, 54.68. The weight of this evidence in favor of intranasal operation is increased by a consideration of the comparatively large number of cases in which the result of radical operation is not stated. While on the other hand it is probably true that the cases submitted to radical external operation are usually more advanced and more hopeless than those in which the milder measures are adopted, the fact that over 54% of the latter are cured surely justifies the adoption of those milder measures, in selected instances at least. It is noticeable, further, that some severe and far advanced cases, advanced even to the stage of considerable external deformity, *e. g.*, my own second case, are cured by intranasal operation. The second objection, viz., the possibility of exciting the growth to greater malignancy, finds little justification in the records of the series, inasmuch as even manifestly incomplete operations appear almost invariably to have prolonged life and alleviated suffering. In any event there can certainly be no justification for a primary external operation on a small pedunculated sarcoma with a point of origin in an easily accessible region. In such instances at least the cold wire snare should invariably be the instrument of first choice, and is commonly the only instrument necessary for the complete eradication of the growth.

Out of 4 cases of the series in which ligation of the carotid of one or both sides was resorted to, there was marked improvement in 3. The other patient died as a result of the operation. Dawbarn's procedure of exsecting the external carotid artery appears to be an improvement on simple ligation, and gives promise of at least rendering operable many otherwise inoperable growths.

Appended is a list of the cases not included in the collection of Bosworth and Gibbs. Gibbs' collection, which included all of Bosworth's cases, may be found in the *New York State Journal of Medicine* for January, 1902.

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[The references are not always to the original articles, to some of which I did not have access.]

TOXEMIA ASSOCIATED WITH TUBERCULOSIS OF THE CERVICAL LYMPHATIC GLANDS, WITH REPORT OF A CASE.*

BY

ARTHUR W. ELTING, M.D.,

of Albany, N. Y.

Attending Surgeon to the Albany Hospital; Attending Surgeon to the Child's Hospital.

In the voluminous literature of tuberculosis there are but few references to the so-called toxemia resulting from a localized focus of infection and due to the products of the life and growth of the tubercle bacilli alone. In most instances when the toxic phases of the disease have been especially pronounced it is safe to assume that the disease was more or less generalized and was in reality a miliary tuberculosis, or else there was a secondary infection superadded. The following case, which was referred to me some time since by Dr. W. H. Murray, of Albany, N. Y., illustrates a phase of surgical tuberculosis upon which but little emphasis has hitherto been laid:

W. W. G., aged 26, consulted me March 7, 1903, for an enlargement of the right side of the neck. The family history was negative in every respect. The patient had had the usual diseases of childhood, but otherwise had excellent health. He denied all venereal infection and did not use alcoholic drinks. His occupation for several years had been that of a mechanic. Early in December, 1902, a barber had called his attention to a tumor situated on the right side of the neck just behind the angle of the jaw. The tumor at that time was the size of a small pigeon's egg and was of firm consistence, but was not tender or painful. His general health at that time was good and he knew of no cause for the enlargement. The tumor had gradually increased in size, but had enlarged rather more rapidly during the 3 weeks prior to his admission to the Albany Hospital. He had worked steadily until a month before admission to the hospital, when he was compelled to stop work because of a progressive general weakness. His appetite had gradually failed and he had lost between 25 and 30 pounds in weight. He had not had any cough, but there had been marked shortness of breath on the slightest exertion. The bowels were regular and there had been no nausea or vomiting. The patient stated that about 3 weeks before admission to the hospital he had begun to feel feverish at times and had had chilly sensations, with a few night sweats. During the 10 days prior to his admission to the hospital the patient's condition became rapidly worse and his fever continuous, ranging from 101.5° to 104.4°, and his pulse from 100 to 130. Associated with this condition there was a marked prostration, so that the patient was confined to his bed.

On admission to the hospital his condition seemed most critical. His temperature was 103.2°; pulse 120. He was a moderate framed, decidedly emaciated young man. The skin and mucous membranes were extremely pale. The tongue was covered with a heavy, moist coat. The expression was dull and apathetic and he appeared extremely prostrated. The lungs were found to be normal. The heart was somewhat hypertrophied and slightly dilated, and presented the typical signs of a mitral stenosis. The abdomen was symmetric, except that the left costal groove was obliterated. The spleen was markedly enlarged on percussion, and could be seen and felt fully 3 cm. below the left costal margin. The edge was rounded. The liver was not enlarged, and the kidneys could not be palpated. The bones and joints were normal. The reflexes were normal. The right side of the neck presented an extensive tumor mass which was most marked near the sternocleidomastoid

muscle and which occupied a considerable portion of the anterior and posterior triangles. The tumor extended from the top of the right mastoid process to slightly behind the right clavicle. On palpation it was found to be composed of a series of greatly enlarged lymphatic glands. Both the superficial and deep chains of glands were involved. Many of the glands were discrete and could be palpated individually, while others were somewhat matted together. The glands were of rather firm consistence and not at all tender. The skin was freely movable over the glands and of normal appearance. There was no enlargement of the other glands of the neck, nor of the axillary or epitrochlear glands. There seemed to be a very slight enlargement of the left inguinal glands, but none of the right.

An examination of the blood at this time showed the following condition:

Red blood-corpuscles	3,650,000
White blood-corpuscles	3,000
Hemoglobin	75%

The differential count of the leukocytes showed them to be present in the following proportions:

Polymorphonuclear leukocytes	47%
Large mononuclear leukocytes	48%
Small mononuclear leukocytes	5%

The urine was normal in every respect.

The question of diagnosis seemed rather difficult at this time. Because of the character of the enlarged glands, the marked enlargement of the spleen, the blood picture, and the fever, the case was regarded as most probably one of Hodgkin's disease, in which diagnosis both Dr. Murray and Dr. Hun concurred. The patient was growing rapidly worse and it was evident that death would soon occur unless something could be done to relieve the condition. An immediate operation was advised and consented to.

On March 11, under ether anesthesia, through an S-shaped incision, the enlarged glands were carefully excised. The superficial and deep chains of glands were all enlarged and it became necessary to sever the sternocleidomastoid muscle at the junction of its upper and middle thirds to facilitate the removal of the glands, which were quite adherent to the sheath of the vessels. After the removal of all the enlarged glands the severed ends of the sternocleidomastoid muscle were sutured with catgut and the wound closed with a small drain at the lower angle. The patient stood the operation well and exhibited but slight shock.

During the first 24 hours after the operation the patient's temperature ranged from 103.2° to 104.6°, and the pulse from 120 to 140. He received rectal enemas of whisky and salt solution every 3 hours, and 1 mg. (1/30 gr.) of strychnin every 2 hours. His condition, however, at the end of 24 hours was decidedly critical. In the hope of reducing the temperature, ice sponges were given every 3 hours, but with little effect.

The temperature during the second 24 hours after operation ranged from 101.6° to 104.8°; and the pulse from 112 to 128. The rectal stimulation was discontinued and the patient received .3 cc. (5 m.) of the fluid extract of digitalis hypodermically every 4 hours. The ice sponges were discontinued and ice packs every 3 hours substituted. After this the temperature began to fall. At the end of 48 hours after the operation the patient's condition was decidedly improved; the temperature was lower and the pulse of better character.

The temperature and pulse continued to fall during the third 24 hours, until 72 hours after operation it reached 99° and the pulse 90. The patient's condition was greatly improved in every respect. He took nourishment freely and slept well. Practically all of the stimulation was discontinued, as were the ice packs. The patient's convalescence from thence was most satisfactory. The temperature and pulse remained normal and his general condition improved rapidly. He ate and slept well and was able to sit out of bed a week after the operation. The drain was removed from the wound at the end of 48 hours, and the wound healed satisfactorily.

At the time of his discharge from the hospital, 10 days after admission, his general condition was excellent. His temperature and pulse were normal. There was slight induration along the scar, and the action of the sutured sternocleidomastoid muscle was satisfactory. The spleen had decreased greatly in size and could not be palpated, although it was found to be slightly enlarged on percussion.

An examination of the glands removed at the operation was made by Dr. Blumer, of the Bender Hygienic Laboratory, who reported that they presented the typical macroscopic picture of tuberculosis with extensive caseation. There was, however, no tendency to a softening of the caseous material. Tubercle bacilli were demonstrated in this caseous material, but they were comparatively few in number. Cultures from the glands were sterile. The microscopic picture was that of a typical tuberculosis of the lymphatic glands.

The patient's subsequent history was uneventful. He gained rapidly in weight, and June 10, 1903, 3 months after the operation, he weighed more than he ever had in his life. His general health was excellent. The scar was perfect in every respect. The action of the sutured sternocleidomastoid muscle was normal and the patient stated that he had never felt so well in his life. There was no evident enlargement of any of the

* Read before the Medical Society of the State of New York, January 26, 1904.

lymphatic glands of the body and the spleen could not be felt, the area of dulness being normal in extent. An examination of the blood at this time showed the following condition:

Red blood-corpuscles	4,550,000
White blood-corpuscles	6,000
Hemoglobin	86%

A differential count showed the relative proportions of the leukocytes to be normal.

January 3, 1904, the patient was again seen, and he stated that his health had remained excellent since the last examination in June. Physical examination at this time showed him to be absolutely normal in every respect, except for the signs of mitral stenosis already referred to.

Of especial interest in this case was the blood picture, a hypoleukocytosis of 3,000, with 48% of large mononuclear leukocytes, conditions which would suggest Hodgkin's disease rather than tuberculosis, and which returned to normal after the removal of the glands. That the process should have remained localized in the glands of one side of the neck and that no subsequent recurrence of the disease occurred, seems, indeed, striking in view of the fact that the infection was of such a virulent character.

Of importance, also, is the fact which has frequently been demonstrated, that section of the sternocleidomastoid muscle, with subsequent suture, can be safely performed with every probability of the restoration of perfect function. This procedure greatly facilitates the removal of the cervical lymphatic glands when they are extensively diseased, and should be more frequently adopted.

After a careful search of the literature of tuberculosis, I have been unable to find reference to a similar case in which so profound a toxemia has developed in association with a localized focus of tuberculosis of the lymphatic glands, and in which so rapid a recovery followed the removal of the focus. There seems no other logical explanation of the grave symptoms than that they were caused by the absorption of toxins from the tuberculous glands, and the presence of these toxins in the circulation was undoubtedly the cause of the markedly enlarged spleen, which must have been of the nature of an acute spleen tumor. The extremely desperate condition which followed immediately after the operation, and which lasted nearly 48 hours, was in all probability due to the introduction of a large amount of toxin into the circulation through the manipulation of the glands, incident to their removal. The source of the toxin having been removed, and that present in the organism having been eliminated, a rapid convalescence naturally ensued.

ACQUIRED HYDROPTHALMUS.*

BY

EDWARD STIEREN, M.D.,

of Pittsburg, Pa.

Assistant in Ophthalmology and Otolaryngology, Western Pennsylvania Medical College; Ophthalmologist and Otolaryngologist Passavant Hospital and McKees Rocks General Hospital.

Congenital glaucoma, infantile glaucoma, hydrophthalmus, buphthalmos, *totale ektasie der sclera*, are terms used to express a pathologic ocular condition characterized by a symmetric enlargement of the eye in all its diameters.

The affection appears at birth or shortly after, having its origin in intrauterine life. It usually involves both eyes,¹ progresses slowly and nearly always terminates in blindness.

The first symptom observed is the characteristic cloudiness of glaucoma in the cornea.² The child will exhibit more or less photophobia and appear to have

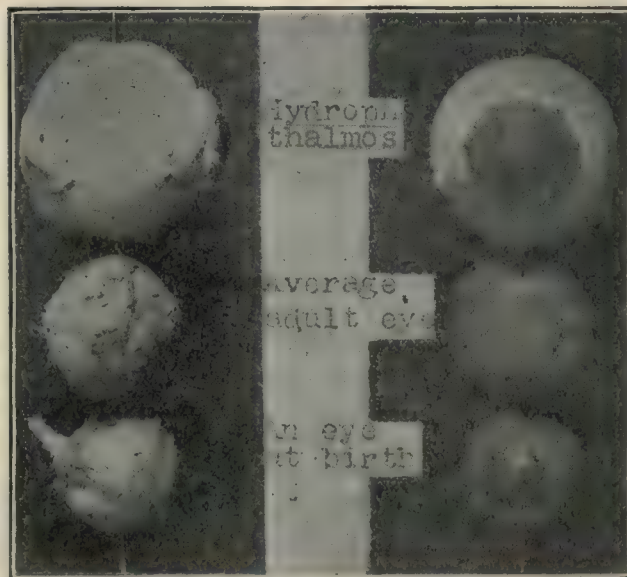
pain in the eyes. Then there usually ensues a period in which the eyes are quiet and free from inflammation only to be followed in a few days or weeks by a repetition of the former symptoms. There is marked increase of intraocular tension; the anterior chamber becomes deep, the pupil dilated and the iris tremulous.

On account of the yielding character of the tunics of the eyeball at this period of life and with the coexisting inflammation in the sclera, the increased internal pressure causes the eye to enlarge in all directions and the sclera becomes thinned and bluish-white in color owing to the uveal pigment showing through. The cornea likewise participates in the enlarging process and the optic disc becomes deeply excavated.³

The etiology of this affection is not thoroughly understood. An intrauterine iridokeratitis with increased intraocular tension in a certain proportion of cases, congenital defective development at the filtration angle in others,⁴ are the most plausible reasons that can be given.

That the condition can, however, occur in later childhood and as a result of traumatism the following report illustrates.

Sarah K., aged 11, was brought to me by her parents with this history. When about 8 years of age, while jumping a knotted rope swung by two companions, she was accidentally



Actual size.

struck in the left eye with the knot. Considerable inflammation and pain in the eye followed this injury, with exacerbations and remissions of the symptoms for the space of about a year, at the end of which time the eye began to grow larger, sight being completely lost soon after. For the next 2 years the eye was comparatively free from pain, but the disfigurement caused by the continually enlarging eye as it protruded more and more became most marked, and for this one symptom relief was sought.

Examination revealed the enlarged globe, almost immovably fixed in the orbit, over which the lids glided freely. Tension was slightly reduced, light perception absent, cornea hazy and the pupil bound down to a cataractous lens.

Enucleation was performed without incident save that the optic nerve was torn from its scleral attachment when the enucleation scissors were introduced, due to the thinned and softened condition of this tissue. The vitreous, being fluid, escaped through this opening.

In the fresh state the eyeball measured anteroposteriorly 32 mm., equatorially 30 mm., while the diameter of the cornea averaged 16 mm.

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* Reported in the Allegheny County (Pa.) Medical Society, January 19, 1904.

SPECIAL ARTICLES

THE USE AND ABUSE OF THE IMAGINATION IN THE EXPERIMENTS AND OBSERVATIONS IN MEDICINE.¹

BY

JOHN C. HEMMETER, Med. et Philos. Dr.,
of Baltimore, Md.

Professor of Physiology and Clinical Professor Diseases of the Digestive Organs, University of Maryland, Baltimore.

This Association was founded for the encouragement and diffusion of medical learning in the pathology of the digestion and metabolism. Its creed is very simple, requiring in the new member only will and devotion. It is our business to study the works of nature, and particularly of abnormal nature, as manifested in the human body, by observation and experiment, and it is our duty to conform our conduct to nature's laws. We believe that upon this line of investigation lies the true road of progress for scientific medicine. We do not wish individually to impose our ideas on others, but prefer to leave them to the operations of reason and judgment and in this sense we are free among ourselves.

If a brother go astray we let him alone, feeling sure that time will lead him back to the truth. Cicero tells us that time overthrows the opinions of men, and confirms the decisions of nature. With full confidence in this sentiment let us go on in our work? An effort should be made to arrange an occasional symposium on the same subject, that is, let the same subject-matter be discussed from the clinical as well as the surgical side, by reporters of that special meeting. Surgeons and clinicians do not meet often enough to discuss the borderland between medicine and surgery. Then those of a more scientific turn of mind, the lovers of physiology and pathology, should arrange with the clinical men to discuss subjects of mutual interest. For example, the diseases of metabolism, diabetes, obesity, uric acid diathesis, pancreatic and hepatic diseases can only be thoroughly ventilated in this way. Such discussion could be arranged between two reporters of a meeting, or by a motion a special subject could be agreed upon for general discussion. Considerable instruction should result from such conferences, for we have many clever thinkers in this Association, and latent convictions have often only been brought out during a heated and interesting debate.

Great differences exist among medical men. We have general practitioners and medical men of research and experimental philosophers. This imposes upon us the necessity of enforcing a degree of selection in the choice of our new members. I cannot become reconciled to the thought that this union of knowledge and sentiment should ever be disbanded after so many years of fruitful and blessed activity. To you we leave the duty to perpetuate the union of scholarship and good fellowship. It is self-evident that we cannot accomplish our aim without criticism, but critical satisfaction has always been submerged beneath the positive elation over the splendid uprising of medical science at the beginning of the Twentieth Century.

There are many infatuations which exercise a kind of tyranny in medicine. To raise personal preferences to the dignity of a creed is not enough. A cult once established, a dogma once accepted—there can be no more freedom from analysis, no more independent criticism, no more permissible dissent. The usual procedure is to give unthinking assent. Mental indolence is, of course, at the bottom of this fashion. It is easier to accept an opinion than to form one. Never has the tendency to slavish partisanship been more general nor despotism of ready-made judgments more absolute than in these times of pretended scientific emancipation and so-called individualism.

It is dangerous to classify imperfectly-known data under general theories, and sound progress of science requires of us to be clear at every moment which elements in the system of science are hypothetic and which are the limits of that knowl-

edge which is obtained by direct observation.¹ There are few students who possess that cold enthusiasm for truth which enables them to be always clearly conscious of the sharp line between attractive theory and observation acquired by hard and earnest work.

Speaking of the ebb of intellectual force, which we all from time to time experience, Mr. Bain² says: "The uncertainty where to look for the next opening of discovery brings the pain of conflict and the debility of indecision." These words have in them the true ring of personal experience. The action of the investigator is periodic. He grapples with a subject of inquiry, wrestles with it, overcomes it, exhausts both himself and it for the time being. He breathes a space, and then renews the struggle in another field. Now this period of halting between two investigations is not always one of pure repose. It is often a period of doubt and discomfort, of gloom and ennui. "The uncertainty where to look for the next opening of discovery brings the pain of conflict, and the debility of indecision."

John Tyndall³ states it is well worth the while of the scientific teacher to take some pains, and even great pains, to make those whom he addresses copartners of his thoughts. But it is by no means easy to clear his own mind in the first place of all haze and vagueness, and then to project into language which shall leave no mistake as to his meaning, and which shall leave even his errors naked, the definite ideas he has shaped. Much is possible to scientific exposition conducted in this way. Even before an audience like the present, it is possible to uncover to some extent the unseen things of nature, and thus to give not only to professed students, but to others with the necessary bias, industry, and capacity, an intelligent interest in the operations of science. Time and labor are necessary to this result, but science is the gainer from the public sympathy thus created.

It appears to be characteristic that every new view or statement in all domains of knowledge is announced with perfect self-assurance, in order to be impressive. And the inclination of human beings to dogma, and the deficient philosophic culture of large circles, has lent encouragement to this custom.

Yet little or nothing of the context of new things can in the strictest sense be proved by observation, and much less by experiment, which pretends to be a high judge of clinical medicine.

I do not desire to make you critically apprehensive by a paradox, but I cannot refrain from suggesting that really nothing can be proved by experience and experiment. Phenomena can be accurately observed, experiments can be precisely executed. One is enabled to arrange experience and experiment in a certain order, one can deduct one phenomenon from another. A certain, definite circle of knowledge may be established. One can even elevate one's views to a degree of certainty and completeness, and that is accomplishing much.

However, deductions in the minds of others are formed by everyone for himself. As far as one goes with his logic, one cannot prove anything by it. Everything concerning the opinions about things belongs to the individual—and we know very well that convictions do not depend upon insight but upon the will. Nobody grasps or understands anything except that which his will concedes. In knowledge, as well as action, the foreknowledge or prejudice decides everything—and prejudice, as its name indicates, is a judgment before investigation.

Philosophers may be right in affirming that we cannot transcend experience; but we can at all events carry it a long way from its origin. We can also magnify, diminish, qualify and combine experience, so as to render it fit for purposes entirely new. We are gifted with the power of imagination, and by this power we can lighten the darkness which surrounds the world of the senses.

John Tyndall³ says:

There are Tories even in science who regard imagination as a faculty to be feared and avoided rather than employed. They had observed its action in weak vessels, and were unduly impressed by its disasters. But they might with equal justice

¹ President's address, American Gastroenterologic Association, Washington, D. C., May 14, 1903.

² Role of Hypotheses in Medical Research: W. Ostwald.

³ Bain's Logic.

³ Scientific Use of the Imagination.

point to exploded boilers as an argument against the use of steam. Bounded and conditioned by cooperant reason, imagination becomes the mightiest instrument of the physical discoverer. Newton's passage from a falling apple to a falling moon was, at the outset, a leap of the imagination. When William Thompson tries to place the ultimate particles of matter between his compass points, and to apply to them a scale of millimeters, he is powerfully aided by this faculty. And in much that has been recently said about protoplasm and life, we have the outgoings of the imagination guided and controlled by the known analogies of science. In fact, without this power, our knowledge of nature would be a mere tabulation of coexistences and sequences. We should still believe in the succession of day and night, of summer and winter; but the soul of force would be dislodged from our universe; causal relations would disappear, and with them that science which is now binding the parts of nature to an organic whole.

All the facts which we have considered, the liability to error in whatever direction we may go, the infirmity of our minds in their reasoning power, the fallibility of witnesses and experimenters, lead the scientist to be specially sceptical with reference to any statement made to him or any so-called knowledge that may be brought to his attention. Professor H. A. Rowland made the following statement in an address made shortly before his death:

The facts and theories of physical science are so much more certain than those of history, of the testimony of ordinary people on which the facts of ordinary history or of legal evidence rest, or of the value of medicine to which we trust when we are ill—indeed, to the whole fabric of supposed truth by which an ordinary person guides his belief and the actions of his life, that it may seem ominous and strange that what I have said of the imperfections of the knowledge of physics is correct. How shall we regulate our minds with respect to it? There is only one way that I know of, and that is to avoid the discontinuity of the ordinary, indeed, the so-called cultivated legal mind. There is no such thing as absolute truth and absolute falsehood. The scientific mind should never recognize the perfect truth or the perfect falsehood of any supposed theory or observation. It should carefully weigh the chances of truth and error, and grade each in its proper position along the line joining absolute truth and absolute error.

If this latter injunction is followed out very little room is left for the use of the imagination in the solution of medical problems, and even when employed in a controlled and limited extent, its yieldings must always be submitted to the test of repeated demonstration, if possible by experiment. When imaginative power was left to develop questions of research unaided, it yielded only hypotheses, and these are the curse of medicine.

The ordinary crude mind has only two compartments, one for truth and one for error, indeed, the contents of the two compartments are sadly mixed in most cases; the ideal scientific mind, however, has an infinite number.¹ Each theory or law is in its proper compartment indicating the probability of its truth. As a new fact arrives, the scientist changes it from one compartment to another in order to keep it, if possible, in its proper relation to truth and error. Thus, the fluid nature of electricity was once in a compartment near the truth. Faraday's and Maxwell's researches have now caused us to move it to a compartment nearly up to that of absolute error.¹

So the law of gravitation within planetary distances is far toward absolute truth, but may still need amending before it is advanced further in that direction.

The ideal scientific mind, therefore, must always be held in a state of balance which the slightest new evidence may change in one direction or another. It is in a constant state of scepticism, knowing full well that nothing is certain. It is, above all, an agnostic with respect to all facts and theories of science as well as to all other so-called beliefs and theories and cannot yield to temptations held out by processes of imagination. If the foremost American physicist thought it his duty to caution against the scientific absolutism of today in a domain to which the most precise and accurate methods are applicable, it is evident that the same caution is more directly applicable to researches in medicine, to which methods of equal accuracy are not applicable and in which more liberty is as a rule conceded to the power of imagination.

Care should be had lest this Association drift into that state which is commonly known as a "mutual admiration society."

¹ H. A. Rowland, loc. cit.

Fair-minded and conservative criticism is one of the most edifying and instructive forms of debate. Nine-tenths of all medical publications of the present day are simply compilations of scientific facts, to which no individual interpretation is added. Such compilations have in reality very little value unless the author is capable of associating with them conservative critical judgment, based on broad experience. Let us hope that the reports of the American Gastroenterologic Association will more and more become precise and accurate statements of critically digested and tested truths, in which nothing is stated simply on the authority of someone else, without having been again thoroughly considered and revolved in the brain of the reporter, and worked up by a systematic plan and order. At no point in the report to a representative scientific body should there be any doubt of the logical connection of the various parts of the report, and one argument should be logically succinct upon another. I have stated this because my personal experience has been that quite a number of reports have not given evidence of these qualities. They have been devoid of those evidences of mental digestion on the part of the writer, and of logical criticism which are the most unfailing proofs of broad experience, keen and conservative judgment, and a good and sane heart that always wishes and works for the best.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

March 26, 1904. [Vol. XLII, No. 13.]

1. The Dietetics of Atonic Dilation of the Stomach, Based on a Study of the Physiology of Gastric Movements. FENTON B. TURCK.
2. The Mathematics of the Diabetic Diet. ALFRED C. CROFTAN.
3. The Relation of Nature's Provision for Heart Stimulation and Control to the Use of Cardiac Drugs in Acute Disease. LOUIS FAUGERES BISHOP.
4. Obstruction and Consequent Distention the Cause of Appendicitis, as Proved by Cases and by Experimental Appendicitis in Dogs. C. VAN ZWALENBURG.

1.—Dietetics of Atonic Dilation of the Stomach.—F. B. Turck has demonstrated by animal experimentation that strong HCl, peptones, albumoses, starch, etc., show no appreciable effect on movements, while distention with air or water immediately excites peristalsis. If the air or water is forced into a bag within the stomach so that it will return promptly the resultant contractions after return are more numerous and vigorous. Chemic stimulation may cause opening or closing of the pyloric orifice, but tension on the walls is more important in producing stomach movements. The writer reviews the principles on which tension rests. In exhaustion, fatigue and atony the same law exists, except that increased stimulation and longer periods of rest are required. Mechanical work is divided into (1) distention with food, (2) expulsion, (3) relaxation. Increased work may be due to increased load within the stomach or increased resistance at the pylorus. If this work passes beyond physiologic limits, atony and dilation follow. Increased quantity does not proportionately increase the sojourn of food in the stomach. In pyloric obstruction, removal of the obstruction is the only treatment. In other cases rational diet must be ordered. Frequently repeated small meals are contraindicated. A large meal increases peristalsis, hastens expulsion, prolongs the period of rest, allows ample drainage, thus preventing bacterial growth, and increases appetite. [H.M.]

2.—Mathematics of the Diabetic Diet.—A. C. Croftan believes that lack of accuracy is the cause of death in many cases. The normal adult needs from 30 to 35 calories a day per kilo of body-weight. With loss of sugar in the urine the average diet will not furnish this. One can calculate what proportion of the deficit is made good from the albumin and fat of the tissues respectively by determining the intake and output of nitrogen, and the amount of sugar in the urine. The writer illustrates this statement. It is necessary in each case to determine the exact tolerance of the body to carbohydrates. Occasionally glycosuria is due to too much sugar in the food, but generally to insufficient power in the organism to destroy the normal amount. Glycosuria is mild when it disappears on removal of carbohydrates, does not reappear when small quan-

tities are again eaten, and when the food albumin need not be reduced. In the medium type, food albumin must be reduced till less than 18 gm., but more than 10 gm. of N appears in the urine. The form is severe if so much albumin must be withdrawn that less than 10 gm. of N appears in the urine. [H.M.]

3.—Heart Stimulation.—L. F. Bishop thinks the term heart regulators should be substituted for heart stimulants in classifying many cardiac drugs. Stimulants are indicated only in sudden emergencies and the best stimulants, as ammonia, ether, and nitrite of amyl, are poor regulators. Failure of the heart most frequently takes place in the direction of increased rapidity. This is combated by measures influencing vitality, thus restoring inhibition, as by the use of strychnin, hydrotherapeutics, nutritive food, and above all, of sleep and the removal of exhausting influences. [H.M.]

4.—Obstruction and Consequent Distention the Cause of Appendicitis.—C. Van Zwahlenburg reports at length his experiments on dogs and a study of several cases of appendicitis in human beings, leading to the following conclusions: Simple infection does not account for the suddenness of the attack nor early severity of the pathologic changes in acute appendicitis. The evident interference with the blood supply is best accounted for by an increased intraappendicular pressure. Simply injecting bacteria into the appendix will not produce appendicitis unless used in abnormal amounts and virulence. Subperitoneal ligation of the appendix with a simple ligature cannot be made sufficiently permanent to produce a general infection of the appendix, typical of appendicitis in the human being. Experiments in dogs show that hydraulic pressure equal to the arterial tension maintained within the lumen for a short time is promptly followed by typical appendicitis. The blood supply in an extremity may be cut off with impunity for hours, but in the appendix, bacteria begin an infection at once, their entrance into the tissues being facilitated by the opening of normal and traumatic avenues by the very distention which cuts off the circulation. [H.M.]

Boston Medical and Surgical Journal.

March 10, 1904. [Vol. CL, No. 10.]

1. Blood-pressure Observations in Surgical Cases: Report of the Committee on Research for the Division of Surgery, Harvard Medical School, January, 1904, at the Boston City Hospital. WILLIAM E. FAULKNER, JAMES S. STONE, FRED T. MURPHY. Summary of Results. Committee on Surgical Research.

1.—Blood-pressure Observations in Surgical Cases: Being a Report of the Committee on Research for the Division of Surgery.—In February, 1903, a letter was sent out by the committee on surgical research of the Harvard Medical School to the surgeons to the Massachusetts General, the Boston City Hospital and the Children's Hospital, asking that a report be made after due trial with the Riva-Rocci apparatus in surgical cases. The present article is devoted to a report from these 3 hospitals, together with comments thereon made by the committee. William E. Faulkner compiled the report from the Boston City Hospital, and his conclusions are that in the general run of surgical cases blood-pressure observations do not point out dangers that could not be foreseen by observations of the patient's pulse, respiration and general condition, but that in head injuries a high blood tension may be an indication of brain compression when the pulse would not lead us to suspect such a condition. Dr. James S. Stone compiled the report from the Boston Children's Hospital and his conclusion is as follows: Ether causes a rapid rise in the blood-pressure as indicated by the Riva-Rocci apparatus. This rise is followed by a very much slower fall in the pressure. Ordinary operative procedures seem sometimes to increase the pressure slightly. With the establishment of shock the pressure is lowered, but other signs of shock, the more rapid pulse, the more feeble respiration, the cold, clammy skin, are noted earlier during operations than is a drop in blood-pressure. Conversely, patients practically pulseless at the wrist can withstand operations. Crying, vomiting, retching, struggling, or changes in position affect the blood-pressure so much more than ordinary operative procedures as often to render pressure charts practically valueless, unless all these circumstances are noted. Dr. Fred T. Murphy

compiled the report from the Massachusetts General Hospital in the following conclusions: These statements are based on the results of blood-pressure observations which were made on 100 surgical cases, including 28 cases of head injury. The Riva-Rocci manometer was employed in every case. The blood-pressure in the majority of cases confirmed the estimate of the clinical condition of the patient obtained from the pulse, temperature and other physical signs. Deductions regarding the clinical condition drawn from the blood-pressure observations did not agree in a certain number of instances with the conclusions based upon the results of the routine clinical observations. The subsequent course of the cases proved the blood-pressure readings to have been misleading. The blood-pressure observations did not in any case show facts that proved to be of importance in determining the diagnosis, treatment or prognosis which could not be obtained in the routine methods of clinical examination. The effect of the common subcutaneous stimulants was not marked. Normal salt solution, as a rule, raised the blood-pressure, the maximum rise being reached with the administration of the first pint. The increased pressure was maintained for a variable period, usually about 30 minutes. Cases of head injury, while not always typical and uniform in the reaction, as shown by the blood-pressure readings, seem to offer a field in which blood-pressure observations may prove to be of material assistance to the observer. The committee comments at length upon these reports and summarizes its conclusions as follows: It may be said that the value of Riva-Rocci apparatus in determining the blood-pressure in surgical patients is limited to a comparatively small number of cases. The conditions of cerebral compression and of surgical shock, produce the most marked and definite alterations in the blood-pressure. When these conditions are present and other confusing causes of alteration in the blood-pressure are eliminated, the value of the blood-pressure determinations, as an indication for or against operation, is increased. Under other circumstances the value of these observations is at present not apparent. The adoption of blood-pressure observations in surgical patients does not at present appear to be necessary as a routine measure. [A.B.C.]

Medical Record.

March 26, 1904. [Vol. 65, No. 13.]

1. Is Iodid of Potassium a Specific in Lobar Pneumonia? H. ALT-SHUL.
2. Report of a Case of Kidney Decapsulation, with Some Observations on the Operation. A. G. GRUNWELL.
3. Cases of Urethral Stricture and their Management. JAMES PEDERSEN.
4. Some Observations while Serving in the Philippines. J. A. GUTHRIE.
5. Value of Total and Differential Leukocyte Counts During the Course of Typhoid Fever. HENRY A. HIGLEY.
6. A New Sign of Basilar Meningitis. G. W. SQUIRES.

1.—Is Potassium Iodid a Specific in Lobar Pneumonia?—H. Altshul reports the results of 62 cases of his own and others of his colleagues amounting together to 250 treated by potassium iodid with a mortality of less than 1%. He discusses the action of the drugs with especial relation to the morbid conditions found in pneumonia. It antagonizes the infection, being antiseptic in solutions of 1 to 4,000, while carbolic acid needs a solution of 1 to 333. It diffuses more rapidly and is free from toxic and dangerous effects. It greatly increases the activity of the glands and the greater the hyperleukocytosis, the more favorable the course of the disease and the drug is without the disadvantages and dangers of the protalbumoses, spermin, nucleins, pilocarpin, etc. There is a definite connection between leukocytoses and the blood's alkalinity, and there is no agent so effective in alkalizing it as the potassium salts. The vasodilator action of potassium iodid is of great importance in lessening arterial tension, thus reducing the burden on the heart and by this means also counteracting the friction from the viscosity of the blood. It directly stimulates the circulation through its action on the heart vessels. The diuresis induced also relieves the heart as well as eliminates the toxins. The antipyretic effect is due to the vascular dilation and diaphoresis. The respiratory rhythm is slowed. Liquefaction and absorption of inflammatory products diminish cough. In all the cases the termination was by lysis, duration was not shortened, the temperature never exceeded 104° when treatment began early;

complications never occurred. The initial dose is 10 gr. to 15 gr. increased by 5 gr. or 10 gr., according to the severity of the case, every 2 or 3 hours day and night until defervescence, the regularity of the heart, determined by auscultation, being the guide. In irregularity, strychnin should be given. Many patients take from 1,000 gr. to 1,500 gr. of ioddid daily. Unfavorable results are due to faulty methods. [H.M.]

2.—Operation upon the Kidney.—A. G. Grunwell, surgeon U. S. N., reports that a robust man in the navy complained of symptoms that could be attributed to renal lithiasis, movable kidney, or some other pathologic renal condition. Operation was performed and the enlarged friable kidney opened but no stone was found. The capsule of the kidney was slit open from pole to pole and each half dissected free from the kidney substance for some distance, rolled upon itself and sutured to the lumbar fascia and muscles of the wound. The patient made a good recovery and was relieved from his symptoms, which the author believes were due to a congested and chronically inflamed kidney. The author believes that our knowledge concerning congestive and inflammatory conditions of the kidney needs much addition and the subject should be thoroughly investigated with especial reference to operative treatment for its relief. He believes that the operation above described is preferable to Edebohls' renal decapsulation and he claims for it the following advantages: 1. The great ease with which it can be performed as compared with the complete removal of the capsule. This is no unimportant item where the condition of the patient makes rapidity and the avoidance of much handling of, or tension on, his kidney imperative. 2. The kidney is fast in the wound, where it can be seen without difficulty and is accessible in case of hemorrhage, either immediate or secondary. [A.B.C.]

3.—Urethral Stricture and Its Treatment.—James Pedersen reports a series of cases, discusses the proper management, the complications, and summarizes his conclusions in part as follows: Copious irrigation of the penile urethra from the meatus with a solution as warm as the patient can bear, is advised before and after instrumentation until the stricture has been dilated beyond the danger of retention from reactionary swelling. Similar irrigation, or an instillation or irrigation of silver nitrate, protargol or argyrol, is to be practised whenever blood appears after instrumentation. The filiform guide and tunneled instruments are dispensed with as soon as a 20 F. ordinary sound can be passed to the bladder with fair ease. Exceptionally the filiform guide may be dispensed with at 18 F.; but, if the canal through the stricture is tortuous, or if there is a pocket or an old false passage, a sound of smaller caliber than 20 F., unless very blunt, is dangerous except in skilled hands. The bladder is treated so long as there is evidence of cystitis or urethrocystitis. Specific treatment of the urethral mucous membrane with silver nitrate solutions is begun as soon as a caliber of 18 F. or 20 F. has been reached, and is continued, combined with dilation, until the tissues have been made as near normal as possible under the conditions present. [A.B.C.]

4.—Observations of a Surgeon in the Philippines.—J. A. Guthrie, Surgeon U. S. A., writes an interesting paper recounting his observations of the Philippine Islands. He calls attention to the remarkable variety and extent of skin diseases as observed in that country; he likewise directs attention to the number of vermin and insects that annoy and depletes the inhabitants and soldiers. Investigation of the cause of the sudden exhaustion of marines in the Samar campaign showed the cause to be a species of land leech which attaches itself to the legs of soldiers and sucks the blood without causing pain. "Tuba," a beverage made in a crude way by the Filipinos, is practically a decoction from insects, and is nauseating and toxic to white men. "Bino" is another so-called wine, which is manufactured from various substances, and is likewise unwholesome. Specific directions are given to those contemplating a residence in the Philippines, with particular reference to food, avoidance of the sun's rays in the middle of the day, and the abstention from alcoholics and stimulating foods. General directions as to hygienic living, and the character of the diet most suitable to white men, etc., are given. [A.B.C.]

5.—Value of Total and Differential Leukocyte Counts in Typhoid.—H. A. Higley reports investigations showing that so long as typhoid infection remains pure the characteristics of the total and differential counts peculiar to this disease are maintained. In complications these are altered, this alteration preceding the clinical picture of the complication. Therefore, frequent and careful counts are of great value. [H.M.]

6.—A New Sign of Basilar Meningitis.—G. W. Squires has noticed invariably, and frequently as early as the fourth or fifth day, according to the severity of the attack, a rhythmic dilation and contraction of the pupil. The child's head should be placed between the physician's knees, face upward, with the body supported on the bed or by the nurse. He should grasp the sides of the head and produce gradual and forcible extension on the spinal column. As the head is brought back the pupils dilate. Upon flexion they contract so that when the chin is forcibly brought to the manubrium the pupils are well closed. [H.M.]

New York Medical Journal.

March 19, 1904. [Vol. LXXIX, No. 12.]

1. Medical Education. WILLIS G. MACDONALD.
2. The Dangerous (?) Operation of Uterine Curetment. DANIEL H. CRAIG.
3. Appendicitis in Young Children. JOHN F. ERDMANN.
4. Postoperative Pneumonia, With Report of a Case. LAWRENCE E. HOLMES.
5. The Inaccuracy of the Common Spoon as a Milk Sugar Measure in the Home Modification of Milk. D. J. M. MILLER.
6. Tertiary Syphilis of the Nose and Pharynx. (Concluded.) W. SCOTT RENNEE.

2.—Uterine Curetment.—D. H. Craig, while highly commending certain portions, criticises other portions of an article by Dr. Von de Warker in the *New York Medical Journal* of October 10, 1903, entitled "The Dangerous Operation of Uterine Curettement." The author does not agree that it is right to characterize the operation of uterine curetment as dangerous in the abstract, or in the hands of those competent to undertake the performance of any surgical procedure. He says that the greatest danger incident to curetment, taking thorough modern asepsis for granted, is perforation of the uterine wall. He is not in favor of tamponing the uterine cavity for he says no matter how strenuous the effort, it is probable that absolute asepsis is never achieved. The tamponing of the cavity with gauze immediately after a curetment and while the abraded surfaces are still the site of more or less abundant hemorrhage, furnishes a mesh in which the blood will clot and remain within the cavity, instead of draining away by simple force of gravity. This blood clot presents an admirable culture medium upon which the relatively few organisms present may rapidly multiply. It is far more rational, thoroughly to clean the cavity during the operation and then to leave the blood and exudates free to drain through an amply dilated cervix thus tending to wash away organisms. It is wisest to avoid douches of any kind for the first 48 hours, or until the cervix has had time to retract so far as to leave little possibility and no liability of washing material from the vagina into the cervical or uterine canal. [C.A.O.]

3.—Appendicitis in Children.—J. F. Erdmann considers the symptomatology and operative and postoperative treatments of appendicitis in children not over 10 years. He operated in 22 of 29 cases with 2 deaths. All the cases were acute. There were 14 cases of gangrene and perforation; 7 cases with foreign bodies, 4 cases included under foreign bodies containing from 6 to 30 pinworms each. The appendix was removed in every instance. In 14 cases drainage was instituted. These were not in each instance the 14 cases of perforation and gangrene, as some of the latter were closed. In the 7 cases not operated upon, operation was not considered advisable, owing to the almost moribund condition of the patients when seen. The incisions made were those of McBurney in 16 cases, and either the Kammerer or split rectus in the remainder. The stump was inverted after the method of Dawbarn 4 times, and in the remaining 18 cases the stumps were tied off and cauterized with pure carbolic acid. When free pus of the serous variety is present in the general cavity he sponges the peritoneal cavity as dry as possible and closes the wound without drain. When gangrene of the appendix and suspicious mesoappendix are present, he drains for from 24 hours to the time required, as

shown by the discharge, or by temperature chart and pulse. A movement of the bowels is desirable in the first 24 hours following operation, and it is his custom to introduce $\frac{1}{10}$ of a grain calomel triturates as soon as the vomiting ceases. [C.A.O.]

4.—Postoperative Pneumonia.—L. E. Holmes, says that it is much more correct to speak of postoperative pneumonia than it is to speak of anesthesia or ether pneumonia, for statistics show that pneumonia following operations was as frequent, or more so, before the days of anesthesia, as at the present time; and also, that it is as frequent now (at least after some kinds of operations), when local anesthesia is used for major operations, as when a general anesthesia is employed. A general anesthetic does not materially increase the danger of pneumonia following operations if the lungs are in a healthy condition. He says that if pneumonia is more liable to follow the use of ether than it is that of chloroform, which is at least a question, the difference is so slight that it does not begin to counteract the much greater danger with which the administration of the latter is associated. We must have a pure drug, and see that the inhaler, or whatever we use in its place, is perfectly clean. The care with which the anesthetic is given is of great importance. In order to avoid hypostatic congestion, especially if there is any tendency in that direction, the patient's position should be changed as soon as possible after the operation. [C.A.O.]

Medical News.

March 26, 1904. [Vol. 84, No. 13.]

1. Pneumatic Tourniquets: With Especial Reference to their Use in Craniotomies. HARVEY CUSHING.
2. A Case of Strangulated Inguinal Hernia: Death from Fecal Drowning During Etherization. EDWARD H. GOODMAN.
3. A History of Saliva: Its Physiology, Chemistry and Pathology. HAROLD M. HAYS.
4. Surgery of the Gallbladder and Ducts. JOHN F. ERDMANN.
5. The Regulation of the Duration of Exposure and the Distance from the Tube in Röntgen Ray Therapy. ENNION G. WILLIAMS.
6. Sea-bathing in Some Forms of Skin Diseases. R. ABRAHAM.
7. Pericarditis: With the Report of Cases. GEORGE P. PAUL.
8. Indicators in Gastric Analysis: With Special Reference to Tropaeolin OO. A. L. BENEDICT.
9. Physiologic and Clinical Aspects of Hydrotherapy: With Its Special Reference to the Treatment of Psychoses. R. D. BAKER.

1.—Pneumatic Tourniquets, with Especial Reference to their Use in Craniotomies.—Harvey Cushing summarizes the dangers of the ordinary tourniquet as follows: Possibility of paralysis, the difficulties of observing the best technic during the application, removal and especially of reapplication, and the pain when no general anesthetic is administered are all familiar drawbacks to the common form of elastic tourniquet. Instead of the older forms of the tourniquet, he suggests the use of a pneumatic tube, which is a modification of that used with the Riva-Rocci apparatus, and the main modification consists of the rubber tube being broader and made of more distensible rubber and of a quality that will stand boiling. It is inflated with the ordinary foot bicycle pump. It may be used in several different ways; it may be placed about the arm, or forearm, or leg, to limit the circulation in case a local anesthetic is employed for surgical purposes. Its principal use, however, as suggested in the article, is in being placed around the head and inflated to control the circulation of the scalp in craniotomy. During the past year he has used this pneumatic tourniquet in a series of 18 craniotomies and is pleased with the result. He believes it would be useful also in producing artificial congestion in chronic processes, such as joint tuberculosis after the method described by Bier. The author describes in detail his method of performing craniotomy, which is interesting and instructive. [A.B.C.]

2.—Death from Fecal Drowning During Etherization.—Edward H. Goodman reports that a man of 65 was brought into the hospital suffering from an old scrotal hernia which, during the previous 2 days, had become strangulated and greatly enlarged. Those who had observed the patient were unable to state whether the vomiting had been fecal in character previous to his admission into the hospital, though the vomiting was stercoraceous after admission. The patient was in a depressed condition, but operation was urgent, and on the administration of ether, before the patient had so much as lost consciousness and without any previous effort at vomiting, he suddenly became cyanosed and ceased breathing. Efforts at artificial

respiration caused the stercoraceous material to flow through the mouth and nostrils in quantities. A rapid tracheotomy was performed, and the same material instantly flowed out of the tracheotomy wound. The heart continued to beat for 10 minutes after respiration ceased, but artificial respiration, kept up for 30 minutes, failed to resuscitate the patient. The author believes that the case illustrates the contention of Andrews, that ether benumbs the sensibility of the throat, and in case of intestinal obstruction the patient is apt to drown in his own fecal overflow from the stomach, without any effort at vomiting. [A.B.C.]

3.—Saliva: Its Physiology, Chemistry, and Pathology.—Harold M. Hays writes at length upon the physiology and chemistry of the saliva, his dissertation being such as is ordinarily found in the textbooks on this subject. Concerning the pathology of this secretion, he holds that there is a field for investigation that has as yet been poorly explored. It is probable that there is an altered state of the saliva in latent disease in which no other indication of the disease may be found. It is known that deficiency of salivary secretion is often associated with depleted or depraved function of the stomach, and in wasting fevers, likewise, the increased salivation is caused by hyperacidity of the gastric juices. *Fatty saliva* is often associated with a fat necrosis due to some obstruction to the circulation. *Sweet saliva* is an accompaniment of diabetes mellitus. *Albuminous saliva* is exceedingly uncommon. *Bilious saliva* is found in severe cases of jaundice due to cholecystitis, cholelithiasis, or carcinoma of the head of the pancreas. Oftentimes the saliva is not colored, but on chemic examination is found to contain bile salts and bile acids. *Bloody saliva* is of no consequence, as it is usually due to hemorrhage in the nasopharynx or from an ulcer of the stomach, where the other symptoms are of much more importance. The only point is to differentiate it from a hemoptysis. *Uric acid* may be found in the saliva or a uric acid diathesis may alter the saliva. [A.B.C.]

4.—Surgery of the Gallbladder and Ducts.—John F. Erdmann discusses this subject at some length, and reports a series of cases. In his operations he has ceased to dissect out the mucous membrane of a gallbladder previous to drainage, except in cases in which adhesions are very extensive. He is strongly in favor of cholecystectomy. He says the operation has many advantages over that of cholecystotomy, some of which are: No danger of recurrence, no necessity for secondary operation, no soiling of the patient by leakage, etc., more rapid convalescence with less danger of hernia. The operation is one of considerable ease, and when once fairly understood should be done in preference to cholecystotomy, but for the beginner in gallbladder surgery, cholecystotomy is preferable to the more radical operation. As a preliminary to cholecystectomy, and in common duct work, the use of a sand cushion under the back in the upper lumbar region is desirable. After removal of the gallbladder, if no drainage is decided upon, the duct is tied off and treated like the stump of the appendix. If the case is an infected one, drainage is carried down to the stump with a strip of iodoform gauze. If one of the ducts is to be drained, it is split and a rubber drainage-tube is inaugurated into the opening with catgut, and is packed about with gauze. [A.B.C.]

5.—Röntgen Ray Therapy.—Ennion G. Williams devotes the most of his article to a description and explanation of the proper mechanism of the röntgen ray apparatus. He states that the treatment of deep growths requires especial attention to the time and distance. The difficulty in reaching them has been the danger of injuring the superficial tissues before the deep growths are affected. Now we know it is not necessary to bring about a necrotic inflammation to destroy a cancer. If we can have the rays penetrate the tissues with modern uniformity we can then hope to destroy the deep growths. The closer the part is to the tube the greater is the difference in the effect upon the skin and the part beneath. We should therefore place the part far off and make due compensation by increasing the duration of exposure directly as the square of the distance, or by referring to the table one can determine the duration for the exposure. His rule is not to expose in 10 days more than the number of minutes required to produce a dermatitis. As this point is approached the exposures are shorter and at longer

intervals in order to watch developments. So soon as the redness is reached and its degree determined, the treatment can be continued and directed according to the indications. [A.B.C.]

6.—Sea-bathing in Skin Diseases.—R. Abraham's experience extends over but 2 summers, but the success attained warrants the suggesting if not recommending this as a reliable curative agent in pityriasis versicolor, herpes tonsurans maculosus et squamosus, chronic eczema, and pruritus senilis. In view of the failure of sea-water to cure when used in bathing establishments the conclusion is that beside the chemie properties of the water, benefit is derived from the longer immersion and the pounding of the billows, thus rubbing the water more thoroughly into the skin, and also from the exposure to the sun in the intervals of the dips which dries the solids of the water into the skin and lastly from the rolling on the sand of the beach which wonderfully helps to remove scales and other pathologic debris, thus affording the water a better chance to penetrate. [H.M.]

7.—Pericarditis.—G. P. Paul writes for the purpose of emphasizing 3 points: (1) The insidious development, and how frequently it is overlooked; (2) that pericarditis of a severe type may develop during the course of a very mild pneumonia; (3) the difficulty of distinguishing obliterative pericarditis from acute general tuberculosis, involving the serous membranes. Very often no subjective symptoms are present at the onset. If during the course of an acute infectious disease the rhythm of the pulse becomes altered, or its rate increases out of proportion to the rise of temperature, or the heart's action becomes tumultuous, or a sudden rise of temperature takes place, a careful examination of the heart should be made. On the other hand, there may be characteristic symptoms. In the majority of cases, however, the diagnosis is made from the physical signs. [H.M.]

8.—Indicators in Gastric Analysis.—A. L. Benedict uses the resorcinsaccharose test for acidity, because more stable than phloroglucinvanillin, and, though less delicate, it will detect 1 part in 4 to 5,000 of diluent. The rose color indicates freeing by heat of HCl in organic combination, or the action of fermentation acids, or both. In titration with an indicator in the capsule with the investigandum dimethylamidoazobenzol is commonly employed, although it gives too high results by about 15 degrees, if we take as the end-reaction the final color change. By reading the free HCl at the point where the bright cherry-red changes to orange and subtracting 15 after the final discharge of color we get more accurate results. The consensus of opinion with regard to titration of chyme is that the estimation of free HCl is approximate, the estimation of total acidity quite exact and that the alizarin and sodium tungstate methods are very inexact, though better than nothing. As a rule 10 cc. should be used as an investigandum to avoid error in readings from too small quantities. Change of tint with the various indicators is a phenomenon of ionization and not a specific combination. Discrepant reports of different observers may be due to differences in visual physiology or possibly histologic variations in the rods and cones. Congo reacts blue with HCl and the mineral acids generally and also with lactic, acetic and butyric acid. Tropeolin 00 changes from magenta to yellow in titrating against a mineral acid with alkali. Lactic acid restores the magenta, but neither acetic nor butyric do so in any reasonable amount. Thus tropeolin is a better indicator for HCl than congo. Its tint, however, is obscured by a brownish cast of the investigandum and the end-point is difficult of detection. [H.M.]

9.—Hydrotherapy, with Special Reference to Psychoses.—R. D. Baker renews the development of hydrotherapy briefly considers its action on the skin as a sense organ, as an excretory organ, and as a heat regulator. He describes a few of the most important hydiatic procedures and their application in some of the infectious fevers. He reports the results in 26 cases of nervous diseases including acute melancholia, acute melancholia with agitation, dementia precox, hysteria, puerperal insanity. The prominent mental symptoms were depression, slowness of thought, little interest in self or surroundings, painful delusions, confusion, hypochondriasis, and insomnia. There was lack of nervous and muscular tone, sluggish circula-

tion, accentuated second sound, no appetite, muddy skin, intestinal fermentation and constipation. In some cases treatment was begun with ablutions at 95° with friction, reducing 5° daily until 65° was reached. When reaction became constant, a sheet bath at 60° was given. A wet pack at 65° was given to some cases followed by a general fan douche at 60° and 25 pounds pressure for 20 seconds, friction, and open-air exercise. In those with flabby, acne-covered skins the wet pack was continued 2 to 3 hours, the colon being irrigated just before with salt solution at 110°. In some cases the douche alone was used. The patients became brighter, more interested, calmer. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Adiposis Physiologica Monstrosa.—A goodly proportion of the attention of the amateur scientist as well as of the average sightseer of Great Britain has recently been directed toward the natural phenomenon now known as "The Fat Boy of Peckham," and denominated by his intimates Johnny Trundley—in the days which preceded the rapid development of his fame and his adipose tissue. And the authority of the Lambeth Police Court has decided that the exhibition of the Peckham prodigy upon the music hall stage is not to be forbidden under the "Act for the Prevention of Cruelty to Children, 1894." Accordingly, this infantile monster of adipose development may rejoice in his 5 years of age, and his 10 stones odd of osteocarnous ponderosity. His income is, for the present, a secure one, so long as his powers of physical endurance can tolerate the exertion of being looked at in public. The only anxiety now expressed by his friends regarding his future is that part of his income should in future be continuously set aside as a provision for a period of future decline of popularity. For the present the physiologic monster can find a Barnum in any civilized country. Every traveling showman knows that excessive obesity has always disputed the prize of public attention with the abnormal extremes of stature. Adiposis is always a reliable competitor with either giantism or dwarfism. What the specific germ may be, whose presence in the blood and tissues determines this lawless proliferation and deposition of adipose matter, does not appear to have hitherto been even guessed at. But its presence is peculiarly free from toxic effects, for any interference with normal physiologic function in such cases as that now under consideration appears to be purely mechanical. As specimens of excessive obesity have always excited curiosity, and it should be added—amusement, reports of such cases have almost necessarily been preserved and made special records in the various ages of recorded history. An interesting writer of the Renaissance period comments on the peculiar custom recorded of the ancient tribe of the *Gordii*, "that whereas other Nations were used to make choice of their Kings for some real excellency or virtue they had in them above others, these people had a custom to advance him to the Throne of their Kingdom, who was the fattest and most corpulent that could be found; perhaps being of a peaceable disposition of themselves, they would have their Princes (whom they could no otherwise restrain) to be clogged at least with fetters of flesh, lest they should prove over active, and more stirring than was conducive to their quiet." The comment appears to be a perfectly judicious one, and tallies well with the Shakespearian judgment delivered some years later—for the perennial instruction of posterity—on the comparative (or contrasted) mental bias of fat and lean men. On the other hand, among the hardy Lacedemonians before Greece sank into the lap of luxury and slavery, the young men were exhibited naked to the *ephoroi* every tenth day. And it "was thought a proof of no ordinary infamy if any one is of unmanly appear-

ance, or if any one appears at all inclined to have a large belly." And in the exercise of their peculiar form of fraternal government, they brought Naucledes, "who was enormously fat in his body, and who had become of a vast size through luxury, into the middle of the assembly; and then, after Lysander had publicly reproached him as an effeminate voluptuary, they nearly banished him from the city, and threatened him that they would certainly do so if he did not reform his life." We are also told by a Greek historian, of Dionysius, a tyrant of Heraclea, who, "by reason of his voluptuous life, and excessive feeding, became so corpulent that by reason of his fat he was pressed with difficulty of breathing, and in a continual fear of suffocation; whereupon his physicians appointed that as oft as he fell into any profound sleep, they should prick his sides and belly with very long and sharp needles; he felt nothing while they passed through the fat, but when they touch'd upon the sensible flesh, then he awaked. . . . He died in the fifty-fifth year of his age; he had reigned thirty-three years, excelling all the Kings his Predecessors for humanity and easiness." This is another item of evidence in favor of the relationship of obesity and benevolence! It also reminds of a case whose record approaches modern times and scientific methods. The celebrated anatomist, Gabriel Fallopius, mentions that "he saw a man, who being extremely fat, his skin was so thickened that he lost all feeling by reason of the over impaction of the Nerves thereby." Donatus, in his "History of Medical Wonders," mentions that "Sanctius, King of Spain, carried such a heap of fat that thence he was called Crassus, being now grown a burden to himself, and left almost nothing untried to be quit of it. At length, by the advice of Garsia, King of Navarre, he made peace with Miramoline, King of Corduba, went over to him, was honorably received, and in his Court was cured by an herb prescribed by the Physicians of that King." Pity it is that history has not preserved the name of that herb! Even the mechanical inconvenience of excessive obesity has proved a source of great gain, as the following case proves: "Anno 1520, there was a Noble Man born in *Diethmarsia*, but living some time in the City of *Stockholm in Sweden*; this man was sent to prison by the command of *Christierne the Second*, King of Denmark; when he came to the prison door, such was his extreme corpulency that they who conducted him were not able to thrust him in at it. The guard that went to convey him thither were to hasten back to assist in the torturing of some other persons; so that being extreme angry at being thus delayed, they thrust him aside into a corner thereabouts, and by this means the man escaped being put into prison as was intended." The corpulency of the good-natured and self-indulgent Pope, Leo X, became so conspicuous in the later years of his life that the phrase "as fat as Pope Leo" remained a household word in Rome for several generations. And England has itself produced in more recent times some noted specimens of colossal corpulency. Edward Bright, of Malden died (in 1750) at the age of 30, weighing 42½ stones. He was an active man till a year or two before his death, when his corpulency so overpowered his strength that his life was a burden." Still we are told that he "left a widow big with her sixth child." But the special historic hero of the Anglo-Saxon adiposity was Daniel Lambert, who was born at Leicester in 1770. He displayed no physical peculiarity till the age of 14. But at 23 he turned the scale at 32 stones; and at the time of his death (in 1809), he weighed 52 stones, being, as might be expected, for some time almost quite helpless.

REVIEW OF LITERATURE

Pathology of Chancre.—S. Ehrman¹ has examined a large number of preputial chancres to determine their anatomy,

especially with relation to bloodvessels and lymph-vessels. He found that the virus after entering, first transuses itself through the interstices of the connective tissue, and at the point of entrance the first changes are noted. Large numbers of newly-formed capillary bloodvessels are seen in the interstices; they accompany, and even precede the virus infiltration. The virus filling these spaces produces induration, and the lymph-vessels arising from these spaces become surrounded by an indurated wall, which contains many of these newly-formed capillary bloodvessels. The subendothelial coat of the lymph-vessels also shows an infiltration which can be discerned, however, only by close examination of the elastic fibers. The virus therefore passes from the tissue spaces into the lumen of the lymph-vessels, producing a reaction in their subendothelial and perivascular tissue with formation of new bloodvessels in both layers; round-cell infiltration is to be noted in both. The perivascular infiltrate produces palpable nodes; they are found at the junction of small with large lymph-vessels, occasionally also along the course of a large one. The nodes contain many small infarcted lymph-vessels; infarcted vessels are also to be found in the subendothelial proliferating zone of the larger lymph-vessels. The nodes surrounding the lymph-vessels soften as the result of regressive metamorphosis of the infiltrate. The capillaries disappear first, cavities form around the lymph-vessels, and the whole is absorbed. It is an involution process through fatty degeneration and not necrobiosis nor cheesy degeneration. [E.L.]

Tortuosity of the Aorta.—J. Sailer and G. E. Pfahler¹ contribute the results of a series of studies upon lesions of the aorta, consisting of clinical, fluoroscopic and radiographic examinations, with autopsy when possible. A source of surprise was the frequency with which some of the lesser signs of aortic aneurysm were present. Among these were inequality of the radial pulses, suprasternal pulsation, tracheal tugging, accentuation of the aortic second sound, and brassy cough. In a number of cases the fluoroscope showed an expansion in the shadow of the aorta at the level of the fifth or sixth dorsal vertebra, extending from a half to 2 inches to the left; it was supposed to be an aneurysmal dilation of the aorta at that point. Of the 18 cases in which this was found, 4 came to autopsy, and no dilation of the aorta was present. On the contrary, the aorta was found to make a bend to the left, not unlike the tortuosity that is frequently observed in cases of atheroma of the peripheral arteries. The writers think it not unlikely that among subjects of arteriosclerosis this tortuosity of the aorta, giving rise to some of the signs of aneurysm of the arch, is relatively a common process. [A.G.E.]

Renal Insufficiency when Intermittent, a Prodrome of Arteriosclerosis.—Landau² gives a formula for determining the insufficiency and suggests variations of from 15 to 30 points daily as enough to indicate the nearness, or prodromal establishment, of arteriosclerosis. However, a renal intermittent insufficiency may have an actual nosologic existence, aside from its symptomatic nature. [T.H.E.]

Relation between Diabetes, Tuberculosis and Arteriosclerosis.—Croner³ believes in an apparent and an actual increase in the number of cases of diabetes; the apparent increase is due to the better instruction of the laity in the symptoms of diabetes, and to the more frequent examinations of the urine for sugar, the actual increase probably to the intermarriage of the Jewish race with the German. He has examined carefully 100 ambulant patients suffering with diabetes, regarding heredity, tuberculosis and arteriosclerosis. In but 9 cases could a clear history of hereditary disposition be made out; 47 of them were tuberculous or had tuberculosis in their families and 32 free of tuberculosis and a tuberculous history had arteriosclerosis. The relationship between tuberculosis and diabetes he explains theoretically either by the absence of a protective substance common to both diseases, or the presence of a substance toxic to both. Tuberculosis usually develops earlier than diabetes and the onset of diabetes may be considered that the individuals have passed beyond the dangers of tuberculosis. The combination with arteriosclerosis is due to disturbances of

¹ American Journal of the Medical Sciences, October, 1903.

² Il Policlinico (Rome), No. 6, 1904.

³ Deutsche medicinische Wochenschrift 1903, xxix, No. 45, Nov.

¹ Archiv für Dermatologie und Syphilis, 1904, lxxviii, 1.

nutrition or probably to an irritation of those portions of the cerebrum important to the burning up of sugar; this irritation leads to glycosuria and arteriosclerosis. The amount of sugar is usually small in these cases, and as the cardiac and circulatory symptoms improve it diminishes. Of his patients, 41 were alcoholics, and most of these belonged to a class of people who were more or less under nervous or mental strain. When alcoholism was associated with severe physical labor, diabetes did not usually develop. The tendency to apoplexy of diabetics is explained by their arteriosclerosis. [E.L.]

Visceral Manifestations of the Erythema Group of Skin Diseases.—William Osler¹ adds 11 cases to the 18 that he has previously reported, and considers the features presented by the entire group of 29 cases. There were 11 females, 18 males; 8 were under 10 years, 13 between 10 and 20; 7 cases terminated fatally. Full notes of the last 11 cases are given, followed by a discussion of the nature of the lesions under consideration. In speaking of the diverse etiology of urticaria, Osler says it is not unlikely that the poison, of whatever kind, is of less intrinsic importance than certain transient aspects of cell metabolism. A peculiarity that may be transmitted through several generations, as in angioneurotic edema, must be a morbid susceptibility of tissue or an inherited peculiarity of metabolism, or both. The visceral complications of the erythemas form 2 great groups—the angioneurotic and the inflammatory. These are considered according to the organ attacked. In 2 cases there were brain symptoms; 3 had edema of the glottis, 3 pneumonia; 25 had gastrointestinal symptoms, the most prominent being recurring attacks of colic; in 14 there was acute nephritis; arthritis or arthritic pains occurred in 17 cases, but the joint lesions were slight; hemorrhages were present in a number of cases. The chief danger in these cases is from the kidneys, and early precautions should be taken to recognize the nephritis and prevent its progress, protracted rest in bed and a milk diet being the best means at our disposal. [A.G.E.]

Experimental Investigations Concerning Icterus.—The experiments of G. Joannovic² were made on dogs, by poisoning with toluyldiamin, by injecting hemolytic serum, and by ligating and cutting the ductus choledochus. Two forms of icterus may be distinguished—the hemolytic icterus, and the stagnation jaundice. The latter is slower in developing and never reaches the high degree attained by the hemolytic jaundice. The stagnation of bile after obstruction of the ductus choledochus occurs first in the large biliary passages and the interacinous ducts. In hemolytic icterus the stagnation is principally intrahepatic. In the icterus of obstruction there is no splenic tumor, while it is invariably present in the hemolytic form. The splenic tumor is spodogenic, *i. e.*, due to the debris of the destroyed red corpuscles. The function of the spleen favors in such cases the development of the icterus, as it actively participates in the destruction of injured corpuscles. [B.K.]

Relation between Influenza and Appendicitis.—Schultes³ has had occasion to watch 4 epidemics of influenza; during 3 of them no cases of appendicitis were observed, but the last epidemic, consisting of 156 cases, was characterized by many appendiceal complications. In 3 of them the influenza bacillus could be considered the causal factor of the abdominal infection. All 3 recovered without operation. [E.L.]

The Source of Infection in Tuberculosis.—S. Davies⁴ bases his paper on an examination into 50 deaths of children under 10, certified to be from tuberculosis or meningitis, and 178 notified cases in adults. Of the former there were 34 cases of general and meningeal tuberculosis. In 17 of these there was a clear history of contact with a declared case of pulmonary tuberculosis, in 7 with a doubtful case, in 4 probable contact. In one there was contact with a case of lupus. Among the adults the questions of workshop and public-house infections were especially investigated. The workshop is regarded as offering opportunity for infection, but not as being in itself an important source of infection, *i. e.*, through infected dust, etc.

The public-house is shown to be a much more important source of infection than is the workshop. Infected spray from coughing is probably as much at fault as dust from the floor. Samples of sweepings from the floors of 6 public-house bars and a like number of arsenal workshops showed the presence of tubercle bacilli in 2 of the former and none of the latter. J. Niven,¹ in an article on the influence of occupation on the production of tuberculosis, comes to substantially the same conclusion regarding public-house infection. Two factors which cause men to have a much higher deathrate than women are spitting in the workroom and drinking in public-houses. The aggregate effect of these 2 factors is greater than that of particular occupational causes. [A.G.E.]

Cause and Treatment of Chronic Rheumatism.—Ralph Stockman² states that acute rheumatism may cause fibrous thickening of the valves of the heart, fibrous induration of the aponeurosis, fascias, ligaments, nerve-sheaths, etc., but these are the lesions of the original disease and not an indefinite continuation of it. Such indurations of the fibrous tissue give rise to bands referred to the muscles, joints and nerves, but these symptoms and the lesion causing them cannot properly be regarded as the chronic stage of acute rheumatism, especially as acute rheumatism is not the only condition which causes them. However, the name chronic rheumatism has been so long applied to this chronic and painful condition of the muscles and joints, that it is now retained as a matter of convenience. It is now recognized that the articular structures proper, that is the cartilage, synovial membrane and bones, are not primarily affected in chronic rheumatism, but that the parts implicated are the fibrous ligaments of the joints and more especially the fibrous tissues of the muscles and bones. He enters at length upon the pathology. Not only may acute rheumatism result in sequels, as above enumerated, but also true influenza may cause the condition often spoken of as chronic rheumatism; sore throat is also another predisposing factor; likewise local injuries to joints and muscles have the same effect; in many cases no cause can be assigned. In reference, the only means which he has found of special and definite value are massage and exercise, the faradic current, and the injection of solutions of chromic acid into any of the fibrous indurations which are sufficiently large and well defined to permit of its being done. Of the 3, massage is much more efficacious. General massage will not do, but it must be specially directed to any nodules or thickening which can be felt. In comparatively recent cases these nodules soon subside, but in the more chronic ones a prolonged treatment of a year or more is often necessary. [A.B.C.]

Salipyrin Eruption.—Dittmar³ observed in a woman of 28, whom he gave 1 gm. (15 gr.) of salipyrin for headache, an eruption which began to show itself a quarter of an hour after partaking of the drug. It consisted of hives, varying in size from a pinhead to several inches, and appearing on all parts of the body, excepting the head, neck, hands, and feet. The itching was intolerable. After an hour the hives began to flatten and had disappeared after 4 hours. The condition was associated with nausea, depression, rapid, small pulse; no symptoms on the part of the auditory apparatus as cyanosis. The author sees in this eruption the effect of antipyrin, which is followed by all sorts of exanthemas. The absence of auditory symptoms speak against it being due to the salicylic acid component. [E.L.]

Diastasis of the Recti Muscles in Rickets.—A. P. Francine⁴ reports a conspicuous example of this condition occurring in a colored male child of 15 months. The diastasis is the width of 3 fingers, has existed since the age of 5 months, and shows a slight tendency to increase, the writer finds no mention of this condition in the literature of rickets, although he has found it present in 7 of 10 patients, varying in age from 6 months to 9 years. The condition is due to developmental lack of tonicity of the muscular system, and is induced secondarily by the associated tympanites of gastrointestinal fermentation. It is improbable that such muscles ever regain their lost

¹ American Journal of the Medical Sciences, January, 1904.

² Zeit. für Heilkunde, Bd. xxv, Heft 1, p. 25.

³ Deutsche medizinische Wochenschrift, 1903, No. 42.

⁴ Public Health, December, 1903.

¹ Public Health, December, 1903.

² British Medical Journal, February 27, 1904.

³ Die medizinische Wochenschrift, 1903, iv, No. 52, December 28.

⁴ Archives of Pediatrics, February, 1904.

tonicity, and early diastasis may be in some instances a predisposing factor toward visceral ptoses. [A.G.E.]

Acute Leukemia.—M. Leclerc¹ relates a case of acute leukemia, in which the leukocytosis consisted of 96% lymphocytes, principally small ones, and only 4% polymorphonuclears, with no large mononuclears or eosinophiles. He considers the clinical picture of acute leukemia to be as follows: An anemia of sudden onset with rapid course, accompanied by fever. The increase in leukocytes is almost always a lymphocytosis, and there are marked alterations in the red corpuscles. Hemorrhages are frequent. There may be hypertrophy of the spleen and lymphatic glands; but this may be very slight, or even absent. A new symptom, described by Hayem, is nonretractibility of the clot. [R.K.]

Extrasystolic Intermittent Pulse.—D. Gerhardt² reports the case of a man who, recovering from acute articular rheumatism, had a markedly intermittent pulse, dropping a beat every third to fourth pulse. This only lasted a few days. Graphic tracings of arterial and venous pulse showed that this was not due, as is usually the case, to extrasystolic contractions, but rather to extrasystolic. The contractions of the auricle were noticed, but not the contractions of the ventricle. It is evident that the ventricular irritability was either diminished or there was a disturbance of the conductivity of the impulse between auricle and ventricle. Why this transient failure of the ventricular contraction should occur in apparently normal heart is something the author cannot explain. [E.L.]

The Physical Signs of Lobar Pneumonia.—L. A. Conner and G. E. Dodge³ present a valuable contribution to this subject, the records of 392 cases forming the basis of the paper. They place the physical signs of a beginning pneumonia in the following order of relative frequency and importance: 1. A circumscribed area of feeble, indistinct breathing as compared with the breathing at a corresponding point on the opposite side (with the patient, if possible, in a sitting position). 2. A circumscribed area of impaired resonance, with or without a tympanic quality, obtained under similar precautions. 3. The crepitant rale. 4. A slight increase in the intensity and clearness of the vocal resonance. The signs of the second stage are bronchial breathing and bronchophony. In 4 cases of undoubted pneumonia, neither could be found at any time during the course of the disease. The relation of the disappearance of bronchial breathing to defervescence is briefly considered, the disappearance occurring before defervescence in 20% of the cases, the majority of the remainder occurring with, or from 1 to 7 days after, defervescence, 10% taking place more than 7 days after. The writers consider it entirely unwarranted to apply the name of central pneumonia to all cases in which the signs of consolidation are late in appearing. The usual condition in these cases is not that of a centrally situated consolidation slowly working its way to the surface, but rather one of very slow progress from engorgement to complete hepatization. [A.G.E.]

Levulose.—Fuerst⁴ thinks that levulose has many advantages for pediatric use being especially suited for dietetic purposes; it is extremely valuable in chemic disturbances of nutrition. Ordinary cane sugar is very apt to cause dyspepsia or intestinal fermentation in nurslings and in powder form is very apt to be adulterated. Milk sugar is not sweet enough in small amounts; in large amounts it causes diarrhea, nor can its purity be relied on. Levulose is a carbohydrate that has most important advantages as a sweetener of infants' food. Its molecular form and caloric value is similar to that of milk sugar and the agreeable taste that it gives to milk renders it most suitable. It never causes gastric or intestinal disturbance and is very rapidly assimilated. He employed it in 17 cases with different diseases; the dietetic and hygienic conditions were as far as possible regulated and in all of them several weeks of levulose caused visible improvement and increases in weight. He divides the cases in which he used the remedy into 3 classes: 1. Infants fed chiefly on cow's milk and suffering

from malnutrition. 2. Children over 2 years old suffering from insufficient nutrition. 3. Sick or convalescent children. Through its ready assimilation levulose combats tuberculous infections of the mesenteric glands and in combination with an appropriate diet in children predisposed to tuberculosis it will assist in preventing the disease. Levulose increases carbonic acid production, promotes absorption and assimilation and causes the deposition of fat in the tissues and the improved nutrition enhances the powers of resistance in the infantile organism. [E.L.]

The Source of Scarlatinal Infection.—R. E. Lauder¹ Medical Superintendent of the Bureau and Port Fever Hospital, Southampton, announces his belief that the contagion of scarlet fever is not carried by the desquamating epithelium of the patient, but is conveyed by the mucus and other secretions from the mouth and upper respiratory passages. In confirmation of this view, during the year 1903 he tabulated the 325 patients which came under his care and compared them with those treated during the previous year. Those treated during the year 1903 are divided into 3 groups, the first was limited to 33, which were dismissed after 33 days' residence in the hospital, without peeling or complication and there were no return cases, that is, cases whose infection was attributed to the dismissed cases. The second group of 204 patients was dismissed after 28 days in the hospital and there were peeling and desquamation without other complications. From these there were 2 return cases. The third group comprised 88 cases with an average detention of 50 days in the hospital. These had various complications of the upper respiratory tract, and from them were 5 return cases. During 1902 the average period of detention in the hospital was 48 days with 4.27% of return cases; while in 1903 the average period of detention was 34 days with 2.15% return cases. The fewer return cases in 1903 is attributed to the segregation and longer detention of those cases with complications of nose, throat and upper respiratory passages. [A.B.C.]

Paroxysmal Hemoglobinuria Produced by Cold.—J. Donath² reports 3 cases of hemoglobinuria, in which the paroxysms were brought on by exposure to cold weather. Two other previously reported cases are also referred to. There was a previous history of syphilis in 3 of the 5 cases. All showed at times the typical paroxysms, characterized by premonitory symptoms, chill, fever and sweating. The first paroxysm was usually preceded by lumbar pain. One case exhibited vasomotor disturbances of the skin, which pointed to a possible vasomotor origin of the hemoglobinuria. The regeneration of the blood in all cases was very rapid, after the paroxysms passed, and was accompanied by the appearance of numerous nucleated red corpuscles. No trace of blood pigment could be found in the blood serum between the attacks, but hemoglobinemia was constant during the paroxysms. Experiments made by the author show that the blood disintegration was neither due to the direct influence of cold on the red corpuscles, nor to a pure mechanical injury of them, but upon the hemolytic influence of the blood-plasma. [B.K.]

Excretory Powers of the Diseased Kidneys.—L. Mohr³ has studied the excretion of several substances after their administration in cases of nephritis. The substances administered were Liebig's extract of beef, sodium phosphate, urea, and sodium chlorid. The urine showed a variable excretion of water, nitrogen, and salts, with a good excretion of ammonia and purin bases. Increased administration of urea did not increase its elimination. Increase in the administrations of purins and extractives was promptly followed by increased excretion of these substances. The phosphoric acid excretion was irregular. Administration of sodium chlorid was followed by an increase in its excretion far exceeding the amount given, thus showing that the previously retained salt is washed out by this means. The only exception was found in a case of acute nephritis with edema. The experiments also show that the excretion of salt and of water are independent of each other. [B.K.]

¹ Lyon Médical, February 14, 1904.

² Archiv für experimentelle Pathologie und Pharmacologie, 1903, II, 11.

³ American Journal of the Medical Sciences, September, 1903.

⁴ Zeitschrift für diätetische und physikalische Therapie, February, 1904.

¹ The Lancet, March 12, 1904.

² Zeit. f. klin. Med., Bd. III, p. 1.

³ Zeit. f. klin. Med., Bd. II, p. 331.

GENERAL SURGERY

A. B. CRAIG MARTIN B. TINKER C. A. ORR

EDITORIAL COMMENT

Luxation of any of the articulations of the vertebral column is well known, except, of course, by the osteopaths, to constitute one of the most serious of all surgical lesions. Fortunately, it is also, except in osteopathic practice, one of the most rare. Indeed, on account of the anatomic arrangement of the articular processes in the lumbar region, and of both articular and spinous processes in the less movable dorsal segment, the occurrence of vertebral luxation in either of these regions, without the coexistence of fracture, amounts to a physical impossibility. The danger ensuing upon vertebral luxation is, very obviously, due to the simultaneous lesion of the contained spinal cord, which, in the great majority of instances, is crushed. It is only in the cervical region that a remote possibility exists of the occurrence of luxation without coexisting fracture. And the most frequent seat of cervical luxation is at the articulations of the sixth cervical vertebra. In his thesis on this subject (published in 1851), Richet collected 11 cases; the luxation between the sixth and seventh vertebrae is, however, a little more frequent than that between the fifth and sixth. M. M. Patel and Viannay¹ have recently published clinical records of two cases of cervical luxation.

One was of a bilateral, forward luxation of the fifth vertebra, of six years' standing; the second was of a unilateral forward luxation of the third vertebra, dating from two months. The former case was first seen by these physicians four years after the original accident. The patient was an agricultural laborer, aged 64. He had been sleeping on the landing of a staircase which had no balustrade, from which he fell to the floor below—a distance of 4.5 meters. The history did not say how, probably on his head. He was found in a state of coma, which lasted two hours; on recovery he was unable to move the right arm or leg. He was treated in hospital, and the limbs recovered voluntary movement—but to an imperfect degree. He continued to be easily fatigued, and prolonged exertion brought about severe pain along the spine. By degrees, however, the symptoms disappeared, and he was able to resume his ordinary labors, but his right foot still dragged somewhat, and he readily tripped and fell when walking in the dark on uneven ground. When examined by MM. Patel and Viannay, a prominence of the sixth cervical process was found to exist, with a depression above. The movements of the head were very limited—except that of rotation. Pharyngeal examination revealed nothing. The reflexes were exaggerated, especially on the right side. There was diminished sensibility of the cutaneous surface over the left half of the body, the face excepted. He had suffered from constipation and abdominal tympanites ever since the accident. The second case was that of a young man of 22, who had been adjusting the traces of a plough to which a pair of oxen were yoked; when they suddenly started off, and dragged him for a distance of about 100 meters. He lost consciousness, but did not know for how long. On recovering, he was able to sit upright, but found his neck painful and stiff. He was able to walk to his home, a distance of 150 meters. The neck and shoulders continued to be very painful, and he was unable to raise his arms, although he could use his hands. His state, however, gradually improved. On examination at hospital, the head and upper part of the neck were found slightly flexed; with a slight lateral inclination, and a little fixed rotation to the left, the neck appeared sunken toward the shoulders; there was dorsal scoliosis, with the convexity to the right. The patient remarked that his chin rested too near the thorax. There was a painful point in the position of the third cervical spinous process. Pharyngeal examination showed a vertebral prominence at the level of the soft palate. It was then almost two months after the accident, and the scapular muscles, with the deltoid and biceps of each side, displayed atrophy and loss of power. The scapulas were "winged." The triceps presented no change on either side. Traction, combined with lateral and anteroposterior movements of the neck—without anesthesia—diminished the deformity, and appeared to improve the condition of the upper limbs. But he returned, after the lapse of a month, with increased and progressing trouble, which had extended to the muscles of the lower limbs, and was complicated with constipation and retention of urine. Continuous extension was then applied to the cervical spine, upon which the patient rapidly improved, and at the end of another month was reported convalescent.

In this class of injuries, thanks to the wider lumen of the spinal canal, luxation may occur without considerable lesion of the contained cord, which is hardly possible in the dorsal region. In these two cases it is especially interesting to note that the bilateral luxation produced unilateral nerve lesions; while the unilateral one presented bilateral nerve complications—of a much more pronounced type. As the first case was of so long standing, its interest was chiefly pathologic, as no definite radical treatment could be thought of.

REVIEW OF LITERATURE

Treatment of Inguinal Hernia by Exercise.—Jay W. Seaver¹ presents a further report on the success of a treatment of inguinal hernia in the young as outlined in the same journal in 1900. This consists of voluntary movements of the abdominal muscles that can soon be mastered if the patient is deeply in earnest in the matter. A description of 10 exercises of special character that are to be employed 2 or 3 times a day for periods of 5 to 8 minutes each is given. In addition, the patient is allowed to indulge in almost any form of athletic or gymnastic work, thus greatly enlarging the list of movements. From an experience reaching over a sufficient length of time to test the permanent value of the cures effected, Seaver is convinced that the exercise treatment offers a means of relief in more than 75% of patients under 25. It is not applicable to some cases, because of their mental attitude toward exercise, and to a few others because of peculiar anatomic conditions. In occasional cases success has followed systematic exercise in persons who have reached physical maturity. In one instance cited, the patient was a man of 38, who had worn a truss for 12 years. With the treatment of inguinal hernia by exercise, Seaver especially emphasizes the necessity of using a flat pad that will not open the inguinal ring by the pressure of a convexity into it from without, as is the case with many of the truss pads worn. He employs a disc of hard polished wood or rubber 60 mm. (2½ in.) in diameter, with a segment removed from the side that lies against Poupart's ligament, this obviating the tendency of movements of the thigh to displace the pad from the abdominal wall. [A.G.E.]

Substitution of the Radial Diaphysis by an Ivory Rod.—K. Vogel² reports the case of a girl of 8, whose radius underwent caries from epiphysis to epiphysis. The entire diaphysis came away as one sequestrum. After a time, as the forearm was beginning to lean toward the radial side, an ivory rod was fitted into the epiphysis at each end, with perfect, ultimate success. The child uses its arm as well as other children do, only pronation and supination being somewhat limited. Skiagraphic pictures show the condition before the ivory rod was put in place, immediately afterward, and one year later. The last picture shows considerable proliferation from the retained periosteum and the epiphysis. [E.L.]

The Operative Treatment of Diffuse Purulent Peritonitis.—M. M. Mirsnoff³ believes that operation is useless in general puerperal or postoperative peritonitis due to streptococci or to staphylococci. Operation may retard the fatal issue in such cases, but is powerless to avert it. On the other hand, when the peritonitis runs a protracted course, being caused by the coli bacillus or the gonococcus, or even by enfeebled cultures of pus cocci, then a timely evacuation of the peritoneal cavity and the removal of the infectious source is decidedly beneficial. In these instances it is advisable to pack the Douglasian cavities and other folds with gauze, instead of using free flushing and glass or rubber drainage-tubes. [L.J.]

Surgical Treatment of Perigastric Adhesions.—Percy Paton⁴ states that operative experience has proved conclusively that certain perigastric adhesions are, in many instances, the cause of prolonged gastric disturbances. It has been shown by postmortem records that in 5% of examinations evidence of an active ulcer of the stomach or the scar of an old one is present. Fenwick believes that 40% of such ulcers cause adhesions. The

¹ Yale Medical Journal, February, 1904.² Deutsche medizinische Wochenschrift, November 12, 1903, Vol. xxix, No. 46.³ Journal Akousherstwa, November, 1903.⁴ The Lancet, February 6, 1904.¹ Gazette des Hôpitaux, August 6, 1903.

following causes may be assigned for perigastric adhesions in addition to ulcers of the stomach: Gallstones, traumatism, malignant disease, pancreatic disease, umbilical hernia, tubercle and syphilis. In 123 cases with adhesions Fenwick found that the adhesions were to the pancreas or liver, or both, in 92 instances, and in the remaining 31 cases the stomach was attached to the colon, the liver, spleen or more than one of these organs. He holds that, in those instances in which gastric disturbance has existed for a considerable length of time and will not yield to medical treatment, we are entirely warranted in advising surgical interference for the relief of the patients. In support of this he recites the histories of 42 cases which have been operated upon by various surgeons, 4 of which were the author's own. [A.B.C.]

Narcosis by the Scopolamin-morphin Method.—Max Stolz¹ concluded that this method possessed many disadvantages, and is unreliable and dangerous. Of 465 patients so treated, only 309 became anesthetic, the remainder requiring inhalation narcosis. Of this number, three died as a result of the injection. One was profoundly, and 9 slightly asphyxiated, and heart weakness was frequently observed. [J.H.W.R.]

Surgery of Cerebral Tumors.—George Woolsey² contributes a clinical and statistical study of cerebral tumors operated upon during the past 5 years. He has been able to collect 101 cases, of which he has had 5-3 tumors and 2 cysts. The principal object of the study was to determine if recent advances in localization and technic justify the extension of the indications for operation as given by the more conservative surgeons, many of whom are believed by Woolsey to be ultra-conservative. He takes a more hopeful view of the surgery of cerebral tumors. Some of his conclusions are: (1) The sphere of operation for cerebral tumors may be and has been extended to the prefrontal, parietal, and occipital regions, in addition to the motor area; (2) the prognosis is as good or even better than in operations for malignant growths elsewhere; (3) palliative operation is strongly indicated to relieve symptoms where localization cannot be accurately made or the tumor cannot be removed. Exploratory operation is contraindicated; (4) the osteoplastic method should be employed and the most rapid and perfect technic allowed by the circumstances, should be adopted. For opening the skull, Woolsey has employed in his last 2 cases Doyen's electric circular saw, with much satisfaction. He believes that hemorrhage is the chief cause of shock in the surgery of cerebral tumors. [A.G.E.]

Hygroma of Bursa beneath the Serratus Magnus Muscle.—The existence of the subscapular bursa is known to be rare. Reports of inflammation, there, are exceptional. Gruber has studied one in which he found the bursa to be $\frac{1}{2}$ in. to 1 in. in diameter in normal state. Giuseppe Betagh³ reports an hygroma, occurring on the right side beneath the scapula in a laborer of 33, the tumefaction being as large as an orange. The mass was removed and found to contain a cavity with about 4.5 cc. (15 oz.), liquid, slightly sanguinous, alkaline in reaction. Other cases are appended. The diagnosis would be very difficult in the absence of exploratory puncture. The etiology is not clear. [T.H.E.]

The Prevention of Peritoneal Adhesions.—Percy Paton⁴ quotes approvingly the opinion of Carl Vogel on the formation and prevention of interperitoneal adhesions. After the trial of a large number of different substances to prevent agglutination of peritoneal surfaces which were likely to adhere, Vogel came to the conclusion that none of them was of much avail and that of those tried, the best results were obtained with either sterile saline solution introduced in quantity into the abdomen or a small quantity of sterile solution composed of gum arabic, 1 part, saline solution, 2 parts. He found of much more importance in the prevention of adhesions and readhesions was the promotion of movement among the viscera, while allowing the patient to move from side to side more than is usual after abdominal section, and by employing gentle massage to the abdomen, and particularly by promoting peristalsis. For the latter purpose he found that a mild laxative and the use of

atropin, physostigma, and the salicylates were of valuable aid. Paton believes that the old treatment of keeping cases of abdominal section too rigidly at rest with the bowels confined should give way to the better plan of opening the bowel at a very early date, except in extreme and rare cases where it is contraindicated. [A.B.C.]

A Case of Evisceration.—W. E. Ground¹ reports the case of a man who was gored by a bull, the entire abdominal wall being torn through from the external abdominal ring to the tenth rib. The man crawled to his house, a distance of 200 feet, where he lay for 2 hours with nearly all of the small intestine out in his clothing. Operation was then performed, the man reacted promptly, no infection occurred, and recovery followed without an untoward symptom of any kind. Ground reports the case to emphasize his dissension from the views of some surgeons regarding the nature of infection. He rejects the statement that infection is a question of dose instead of virulence of organisms; the experience from 800 abdominal operations and from his capacity as railway surgeon leads him to believe that the number of germs has little to do with determining infection, this being due almost absolutely to the inherent virulence of the bacteria. The study of wound-healing away from aggregations of people in enclosures, away from direct communication with septic cases (the case reported, for instance), shows almost universal healing of extensive wounds by primary union without particular pains to produce asepsis. The practical point emphasized is that surgeons should never touch a septic case nor examine a rectum or vagina without wearing gloves. [A.G.E.]

Treatment of Inguinal Bubo.—Bockenheimer² treats buboes arising in the course of gonorrhea or soft chancre by puncturing the skin above the gland before it inflames, and withdrawing the pus with the syringe. He then injects from 2 cc. to 3 cc. of a solution of hydrarg. benz. 2 gm. ($\frac{1}{2}$ dram) natrii chlorati 2 gm. ($\frac{1}{2}$ dram) and aqu. destill. ad 200 gm. (7 ounces). If the puncture is not made until the skin is inflamed a fistula is likely to form. The puncture should be made into the upper part of the bubo to prevent the injected fluid from running off. From 2 to 3 injections at intervals of a week will usually cure the condition. [E.L.]

Postoperative Hematemesis.—W. J. S. McKay³ gives brief note on 7 cases of this complication, 3 of the cases in which it occurred being fatal. He suggests that the chief cause of hematemesis after laparotomy is shock which acts by causing portal congestion. The many cases reported by different surgeons include all the various abdominal operations; some of the patients were septic, some were not; some had local anesthesia, some general; the only feature common to all is shock. This condition causes an over-filling of the abdominal veins and this in turn a dilation of the coarse capillary network surrounding the mouths of the gastric glands; from these capillaries hemorrhage occurs. In some cases shock and portal congestion may not be sufficient to account for the hematemesis and we may suppose that predisposing conditions, as ulceration or abrasion, are present. As a part of the treatment of hematemesis, McKay recommends the administration of suprarenal capsule with chlorotone or 10 minim doses of adrenalin every hour for 3 hours. Operative interference is considered to be quite out of place. [A.G.E.]

Intestinal Anastomosis by McGraw's Elastic Ligature.—W. T. Henderson⁴ reports that a man of 31 suffered from strangulated inguinal hernia. The author was called late in the case; herniotomy was performed and the bowel was found gangrenous; temporary relief was afforded by a large fecal fistula which showed no tendency to heal. Five weeks after the primary operation laparotomy was performed, and the fistula being in a loop of the small intestine but a short distance from the ileocecal valve, the ileum above the valve was attached to the ascending colon by means of McGraw's elastic ligature, the bite of bowel and colon within the elastic ligature being 12 inches long; the ileocecal valve was thus entirely sidetracked. The patient made an uneventful recovery with primary union

¹ Wiener klinische Wochenschrift, 1903, No. 41.

² American Journal of the Medical Sciences, December, 1903.

³ Il Policlinico (Rome), No. 5, 1904.

⁴ The Lancet, February 6, 1904.

¹ St. Paul Medical Journal, March, 1904.

² Zeitschrift für Aertzliche Fortbildung, 1904, No. 1.

³ Australasian Medical Gazette, January 20, 1904.

⁴ Mobile Medical and Surgical Journal, November, 1903.

in the abdominal wound, and the fistula closed within a short time. The author is an advocate of this means of effecting anastomosis in cases in which it is indicated—that is, in those instances in which an immediate anastomosis is not urgent—[A.B.C.]

The Operative Treatment of Prostatic Hypertrophy.—B. N. Kholzow¹ makes a comparative estimate of the various current operations. He considers vasectomy indicated in the first and second stages of prostatic hypertrophy, when the disturbances of micturition cannot be otherwise palliated, when catheterization is difficult, when there is acute retention of urine. In these cases the simplest and least dangerous operation is to be preferred and vasectomy fulfils these conditions. With the subsequent reduced hyperemia the manifold disturbances will often pass away. Should this hope not be realized, we may perform a secondary Bottini operation or a prostatectomy. Perineal prostatectomy is called for in the third stage of hypertrophy, if the general health is good and the urinary tract not much damaged. Suprapubic prostatectomy is indicated in partial hypertrophy of the prostate, the enlarged portion projecting like a tumor on a pedicle into the bladder. Bottini's method is called for in the same cases as perineal prostatectomy, when the patient is very old, the general health poor and the urinary tract considerably damaged. [L.J.]

Treatment of Cancer of the Breast by Operation.—W. Watson Cheyne² states that on the average about 50% of all patients operated upon for cancer of the breast will remain well for a number of years, and in those cases in which the tumor is small, and glandular affection slight, the proportion of successes will be considerably greater. Recurrence takes place most frequently internally, and causes less suffering than if operation had not been performed. In the modern operation recurrence is rendered less probable by the fact that cancerous deposits are not cut into at the time of operation and the cells thereby distributed through the tissues. At its beginning, cancer is a local disease and amenable to surgical treatment, hence the importance of early operation. The cancer cells are the direct progeny of the cells in the original tumor, and epithelial growths cannot originate in lymphatic glands or nonepithelial structures. He believes in the existence of a general tendency to cancerous development, but even if this is the case and the patient may, at a later period, develop another cancer, it is no argument against removal of the disease as completely as possible in its present situation. Above all things we should remember that the patient's only chance lies in the *first* operation, and this must be thorough, however limited the disease. [A.B.C.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Preservation of Bactericidal Properties of Milk.—E. v. Behring³ has found that a solution of formalin, 1 to 4,000, will preserve fresh milk for 8 days, at the end of which time it cannot be told from new milk; solutions of this strength cannot be detected by the most sensitive palate. If a 1 to 10,000 is added to the milk, it will not sour for 8 days. Formalin will also preserve the immune bodies which are present in the milk of cows treated by Behring's method. Ordinarily, after standing, these bodies have disappeared, but according to our present tests they are just as plentiful in formalized milk after a week as when first put in the jar. Fresh milk possesses certain bactericidal properties, which are destroyed by boiling; the formalin solution increases this bactericidal property. To reduce infant mortality, Behring therefore advises fresh milk, uncooked, for infants, or if it has to be transported, to add formalin to it. [E.L.]

Walking and Running as Therapeutic Exercises.—L. H. Gulick⁴ shows that the effects of walking vary according to speed, duration, and the character of the ground passed over.

When the walk is not too rapid for the natural swing of the leg to bring the foot forward at the completion of each step, it is a very moderate exercise. The support of the pelvis upon the 2 legs in alternation is an entirely automatic process; cardiac activity is somewhat, but not greatly, accelerated, and the respiration is quickened in proportion to the energy expended. The objection commonly raised against walking as a general exercise is that the arms are not used, and that the muscles of the trunk receive no exercise. During rapid walking, on the other hand, the arms are used continuously; at each stride the pelvis is slightly rotated in order to lengthen the stride; the psoas magnus and the long head of the rectus femoris are called into active operation in pulling the thigh forward, while the action of the same muscles is needed to pull the leg forward, particularly at the end of the step. Exercise of all the muscles of the body is not indispensable, the important element is the exercise of large groups of muscles. This is accomplished, to a large extent, by walking—particularly by walking as rapidly as 4 miles in the hour. When much exercise at this rate seems inadvisable, the same result can be attained by interrupting the walk with frequent rests. The agitation of the body at every step tends directly to stimulate the functions of all the abdominal organs. In this respect walking far excels cycling, in which the body is relatively motionless, being supported on the tuberosities of the ischium. When the patient can utilize the advantages of a hill, walking can be made even more effective than on the level. There is no better or quicker way of modifying the great organic functions of respiration, circulation and digestion than by walking up a grade. This should be done with frequent rests to prevent embarrassment of the cardiac or pulmonary systems; but it is important that the exercise be sufficient to call for steady, conscious effort. The effects of running differ from those of walking somewhat in kind, but even more in degree. In running at any ordinary rate of speed the leg does not have to be pulled forward at each stride; and, on the other hand, the up-and-down motion of the body is greater in running than in walking; thus, the effect upon the abdominal organs is greater, the energy expended is greater, and the effect upon the general system is more marked. The increased activity of the diaphragm also stimulates the circulation of blood in the abdominal organs. Running should not be pursued to the point of circulatory or respiratory embarrassment, not only because of the effect upon these organs themselves, but because at this point great effort of the will is necessary to force the individual to continue; it is thus neurally exhausting. The maximum of general effect is secured by a series of short runs with complete rest between, rather than by walking slowly for a long distance. Rapid running so quickly exhausts the organism as to be but little suited for general exercise. Alternate slow running and walking meet so many of the conditions of general exercise, both negative and positive, that Gulick is confident it will have a large place in the future as it has had in the past in general exercise. It is not of prime necessity that the muscles of the arms be greatly exercised. Slow walking with running brings into play the general activities of the body in an excellent way. In gymnasiums having no running track it is possible to have a large number running on the gymnasium floor by means of what is called "maze running."

Hydriatic Treatment of Pulmonary Tuberculosis.—B. Buxbaum¹ recommends that tuberculous individuals immediately after leaving bed in the morning should be given cold rubs or baths to a part of their body with water at 50° F. to 55° F. Patients with fever, confined to their beds, should have moist bandages applied to chest and back, and these bandages covered with dry ones. During the forenoon cold applications should be made to the heart for $\frac{1}{2}$ to 1 hour. Patients not confined to bed should lie down for a part of every morning for the purpose of cold water treatment to the heart. This should be repeated in the afternoon, and followed by a 15-minute douche of water of the same temperature as that used early in the day. Before going to bed the morning ablution is repeated and followed by application of cold bandages to chest and back. [E.L.] [There must be individualization in hydrotherapy as

¹ Russki Vrach, January 24, 1904.

² The Lancet, March 12, 1904.

³ Therapie der Gegenwart, 1904, Vol. xlv, No. 1.

⁴ System of Physiologic Therapeutics, Vol. vii.

¹ Allgemeine Wiener medicinische Wochenschrift, 1903, xlviii, 547.

well as in drug therapy. This method, useful for many, is harmful for some. S.S.C.]

Serum Treatment of Hay-fever.—L. S. Somers¹ reports the use of serum in 10 cases, all of them well developed when first seen. The serum was from animals inoculated with the pollen toxin of golden rod, both the liquid serum and the powder prepared from it being used. With the exception of 1 case, the results were most gratifying. While the application of antitoxin to the nose relieves hay-asthma, it apparently has no effect upon an accompanying bronchitis or semiasthmatic condition not dependent upon the hay-fever. The general conclusions reached are that the golden rod antitoxin produces prompt and positive amelioration of the symptoms of fall hay-fever in the majority of cases. [A.G.E.]

Felix Mas and Optic Nerve.—In 2 cases of ankylostomiasis, Habercamp² prescribed the ethereal extract of felix mas in capsules, giving 1 patient 10 gm. (2½ dr.), another 8 gm. (2 dr.) on 3 different days; this in each instance was followed by calomel. One of the patients became completely blind after the third dose; in the other, the visual power diminished to counting of fingers at several meters. The initial clouding of the optic disc and venous stasis were replaced at an early date by the typical picture of optic atrophy with narrowing of the bloodvessels. Habercamp believes the blindness to have been due to acute degeneration of the nerve-fibers, and not as has been suggested by others, to disease of the retinal vessels. The amount of the drug has no bearing on the production of the intoxication, as 46 gm. (1½ oz.) have been taken without injury. Calomel was given instead of castor-oil, because as is well known, filicic acid, the active principle of aspidium root, is easier dissolved in oils and absorbed. [E.L.]

Manual Correction of Club-foot.—H. A. Wilson³ believes that corrective manipulations skilfully applied and persistently resorted to will give far better ultimate usefulness of the foot than any other corrective measure. The dangers lie, however, in modifying the shape of the still very soft bones of the tarsus by the use of undue force. The cicatrices made by tenotomies may often be avoided, as well as the more or less extensive muscular atrophy that is associated with the use of many forms of braces. After the application of the force a few times by himself, the operator may usually instruct the mother in such a way that she can readily apply this force from time to time during the day, very much to the advantage of the child. It is of primary importance that in making corrective applications to the feet, the knee of the leg operated upon should be flexed to very nearly a right angle to prevent rotation of the hip instead of correction at the tarsus. The child is seated upon the mother's lap with the knee bent. The operator is seated directly opposite. Assuming that the left foot has equinovarus, the operator places his right thumb above the external malleolus, while his fingers grasp the internal aspect of the os calcis and during the process of subsequent manipulations are enabled to overcome the varus condition of the heel. His left hand is used in such a manner as to keep the toes and metatarsal bones all in their parallel relationship to each other. His thumb placed on the dorsum of the foot still further aids in maintaining the correct relationship of these long bones of the foot. With his hands in the position described he is enabled to overcorrect the foot as to its varus, and also by changing the direction of motion to overcome its equinus. If the equinus is of more marked degree, it may be necessary for him to change the position of his hands, so that his left hand will firmly grasp the leg just below the bent knee. His right hand with the fingers under the plantar surface of the foot is used to bring the foot into a position of dorsal flexion, in which he is materially aided by his right thumb placed over the dorsal aspect of the astragalotibial articulation. Wilson, likewise, cautions against certain erroneous procedures which cause pain and accomplish no good result.

Prevention of Iodism.—F. Lesser⁴ says that iodism is not due to a liberation of iodids as the result of the action of the

body nitrates upon the iodine salt taken; this does not take place at all; nor are iodids ever changed to iodized albumin in the organism, but they circulate only as alkaline iodids. He considers the condition due to a flooding of the organism and the absorption by its component parts of the alkaline iodids; the condition is therefore not iodism but iodalkalism. This goes to show that the slower the iodids are absorbed the less chance there is for iodism. This can be accomplished by giving the drug in mucilaginous combinations as they prevent medicine from penetrating rapidly. The total daily doses should be divided into as many small portions as possible and the greater the patient's idiosyncrasy the smaller and more frequent the doses. Iodids may be given by enemas, iodized fats or iodipin injections may take the place of the alkaline iodids. Iodipin by the mouth has been found to produce iodine rashes, but when given hypodermically, it never does because of the very slow absorption by this method. Lesser considers the iodipin method very mild, and one that can be employed a very long time. [E.L.]

Potassium Iodid and Iodin in Glycerin Solution for Hemorrhoids.—For many years Preissman,¹ of Odessa, has obtained good results according to the nature of the case, with the following 2 solutions:

	Gm.—Dec.
Potassium iodid	2.0
Pure iodin	0.2
Glycerin	35.0

M. Every hour as directed.

	Gm.—Dec.
Potassium iodid	5.0
Pure iodin	2.0
Glycerin	35.0

M. Each hour, until relieved, then at longer intervals.

[T.H.E.]

The Medicinal Treatment of Pulmonary Tuberculosis.—Buerger¹ says that of the organic phosphorus preparations, especially the lecithins and glycerophosphates, are absorbed in the intestines and augment the albumin deposits. They hardly act as specifics against tuberculosis. In any event, the glycerophosphates are preferable to lecithin, as it is saponified in the intestines. [E.L.]

Salipyrin Poisoning.—Dumstrey,² after having frequently prescribed salipyrin in large doses, and never noting any unpleasant symptoms after its use, considered it an excellent antirheumatic. He reports 3 cases, in which tachycardia, dyspnea, flushing, free sweating, and a sensation of impending death appeared after comparatively small doses, 1 gm. (15 gr.); there was dilation of the pupils, *ad maximum*, and in 2 cases unconsciousness for some hours. On account of these unpleasant occurrences he warns against too liberal use of the drug, and insists that idiosyncrasies should be carefully noted. [E.L.] [This warning applies to all synthetic preparations. S.S.C.]

Treatment of Carcinoma with Röntgen Rays.—P. v. Bruns⁴ concludes from his studies of the röntgen treatment for carcinoma that the great majority of all cancers are not amenable to this treatment, that the carcinomas lying immediately beneath the skin give better results, but the success is usually an incomplete one, and that in cutaneous epitheliomas a complete cure may be expected; whether this is a permanent cure, however, he cannot promise. The studies of the future should have for their aim, in addition to the cure of the cases, the improvement of technic in the direction of permitting rays to penetrate to a greater depth. In the selection of cases those should be chosen in which the amount of time for the röntgen attempt is of no consequence, as in ulcer, or in which operation cannot be performed any more, as in some cases of mammary carcinoma. The latter, even if they cannot be cured, can be made very much more comfortable; the pain disappears, the ulcers scar over, and the masses disappear to some extent. Cases in which the röntgen treatment wastes valuable time should never be trifled with, as an operation may ultimately be

¹ Medicine, March, 1904.

² Wochenschrift für Therapie und Hygiene des Auges, vi, No. 38.

³ Cohen's System of Physiologic Therapeutics, Vol. vii.

⁴ Deutsche medizinische Wochenschrift, 1906, xxix, No. 46, November 12.

¹ Il Policlinico, Rome, No. 6, 1904.

² Correspondenzblatt für Schweizer aerzte, 1903, August 15.

³ Deutsche medizinische Wochenschrift, 1903, No. 43.

⁴ Therapie der Gegenwart, 1904, xlv, 28.

too late. The röntgen rays are no specific, therefore, for the cure of carcinoma, but they promise more than any other agent tried thus far. [E.L.]

DERMATOLOGY

M. B. HARTZELL.

EDITORIAL COMMENT

The Diagnosis of Cutaneous Syphilis ex Juvantibus.—Owing to the prompt and very decided improvement which almost invariably follows the internal administration of the iodids in the skin lesions of late syphilis, the employment of these drugs is commonly regarded as affording a means of diagnosis decisive in doubtful cases; if the suspected lesions show improvement they are syphilitic, if not this diagnosis may be safely rejected. In recent years, however, it has become apparent that this easy method of diagnosis *ex juvantibus* cannot be relied upon, since we have learned that there are other affections beside syphilis which may be favorably influenced by the iodids. A considerable number of observations are now on record showing the favorable effects which follow the internal use of iodid of potassium in actinomycosis and blastomycosis cutis; in both these affections the iodids in large doses produce marked improvement, if they do not bring about an actual cure. Quite recently Beurmann and Ramond have reported a case of multiple mycotic abscess (an abstract of which is given below) in which a complete cure followed the internal administration of iodid of potassium. It is not safe to conclude that because a lesion of the skin shows decided improvement after the use of some one of the iodids, it must necessarily be syphilis. It is quite evident that this diagnostic short cut is not—and never was for that matter—a reliable substitute for the careful study of cases.

REVIEW OF LITERATURE

Secondary Eruptions in Smallpox.—Schamberg¹ calls attention to certain secondary eruptions which commonly occur during the course of variola. During the period of desiccation sparsely distributed blebs occur, more particularly upon the feet and hands. More frequently a reddish vesicular ring forms around the partly desiccated crusts, containing a turbid puriform fluid. These patches spread peripherally as they crust over in the center. When the eruption is abundant it is sometimes accompanied by elevation of temperature, and may be sufficiently extensive to cause death. For this form of eruption the author suggests the term *impetigo variolosa*. Boils and subcutaneous abscesses are common complications of smallpox; cutaneous gangrene occasionally happens. Secondary septic rashes resembling scarlatina or measles occur in a certain proportion of cases during the later stages of the disease, the scarlatiniform eruption being most common. These secondary rashes are sometimes accompanied by elevation of temperature.

Acute Contagious Pemphigus in the Newly Born.—Maguire² reports a small epidemic of contagious pemphigus occurring among newborn children in an institution known as the Richmond Lying-in Charity. Out of a total of 20 infants born in this institution between September 10 and October 23, 18 were affected with a more or less extensive bullous eruption which caused the death of 8 of the infants. Twelve of the 18 cases were attended by the same midwife, whom the author believes conveyed the infection from case to case. In the great majority of the cases the bullas began upon the neck and chin, spreading thence to the trunk. The epidermis over large areas exfoliated, leaving a red, raw, weeping surface. In 9 instances the mother, other children, and those who washed the soiled clothes were infected. In the fatal cases, in addition to the eruption, there were symptoms of acute toxemia. In these infants the groins and lower abdomen were much affected, and

extension to the umbilicus followed, through the unhealed surface of which, as the author believes, general infection occurred. Fluid from the bullas submitted to bacteriologic examination showed *Staphylococcus pyogenes aureus* only.

Anthrasol.—Sack³ relates his further experience with this coal-tar derivative, which he brought to the notice of the profession in 1896. In pruriginous conditions of the skin it has never failed to afford relief. It may be employed pure, in solution, in salves, in oils, pastes, and soaps; it is also miscible with glycerin jelly. In general pruritus, because of the danger of absorption, it should be used in moderately weak solutions—about 10%—in alcohol or in acetone. In pruritus of limited extent, such as pruritus ani, or in itching, circumscribed eczema, it may be used in a strength of 20% to 30%, or even pure. In pruritus ani the undiluted anthrasol acts brilliantly, and mixed with glycerin it has proved a sovereign remedy. The fluid mixtures are especially indicated in itching affections of the scalp. These are likewise useful in the milder forms of psoriasis and psoriasiform seborrheic eczema; in the severer forms of the first named, salves, with the addition of sulfur, resorcin, salicylic acid, etc., are more effective. Instead of the salves made up with vaselin, the author prefers the following:

Anthrasol	3.0
Lanolin	3.0
Ung. glycerin, q.s. ad.	30.0

Multiple Subcutaneous Abscesses of Mycotic Origin.—Beurmann and Ramond⁴ report a hitherto undescribed form of abscess which they believe due to a fungus. Clinically the case was characterized by the presence of small tumors resembling in their size, form, and consistence, parasitic cysts. Histologic examination, however, showed that they were neither hydatid nor cysticercus cysts, but abscesses with a thick membrane, containing grumous, odorless pus. Bacteriologic examination revealed a fungus the same in all the lesions, growing upon certain media with characters always the same. As this fungus, which consisted of spores and mycelium, was the only one which developed, the authors conclude that it was the cause of the abscesses. Attempts at inoculating it upon animals were followed by negative results. The patient was completely cured by the administration of iodid of potassium internally.

The Relationship between Psoriasis and Affections of the Joints.—Lipman-Wulff⁵ reports a case of psoriasis associated with extensive arthritis. The patient was a man who, up to the age of 52, was perfectly healthy. At 52 years of age he began to suffer from psoriasis, and two years later an affection of the joints appeared, which began with pain and swelling of the interphalangeal articulations. Notwithstanding the employment of baths, massage, and salicylic preparations, the joint affection extended so that the patient, at the end of a year, was no longer able to follow his usual occupation. The psoriasis continued, sometimes better, sometimes worse, but as the patient expressly stated, uninfluenced by the arthritis. The author is of the opinion that there is not sufficient ground for belief in the existence of a special psoriatic arteritis, such as has been described by some French authors, but that psoriasis and chronic joint affections may occur in the same individual without being necessarily related.

The Etiology of Acne Vulgaris.—Gilchrist⁶ has found a definite bacillus, which he names *Bacillus acnes*, in a large number of typical acne lesions obtained from 86 patients. Pure cultures were obtained from 62 lesions taken from 29 patients. This bacillus, which was shown to be pathogenic in mice and guineapigs, in smears is short and thick, but in cultures often becomes much longer and thicker, and in old cultures assumes distinct branching forms. It grows on acid glycerin agar, forming a pultaceous, easily movable mass. The serum of patients suffering from acne produces clumping of the bacillus, from which it is inferred that a specific toxin produced by the bacillus is absorbed by the blood, producing a specific agglutinin. The author thinks it possible that the anemia, constipation, headache, and disturbances of digestion, which are commonly regarded as predisposing causes of acne, are actually the

¹ Monatshefte für Praktische Dermatologie, Bd. xxxvii, No. 11.

² Annales de Dermatologie et de Syphiligraphie, Nos. 8 and 9.

³ Dermatologische Zeitschrift, Bd. x, Heft 6.

⁴ Journal of Cutaneous Diseases, March, 1903.

¹ Journal of Cutaneous Diseases, May, 1903.

² British Journal of Dermatology, December, 1903.

results of the continued absorption of toxins produced by the enormous numbers of bacilli present in all the lesions.

Psoriasis of the Mucous Membrane of the Mouth.—Oppenheim¹ reports the case of a man, 53 years old, who, in addition to the ordinary skin lesions characteristic of psoriasis, presented certain other peculiar lesions upon the mucous membrane of the mouth. The tongue showed nothing abnormal, but upon the mucous membrane of both cheeks and of the hard and soft palate were oval, bluish-white, sharply-limited, and elevated patches. The patches upon the palate differed somewhat from those on the cheeks, one showing a finely stippled surface, while the other was quite smooth and yellowish-white in color. Syphilis and leukoplakia were excluded on clinical grounds, and the diagnosis of psoriasis confirmed by microscopic examination of tissue excised from one of the patches.

Alopecia Congenita Familialis.—A. Krauss² reports the cases of 3 children of one family, all of whom were born with thick hair, but who lost their hair shortly after the birth, and no hair has reappeared since, although the oldest is over 4 years old. The skin looks atrophic, thin, and smooth; no follicle openings are visible. The eyebrows, nails, and teeth are normal. Microscopic examination showed neither hair-substance, root, nor papilla; rudimentary hair-bulbs and follicles exist. The hair-muscles and sebaceous glands are rudimentary and abnormal in position, but the sweat-glands are normal. [E.L.]

Treatment of Local Hyperidrosis.³—Hyperidrosis limited to the feet, hands or axillas demands energetic treatment. Local cold baths with astringent preparations and perfumed with various aromatics may be used frequently. Baths of formol or potassium permanganate cause fetid sweating of the feet to disappear rapidly. Formol is used in the proportion of 1 dessertspoonful to 1 quart of water. Potassium permanganate is used as follows:

Potassium permanganate 10 gm. (5iiss)
Distilled water 300 gm. (3ix)

One dessertspoonful to 1 quart of water.

Brocq uses the following liquid diluted with 1 or 2 times its volume of water:

B naphthol 5 parts
Glycerin 10 parts
Alcohol 100 parts

After the lotion the area is dried carefully, then powdered with talc, starch, bismuth subnitrate or the following, which is used in the English army against bromidrosis:

Salicylic acid 3 gm. (45 gr.)
Starch 10 gm. (23 dr.)
Powdered talc 87 gm. (3 oz.)

Brocq uses the following:

Salicylic acid 3 gm. (45 gr.)
Powdered alum } of each 5 gm. (75 gr.)
B naphthol }
Sodium borate } of each 10 gm. (23 dr.)
Powdered starch }
Powdered talc 67 gm. (2 oz.)

The same powders may be used under the arms and between the thighs.

About every 8 days a few drops of the following liquid may be dropped between the toes:

Red oxid of lead 1 gm. (15 gr.)
Solution of lead subacetate 29 gm. (1 oz.)

By the use of this treatment, the most rebellious forms of local sweating were cured rapidly. [L.F.A.]

A Rare Congenital Condition of the Skin.—L. R. Mueller⁴ reports 2 cases of congenital disturbance of the vasomotor nerves of portions of the skin. The first patient presented in portions of the upper half of the body an extreme marble whiteness, alternating with dark bluish-red spots; the entire left lower half of the body was the seat of a venous hyperemia. The condition was more marked in winter than in summer; in warm weather it almost entirely disappeared. The condition is not due to a spinal or ganglionic lesion, even

though it is arranged in segments, but rather to developmental alteration in the nerves of the cutaneous vessels. Such alterations usually occur in segmental arrangement. [E.L.]

The Cause of Baldness.—Morris Schein¹ claims that baldness begins (1) in that part of the scalp which lies close to the basement membrane; (2) at the point of muscle-pull when the frontal and occipital muscles contract together; (3) when the nutrition of the scalp suffers intensely and early. In women the muscle-pull which brings about an intense stretching of the scalp on the basement membrane is ineffective, and the nutrition of the frontal and vertical regions does not suffer as much as in man. In the old, the change in formation of the skull which is associated with stretching and poor nutrition of the scalp, readily brings about an extension of the baldness. The growth of the hair as well as the falling of the hair depend upon changes in nourishment of the scalp. While in the falling out of the hair the nourishment of the scalp is diminished, it is increased in the growth of the hair. The diminution of the nutrition of the scalp is caused by an intense stretching of the same on the aponeurosis. In cases of falling out of the hair, as well as its growth, there is a mechanical cause upon which the change in nutrition of the scalp, the hair, and the growth and disappearance of the hair depend. [J.H.W.R.]

Differential Diagnosis between Syphilis and Drug Exanthems resembling Syphilis.—C. Berliner² describes briefly a number of cases of cutaneous eruptions occurring in his and other physicians' practices, which resembled and were treated for syphilitic eruptions. They were caused by iodids, bromids, antipyrin and numerous other drugs belonging to these groups. He recommends that in all acutely occurring exanthems the food products and drugs likely to produce them should be inquired for; acutely occurring eruptions are more likely to be due to drugs than to syphilis. Itching, burning, fever, etc., are rare in syphilitic eruptions. Mistakes are especially frequent when the eruption exists near the border of cutaneous and mucous membranes. Of positive value in the diagnosis before starting antisyphilitics, is the placement of the patient on absolute diet for a short time. Drug eruptions and those due to food will disappear almost as quickly as they came. [E.L.]

Leukoderma in a Boy of Eleven.—This case, reported by R. B. Ness,³ who observed it in the Royal Hospital for Sick Children in Glasgow, is interesting because of the positive history that the disease began when the boy was but little more than 6 years of age. The boy was small for his age, being 46 inches high, and weighing but 55 pounds when seen by the writer. Broadly speaking, the skin of the whole body, except the palms of the hands, soles of the feet, and the scalp was affected. The skin between the leukodermic patches was quite markedly pigmented, of a brownish color. Cases of this disease beginning before the age of 10 are rare. There is no distinct history of nervous disorder in the family of the patient, but 5 other children died of pulmonary affections between the ages of 1 and 3 years, and 1 other has a congenital malformation of the eyes. [A.G.E.]

Diabetes and Skin Diseases.—E. Saalfeld⁴ states that the interdependency of skin diseases and diabetes has been overestimated. He discusses those occurring only with diabetes (xanthoma diabeticum, bronze diabetes, diabetic gangrene and papillomatous diabetic dermatitis). They all occur very rarely. All other dermatoses are accidental complications of diabetes; they are always more persistent and grave than in nondiabetics. Very often the disease is not improved by any means until the patients are put on antidiabetic regimen. The skin disease may be the precursor of diabetes. He advises routine urine examination, therefore in every patient suffering from a skin disease. Psoriasis and leukoplakia have never been associated in his experience with diabetes. Syphilis and diabetes may coexist accidentally, or the glycosuria be produced by the former; antiluetic treatment in the latter case will usually remove the glucose from the urine. A family tree of a family in which diabetes and carcinoma coexist is reproduced. [E.L.]

¹ Monatshefte für Praktische Dermatologie, Bd. xxxvii, No. 11.

² Archiv für Dermatologie und Syphilis, 1903, lxxvi, 369.

³ Journal des Praticiens, Volume xvii, No. 25, 1903, page 392.

⁴ Münchener medicinische Wochenschrift, June 23, 1903.

¹ Wien. klin. Woch., 1903, May 21.

² Monatshefte für Praktische Dermatologie, Vol. xxxv p. 137.

³ Archives of Pediatrics, December, 1903.

⁴ Deutsche medicinische Wochenschrift, No. 30, 1903.

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The new sanitary sleeping cars adopted by the Pullman Company have come none to soon, and unless the rules and standards have been made after thoroughgoing scrutiny of sanitary experts, it is hardly likely that the ideal has been realized. Reform in sleeping cars was, of course, most needed, but in other cars it is emphatically called for. All have been constructed seemingly with the purpose of being cleansed and disinfected with the greatest difficulty, and of harboring most securely, parasites and the germs of disease. As in the common bed, so here, every part should be made of metal that is possible, all corners and cracks done away with; the plushes, velvets, and soft materials replaced when possible by materials more easily cleaned, etc. Then, the great desideratum in all beds, seats, etc., is ease of taking every thing apart, with complete purification by water, heat, or disinfectants at stated and frequent times. All this leaves untouched, the problem of cleansing the freight and stock cars, which, from the moment they are put in service to the day they are consigned to the scrap-heap, are allowed to become the conveyors of unimaginable filth and the breeding places of any disease germs that can nest in them.

Baby-farming and Baby-murder.—If the newspaper reports are to be trusted, there has recently been unearthed in Philadelphia the details of the most hideous and systematic criminality as regards the traffic in and murder of infants. There are good reasons for believing that this city is not by any means the most guilty, and that careful search would find the revolting practice of buying and selling children's bodies and lives, even burning the living or dead victims in furnaces, is not unknown elsewhere. It would doubtless be unjust to charge all "maternity homes" with criminality equal or approaching that which has appeared in the coroner's office, but proofs abundantly sufficient have been brought to light to warrant the demand that all such institutions must be placed under rigid public surveillance and government. The horrors that may be connected with them are the logical outcome of any permitted secrecy, and so long as human nature remains what it is, there should be the strictest safeguards of publicity, license, and oversight. Even the best must be watched, and even the best may give unconscious evidences that there is a leaning to immorality. In a

circular letter of a "maternity home," before us as we write, and giving the best of references (do the referees ever see?), there is the squinting line that "a liberal percentage is allowed physicians who send us patients."

Practical Application of the "Side-chain" Theory.—The address delivered last week by von Ehrlich before the American Association of Pathologists and Bacteriologists has a practical bearing in establishing a close relation between his "side-chain" theory and clinical medicine. This study of the therapy of diseases caused by the trypanosome was entered upon in the hope of discovering an agent which would not only kill the parasite, but the latent forms also, thus preventing relapse. Following up the action of stains upon the parasite, Ehrlich discovered that one of the congo stains, benzopurpurin, acted as well as arsenic, although a few relapses still occurred. This led to the endeavor to produce a more soluble compound with the same qualities, and by introducing further H_2SO_4 radicals in the benzol ring he succeeded in obtaining a new substance, which he has named "trypanroth," and which possesses marked specific properties, the action being most favorable in mice infected with the parasite of the South African disease of horses. Injected into mice one to three days before infection it confers immunity, though not of long duration. This is possibly through the stain causing some reaction on the part of the body, which is followed by the production of substances which kill the parasites. The address was most interesting and timely; there are many, especially among those not directly engaged in experimental work, who are demanding practical results from the work along the lines which come under Ehrlich's theory, and, not seeing these results, have lost faith. Whether the "side-chain" theory stands or falls, it has been, and still is, one of the most valuable working hypotheses which medicine has ever followed, and this new line of definite, synthetic chemistry applied to medicine has evidently grown directly from the basis of the "side-chain" theory.

Journalistic rivalry and jealousy has sometimes strange ways of manifestation. Readers of several journals may be puzzled to discern the truth among the contradictory views expressed in different editorial and review columns concerning an operation, method of treatment, person, or book. But these apparently un-

accountable contradictions are soon recognized as motivated upon something else than those honest individual opinions which necessarily exist even when the writer speaks or pretends to speak judicially and professionally. Two equally good authorities will take irreconcilable sides for or against the same thing, book, or person, the one finding good or partial good, the other finding the whole matter too contemptible to treat with patience or decency. Occasionally an understanding of the incongruity may be found in the fact, generally forgotten or unknown, that editorial jealousy and personal prejudice may dictate the published opinion. The extent to which the abuse grows is mystifying to those uninitiated in the secrets of journalism, but is most instructive to those conversant with the real conditions. A successful professional, editorial, or journalistic rival is a natural mark for envious detraction, and so long as imagination exists in journalistic circles, it is not at all necessary to wait or search for opportunity. Of course this is poor journalism, and finally comes to naught, but in the multiplication of commercial medical journals it has long been well understood that editorial opinions and reviews are frequently personal and partisan, with a thin veneer of assumed science and professionalism calculated to deceive the trusting.

Jacob's Voice but Esau's Hands.—If the editorial review or editorial opinion concerning a book or medical proceeding is in a medical journal commonly called a "house-organ," the property of a manufacturing or publishing firm, the judgment given may be biased by commercial interests and contemptibly contemptuous in its wording. Of course, there are honorable exceptions; and every editor and publisher would repel any insinuation that there is any ulterior influence of a mercantile nature at work to mould editorial utterance. But the disclaimer is not credited by those who have attentively watched the action of certain editorial minds for a number of years. The publisher of medical textbooks who issues a journal as a "feeder" to his main business, usually establishes by implication if not direct command a "policy" for that journal of praise for his writers and of depreciation or attack upon the works of rival publishers. If it so happens that his editor, in carrying out this policy, has opportunities for private vengeance in "reviewing" the work of a professional or journalistic rival, then, in the trust that the personal motive may be overlooked in a mere extension of the house's policy, the result is scornful depreciation or vitriolic attack. These facts are of axiomatic acceptance by publishers, who still send "review copies," knowing that a review will gain in bitterness because the book to be disparaged had to be bought; although instances are on record of books having been reviewed and savagely attacked without even the cursory reading which would have prevented the reviewer's blunders. It is an ancient story in the world of general literature and criticism, but it is a pity that it should be so often repeated in medicine. The editors, upon whom the ultimate responsibility for the condition rests, may justify themselves with the good old proverb, *Wessen Brod ich ess dessen Lied ich sing*.

State Supervision of Private Hospitals.—With the growth of luxury there has arisen a condition which soon or late will demand the attention both of the profession and of the law makers. Private hospitals have of late years been enormously multiplied. Carried on by honorable physicians no blame can be attached to them or their owners, although they have often been criticised by the younger men as vastly increasing the already too great tendency toward medical monopolies. When the public hospitals depend upon private pay-patients for a considerable share of their income the private hospitals may become harmful rivals and go a long way toward crippling their usefulness and public service. But a still greater danger is clearly manifest and is causing a bitter criticism which may indeed develop into scandal. To be frank in reference to the matter it is said that, shielded by the advantages of secrecy and by the example of the properly conducted private hospitals, quackish and even criminal institutions are also multiplying. It would be strange if without any governmental oversight or license the disreputable should not seize upon the immunity from control and carry on what are really abortionist and extortion practices. A few exposures would doubtless serve the useful purpose of bringing all to the bar of legal control and license. Such licensure and State regulation would be welcomed by those which are professionally conducted. It would be well however if this ideal could be realized before any concealed disgraces are brought to light.

The victory of the lowered deathrate—and as a rule it is still lowering—is one for which the medical profession may well be proud. Only ten years ago a statistician said that, "a deathrate of less than 18 in the thousand in a city of more than a million population is a sanitary impossibility." It is with proper pride that the Chicago Health Commissioner quotes the rate for his city in 1903 as 15.34, and if the midyear estimate were made upon the same basis as in London, it would be 14.53. This result of preventive medicine, splendid as it is, and *de facto* better than that of London, is in truth outdone by the much larger and older city, where the sanitary difficulties are of course much greater. For the year 1903 the English Registrar-General estimates the deathrate at 15.62. In Chicago, however, there has been an increase during the last two years, the cause of which is traced by Dr. Reynolds to the greater severity of the winter, the average temperature for last winter being 7° or 8° lower than in 1901-2. Berlin's honor of second place to Chicago is now taken from her by London, while other large cities are far behind. The deathrate is the thermometer of civilization. A commissioner of health of a great modern city is the greatest saver of lives, or the greatest death-dealer of any man in the world.

Against the legalization of osteopathy in New York, that veteran general in the war against quackery, Dr. Frank Van Fleet, chairman of the committee on legislation of the Medical Society of the State of New York, is now waging a worthy battle. A bill has been intro-

duced in the Legislature, entitled, "An Act to Define and Regulate the Practice of Osteotherapy." This bill defines "osteotherapy" as follows:

The practice of osteotherapy is defined to be a system, method or science of healing disease without the use of drugs or medicine of any kind. It is based upon the proved laws of anatomy and physiology, and comprises scientific and thorough knowledge of the structure and functions of the human mechanism, to apply certain organic laws and natural remedial resources, within the human organism itself, and by means of scientific manipulations and adjustment, assist nature, in harmonious accord with its own mechanical principles, activities and processes, to recover from displacements, derangements, obstructions and processes, and to regain normal equilibrium of form, action and function, thus restoring to the patient normal health and strength. The word "osteotherapy" is derived from the Greek ("osteon," bone, and "therapeia," nature, healing). The word "osteopathy" is a correction of the word "osteopathy," which latter means, translated from the Greek ("osteon," bone, and "pathy," suffering) bone suffering. The word "osteotherapy" embraces the science so-called osteopathy, the practice of massage and Swedish movements to its fullest extent, and any one practising the latter sciences, under those or different names, shall come under the jurisdiction of this act."

It is difficult to imagine this as a serious effort to secure legislative enactment, for the definition makes one laugh; but we must assume that the gentleman who introduced the bill was not actuated by the desire to amuse his colleagues. The measure goes on to provide for a board of examiners, appointed by the regents of the University of the State of New York, for examination and registration fees, and so on. If all physicians would write to the members of the Senate Judiciary Committee opposing this bill, its fate would not be long in doubt. Aid is needed from all who are endeavoring to protect our professional standards. We give in another column the Committee's reasons why the practice of osteopathy should not receive any legal sanction.

To Increase the Efficiency of the Medical Department of the U. S. Army.—A bill has been introduced in Congress, approved by Surgeon-General O'Reilly, the Secretary of War, and others, which should command the approval of the profession and all the aid it can bring to bear for its passage. The Medical Department of the army at present suffers from three serious defects of organization which handicap its efficiency in time of peace and render impossible any efficient expansion in time of war. These are: A commissioned personnel entirely inadequate to perform the medical service of the army even in time of peace; insufficient inducement in the way of pay and promotion to attract the most desirable class of young physicians to enter the corps; no satisfactory means of expansion to meet war conditions and special needs in time of peace (epidemics, "little wars," etc.). The only means of expansion heretofore existing, the employment of contract surgeons to supplement the insufficient commissioned personnel, has always been wasteful and unsatisfactory, and has now become absolutely impractical because of the recent decision that the contract surgeon not being an officer, obedience to his orders cannot be enforced even in the case of the enlisted men of the

Hospital Corps. The aim of the bill is to remedy these defects by providing for a Medical Corps and a Medical Reserve Corps sufficient to meet the demands of the law and of the conditions in which our government finds itself. There has been much criticism of the regulations in the British army, but Surgeon-General O'Reilly cites the following figures, which show how far we are from giving relative and adequate honor and support to our medical officers:

Percent of Corps having general and field rank:	
Medical Corps, U. S. Army, 1903	25.3%
Medical Corps, U. S. Army, 1898	38.2%
Medical Corps, U. S. Navy	33.6%
Medical Corps, British Army	48.8%
Engineer Corps, U. S. Army, excluding second lieutenants	38.5%

Protozoa and Disease.—A very entertaining and instructive article on the above topic is that in the *April Century*, by Gary N. Calkins, adjunct professor of zoology at Columbia University. The purpose of the writer is to enlighten the general public regarding the unfamiliar term protozoa, a term made prominent by recent medical discoveries and a term "which is confused by the average reader with bacteria, microbes, and germs as a new kind of unknown, fearsome thing." He has succeeded admirably in presenting elementary facts relating to these lowest forms of animal life, known since 1675, and their importance in the etiology of disease. The statements regarding the wellknown malaria parasite and the less wellknown varieties causing, or supposedly causing, yellow fever, smallpox, and scarlet fever, are conservative and reliable; opportunity is seized to emphasize the value of vaccination. On the whole, this is one of the best of the popular medical articles that have appeared in recent lay publications. Such papers merit commendation, as they are a valuable means of educating the public in the causation and prevention of disease. What good might be accomplished if our daily papers occasionally printed articles of this stamp instead of the worse than senseless twaddle evolved from the inner consciousness of nonscientific "penny-a-liners" who "write up" medical happenings! But we are not pessimistic; the attitude of the press in general is encouraging. Physicians should foster this tendency toward scientific enlightenment of the people at large.

Extension of the Registration Area and Improvement of Vital Statistics.—According to a circular issued by the Public Health Committee of the American Medical Association, that Committee is cooperating with the U. S. Census Bureau and U. S. Public Health Service, as well as with committees from the American Public Health Association and other national sanitary organizations, in endeavoring to bring about a more satisfactory registration of vital statistics in this country. This work has been especially commended by joint resolution of Congress and by resolutions of the American Medical Association passed at its last session at New Orleans. It is hoped that all State Medical Societies, especially those in States not now having satisfactory registration of mortality statistics, will

appoint Committees on Vital Statistics at their next annual meetings, as requested by the resolutions of the American Medical Association, to cooperate with the Public Health Committee and to urge the passage of proper legislation at the next sessions of the State Legislatures. The following are the necessary provisions for a registration law for deaths:

1. Deaths must be registered immediately after their occurrence.
2. Certificates of death (standard form) should be required.
3. Burial or removal permits are essential to the enforcement of the law.
4. Efficient local registrars are necessary.
5. The responsibility for reporting deaths to the local registrar should be fixed.
6. The central registration office should have full control of the local machinery, and its rules should have the effect of law.
7. The transmission and preservation of returns should be provided for.
8. Penalties should be provided.

Committees may correspond directly with Dr. Cressy L. Wilbur, Expert Special Agent of the U. S. Census Bureau, Lansing, Michigan, who represents the Government authorities interested in the extension of registration and is in direct touch with the Public Health Committee in its labors in pursuance of the resolution of the Association. Dr. Wilbur will advise with the committees of any State in regard to the details of a proper registration bill, and will, when necessary, personally appear before medical societies, health officers' associations, legislative committees, etc., as may seem to be desirable for the purpose of advancing this work.

The Cigaret Habit.—A magistrate of New York, is strongly opposed, with good reason, to the use of cigarettes by boys. He says that in the last 6 months more than 300 boys have been arraigned before him for greater or less crimes, and of that large number 98% confessed to smoking cigarettes. Perhaps the other 2% also smoked them but did not care to acknowledge the fact. Cigarets are mentally and physically injurious to boys, whatever effect they may have on men.

Discoverer of the Laryngoscope.—The *British Medical Journal* says: A venerable figure is that of Manuel Garcia, the discoverer of the laryngoscope, who completed his ninety-ninth year March 17. He was born at Madrid, in 1805, and was the brother of Malibran and the teacher of Jenny Lind and many other famous singers. Till a few years ago he was actively engaged in voice training. He discovered the means of observing the interior of the larynx in 1854, and in the following year read his memorable paper, entitled "Physiological Observations on the Human Voice," before the Royal Society of London. His observations were made on himself, and in his examinations he used 2 mirrors—a small one fixed on a long stem for introduction into the pharynx, and a large one which served at once to throw the light—it was that of the British sun!—on the small mirror and to enable the observer to see the image formed thereon. The discovery was treated with indifference, and for years the laryngoscope was spoken of by superior persons in this country as a physiologic toy. Garcia's paper fell into the hands of Turck, of Vienna, who, after a short trial, declared that "he was far from entertaining too sanguine hopes about the employment of the laryngeal mirror in practice." Fortunately, the mirrors which Turck threw aside were borrowed by Czermak, the physiologist, of Budapest, who quickly saw to what good use they might be put. He substituted artificial illumination for the uncertain light of the sun. The light was reflected and concentrated by a large ophthalmoscopic mirror. He had mirrors of different sizes, and finally the art of laryngoscopy was presented in a practicable shape to the medical world in a paper which appeared in the *Wiener medicinische Wochenschrift* of March 27, 1858. Among the honors conferred on Manuel Garcia in recognition of his discovery is the degree of Doctor of Medicine, which was given him *honoris causa* by the University of Königsberg.

AMERICAN NEWS AND NOTES

GENERAL.

The First Woman Physician.—An exchange says: A recent report from the University of Halle mentions the interesting fact that this institution was the first in Germany to give the medical degree to a woman. It was in 1754 that the university created a daughter of Dr. Leporin of Halle a "doctor medicinae." Her scientific studies had been carried on under the direction of her father, but in the university halls she defended a set of theses that secured her these academic honors. She is no doubt the pioneer of the modern university movement among the women of Germany, having as early as 1742 published a work entitled "Gründliche Untersuchung der Ursachen, die das weibliche Geschlecht vom Studiren abhalten, darin deren Unerheblichkeit gezeigt wird, und, wie möglich, nötig und nützlich sey, dass dieses Geschlecht der Gefahrheit sich befeisse." This first medical doctor of Germany died in 1762. We remark, by the way, that the University of Königsberg, in which the reaction against women students that set in about 2 years ago in the Prussian universities went so far that the medical faculty practically excluded women entirely, has, in a measure, relented. The medical department now again admits women to anatomic work, but not with the men.

NEW YORK.

Reasons of the Committee of the Medical Society of the State of New York why Osteopathy, Osteotherapy, and other Peculiar Methods of Treating Disease should not Receive Special Privileges.—1. There are no methods of counteracting the results of disease, or of remedying or correcting physical defects, known to science, which are not known and practised by qualified and competent physicians when such methods have in themselves any valuable properties. 2. The practice of medicine, or, to use the more comprehensive term, the treatment of disease, has not reached that degree of perfection where it is possible to say with exactness that a certain remedy is a certain cure under all conditions. Circumstances modify conditions, and it is only after weighing all the conditions present in a given case, and often after consultation with experts in special lines, that the remedy can be selected and properly applied; and even then, under what may seem to be the most favorable conditions, the results are not always satisfactory. Therefore, the State, recognizing how imperfect and uncertain the knowledge of the healing art is, has created a standard of proficiency with which all who desire the right to practise this art must comply. Not that such practitioners may be able to treat certain diseases; not with the idea of creating certain classes of practitioners, but with the single idea that all who hold themselves out as competent to practise the healing art shall have sufficient knowledge to recognize and discriminate the various diseases and defects, and to be familiar with and able to apply the known remedies. The State places in the hands of practitioners of the healing art extraordinary discretionary power; after receiving this power from the State, these practitioners are responsible to nobody but themselves for the conscientious discharge of their duties. It would be manifestly improper for the law-making powers to confer privileges such as these on any but the most competent, in order to make them as little a menace to the community as possible. 3. Osteopaths, or osteotherapaths, claim that the method they employ is not the practice of medicine. The person, be he Supreme Court Judge or an ordinary citizen, who claims that the practice of medicine necessarily implies the giving of medicine or drugs, must have a very limited knowledge of the work of physicians. There are many physicians who have received the privilege from the State to practise medicine, and who would deny they were anything but practitioners of medicine, who rarely resort to drugs in the treatment of the affections they have to deal with. Indeed, it is quite as much the function of the medical practitioner to give advice as it is to give medicine; to apply other forms of treatment, as baths, rubbings, massage, and manipulations, as it is to apply drugs. There is an ever growing tendency to give fewer and fewer drugs in the treatment of disease, but no educated physician would be willing to undertake the treatment of any form of disease if he was denied the privilege of giving drugs and medicines if they seemed to be indicated, or, indeed, to be restricted in his treatment of disease to the employment of any one method. Whether the treatment of disease is the practice of medicine or not, one thing is certain: Osteopaths and osteotherapaths desire the privilege possessed by licensed physicians, that of treating diseases. Not one disease, or any particular class or type of disease; they desire the right to undertake the treatment of all diseases, defects, and infirmities indiscriminately, as physicians do, except that they are willing to be restricted to the employment of one method of treatment. This, as already stated, is in itself sufficient to condemn them as indicating the absence of knowledge of the scientific discoveries of the present time. No conscientious and educated physician would be willing to submit to a restriction of this kind. 4. The so-called theories of the so-called osteopaths or osteotherapaths are positively dangerous. For example: They have recorded themselves at the hearings before the Legisla-

ture of New York and other States, as not believing in the contagiousness of certain diseases, as smallpox, scarlet fever, erysipelas, and so on. With this ignorance, they would not realize the necessity for disinfection, and would go directly from attendance on a case of this kind to deliver a pregnant woman, and the result might be disastrous. The denial of the value of antitoxins, of vaccination, and of the necessity for isolation and disinfection, together with the teaching of doctrines entirely at variance with accepted scientific facts, stamps these people as positively dangerous to the community. That they should ask the State to create a standard for them less rigid than that with which physicians generally have to comply, is evidence itself that their motive is neither honest nor honorable. If osteopaths or osteotherapaths really and honestly believed they were possessed of a knowledge, or had a method of treating diseases superior to the knowledge or methods of other physicians, they would not constantly endeavor to secure the legal right to employ their methods by compliance with a standard less than that already demanded by the State. The logical course to pursue would be to comply with the existing standard, and then demonstrate the superiority of their methods. 5. Osteopaths or osteotherapaths claim an extraordinary knowledge of anatomy and chemistry. If such a claim is a truthful one, it does not stamp the possessors of such knowledge as competent to practise the healing art. A knowledge of physiology and pathology is even more important and necessary. It will not do to say that one does not believe in the accepted views of pathology and etiology unless one has a knowledge of them, and one cannot have a knowledge of these branches unless one has devoted sufficient time to their study to acquire it. If four years of study are necessary to prepare and properly equip physicians, and osteopaths or osteotherapaths can secure the legal right to undertake the treatment of disease after only two years of preparation, some other class of practitioners will doubtless appear and urge, with equal reason and justice, that only one year of preparation is necessary to fit one to practise their method properly. It will not do for the State to discriminate; if any standard is necessary at all, it should be made to apply to all alike. Either this must be done, or, in justice to all practitioners of the healing art, all standards should be abolished, and the field thrown open to all comers. The latter course would be the best for the doctors, but not so good for the community. The public, generally, can have but a limited knowledge of what is best in the way of remedies and methods in the treatment of disease. For its own protection the State creates medical laws, and, instead of lessening the requirements of these laws at the request of all sorts of fakirs who may come along, it would be better to make the requirements more rigid, and make the penalty for violation of the common law so severe and so easily enforced that quacks and charlatans of all kinds would keep clear of the State of New York.

PHILADELPHIA, PENNSYLVANIA, ETC.

State Hospital for Inebriates.—From Des Moines, Iowa, under date of March 18, comes the news that the bill creating a State hospital at Knoxville for the treatment of inebriates has passed the Senate. It was amended to meet the objections on constitutional grounds, and passed without opposition. It gives the former Industrial Home for the Blind at Knoxville for the purpose of an inebriate home, and appropriates \$125,000 in addition. New buildings are to be erected and additional ground purchased. The bill also provides for the government of the institution and the method of sending inebriates or those addicted to excessive use of narcotics to the institution for treatment. Such treatment is not to last more than 3 years.

SOUTHERN STATES.

Pension Medical Examiners.—It is asserted that one reason why the U. S. Pension Commissioner desired to establish a service or age pension really was to relieve the service of 4,500 doctors, who act as pension examiners throughout the country, and it is claimed they not only acted in their official capacity but are likewise active political canvassers. Whether this report has any foundation in fact is uncertain.

WESTERN STATES.

Mortality of Michigan During February, 1904.—The total number of deaths reported to the Secretary of State for February was 3,389, an increase of 263 over the preceding month. The death rate rose from 14.7 in January to 17.1 for February. By ages there were 523 deaths of infants under 1 year of age, 201 deaths of children aged 1 to 4 years, and 1,158 deaths of elderly persons 65 years of age and over. The principal increase of the month was for the latter class. Important causes of death were as follows: Tuberculosis of lungs, 189; typhoid fever, 42; diphtheria and croup, 67; scarlet fever, 32; measles, 21; whooping-cough, 27; pneumonia, 487; influenza, 195; cancer, 128; accidents and violence, 175. Diphtheria was somewhat less prevalent than last month, while pneumonia and meningitis increased, the latter especially nearly doubling in amount. There were 3 deaths from smallpox, 1 in Detroit, 1 in Frankenlust township, Bay county; and 1 in Oregon township, Lapeer county. One death from chickenpox was reported from Detroit.

FOREIGN NEWS AND NOTES

GENERAL.

Bubonic Plague in Pretoria.—Information from Pretoria, March 23, says: The plague has appeared here. One death therefrom occurred today. It was announced from Johannesburg, March 20, that an outbreak of the bubonic plague had occurred in the Indian coolie section, and that 30 deaths from the disease had been reported since the preceding Thursday, March 17.

The Tenth International Congress of Ophthalmology will convene in Lucerne, September 13, 14, 15, 16, and 17, 1904. Only those papers will have the right to be discussed which shall have been printed and sent beforehand to all members of the Congress. Manuscripts should be sent to Professor Dr. Mellinger, Bale, before May 1. Those desiring full information can obtain it from Walter H. Jessop, M.B., 73 Harley street, London; George Mackay, M.D., 20 Drumsheugh Gardens, Edinburgh; Henry R. Swanzy, M.B., 23 Merriensquare, Dublin; Dr. DeSchweinitz, 1401 Locust street, Philadelphia, U. S. A.; Dr. Coote, Quebec, Canada; Dr. Alfred Osborne, Alexandria, Egypt.

OBITUARIES.

John Metcalfe Polk, an assistant visiting physician at Bellevue Hospital, in New York City, March 29, aged 28. He was graduated from the Sheffield Scientific School of Yale University, receiving the degree of Ph. B. in 1898. In the following year he began the study of medicine and was graduated from the Cornell University Medical College in 1899, ranking second in his class. He served as interne in the second medical division of Bellevue Hospital until January, 1902, when he went abroad to take a post-graduate course, chiefly in Vienna. On his return to New York City, in December, 1902, he was appointed an instructor in the Cornell University Medical College, and at the time of his death was instructor in medicine and physical diagnosis. He was later appointed to the position of adjutant assistant physician in Bellevue Hospital. During the past winter he had been conducting some experimental work upon the hemostatic action of the blood in infectious diseases. This is practically completed, and it is hoped that the results interrupted by his death may be collected and published.

Professor A. B. Arnold, a former resident of Baltimore, at San Francisco, March 29, aged 85. He was graduated in medicine at the Jefferson Medical College, and was professor of principles and practice of medicine at the Baltimore College of Physicians and Surgeons from 1875 to 1898, when he was made professor emeritus of that department. He was widely known as an author of treatises on surgery and medicine and was as equally eminent as a translator of old Hebrew and Arabic writings.

Stephen P. Truex, a wellknown practitioner of Brooklyn, suddenly March 31, while performing an operation in the Bushwick Central Hospital, aged 48. He was graduated from the Long Island College Hospital, in 1891, and was visiting gynecologist of the hospital and lecturer on obstetrics and gynecology in the Post-Graduate Hospital in Manhattan. He was a member of the King's County Medical Society.

Aaron R. Gleason, in Keene, N. H., March 4, aged 68. He was graduated from the University of Georgetown, Washington, D. C., in 1864. He served as a hospital steward and assistant surgeon during the Civil war. He was a member of the American Medical Association, a member of the New Hampshire Legislature in 1897, and fellow of the New Hampshire Medical Society.

Elisha Peckham Clarke, in Hope Valley, R. I., March 17, aged 70. He was graduated from the Medical School of Maine, at Bowdoin College, Brunswick, in 1863. Was a fellow of the Rhode Island Medical Society and served as its president in 1895 and 1896. He was also president of the South County Medical Society in 1878, and served as surgeon during the Civil war.

George H. Butler, of New York City, March 28, aged 62. He was graduated from the Bellevue Medical College, in 1869. He was a member of many medical societies, including the Medical Society of the County of New York, the New York Physicians' Mutual Aid Association, the New York Academy of Medicine, and the New York Chemists' Association.

George H. Hammond, of Freeport, L. I., March 29, aged 58; a graduate of the Medical Department of the New York University, in 1872. He was surgeon to the Nassau Hospital, L. I., member of the Queens-Nassau Medical Association, and of the Associated Physicians of Long Island.

Fred. A. Fanyo, of Watseka, Ill., March 22, aged 26. He was graduated from the University of Illinois, Chicago, in 1903; was an interne at Cook County Hospital and assistant to the Chair of Clinical Diagnosis in the University of Illinois.

Henry C. Gemmill, in Markle, Ind., March 18. He was graduated from the Rush Medical College, Chicago, in 1868. He was a member of the American Medical Association, Hunter County Medical Society, and Indiana State Medical Society.

Washington Hopkins Baker, of Philadelphia, April 2, aged 52. He was graduated from the medical department of the University of Pennsylvania, in 1875. He was active in hospital work and was identified in the military service.

F. Campbell, in Kansas City, Kas., March 17, aged 47. He was graduated from the University of Michigan, Ann Arbor, in 1883, and served for eight years as superintendent of the Ossawatimie State Hospital.

Frank H. McIlroy, in Providence, R. I., March 18, aged 26. He was graduated from Tufts College Medical School in 1903, and was assistant pathologist to the Rhode Island Hospital.

Abraham H. Hunt, in Wooster, Ohio, March 18. He was graduated from the Long Island College Hospital, Brooklyn, in 1862, and was a member of the American Medical Association.

Maurice Silk, resident physician of Hart's Island, died March 28, in New York City. He was graduated from the New York College of Physicians and Surgeons, in 1902.

John Chester Lyman, March 29, aged 53. He was graduated from the Harvard Medical School, Boston, in 1872. He retired from practice nearly 20 years ago.

Edward N. Gerrard, in Mesa, Ariz., March 18, aged 67. He was graduated from the medical department of the University of Iowa, Keokuk, in 1861.

Jeremiah S. Hetrick, in New Freedom, Pa., March 27, aged 65. He was graduated from the Baltimore College of Physicians and Surgeons, in 1877.

A. O. Heiberg, of Rushford, Minn., at Northfield, Minn., March 18. He was graduated from the Jefferson Medical College, Philadelphia, in 1893.

E. P. Noel, of Chicago, Ill., in Phoenix, Ariz., March 29. He was graduated from the Starling Medical College, Columbus, Ohio, in 1890.

J. G. Cannon, in Yuba City, Cal., March 17, aged 78. He was graduated from the Physio-Eclectic Medical College, Cincinnati, in 1876.

Myron Northrup, of Port Huron, Mich., March 15, aged 67. He was graduated from the Geneva (N. Y.) Medical College in 1859.

A. P. Birch, of Toledo, Ohio, March 21, aged 67. He was graduated from the Western Reserve University, Cleveland, in 1888.

S. J. Seyfert, in Pine Grove, Pa., February 14, aged 61. He was graduated from the University of Pennsylvania, in 1871.

Frank I. Phillips, in Escanaba, Mich., March 22. He was graduated from the Detroit Medical College, in 1882.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 1, 1904:

SMALLPOX—UNITED STATES.

		Cases	Deaths
Colorado:	Denver.....Jan. 30-Feb. 27...	22	1
Florida:	Jacksonville.....Mar. 19-26.....	1	
Illinois:	Chicago.....Mar. 19-26.....	10	
	Galesburg.....Mar. 19-26.....	8	
Kentucky:	Burlington.....To Mar. 28.....	16	
	Covington.....Mar. 19-26.....	3	
	Springfield.....Mar. 28.....	6	
Louisiana:	New Orleans.....Mar. 19-26.....	2	
Maine:	Madawaska region.....Mar. 19-26.....	2	
Maryland:	Baltimore.....Mar. 19-26.....	3	
Massachusetts:	Lowell.....Mar. 19-26.....	1	
Michigan:	Detroit.....Mar. 19-26.....	2	
	Grand Rapids.....Mar. 19-26.....	2	
	At 82 localities.....Mar. 12-19.....	Present.	
Missouri:	St. Louis.....Mar. 19-26.....	4	
New Jersey:	Camden.....Mar. 19-26.....	2	1
	Jersey City.....Mar. 20-27.....	1	
	Porter on train.		
	Trenton.....Mar. 19-26.....	1	
New York:	New York.....Mar. 19-26.....	1	
Ohio:	Cincinnati.....Mar. 11-18.....	1	1
	Cleveland.....Mar. 18-25.....	5	
	Dayton.....Mar. 19-26.....	8	1
	Lorain.....Mar. 20-27.....	2	
	Probably imported.		
	Warren.....Mar. 19-26.....	1	
Pennsylvania:	Johnstown.....Mar. 19-26.....	2	
	Philadelphia.....Mar. 19-26.....	85	8
	Pittsburg.....Mar. 19-26.....	8	
	Imported.		
South Carolina:	Charleston.....Mar. 19-26.....	4	1
	Greenville.....Mar. 12-19.....	4	
Tennessee:	Memphis.....Mar. 19-26.....	30	1
	Nashville.....Mar. 19-26.....	2	
Wisconsin:	Milwaukee.....Mar. 19-26.....	3	

SMALLPOX—FOREIGN.

Belgium:	Antwerp.....Mar. 5-12.....	4	3
Colombia:	Barranquilla.....Feb. 29-Mar. 13.....	1	
France:	Lyons.....Feb. 27-Mar. 5.....	1	
	Paris.....Mar. 5-12.....	32	3
Great Britain:	Birmingham.....Mar. 12-19.....	1	
	Cardiff.....Mar. 12-19.....	6	1
	Edinburgh.....Mar. 5-12.....	21	2
	Glasgow.....Mar. 11-18.....	7	
	Hull.....Mar. 5-12.....	1	
	Leith.....Mar. 5-12.....	1	
	London.....Mar. 5-12.....	21	
	Manchester.....Mar. 5-12.....	3	
	Newcastle-on-Tyne.....Mar. 5-12.....	3	
	Nottingham.....Mar. 5-12.....	18	3
	South Shields.....Mar. 5-12.....	3	
India:	Bombay.....Feb. 23-Mar. 1.....	14	
	Karachi.....Feb. 21-28.....	1	1
Java:	Batavia.....Feb. 13-20.....	20	8
Mexico:	Mexico.....Mar. 6-13.....	16	7
Netherlands:	Amsterdam.....Mar. 12-19.....	3	3
Russia:	Moscow.....Feb. 27-Mar. 5.....	8	3
	Odessa.....Mar. 5-12.....	1	
	St. Petersburg.....Feb. 27-Mar. 5.....	12	1
Spain:	Santander.....Mar. 7-14.....	4	1
Turkey:	Alexandretta.....Mar. 5-12.....	1	
	Constantinople.....Mar. 6-13.....	8	
	Smyrna.....Feb. 21-28.....	1	

YELLOW FEVER.

Ecuador:	Guayaquil.....Feb. 27-Mar. 5.....	3	
Mexico:	Vera Cruz.....Mar. 12-19.....	1	

CHOLERA.

India:	Calcutta.....Feb. 13-20.....	34	
	Karachi.....Feb. 21-28.....	2	1
	Madras.....Feb. 13-24.....	3	1
Turkey in Asia:	Bassra.....Feb. 22.....	7	7
	Kermi Ali.....Feb. 22.....	4	2

PLAGUE—INSULAR.

Philippine Islands:	Manila.....Feb. 6-13.....	1	1
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PLAGUE—FOREIGN.

China:	Hongkong.....Feb. 6-13.....	2	
India:	Bombay.....Feb. 23-Mar. 1.....	832	
	Calcutta.....Feb. 13-20.....	75	
	Karachi.....Feb. 21-28.....	113	96
	Rangoon.....Feb. 18.....	1	
Mauritius:	.....Feb. 18-25.....	3	2
Peru:	Lima.....Mar. 31.....	28	

Reported

Changes in the Medical Corps of the U. S. Army for the week ended April 2, 1904:

DECKER, GEORGE M., contract dental surgeon, is granted leave for one month.

BREWER, ISAAC W., contract surgeon, is granted leave for twenty days with permission to apply for an extension of ten days.

STEDMAN, First Lieutenant CHESTER J., assistant surgeon, is granted leave for fifteen days, to take effect upon his being relieved from duty at the Army Medical School, Washington, D. C.

DELOFFRE, First Lieutenant SAMUEL M., assistant surgeon, is granted leave for fourteen days, to take effect April 1, with permission to apply for an extension of seven days.

SHOOK, First Lieutenant JAY RALPH, assistant surgeon, upon the completion of the course of instruction at the Army Medical School, will proceed to Fort Leavenworth for duty, to relieve First Lieutenant Ralph S. Porter, assistant surgeon. Lieutenant Porter will proceed to Fort Niobrara for duty.

MILLER, First Lieutenant REUBEN B., assistant surgeon, upon the completion of the course of instruction at the Army Medical School, will proceed to Fort Screven to relieve First Lieutenant Harry L. Gilchrist, assistant surgeon. Lieutenant Gilchrist will proceed to Washington, D. C., and report at the U. S. General Hospital, Washington Barracks, for duty with Company of Instruction No. 1, Hospital Corps.

JUENEMANN, First Lieutenant GEORGE F., assistant surgeon, upon the completion of the course of instruction at the Army Medical School, will proceed to Fort Ringgold for duty, to relieve James E. Shellenberger, contract surgeon. Contract Surgeon Shellenberger will proceed to Fort Sam Houston for duty.

MILLER, First Lieutenant EDGAR W., assistant surgeon, upon the completion of the course of instruction at the Army Medical School, will proceed to Fort Clark for duty, to relieve Fred T. Koyle, contract surgeon. Contract Surgeon Koyle will proceed to Fort Bliss for duty, to relieve William T. Baird, contract surgeon. Contract Surgeon Baird will report by letter to the surgeon-general of the Army for annulment of contract.

TEFT, First Lieutenant WILLIAM H., assistant surgeon, upon the completion of the course of instruction at the Army Medical School, will proceed to Fort Snelling for duty, to relieve Captain George A. Skinner, assistant surgeon. Captain Skinner will proceed to Fort Harrison for duty, to relieve Captain George J. Newgarden, assistant surgeon. Captain Newgarden will proceed to San Francisco, Cal., for transportation to the Philippine Islands.

The following named assistant surgeons upon the completion of the course of instruction at the Army Medical School, will proceed to the posts designated for duty: First Lieutenant Robert E. Noble, U. S. Army General Hospital, Washington Barracks; First Lieutenant Gideon McD. Van Poole, Fort Stevens; First Lieutenant James I. Mabey, Fort Casey; First Lieutenant Percy L. Jones, Fort Monroe; First Lieutenant Fred W. Palmer, Jefferson Barracks; First Lieutenant John B. Bosley, Fort Thomas; First Lieutenant Chester J. Stedman, Columbus Barracks.

HARVEY, Colonel **PHILIP F.**, assistant surgeon-general, leave granted February 26, is extended one month.

MORSE, First Lieutenant **ARTHUR W.**, assistant surgeon, is granted leave for one month from about March 18.

SILBER, First Lieutenant **JOSEPH F.**, assistant surgeon upon the completion of the course of instruction at the Army Medical School, and the expiration of the leave granted him March 15, will proceed to Fort Logan for duty.

KNUST, **JOHN G. J.**, sergeant first class, and **DAVID ACKER** and **ISAAC COHN**, privates, who have been on duty in connection with dietary experiments at New Haven, Conn., when their services are no longer required at that station will be sent to the Army General Hospital, Washington Barracks, for temporary duty with the Company of Instruction No. 1, Hospital Corps, and to join the first detachment of the hospital corps to be sent from that station to the Philippines Division.

FRITZ, **CHARLES J.**, and **PATRICK H. JOHNSON**, privates, first class, of the same detachment at New Haven, Conn., when their services are no longer required at that station will be sent to Fort Jay for duty; and Private **Barnard Bates**, now in confinement at Fort H. G. Wright, is relieved from further duty at No. 332 Temple street, New Haven, Conn., and assigned to his present station.

HENRY, **JOSEPH N.**, contract surgeon, is granted leave for one month and twenty-three days, on surgeon's certificate, being an extension of seven days' ordinary leave.

WILLIAMSON, Captain **LLEWELLYN P.**, assistant surgeon, is relieved from duty at Jefferson Barracks, and will proceed to St. Louis, Mo., and report to Dr. W. P. Wilson, chairman Philippine Exhibit Board, Louisiana Purchase Exposition, to supervise sanitary matters in the Philippine village and the care of the sick among those connected with the Philippine exhibit.

DEWITT, First Lieutenant **WALLACE**, assistant surgeon, will proceed from New Haven, Conn., to St. Louis, Mo., upon the completion of the special duty to which he was assigned in letter from the adjutant general's office of September 11, 1903, and will report to Major **Richard W. Johnson**, surgeon, in charge of the medical department exhibit, for duty as his assistant.

HUTTON, First Lieutenant **PAUL C.**, assistant surgeon, is granted leave for five months on surgeon's certificate.

VAN POOLE, First Lieutenant **GIDEON MCD.**, assistant surgeon, is granted leave for one month from about April 6.

Changes in the Medical Corps of the U. S. Navy for the week ended April 2, 1904:

EDGAR, **J. M.**, surgeon, detached from the *Wisconsin*, and ordered to the *Monadnock*—March 30.

TRAYNOR, **J. P.**, assistant surgeon, detached from the *Frolic*, and ordered to the *Albany*—March 30.

OMAN, **C. M.**, assistant surgeon, detached from the *Monadnock*, and ordered to the *Frolic*—March 30.

MARCOUR, **R. O.**, assistant surgeon, detached from the *Dixie*, and ordered to duty with the Marine Battalion at Guantanamo, Cuba—March 31.

HIGH, **W. E. G.**, assistant surgeon, detached from the *Constellation*, and ordered to the Midway Islands for duty with the Marine detachment at that place, sailing from San Francisco, Cal., April 8, via the *Supply*—March 31.

Changes in the Public Health and Marine-Hospital Service for the week ended March 31, 1904:

WASDIN, **EUGENE**, surgeon, granted leave of absence for one month from April 1, 1904, on account of sickness—March 30, 1904.

ROSENAU, **M. J.**, passed assistant surgeon, detailed to represent Service at meeting of Tuberculosis Committee, College of Physicians, Philadelphia, Pa., March 28—March 26, 1904.

CUMMING, **H. S.**, passed assistant surgeon, granted leave of absence for ten days from April 5—March 25, 1904.

LAVINDER, **C. H.**, passed assistant surgeon, granted leave of absence for two days from March 25—March 26, 1904. Granted three days' extension of leave of absence from March 31—March 29, 1904.

GRUBBS, **S. B.**, passed assistant surgeon, granted ten days' extension of leave of absence from March 31—March 28, 1904.

BILLINGS, **W. C.**, passed assistant surgeon, granted leave of absence for two months and three days from April 30, 1904, with permission to go beyond the sea—March 28, 1904.

RICHARDSON, **T. F.**, assistant surgeon, detailed to attend conference of State Health Officer and County Health Officers of Texas at Austin, Texas, March 31—March 29, 1904.

AMESSE, **J. W.**, assistant surgeon, granted leave of absence for two months and fifteen days from May 1—March 26, 1904.

BOGGESE, **J. S.**, assistant surgeon, granted leave of absence for two days from March 30—March 29, 1904.

Boards Convened.

Board convened to meet at Washington, D. C., to consider the construction or purchase of boarding steamers for the quarantine stations at San Francisco, Cal.; Fort Townsend, Wash.; also to consider type of launch for boarding or inspection of vessels at the Key West Quarantine and at Havana, Cuba; also to consider the feasibility of repairing the hull of the launch *Spray* at the Delaware Breakwater Quarantine, and placing new motive power therein.—Detail for the board: Assistant Surgeon-General A. H. Glennan, chairman; Assistant Surgeon-General W. J. Pettus, Assistant Surgeon-General H. D. Geddings, recorder.

Board convened to meet at Baltimore, Md., April 4, 1904, for the physical examination of officers of Revenue Cutter Service for promotion.—Detail for the board: Surgeon H. K. Carter, chairman; Assistant Surgeon C. W. Wille, recorder.

Board convened to meet at San Francisco, Cal., April 4, 1904, for the physical examination of an officer of the Revenue Cutter Service.—Detail for the board: Passed Assistant Surgeon W. G. Stimpson, chairman; Assistant Surgeon Carl Ramus, recorder.

SOCIETY REPORTS

THE AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.

Fourth Annual Meeting, Held in New York City, April 1 and 2, 1904.

[Specially reported for *American Medicine*.]

The meeting of the Association was the most successful of the four thus far held. The attendance was large. The presence of prominent clinicians proved the interest which clinical medicine has in this special field. The speakers were held strictly to the time limit assigned them on the program, so that the papers were clear, concise, and strictly to the point. Discussion was limited to five minutes, and owing to the large program, only a small number of the papers of most immediate interest called forth any discussion at all. Herr Geheimer Medicinalrath Professor Dr. Paul Ehrlich, Frankfurt-am-Main, Germany, was the guest of the Association, and gave an address on Friday afternoon.

Officers.—Simon Flexner, of New York, was elected president for the ensuing year, with James Ewing, of New York, vice-president. Herbert U. Williams, of Buffalo, as treasurer, and Harold C. Ernst, of Boston, as secretary were reelected.

The Technic of the Operation Known as Eck's Fistula.—J. E. SWERT (Philadelphia). The paper was of a purely technical nature, describing the various methods which have been used in establishing an artificial anastomosis between the portal vein and the vena cava inferior, with a description of some new instruments used for the operation.

A Pathologic Study of Amaurotic Family Idiocy.—WILLIAM G. SPILLER (Philadelphia) discussed in detail the cases of this disease which he has found in the literature, and described the pathologic findings in a case. The disease presents the picture of a peculiar and widespread degeneration of the central and peripheral nervous system. The cells of the spinal cord and of the brain centers are swollen, and the dendrites have disappeared. The nerve-fibers in the various tracts are also degenerated, but the motor tracts show evidences of being first attacked. The nerve cells are primarily diseased; it is not of toxic origin, and probably not an acquired disease.

Hemolysis in Human Urine.—ROGER S. MORRIS (Ann Arbor), starting from the fact that many toxic products of bacterial origin, as well as definite chemico poisons, can be found in the excretions of the body, took up the study of the urine in various diseases, especially in pernicious anemia. If the destruction of blood cells is due to bacterial hemolysins which are absorbed from the intestine, these products could possibly be found in the urine. The results were negative. In some cases of pernicious anemia the urine showed hemolytic properties, but this phenomenon was not constant, and could not be brought into any relation to the extent of the anemia.

Specific and Nonspecific Agglutinins.—WILLIAM H. PARK (New York) gave the results of his work upon the specific individual agglutinins and the group agglutinins of the dysentery organisms. The main object of the paper was to point out several reasons why various observers have differed in their results, these differences being due to the time necessary for the production of the different agglutinins in the immune animal. The specific agglutinins appear first, but if the immunization with a single organism be continued, the immune serum will develop agglutinins which will act upon other types of that group, and will also protect against other types.

Degeneration of the Spinal Cord Produced by Repeated Injections of Cultures of Bacillus Coli Communis of Low Virulence.—G. A. CHARLTON (Montreal) read by J. G. Adami. The repeated injection of this organism produces first an anemia, and later causes degenerative changes in the spinal cord, of an ascending nature, which finally attacks the bulbar centers. The sciatic nerve from such animals shows some degeneration; the cord shows some myelin sheath degeneration; the upper lumbar region especially is riddled with vacuoles. The process is, in general, a diffuse degeneration confined to the posterior and lateral columns. Only living cultures produce the anemia and these degenerative changes in the cord, while filtrates of cultures, or cultures killed by heat, or the feeding of cultures, produce no effect.

The Nature of Blood-plates.—JOSEPH H. PRATT (Boston) concludes from his study of the literature that different observers have not described the same thing, for example some have described biconcave bodies, while others have found biconvex forms. The forms described by Bizzozero are the normal platelets, they are flat, composed of a central granular mass, surrounded by a clear margin. The normal plates never suggest extrusion from an erythrocyte. The forms described by Arnold are degeneration products; they are irregular in size and form and contain hemoglobin. The normal blood-plates can be preserved by solutions of sodium metaphosphate, which is the method used by Pratt. The function of these bodies is not clear, since they are not present in the blood of a peptonized animal, which blood does not coagulate, but there are also none present in the blood of an animal immunized against peptone, which blood will coagulate.

The Nonspecificity of the Somatogenic Cytotoxins.—R. M. PEARCE (Albany) directed his work toward a solution of the questions, To what extent does a morphologic specificity exist? Or have various cells, of different morphologic characteristics, molecular groups in common, which, when injected into an alien species, cause the production of one and the same receptor group? To what are the varying results obtained by different workers to be ascribed? The method employed was to immunize rabbits against emulsions of the kidney, liver, adrenal and pancreas of an untreated dog, against emulsion of the same organs from the body of a dog which had been transfused with large quantities of saline solution to remove all blood and serum, and against dog's urine, serum and bile. The results were practically the same in all cases. An antiserum obtained from an animal treated with the emulsions of washed organs has no effect when injected into normal dogs; the kidney shows some indication of nephrotoxic action, but this can be produced by a serum of an animal immunized against other than renal cells, and a specific nephrotoxic serum also shows action upon organs other than the kidney. The antiserum obtained by immunization against unwashed organs has marked action *in vivo*, an action which is to be ascribed to its hemolytic activity. Serums obtained with both washed and unwashed organs, as well as from animals immune to serum, urine, and animals treated with very small amounts of alien blood, is agglutinative and hemolytic. An antible serum produces focal necroses of the liver. Pearce concludes that the question of specificity depends upon the chemic composition of the cell, and not upon its morphologic constitution. Most of the results obtained with cytolytic serums are to be ascribed to their hemolytic power.

On Agglutinins.—B. X. BUXTON and VICTOR C. VAUGHAN (New York) discussed the variations in agglutinability; freshly isolated cultures do not agglutinate as readily as older cultures. The effects of heat upon the agglutinins were studied, and experiments were made with the absorption of the different agglutinins.

Coagulation Time of the Blood of Nephrectomized Rabbits.—S. J. MELTZER and W. SALANT (New York) noted that the blood of a nephrectomized rabbit did not coagulate for 75 minutes, and this paper gives the results of a study of the phenomenon. The results from a large series of animals showed that normal rabbit's blood, clots after an average time of 7.9 minutes; the blood of nephrectomized rabbits clots after an average time of 23.3 minutes. According to the time after the operation when the test is made, three phases may be noted, a gradual increase of the coagulation time up to a maximum, and then a fall. Tissue fluid hastens the clotting of this blood, as in normal bloods. In discussion, Levin says that the coagulation time is increased after the removal of the adrenals, and Pearce notes the same increase of coagulation time after the removal of one kidney, or after the ligation of the vessels of the kidney. The blood also clots less readily after the injection of cytolytic serums.

Decapsulation of the Kidney: An Experimental Study.—I. LEVIN (New York), by means of a specially constructed apparatus, which encloses the kidney and transmits any changes in the size of the organ to a recording mechanism, reaches the conclusion that any powerful influence which acts upon the kidney acts longer upon the decapsulated than upon the normal organ; the capsule is therefore probably an elastic covering, which expands and contracts with the needs of the organ, acting, in a way, as a safety valve. The question arises then, whether the therapeutic value of decapsulation is not less than that of nephrectomy without decapsulation. In discussion, MELTZER points out the relation of the capsule to the innervation of the organ. He notes further the importance of the capsule of an organ in preventing the direct spread of an infection.

Coagulation of the Blood and Thrombosis.—LEO LOEB (Philadelphia) reached these conclusions: It is possible to obtain thrombi composed mainly of agglutinated blood-plates in animals whose blood has been made incoagulable by injection of leech-extract. It is therefore probable that agglutination of cellular elements and not formation of fibrin is the primary factor in thrombosis. An active influence of the endothelium of bloodvessels inhibiting the coagulation of the blood cannot be shown to exist. The serum of the dog has an inhibiting influence on the effect of tissue coagulins which themselves accelerate the coagulation of peptone plasma. This inhibiting effect is probably a specific one. Organs undergoing processes inside the body which are similar to autolysis have still an accelerating effect upon the coagulation of the blood. Ankylostoma contains a substance strongly inhibiting the coagulation of the blood. This substance is produced principally or entirely in the anterior part of the body. It is probably one of the causes of the anemia of ankylostomiasis. The material covering the intestinal mucosa has a strongly accelerating effect on the coagulation of the blood, being thus able to restrict hemorrhages. The pancreas possesses the least coagulative power of all organs examined, and is therefore relatively favorable to hemorrhages.

A Method for the Differential Staining and Counting of the White Blood Cells.—B. ONUF (Soyea, N. Y.) says the method consists in staining the cells in the ordinary mixing pipet, and counting in the ordinary Zeiss chamber. The stain, which is described as giving brilliant differential results, is as

follows: Equal parts of (1) 12% aqueous solution of formalin; (2) 1% aqueous solution of NaCl, c. p.; (3) 0.5% aqueous solution eosin (yellowish); (4) Unna's polychrome methylene-blue. The staining solutions should not be too old.

The session is closed with demonstrations:

F. B. MALLORY (Boston), "Demonstrations with the microscope of neuroglia, myoglia and fibroglia fibrils."

C. F. MARTIN (Montreal), "Pathologic demonstrations."

Xanthoma: A Histologic Study of the Lesions of the Nodular Form of the Disease, with Lantern Demonstrations.—JOSEPH MCFARLAND (Philadelphia). The paper was read by McCONNEL (Philadelphia), and was a detailed description of the cellular findings in the nodes of this rare disease. The disease probably arises from some abnormal condition of the connective tissue, the cells of which multiply and later are infiltrated with fat.

The Morbid Anatomy and Etiology of Avian Tuberculosis, with Lantern Demonstrations.—VERANUS A. MOORE (Ithaca) exhibited a number of lantern slides illustrative of the gross and microscopic lesions of avian tuberculosis, and described the characteristics of the avian bacillus. The results of the inoculation of guinea-pigs, rabbits, and pigeons with the organism were negative. A series of experiments with the inoculation of fowls with bovine and human tuberculosis were also negative. He does not know the origin of the disease, which often assumes economic importance, but he scouts the idea that it is contracted from either equine, bovine, or human tuberculous matter.

The Development of the Lymph-nodes in a Hemangioma Cavernosum of the Orbit.—ALDRED S. WARTHIN (Ann Arbor). A long-standing, pulsating tumor of the orbit in a woman of 45, showed upon microscopic examination the structure of a cavernous angioma; it is characterized throughout by the presence of lymph-follicles. The lymphoid tissue forms by a progressive infiltration of the connective tissue, trabeculae with lymphoid cells. The tissue of the tumor is comparable to that of the hemolymph glands. A similar formation of lymphoid tissue has been observed in a few cases of macroglossia.

The Occurrence of Myeloid Changes in the Hemolymph Nodes.—ALDRED S. WARTHIN (Ann Arbor). A case of hemorrhagic anemia showed the presence of atypical tissue in the retroperitoneal hemolymph nodes. The tissue shows the characteristics of bone marrow, with the bone marrow giant cells, the eosinophiles and neutrophils. Warthin thinks that metaplasia explains this atypical lymphoid formation.

The Eosinophilous Transformation of Lymphocytes; the Formation of Eosinophiles in the Hemolymph Nodes; the Relation of Eosinophiles to Hemolysis.—A. S. WARTHIN (Ann Arbor). In hemolytic processes the eosinophiles increase greatly in number in the hemolymph nodes; they probably develop from mononuclear lymphocytes, the granules representing the remains of the intracellular lysis of the erythrocytes. Warthin's papers were all illustrated with lantern slides.

Demonstration of the Ova of Distoma Westernmani (by courtesy of Dr. A. D. MacKenzie, of Portland, Ore.).—E. R. LECOUNT (Chicago) stated this was the first case of parasitic hemoptysis described in this country. It occurred in a Japanese who came to this country from the province of Okayama, Japan. Infection with this trematode is very common in this province of Japan, and the disease has been thoroughly studied by several Japanese observers. The disease occurs in two forms, the pulmonary and the cerebral. In both cases cysts are formed, with thick walls which are made up of the tissues of the host. Bronchiectasis, and pneumonia are the chief symptoms.

Epithelial Tumors of the Skin and Mucous Membrane, with Special Consideration of Carcinoma Basocellulare.—JOSEPH C. BLOODGOOD (Baltimore) gave this as a preliminary report, with lantern demonstrations. The demonstrations consisted of a large number of slides of the gross and microscopic findings in cases of benign tumors, especially of the face, which have been cured by operation. The paper is a contribution to the surgical pathology of operable tumors, under which class the tumors arising from the basal cells of the epidermis are to be placed. The classification is that of Krompecher. Of 468 cases, 16% were of this basocellular type, and were most common on the face. The use of caustics seems to aggravate the growth, while a complete removal gives assurance of freedom from recurrence.

Primary Glioma over the Coccyx with Recurrence and Metastases.—F. B. MALLORY (Boston) gave this lantern slide demonstration of sections of a tumor from a woman 44 years of age, with metastases in the right groin, and later, recurrence in the right groin, and at the original site, and metastases in the left groin. The tumor has the structure of both an alveolar and a papillary carcinoma, in general, but is marked by the presence of the typical fibrils of a glioma. The origin is to be sought in the remnants of the neural canal over the coccyx.

An experimental study of the therapy of the diseases caused by the trypanosome was the title of an address by GEHEIMRATH EHRLICH. Certain substances are already known which will kill the parasites, but latent forms are always left in the blood, and relapses occur after a longer or shorter period. Ehrlich began to experiment upon the action of stains on the parasites, and finally found one of the congo

stains, benzopurpurin, which acted as well as arsenic, but a certain number of the mice used in the experiment suffered later from relapses. Ehrlich then tried to produce a new substance by introducing further H_2SO_4 radicals into the benzol ring, thus producing a more soluble compound, which he has named "Trypanroth." This substance is now found to possess marked and specific properties; it will save mice infected with the parasite of the South American disease of horses. This action is most favorable in mice, but Ehrlich hopes that further modification will produce a compound which will act as favorably in other animals. The study is at present more of theoretic interest. Trypanroth does not kill the parasites in the test-tube; injected into mice one to three days before infection it confers an immunity. He concludes that the stain causes some reaction on the part of the body, which is followed by the production of substances, which kill the parasites. If mice are infected, then treated with the trypanroth, they are found to have become more resistant to reinfection, but this resistance does not last very long. This phenomena is possibly analogous to malaria as seen in man; the body becomes immunized by the products of the malarial parasite, which are broken up by quinin, but this immunity soon disappears and reinfection occurs from the latent forms, which persist in spite of the use of quinin.

The Influence of Salts on Lytic Serum.—In this paper LUDVIG HEKTOEN (Chicago) gave the results of the work of Hektoen and Ruediger upon the effect of the addition of certain salts to serum. The hemolytic properties of the serum can be removed by such additions, while the serum regains its original properties if the salt be neutralized by the addition of the proper combination. It is thought that the work may possibly have some bearing upon infection, since it is possible that the complements are affected by the production of salts by the action of bacteria within the organism.

A study of the blood of normal guineapigs was read by S. H. BURNETT (Ithaca), and comprised blood counts and morphology.

W. L. R. COPLIN (Philadelphia) demonstrated pathologic specimens mounted in gelatin upon glass plates.

The Group of Dysentery Bacilli.—WILLIAM H. PARK (New York) gave this study of the group relations of the various members of the dysentery group, making use of anti-serums, and comparing the results with the classification of the group by the use of maltose and mannite media. The result of the work seems to have been that the grouping by means of the sugar media corresponds in general to the grouping obtained by means of the study of the specific agglutinins. As in the case of the colon group, certain organisms can be found which possess characteristics of more than one group. Discussing the paper, Dr. His says that maltose is not as dependable as dextrose in the classification of the dysentery group.

Studies upon Antistreptococcus Serum.—D. H. BERGEY (Philadelphia) gave this paper as a preliminary report upon the work. Antistreptococcus serum has been obtained which has agglutinative and slight protective properties, but in which no bacteriolytic action can as yet be demonstrated. The agglutinative and protective action is exerted not only upon the organism used for the immunization, but upon other streptococci as well.

Differences in Precipitins Produced by the Tubercle Bacilli.—EDWARD R. BALDWIN (Saranac Lake). Tubercle bacilli were extracted by special methods, and the extracts were then injected into rabbits. The serum of these rabbits gave positive results with such extracts, causing a distinct precipitation. The study is a contribution to our knowledge of the differences in bacterial products.

Immunization against Tubercle Bacilli.—E. L. TRUDEAU (Saranac Lake) was invited to describe the results of his experiments. His experiments were directed toward the question: Is the living organism necessary to the production of an immunity? Twelve guineapigs were inoculated with an attenuated living culture, and 12 with the same culture killed by heat. After a certain period the pigs were then inoculated with living virulent cultures. Control animals were also inoculated. At the present time, 60 days after the death of the last control, 7 of those injected with living organisms are still alive. At the time the last control died, 4 of those injected with the killed bacilli were still alive. Trudeau concludes that the injection of dead cultures produces a certain degree of immunity, but not such a high degree as that caused by the injection of the living organisms. These are not absolutely immune to tuberculosis, but the lesions which they show are much less extensive than in the control pigs, or than in the pigs injected with the dead cultures. In the discussion WELCH pointed out the possibility that the living organisms may produce under the influence of the body substances which differ from those produced in cultures.

Some Observations with Tuberculins from Different Races of Tubercle Bacilli.—S. B. WOLBACH (Boston) prepared tuberculins from the human and the bovine bacilli, and then tested their action upon animals inoculated with both varieties of the organism. He concludes that his experiments have given no evidence of any specificity. Treatment with tuberculin seems to have a favorable effect, increasing the length of life for an average of 14 days over the life of the controls. No essential differences can be seen in guineapigs between the disease produced by the human bacillus and that

produced by the bovine bacillus. In the discussion TRUDEAU notes that the avian bacillus does not produce as strong a tuberculin as the other species, and that attenuated human organisms will produce as powerful a tuberculin as virulent organisms. Theobald Smith refers to his work upon the difference in the reaction of old cultures of the human and the bovine bacilli, and points out that this difference in reaction should cause some differences in the substances produced in the tuberculin.

The Comparative Morphology of Vaccine Bodies.—JAMES EWING (New York) demonstrated with colored lantern slides the bodies which have been variously described as parasitic forms, in vaccinia, the lesions of the cornea following the injection of diphtheria toxin, in variola, the skin of a frog, and in measles. His opinion, subject to change, is that these bodies represent changes in the nucleoproteids, and that they offer as yet no definite evidence of being of a parasitic nature.

The Effect of Certain Blood-serums (Leukocytic) on the Ameboid Motion of Leukocytes.—HENRY A. CHRISTIAN (Boston) gave a study of normal and artificial leukocytotoxins, using the effect upon the ameboid motion of the white cells as an index of the activity of the serum. Natural leukocytotoxins occur less widely than the normal hemolysins, but when present in a serum, as also the leukocytotoxins of a specific serum, the ameboid motion is instantly stopped. The same result is obtained whether the animal be immunized against washed or unwashed liver or kidney, as when the unwashed spleen is used to furnish the leukocytes for the immunization. A specificity in that antiserum acts only upon the white cells of the same species, could be demonstrated. The main conclusion of the paper is that the morphology of a cell is an imperfect index of the chemie composition of the receptor construction of that cell.

Hemolymphotoxin was read by A. S. WARTHIN for Mr. HARRO WOLTMAN (Ann Arbor). The effects upon the blood itself of such serums is the same as that described in the work of Flexner and Bunting upon the same subject. Wolman concludes that there are no specific hemolymphotoxins.

The Experimental Production of Liver Necroses by means of Hemiagglutinins.—R. M. PEARCE (Albany) stated that local necroses may be caused in one of three ways, by the direct action of toxic substances of bacterial origin, by a plugging of the capillaries with the phagocytic cells described by Mallory, or by a plugging of the capillaries with agglutinated masses of red cells, which is the mechanism of the necroses described by Pearce. The agglutinating serums can be produced by the injection of washed and unwashed organs, the injection of serum and urine, of defibrinated blood, and more especially, the injection of bile. The necroses occur principally at the periphery of the acini, i. e., in the portal circulation; there are no phagocytes concerned, and no proliferation of the endothelium occurs. These agglutination thrombi can be demonstrated in the blood of the portal vein a few minutes after the injection of the antiserum. The liver seems to recover from the effects of such necroses, so that after repeated injections it is found to be normal, showing that such a process has no part in the production of chronic lesions. The same form of necrosis can be produced by the injection of the hemiagglutinins of bacterial origin.

A simple method of isolating from water forms which agglutinate with typhoid serum by J. GEORGE ADAMI and J. A. CHOPIN (Montreal) and a simple method of demonstrating the presence of bacteria in the mesentery of normal animals by A. G. NICHOLLS (Montreal) were read by Dr. ADAMI.

FOURTH SESSION.

A Bacillus Agglutinated by High Dilutions of Typhoid Serum; Isolated from Water.—O. KLOTZ (Montreal). The paper was read by Dr. ADAMI. It forms a contribution to the group of bacilli described by Sternberg, which stand between the coli and the typhoid group.

A Case of Glioma in the Sella Turcica was reported by E. E. SOUTHWARD and FREDERICK H. HOWARD (Boston). The tumor was from the brain of a woman of 48 who had suffered for many years from a progressive impairment of vision; later, attacks of coma developed, and death occurred in the fourth attack. The autopsy revealed a tumor in the sella turcica which had encroached upon the surrounding tissues. No akromegaly was present. Microscopically the tumor is composed of cells arranged as in certain sarcomas, but the tissue is distinguished by the presence of glioma fibrillas. The cells are provided with cell processes, which in some cases can be seen to be continuous with the fibrils. A careful examination of the tissue of the entire tumor in its relation to stains, etc., shows that the oldest portion of the growth is in the posterior part of the pituitary body.

An Epizootic among Rats and Rabbits Due to a Hitherto Undescribed Flagellate Micrococcus.—O. KLOTZ (Montreal) gave a detailed description of the cultural characteristics and lesions produced by this new organism.

The Bacteriologic Examination of Blank Cartridges.—DAVID H. DOLLY (Cleveland), in this paper, made a very complete study of this subject of active summer interest. The result of the cultural and inoculation experiments showed that the wads contain *Bacillus aerogenes capsulatus* in a large proportion of cases, while the tetanus bacillus can be found in a

few instances by inoculation experiments. The powder is usually sterile.

The Role of Staphylococci in Systemic Infections.—EMANUEL LIBMANN (New York) made this contribution to our knowledge of the bacteriology of the circulating blood. Libmann has found the aureus in 26 cases during life. Seven of the patients recovered. A detailed description of the cases followed, with a discussion in regard to the place of the aureus and its relation to the albus.

The Further Differentiation of the Flagellas and Somatic Agglutinins.—H. G. BEYER and A. L. REAGH (New York) presented the results of further work along the line indicated by the title, the results of which were first described by Theobald Smith, and a confirmation of the work of Joos. It is possible to separate in an immune serum as well as in a culture, by means of heat, two different substances; in the culture one substance produces a flagellar agglutinin, the other an agglutinin for the cell bodies. In the serum are the two distinct agglutinins.

A case of hemangiosarcoma of the skin of the finger was reported by W. MCN. MILLER (Columbia). The paper was not finished in the time allowed.

The Properties of the Serum of Animals Treated with Infusions of Adrenal Glands.—N. GILDERSLEEVE (Philadelphia) stated that the purpose of the paper was to determine if any specificity can be demonstrated in the serum of an animal treated with such injections, and to what the effect of such serums is due, if the effect is not a specific one. By using washed organs Gildersleeve was able to demonstrate that a specific antiserum is not formed, the only effect of such a serum being to cause a greater fall of temperature than the injection of normal serum. Very small amounts of defibrinated blood will cause the production of a specific hemolytic antiserum, and it is probable that the results formerly described as specific are to be ascribed to the hemolytic action of the serum.

Farm Colony Advocated for Victims of Drink and Drugs.—The International Order of King's Daughters and Sons makes an appeal for funds with which to establish a farm colony on Long Island for the redemption of victims of alcoholism and the drug habit. Through the efforts of the Women's Auxiliary, a free clinic for the treatment of poor patients has been established at Madison Square Church House. The aim of establishing a farm colony has grown out of experiences in connection with the work there, where many poor in the last stages of alcoholism come to be treated.

The Human Brain.—An exchange says: In order to determine the average weight of the human brain, Professor Marchand and of the Pathological Institute of the University of Marburg has, during the past 7 years examined 1,234 specimens. In men between 15 and 50 the average weight of the brain is 1,400 gm., in women 1,300 gm. Only 30% of the males showed a weight higher than 1,450 gm., and 20% less than 1,300 gm. In women, 25% had brains weighing less than 1,200 gm., but 55% had brains weighing from 1,200 gm. to 1,350 gm. The difference in weight is not conditioned by the difference in bodily size, for men and women of the same size and weight show this difference as well as others. Marchand asserts that the weight of the brain at birth is doubled in the first three-quarters of a year, and is trebled before the completion of the third year, after which period the rate of increase is much less. In men, full development is reached at the age of 18 to 20 years; in women, at 16 to 18 years. In childhood the ratio of the development of the brain and of the body is the same in males and females, independent of age, until the body has attained a length of 70 cm.

Is Fish Good for the Brain?—The popular idea that fish nourishes the brain is pronounced fallacious by the *Lancet* (London). Furthermore, that paper asserts that it is doubtful whether any given food in common use contains constituents which have a selective action, or the property of ministering to one part of the body more than another. Says the writer: "As a rule, when a food is assumed to have specific reparative properties—as, for example, a so-called brain or nerve food—the fact really is that such food is easily and quickly assimilated to the body's general advantage—in a word, in such a case repair quickly overtakes waste and a real purposeful nutrition and restoration are accomplished. The administration of such elements as phosphorus or iron in medicine is, of course, a different matter, but these elements are evenly distributed in the materials of a daily diet. It is often stated that fish is a food which ministers particularly to the needs of the brain because it contains phosphorus. As a matter of fact, fish does not contain more phosphorus than do ordinary meat foods, and it certainly does not contain it in the free state. The notion that fish contains phosphorus had no doubt its origin in the glowing or phosphorescence in the dark. This phosphorescence is due not to phosphorus at all, but to microorganisms. The belief, therefore, that fish is a brain food is just about as reasonable as the idea that because a soup is thick and gelatinous 'it will stick to the ribs,' or as sensible as the celebrated advice to Verdant Green to lay in a stock of Reading biscuits to assist his reading. Fish, of course, is excellent food, partly because of the nourishing nature of its constituents and partly because of its digestibility. But it is in no sense a specific for brain or nerve."

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

FRACTURE OF THE HUMERUS OF A CHILD IN ITS DELIVERY.¹

BY

J. T. MOORE, M.D.,

of Galveston, Texas.

Associate in Medicine, Medical Department, University of Texas, Galveston.

I suppose fracture of the humerus of a child in its delivery is not a very rare accident, but as textbooks say but little about it, I have decided to report the following case. These are not difficult cases to treat, but at the same time they occasion much concern upon our part, especially if it is our first accident of this sort.

CASE.—Mrs. T., a primipara, aged 20. Full term, nothing unusual in her labor. The head was delivered in the right occipitoiliac anterior position. The cord was found to be wrapped around the neck, but this was easily removed. The right arm was doubled back of the child in a peculiar fashion, and I hooked my finger over the forearm and brought it back to a proper position. After freeing the arm, instead of leaving it to deliver itself, I attempted to bring it down by slight traction with my finger in the bend of the elbow. I used but little force, but there was a distinct crack, and I soon saw that I had fractured the humerus somewhere about the middle of the bone.

There was great consternation manifested by the family when I told them the child had a fractured arm. They at once asked how it happened, and I told them that I did it. They had never heard of a case before, and of course, thought it due to great carelessness on my part. They were greatly disappointed and wondered if what I had told them of the prognosis were true. I assured them that the arm would be all right, and at the same time I was feeling quite sorry that it had happened. I would have felt much worse had this been my first case of obstetrics.

The arm was put up promptly in a piece of cardboard, fleeced lined, reaching from the axilla to the bend in the elbow, and rolled around the arm; over this was some adhesive strapping, and it was then covered by a gauze roller bandage. The arm was strapped to the body and left for 10 days. I then removed the arm from the body, but left the dressing on for the end of 2 weeks, when I removed all dressings, and simply pinned the sleeve to the clothing for a few days more. At the end of 3 weeks the child had perfect movement of the arm, and there was no deformity resulting.

I would like to say that any one may promise anxious parents that no harm will come of such an accident, if properly treated.

I think such interference of hooking the finger over the arm and delivering the arm separately is unnecessary, and may cause serious damage to the nerves of the arm, as well as produce a fracture, which at the best causes much uneasiness on the part of the patients, and would very probably result in a young doctor being dismissed from the case.

This case is presented just as it occurred, and a full discussion of such cases is sought.

TRANSMISSION OF CONTAGIOUS DISEASES BY MAIL.

BY

CHARLES FRANKLIN ADAMS, M.D.,
of Trenton, N. J.

Mrs. M., aged 38, received a letter from a young friend living 50 miles away, stating that he was suffering from the mumps. Eleven days after, her own parotid glands began to swell and she developed a parotitis on each side of her face. In trying to account for the infection, as there was none in the neighborhood, she referred to the letter, and that she remembered running the edges of the letter through her teeth according to a habit that she had.

A child, Norman D., aged 5, was taken with scarlet fever. At the end of two weeks he was dressed and playing around the room. At this time he received a letter from a cousin, aged 8, stating that he too was sick, but with the measles; the child was pleased to receive a letter and was allowed to play with it. Four days later he was taken sick again, and in a day or two developed a very severe attack of rubella.

As the child was strictly quarantined, I was credited with carrying the infection, until I discovered the letter.

¹ Read before the South Texas Medical Society, December 9, 1903.

ORIGINAL ARTICLES

THE BODY DEFENSES AND SYNCYTIOMA MALIGNUM.¹

BY

JOSEPH McFARLAND, M.D.,
of Philadelphia.

To an audience to whom the occasional mysterious occurrence of syncytioma malignum has been of interest since it was first observed, and by some of whom cases have been reported, it would be a supererogation to review the now wellknown morbid anatomy of the condition, and in accepting the invitation to address your society this evening, I hope to interest you in some theoretic considerations by which we may attain to a partial understanding of the strange phenomena of the disease.

It is to be understood from the start that we are to deal with purely theoretic considerations, and will attempt to build up a hypothesis to account for the development of the tumor, if such it can be called.

Life's manifestations are all mysterious, and we are still unacquainted with the forces that act and react upon the cells of our bodies. Many are hinted at in such vague expressions as "hereditary tendencies," "trophic influences," "organic influences," and at times we speak confidently of what are in reality nothing but names. We do not know what kind of stimulation is imparted to an ovule by the spermatozoon by which it is fertilized, yet its profound influence is evidenced by the inherited peculiarities of the resulting individual.

It is clear to every biologist and physiologist that every cell of the higher animals is subject to many subtle influences, and while it may not be astonishing to the morphologist that the tissues and organs of our bodies should be normally disposed, it is most astonishing to the biologist and the embryologist that such uniformity and regularity exist. What is it that determines the differentiation of the blastodermic layers? Why do the cells of these layers form groups from which organs are subsequently evolved? Why are certain of the cells set aside as reproductive elements? We do not know!

Embryology is a continuous series of surprises, and the common assertion that all of the differentiations of the developing embryo take place in consequence of inherited tendencies and cooperating forces, explains little.

But the embryo is not alone peculiar in the extraordinary behavior of its tissues. Those of the adult behave toward one another like the individuals of a well-organized social system, each attending to its own business, each maintaining its own integrity without trespassing upon, invading or disorganizing any other group. Indeed, those conditions in which the accidental invasion of one tissue by the elements of another, or in which the excessive activity of one organ occurs to the disadvantage of others, or the extinction of one organ to the disadvantage of the whole body, mark so distinct a departure from the normal as to constitute the essence of what we call disease.

Did it ever strike any one as peculiar that the epithelium of our skin, which is a tissue of active vegetative power, remains as a superficial covering of the body, and that its multiplying cells grow outward and upward to replace those removed by attrition instead of downward and inward to disorganize the subjacent tissues? What determines this relationship of epithelium to connective tissue, and why does it never overstep the boundary of its *membrana propria*? Is it not still more remarkable that in the looser and more delicate tissue of the organs, the cells maintain their definite relationship one to another, and to the *membrana propria*, instead of extend-

ing haphazard into the neighboring interstitial tissues? What determines these relationships, and why do they persist throughout life? Is it not remarkable that the chorionic villi shall extend into the decidua only far enough to bring their blood sinuses into proper coaptation to the decidual sinuses, and that this actively developing embryonal tissue shall perfect a certain development which is followed by its decline and subsequent disappearance? What determines that?

It is impossible to conceive that mechanical conditions shall determine such subtle relationships as we find between the tissue elements throughout our bodies. We are, therefore, obliged to look for some new explanation.

Physiologic chemistry seems to have the key to the situation in her hand, but we still stand upon the threshold, the door of knowledge being but ajar. According to recent discoveries, certain organs of our bodies furnish secretions by which growth is governed, yet the actual influence of these substances is vaguely understood. It seems well established that the secretions of the pituitary and thyroid bodies exert regulating influences upon nutrition, and that their deficiency or excess is followed by such abnormalities as myxedema, cretinism, and akromegaly.

The importance of less wellknown internal secretions is made evident by the removal of certain organs not supposed to be of importance to the general welfare. Such mutilations frequently transform the whole being, as, for example, in cases in which the sex glands are removed. Conditions at one time conceded to be reflex, or to be governed by the trophic or sympathetic nervous system, are now viewed from totally different standpoints, although only the foreshadowings of their real nature are known to us. The development of the mammary gland in anticipation of lactation may possibly have some connection with an internal secretion prepared by the cells of the corpus luteum, and, indeed, this very unique body, the corpus luteum, may prepare other substances whose stimulating action upon the cells of the body brings about other obscure changes characteristic of early pregnancy.

The studies of immunity that have engrossed the attention of experimental pathologists during the last 5 years, have shown a remarkably complex constitution of the blood, and an astonishing number of substances which act and interact in indemnifying the body against invasion by parasites and by its own cells.

To review briefly these discoveries, I must first remind you of the old observations of Nuttall, Buchner, and others, that normal blood-serum was not infrequently fatal in its action upon bacteria, and that some cases of immunity from infection may be explained through this poisonous—that is, defensive—action of the juices. Later it was shown that when animals were experimentally immunized against various bacteria, this ability of the blood-serum and body juices to destroy the microorganisms sometimes increased, so that bacteriolysis became a recognized, though inconstant phenomenon of immunity.

It had long been known that in the transfusion of blood the alien corpuscles introduced into the circulation speedily disappear, though their disappearance could not be satisfactorily accounted for, and it remained for Ehrlich and Morgenroth, Von Dungern, and others, to show that the disappearance of foreign corpuscles from the blood depended upon the combined action of certain factors which Ehrlich called "amboceptor" and "complement." The publication of this paper by Ehrlich and Morgenroth was the starting point of an immense amount of research and speculation, which has resulted in a fairly complete elucidation of the defense of the body through the destruction of invading cells.

The mechanism by which bacteria and other parasites are destroyed by the body juices, and by which heterogeneous blood-corpuscles and tissue cells intro-

¹ Read before the Section on Gynecology of the College of Physicians and Surgeons, March 28, 1901.

duced into the body are disposed of, is almost identical, and in all cases depends upon the combined action of solvent substances normally present in the juices, and variously known to different writers as the "alexin," "cytase," "lysin," "complement," and intermediate substances, which have been called "amboceptor," "immune body," "intermediate body," "fixateur," "desmon," and "substance sensibilisatrice."

The first substance, the so-called *lysin*, which will perhaps be the most convenient term for us to use in the speculation that is to follow, seems to be a comparatively invariable quantity; while the second, the *amboceptor*, varies according to the power of the individual to defend itself. Thus, in animals that have acquired the ability to defend themselves against invading cells of any kind, the specific amboceptor is greatly increased, while the *lysin* remains practically the same.

It is useless in our present speculation to enter into a discussion as to the specific or nonspecific nature of lysins. Their existence is a matter of demonstration, and their mode of action one easily learned by a few simple experiments. That lysins with solvent powers for certain cells of the organism, in whose body they are formed, circulate in the blood is shown by the studies of *nephrotoxin* made by Pearce.

We now pass to the consideration of certain experimental manipulations, by which animals injected with various products, elaborated in the bodies of other animals—products which may more or less seriously and injuriously affect them—defend themselves. For example, under normal conditions an animal requires what we will describe as a normal quantity of complementary substance—lysins—in its blood. But if such an animal be frequently injected with lysin-containing blood from another animal, it proceeds to antagonize or inhibit the action of the foreign lysin by producing an antagonistic substance, whose presence is capable of demonstration and which is known as an antilysin. Or, should the animal be frequently injected with serum containing an excess of amboceptors, it elaborates anti-amboceptors, by which their action may be annulled.

There is indeed, evidence to show that the introduction of almost any active foreign substance into the body, is followed by a defensive reaction of some kind, and that almost any substance normal to the body, introduced into it in excess, will bring about a reaction counteracting what damage its excessive presence might do. These reactions may be described as "general reactions," that is, reactions depending upon substances contained in the blood and tissue juices, and presumably common to all parts of the individual. But in addition to these defensive reactions are others, much less well understood, many of which are local. Such reactions probably account for the failure of growth and absorption of the grafts that have followed so many endeavors to reproduce malignant growths by the transplantation of tumor tissue from animal to animal. The mechanism of these defenses is, however, so complicated that it is difficult to say just what factors are general, and what are local of the reactions that take place. A consideration of tissue-transplantation cannot fail to impress us with the regularity with which certain results come about; a regularity which must occur in conformity with some law, the nature of which we have not yet succeeded in completely formulating.

Grafts of adult tissue, when transplanted into an abnormal environment in our own bodies, or in the bodies of the lower animals, disappear by absorption; that is to say, their cells shortly die and are dissolved or digested and disappear. In this process of absorption the leukocytes are active, but to my mind it is very doubtful whether the role of the leukocyte is as important as Metchnikoff and his followers would make it. Certain peculiar exceptions present themselves; thus Cohnheim was the first to observe that when fragments of periosteal tissue were transplanted, they were trans-

formed into thin plates of bone which remained for a considerable time, and then were absorbed. It would seem, therefore, that periosteal tissue has cells whose activity is less easily overcome than other cells, and which for a short time perform their normal function under the disadvantageous surroundings to which they sooner or later succumb.

The vegetative activity of embryonal tissues suggests that their transplantation might be followed by greater success, and it is indeed true that when fragments of embryonal cartilage are introduced into adult animals, they sometimes do grow and proliferate abundantly. But few of the embryonal tissues, however, show any such ability to accommodate themselves to the new surroundings, and like the adult tissues they nearly always die and become absorbed.

When we come to study abnormal conditions, a number of most interesting facts present themselves. Thus, the transplantation of grafts of the adult connective-tissue tumors is followed by exactly the same results as follow transplantation of the adult tissues themselves, and grafts of embryonal tumor tissues nearly always meet the same fate. All endeavors to transplant tumor grafts from man to the lower animals have met with signal failure, and all endeavors to transplant such grafts to healthy men have failed. The successful transplantation of tumor grafts to other parts of the patient's own body is a matter that might not only be predicted by the fact that the malignant tumors transplant themselves with resulting metastatic growths, but also has been repeatedly demonstrated by actual experiment.

The transplantation of tumors from animal to animal has failed except in a few cases in which the transplantations have been made from animal to animal of the same species.

We note with interest the uniform behavior of normal adult and embryonal tissue grafts, and abnormal (neoplasm) adult and embryonal tissue grafts. In cases in which the invasion of tissue has been spontaneously accomplished in the growth of the primary tumor, secondary invasion of other tissues may easily be achieved, but where no primary neoplasm exists, inoculation of the tumor is impossible. Why is it that grafts of tumor tissue may sometimes be successfully transplanted to animals of the same species as that in which the tumor originally developed, though all other transplantations fail?

To answer this question we must return to the already given brief review of our knowledge of cytolysis, and attempt to explain the varying phenomena manifested by the transplanted tissue grafts, as depending upon the presence or absence of lysogenic substances contained in the different tissues and reacting upon the other tissues.

We can surmise that there is something in the corium that inhibits the growth and development of epidermal cells, and causes the death of such of them as may through traumatic accident become implanted in it, and that through the action of this prejudicial substance we are constantly defended against their invasive activity. The fate of transplanted epithelium can be explained in this way, while the ready growth of epithelium transplanted, as in skin-grafting, continues only so long as it bears its normal relation to the surface of the body where it should normally exist.

The exact nature of such tissue antagonisms can only be speculated upon. Probably when in its normal environment and possessed of its normal nutrition, each cell prepares antagonistic substances—anticomplements, etc.—by which the activity of the solvent substances is destroyed. We conceive the gastric cells to defend themselves against the corrosive action of the gastric juice in this manner, for so soon as their health is destroyed they are attacked and digested. An implanted graft of tissue probably suffers solution for the same reason.

Let this defensive mechanism governing the relation

of tissue to tissue be modified, and a predisposition to cellular invasion becomes inevitable. One can conceive that the development of malignant tumors depends, at least in part, if not altogether, upon some such modification. Either the cells of the epithelium become able to dissolve and thus invade the adjacent tissues, or as is more probable, the adjacent tissues lose their ability to antagonize the invading epithelium. Such loss of balance may be the result of local conditions occasioned by parasites, or as seems more probable, depend upon constitutional disturbances, for though carcinoma begins as a focal lesion, the invasive power of its cells is manifested in all the tissues.

Now let us see how this theory of the development of malignant tumors may be applied to the origin of syncytioma malignum.

When we consider the phenomena attending the imbedding of the fertilized ovum, as described by Peters and others, we find that as the little egg reaches the uterus and lodges upon the thickened endometrium, known to us as the decidua, the cellular aggregation upon its surface, the *trophoblast*, exerts an eroding effect upon the epithelium, so that the surface is denuded and the ovum brought into contact with the deeper endometrial tissues. Once in the nidus thus prepared to receive it, the trophoblast develops villous extensions, over which the cellular mass spreads to form a thin layer, known to us as the *syncytium*. The villous outgrowths covered by this cellular tissue, through its cytolytic activity, continue to work their way deeper and deeper into the decidua until they reach its sinuses, and become bathed by the maternal blood. Thus, the ovum when fertilized, and new capabilities are thus imparted to it, is able to develop some substance by which it can successfully antagonize the maternal cells and bring its own tissues into contact with its future source of sustenance, the maternal blood.

When we follow the natural history of the syncytial tissue during pregnancy, we find that though the greater part of it remains in the spaces between the chorionic villi, in nearly all cases the uterine tissue is invaded to a considerable depth by its cellular prolongations. These usually soon disappear, but an examination of post-partum uteri shows that they sometimes persist for a considerable length of time, and not infrequently interfere with successful involution. When considerable sized masses remain, it is well known that they occasion hemorrhage and the formation of uterine polypi, which must be removed by surgical interference.

In certain rare cases, the depth to which they extend and the activity of their vegetation, lead to the formation of a peculiar hemorrhagic neoplasm in the wall of the uterus, which we know as *syncytioma malignum*. In more rare cases, fragments of the tissue entering the venous sinuses are transported to other viscera, in which they continue to grow in an identical manner.

In order that the ovum shall be properly imbedded, and shall be able to maintain its hold upon the maternal tissues, it is essential that its cells be able to combat whatever defensive cytolytic activities they possess, but in order that their growth shall not be excessive, it is equally essential that the maternal tissues defend themselves against excessive invasion. There must, therefore, exist between the embryonal and maternal tissues a cytolytic equilibrium, through which the variations favor the embryonal tissues during pregnancy and the maternal tissues after parturition. In this way the maternal tissues are compelled to submit to a certain invasion by the trophoblast and syncytium. So soon as the embryonal tissues lose their invading power, the maternal tissues once more assert themselves, and the presence of the embryonal tissues is resented. After the exfoliation and expulsion of the chief mass, the remnants are soon dissolved.

Variations from the normal condition may occasion various pathologic conditions. Thus, should the ovum

fail to provide the necessary cytolytic substance, it would be unable to secure an appropriate nidus, and failing properly in this, would, no doubt, be lost. Sterility might result from such a cause. Or should the cells of the embryo provide an insufficient amount of cytolytic energy, so that the appropriate arrangement of embryonal and maternal elements could not take place, abortion might be the outcome. Again should the ability of the embryonal cells be such as to enable them to accomplish successfully the embedding and yet fail to enable them to resist the antagonistic substance of the maternal tissues until the completion of gestation, miscarriage might result. Should the ova habitually fail to supply sufficient energy to meet the various requirements, habitual abortion or habitual miscarriage would be the result.

On the other hand, should the maternal tissues fail in their antagonism, we can conceive that the actively growing syncytium would invade the uterine wall with abnormal rapidity, or to an abnormal extent, so that during involution, fragments might be retained for an indefinite period, occasioning local disturbance if quiescent, or disorganization of the uterine tissues with hemorrhage (*syncytioma malignum*) if active. If the ability of the maternal tissue to resist the invasion of these cells was general instead of local, the formation of metastatic secondary masses in various parts of the body to which syncytial fragments were accidentally transplanted, would be the result.

THE NONOPERATIVE RELIEF OF EYESTRAIN FOR THE POSSIBLE CURE OF EPILEPSY AS TESTED IN 68 CASES AT THE CRAIG COLONY.

BY

WILLIAM P. SPRATLING, M.D.,

of Sonyea, N. Y.

Medical Superintendent of the Craig Colony of Epileptics,
Sonyea, N. Y.

Some oculists (Gould, Stevens, Ranney) contend that epilepsy is caused in some instances by eyestrain, the relief of which will cure the disease. The views of these writers on the subject are generally well known and need not be reviewed at this time.

I will, however, call attention to the fact that oculists differ among themselves as to the method required for the relief of eyestrain for the possible cure of epilepsy; *i. e.*, whether it shall be done by cutting the eye muscles, or whether the "imbalance" shall be overcome through the use of proper glasses.

Gould¹ is distinctly opposed to the use of the knife. He says: "That epilepsy has been caused by imbalance of the ocular muscles and cured by operation has been asserted, but this cannot be true, if, as I believe, the incoordination of the external ocular muscles is itself the result of ametropia."

Dr. George M. Gould, of Philadelphia, very kindly consented to come to the Craig Colony in August, 1902, examine and fit a sufficient number of epileptics with glasses to make a thorough test of this method of treating the disease. Dr. Arthur G. Bennett, of Buffalo, assisted Dr. Gould in the work. We selected 78 patients out of 800 for the purpose, and to show how thoroughly the test was carried out, I first quote the preliminary report of it as made and published by Drs. Gould and Bennett.²

We examined in all 78 patients, the youngest 10, the oldest 59 years of age, the majority being young or middle-aged adults. Of these 78, 2 were excluded because of organic diseases of the eyes, which rendered them useless for the purposes of the tests in view. Five more were excluded because of the impossibility, due to psychic or ocular amblyopia, of diagnosing the ametropia. This left 71 cases. Of these, 3 were excluded because the ametropia was of so low a degree that it was thought negligible. These patients needed no glasses, either for the relief of ocular conditions or of reflex results. Only about 4%, therefore, 3 out of 71 cases, seemed to us to have eyes

so near normality of optical conditions that they required no further attention.

Our tests, therefore, concern 68 cases, 35 men and 33 women. These were chosen for us by the superintendent, regardless of all conditions of epilepsy, age, etc., except that we requested that only patients be given us who were sane, and who could read.

The errors of refraction were estimated only after thorough paralysis of the accommodation by means of homatropin and cocaine. Dr. Bennett diagnosed the muscle imbalance, made the ophthalmoscopic examinations, and estimated the refractive errors objectively by means of the retinoscopic method. Dr. Gould made the subjective refraction and accommodation tests, and dictated the prescriptions. The subjective tests were in all cases those finally relied upon when the patients' answers could be trusted, and the results seemed the more accurate. Of the 68 cases there were:

- 13 cases, approximately 20%, of myopic or compound myopic astigmatism.
- 54 cases, approximately 80%, of hyperopic or compound hyperopic astigmatism.
- 33 cases, approximately 50%, of unsymmetric astigmatism.
- 15 cases, approximately 22%, with normal acuteness of vision (with correction).
- 23 cases, approximately 34%, with moderately subnormal acuteness (with correction).
- 30 cases, approximately 44%, with 20/40 vision or less (with correction).
- 3 cases only had regular, isometropic, compound astigmatism.
- 1 case only had simple regular astigmatism.
- 1 case only had simple hyperopia.
- 0 case had simple myopia.
- 9 cases were absolutely isometropic, i. e., about 77% had anisometropia.

The muscle imbalances of any high or complicating significance were unexpectedly absent. Indeed, in but one case did we think them worth consideration, so far as final correction was concerned.

The astonishing fact, and one that we think deserves most serious attention, is the enormous proportion among these patients of cases of injurious astigmatic and anisometropic defects; 67 of 68 cases had astigmatism, and it is most noteworthy that about half of the entire number of patients had unsymmetric astigmatism, a defect which almost inevitably produces the most injurious results upon cerebral and assimilative function. This terrible incidence of unsymmetric astigmatism in epileptics is, we judge, 20 or more times as great as in ordinary patients. We do not say that these high and most injurious ametropic defects caused the epilepsies of these patients. That can only be determined in the future by the careful records of seizures, to be kept and compared with those of the past. If none of the patients is cured by the relief of eyestrain, it would still not disprove the theory that in a certain number the eyestrain might have been the initial cause. And even if this should ultimately be shown an error, the duty of the State and the philanthropic to relieve these patients of the other morbid effects of these atrocious optical defects is one that to defer longer becomes the greatest cruelty. We have no hesitancy in saying that sewing or other hand work without proper glasses, with very high and irritating unsymmetric or other astigmatisms, and with anisometropia, is ruinous to health in one or several of many ways."

The 68 patients, 35 men and 33 women, began wearing glasses September 1, 1902,* and with few exceptions, continued to wear them until September 1, 1903.

A record of each seizure and its type was kept in each case by the physician in charge. Occasionally glasses were broken or destroyed as the result of an epileptic seizure, but they were replaced as soon as possible, always within a few days.

All physicians and nurses at the Colony understood that the test was of great value, and no one left a stone unturned to carry it out in the accurate and painstaking manner required.

The table of results presented shows the following:

1. The number of attacks each patient had during the 3 months prior to the use of glasses.
2. The number of attacks each patient had during the 3 months following the use of glasses.
3. The number of attacks each patient had during the 6 months following the use of glasses.
4. The number of attacks each patient had during the 12 months following the use of glasses.

By "attacks less," "increased," "decreased," or "same," we mean that this was the effect obtained apparently as the result of wearing glasses. In some

cases the difference is so small as to be hardly worth noting, as in Case 1, a female, whose attacks were noted "less." Here there were 59 during the 3 months before wearing glasses, 59 during the 3 months after, 119 during the 6 months after, and 330 during the 12 months after. If this patient had kept on having attacks at the rate of 59 in 3 months, as she had during the 3 months' period before putting on glasses, she would have had 236 during the year; but she had only 230. Consequently she was noted as having "less," a concession we make to the use of glasses without being able to say that they were responsible for this slight reduction.

In Case 2, a female had 9 attacks during the 3 months period before wearing glasses, 14 during the first quarter after putting them on, 25 during the second, and 66 during the year. Had she kept on at the rate of 9 a quarter, she would have had 36 only during the

FEMALES.

No.	Name.	Number attacks 3 months before using glasses.	Number attacks 3 months after using glasses.	Number attacks 6 months after using glasses.	Number attacks 1 year after using glasses.	Remarks.
1	M. A.....	59	59	119	230	Attacks less.
2	F. B.....	9	14	25	66	Attacks increased.
3	A. B.....	0	0	0	3	Attacks increased.
4	G. B.....	5	10	19	35	Attacks increased.
5	M. C.....	7	7	24	43	Attacks increased.
6	A. C.....	79	165	204	346	Attacks increased.
7	L. C.....	22	52	0 ¹		Attacks increased.
8	L. DeR.....	22	4	45	57	Attacks less.
9	K. D.....	1	3	3	8	Attacks increased.
10	R. DeR.....	0	0	0	0	No attacks in 15 months.
11	F. D.....	0	0	0	0	No attacks in 15 months.
12	K. D.....	2	5	9	28	Attacks increased.
13	I. D.....	202	105	344	878	Attacks same.
14	A. D.....	14	14	17	53	Attacks same.
15	C. E.....	0	0	0	0	No attacks in 15 months.
16	N. E.....	4	10	19	59	Attacks increased.
17	M. G.....	36	42	73	164	Attacks increased.
18	M. G. ²	6	0	7	16	Attacks less.
19	V. G.....	1	0	0 ¹	3	Attacks increased.
20	A. H.....	17	23	36	107	Attacks increased.
21	I. H.....	0	0	0	0	No attacks in 15 months.
22	N. J.....	7	4	8	19	Attacks increased.
23	M. M.....	1	3	4 ³		Attacks increased.
24	C. M.....	26	32	64	145	Attacks increased.
25	D. N.....	48	59	80	159	Attacks less.
26	M. N.....	50	59	88	149	Attacks less.
27	V. P.....	22	14	24	62	Attacks less.
28	A. P.....	17	50	99	168	Attacks increased.
29	L. R.....	1	6	12	28	Attacks increased.
30	A. R.....	12	21	40	82	Attacks increased.
31	D. S.....	3	2	6	13	Attacks same.
32	C. S.....	2	8	17	31	Attacks increased.
33	K. V.....	7	11	17	51	Attacks increased.
34	H. V. H.....	2	2	3	7	Attacks less.
35	M. W.....	12	13	29	59	Attacks increased.

year instead of 66 as she did have. Consequently, her attacks were noted as "increased."

The chief facts of interest expressed in detail in the tables, are given in the following:

ONE ARREST IN WHICH CURE SEEMS PROBABLE.

One male patient (O. B., No. 3), who had 27 attacks between January and September, 1902, had 4 in September, 4 in October, and 4 in December, 12 in all, after he commenced wearing glasses, September 1, 1902. After January, 1903, he had no further attacks up to the date on which this was written—December 1, 1903—a period of 11 months.

His attacks were all *grand mal*, and of great severity, and were announced some time in advance by a motor aura in the form of a quick, jerking movement in one hand. After a few minutes, the hand, after being lifted higher with each movement, would be jerked straight above the head each time. As soon as the acme of this warning was reached, a similar movement commenced in the left hand, and went through the same order, the attacks appearing after both hands were simultaneously jerked above the head.

The patient lives an active, outdoor life, is robust and strong in every respect, and has had epilepsy since his seventeenth year—his present age being 38.

¹ Died at end of second month after wearing glasses.

² Had no attacks for eight months after using glasses.

³ Died at end of six months.

*The Buffalo Optical Company kindly furnished the glasses at cost, and sent an expert representative to the Colony to fit each patient accurately.

He shows a slight degree of epileptic irritability at times, but nothing in the way of permanent mental enfeeblement.

He is, or was, an excellent illustration of a "motor" epileptic—the type in which motor manifestations are marked to the exclusion of those that involve the psychic side.

The arrest in his disease now bids fair to pass into complete and lasting recovery.

FIVE PREVIOUS ARRESTS POSSIBLY SUSTAINED THROUGH THE USE OF GLASSES.

Male patient, case No. 19, and female patients, cases Nos. 9, 10, 15 and 20, had all been free from attacks for 9 months or longer when they put on glasses on September 1, 1902, with the exception of one young woman who had an attack in February, 1902, 8 months before wearing glasses. Only one of them, the one just mentioned, had an attack during the 12 months ending September 1, 1903, the glass-wearing period.

The improvement in all these cases having become definitely established through other forms of treatment

MALES.

No.	Name.	Number attacks 3 months before using glasses.	Number attacks 3 months after using glasses.	Number attacks 6 months after using glasses.	Number attacks 1 year after using glasses.	Remarks.
1	G. D. B.....	69	29	Dis. after 3 months	Attacks less.	
2	F. B.....	2	4	22	75	Attacks increased.
3	O. B.....	12	8	No attacks in 10 months.	Attacks less.	
4	G. B.....	7	0 ¹	28	59	Attacks increased.
5	W. B.....	6	2	8	24	Attacks same.
6	J. C.....	14	21	36	55	Attacks same.
7	W. C.....	11	112	250	387	Attacks increased.
8	J. W. D.....	23	11	19	41	Attacks less.
9	W. D.....	23	8 ²	19	41	Attacks less.
10	G. E.....	0	9	9	11	Attacks increased.
11	A. E.....	0	1	3	12	Attacks increased.
12	G. E.....	3	3	7	16	Attacks increased.
13	C. G.....	9	16	20	36	Attacks same.
14	A. J.....	6	4	15	40	Attacks increased.
15	W. K.....	0	0	0	0	Discharged in 9 months.
16	W. P. M.....	4	1 ³	3	14	Attacks same.
17	V. M.....	3	4	12	19	Attacks increased.
18	I. M.....	306	222	622	1083	Attacks same.
19	J. McF.....	0	0	0	0	No attacks in 15 months.
20	T. McJ.....	24	24	43	72	Attacks same.
21	W. O.....	3	3 ⁴			Attacks same.
22	H. P.....	33	33	50	102	Attacks same.
23	M. Q.....	11	3	23	31	Attacks same.
24	J. R.....	13				Died.
25	G. S.....	24	14	29	70	Attacks same.
26	J. S.....	85	32	77	0 ⁵	Attacks same.
27	C. S.....	74	85	185	0 ⁶	Attacks same.
28	G. V. K.....	2	3		0 ⁷	Attacks same.
29	E. W.....	4	10	17	31	Attacks increased.
30	C. C.....	33	56	107	195	Attacks increased.
31	J. K.....	0	3	6	18	Attacks increased.
32	C. W.....	0	0	0	0	No attacks in 15 months.
33	C. W ²	25	31	61	116	Attacks increased.

prior to the use of glasses, it is impossible to say what measure of credit, if any, should be given to the use of the glasses in curing the disease.

The assumption that such treatment helped some, might be fair, though it is impossible of proof; and in any event, we must leave these 5 cases out of the list of those whose improvement was more palpably due to the use of glasses.

APPARENT DECREASE IN THE ATTACKS IN 11 CASES.

In 7 females and 4 males, there was a slight decrease in the number of attacks. In the majority of these, indeed, in substantially all of them, the decrease was so slight as to make it impossible to say that it was not due to the ordinary fluctuation in the frequency of such attacks and not to the influence of glasses.

A few showed improvement immediately after wearing glasses, that did not last. One patient, for instance,

¹ A way from Colony 3 months.

² A way from Colony last 2 months.

³ A way for 2 months.

⁴ Left off glasses after first month.

⁵ Died at end of 6 months.

⁶ Did not wear glasses after the sixth month.

⁷ Discharged at end of 4 months.

had 6 attacks during the 3 months prior to the use of glasses, none during the following 3 months, and 16 during the following year. Another had 59 attacks during the 3 months before, and 59 during the 3 months after the use of glasses while the total for the following year was 230.

ATTACKS INCREASED IN 33 CASES.

It seems extraordinary that those who experienced an increase in the number of their attacks should so largely outnumber those who had a decrease, but such is the case. Sixty-four percent, approximately, had more attacks in a given period after wearing glasses than before.

Among the females, case No. 2, for instance, had 9 before, 14 during the same period after, and 66 during the 12 months after; case No. 3 had none before, none during the same period after, but 3 before the end of the year; case No. 6 had 79 before, 165 during the same period after, and 346 during the following year.

With these cases, as with ones noted previously in which the attacks were less, it is impossible to say that the glasses were responsible for the increased number of seizures. Seizure variations in epilepsy are frequent and often marked. A patient may have no attacks for weeks, followed by a similar period in which he will have scores of them. Status and serial attacks, of course, always run up the total, and such attacks are liable to overtake any epileptic at any time.

As to whether the use of glasses, or the examination preliminary to their adoption, may bring on epilepsy or not, I am not prepared to say; but I have knowledge of 2 cases in which this appeared to be true, one of them occurring at the Colony, the other being related to me recently by a prominent oculist in this State.

W. B., a patient at the Craig Colony, had 13 attacks during January and February, 1901, after which they disappeared entirely and he had no more for a period of 17 months, and appeared to be on the high road to complete recovery. On August 23, 1902, when drops were put in his eyes, preliminary to examining them for glasses, he had an attack, followed on the same day by another. In September following, he had 1 attack; in October, 1; in November, 2; in December, 8; and during the next 11 months, he had 73 well-marked epileptic convulsions.

The relationship between the use of glasses (or the examination for them) and the redevelopment of the attacks in this case seems clear.

NO CHANGE IN THE ATTACKS IN 16 CASES

In 13 males and 3 females, the use of glasses made substantially no difference in the number of attacks. In any large number of epileptics, there are always some whose attacks occur with persistent regularity, irrespective of any new form of treatment. These cases may be of that type.

This interesting experiment seems to furnish additional proof, that in looking for the causes and cure of epilepsy, we must let our scientific view of its etiology be broad enough to cover more than a single organ and its abnormalities. It must include the entire body and all its parts, especially those of unstable consistency that are subjected to constant alterations and changes in composition. Added to these, there may or may not be elemental or acquired organic defects of the central nervous system, as a whole, or confined to some of its parts.

This view of the matter is the one that prevails at Sonyea and on which treatment is based with the result that 5% of the essentially chronic cases the Colony receives, are cured.

Some of these cures we regard as provisional. Freedom from epileptic attacks, in some cases, can only be obtained at the price of eternal vigilance. If the epileptically inclined individual fails to continue to profit by the lesson learned that freed him once from his disease, he is apt to become an epileptic again.

Some epileptics can be cured in 2 to 3 years and remain so; others can only be cured in 3 to 5 years or longer, and with the utmost difficulty kept so.

If it takes so long a time to cure the disease (a fact the best neurologists do not deny, while some, indeed, like Turner, go so far as to say that freedom from attacks should persist 9 years before cure may be said to exist), Gould's statement that follows seems, in one way, quite remarkable:

"I have," he says, "selected from my records only those instances in which cure has been immediate, certain and complete, and in which it has lasted for years."

Can epilepsy be cured "immediately?" We do not think so. Certain types of *convulsions*, to be sure, may be checked almost at once, but that is another matter.

We are happily coming more and more to look upon epilepsy, so far as an adequate plan of its treatment and its curability go, pretty much in the same light we now look upon tuberculosis. Epilepsy cannot be cured by one remedy, nor can it be cured in any length of time whose measure is not fixed by years. It can only be cured, as we believe today, by a *system of treatment* sufficiently long applied, and kept up to a certain extent by the patient after he has passed from the physician's care.

Who would have thought 20 to 25 years ago that any reputable physician would be able to proclaim today that tuberculosis is curable in 25% to 30% of all cases—"incipient," "advanced," and "far advanced," alike? These are the results announced from a *system of treatment* in vogue at the Adirondack Cottage Sanitarium.⁴

Who will *now* believe that the enlightenment of the next 20 to 25 years will enable us to cure 25% to 30% of all cases of epilepsy?

I have no hesitancy in declaring that if the Craig Colony could today admit one-half its patients before their disease is chronic or before it has existed more than a year, its rate of recoveries could easily be doubled or trebled. As it is now, less than 1.5% of all who enter the Colony have had epilepsy less than a year. But even under this great handicap, the system of Colony care and treatment is responsible for recovery in fully 5% of its chronic cases.

Personally, I deeply regret that the experiment so carefully and scientifically made by Drs. Gould and Bennett, did not yield better results. At the same time, it strengthened my convictions that epilepsy is not a "single prescription disease," so to speak—that the correction of the abnormalities of the eye alone is not any more likely to cure it than are surgical measures directed against the brain, from which so much was at one time hoped for, but from which we now expect so little.

ADDENDUM BY DR. GEORGE M. GOULD.*

In reference to the article which Dr. Spratling has been so courteous as to show me before publication, I would like to say:

1. I have had 6 cases in my private practice in which permanent cure of epilepsy has been effected by glasses alone. Many other cases have been reported. I know of two oculists who have similar unreported cases. About half of the 68 patients whose eyes were examined at Craig Colony had unsymmetrical astigmatism, an enormously high percentage of a defect, which, as all admit, is intensely injurious to the nervous system. These facts lead to the conclusion that eyestrain is a cause of epilepsy in at least a small proportion of cases.

2. The total patients examined 68
Number having no attacks for 3 months prior, or 3 months after, and which should have been omitted 8

Died or left off glasses 3

Same number of attacks prior and after 8

Attacks lessened in 3 months 19

Attacks increased in 3 months 30

The 19 patients whose attacks were lessened, had, during the 3 months prior to the beginning of the experiment, attacks 861

During the 3 following months 479

Showing a decrease of over 44% 382

Moreover, this lessening of the number of seizures in 3 months of 19 patients by 382 does not comport with the statement in the official report which says that "only one patient out of the 68 (should be 57) experienced any benefit in their disease while wearing glasses." I would like to ask if any therapeutic experiments, or if all combined made at the Colony, have lessened the number of seizures in 3 months in 19 patients by 382? I am astonished at such good results and never expected such high percentages of benefit from the test. Instead of "disappointing" it seems to me the reverse and shows the ocular factor of far more profound importance than I had expected. The eyestrain test has thus demonstrated that in about 33% of patients eyestrain may be a causal factor; in 19 of the test, the number of seizures was lessened by over 44%.

3. In 30 cases the attacks were, according to the table, increased:

Number of attacks prior 427

Number of attacks after 725

298

As compared with the decrease 382

Leaving to the good 84

4. But the noteworthy increases in the second and in the third three months periods—what of them? Only this, that without the omitted figures for the same periods before the experiment they have utterly no significance. It is wholly useless to include a comparison with mention only of the figures of one of the compared terms, the other not being given. The only figures given are for three months before and after the application of glasses. Moreover the influence of season is not given. The second and third three months periods occurred in the mid-winter season.

5. The columns in the tables headed "Remarks" sorely puzzle me. The copyist seems to have inserted the "remarks" by haphazard, the attacks spoken of as "same," "increased," and "less" having no significance, or a reversed one as regards the preceding figures. Several of these figures also differ from those printed and published in the official report issued last December. Of course, these three inaccuracies are entirely unintentional, but the figures will tell nothing, or the reverse of the truth, unless used with mathematic precision, and with the desire to make them reveal clear and useful lessons.

6. One of these lessons is, that if eyestrain is a causal factor in producing epilepsy, it can only cure when the eyes are frequently retested, especially in epileptics, and also when the glasses ordered are adjusted and kept adjusted by the expert oculist and optician. It is a source of great regret to me that circumstances prevented the subsequent visits which both had fully intended to make. There are a score of ways, especially in epileptic patients, in which the function of the glasses may be not only nullified, but the reflexes increased. In case of future tests of this kind the condition should be made that there should be a resident oculist. If the number of seizures in the nine months following application of glasses was really increased and unduly, over those of the nine preceding months—and we know nothing about this—it would be most natural. It is well known that wrong glasses or maladjusted ones are far more harmful than none at all. In epileptics the refraction will certainly change in a few months in a large proportion of eyes, and their glasses will more surely become maladjusted.

7. The second principal mistake that was made in arranging for the test was that no foresighted choosing of patients was made. It must not be forgotten that all

* Published after submission to Dr. Spratling and with his consent.

these patients had the severer, *grand mal*, type of the disease. It is plain that the test is absurd in cases in which the disease has been so chronic as to affect the mind or has been so long established as to be utterly hopeless of cure. Only the younger patients should have been chosen, and those with minds and nervous systems capable of responding to treatment. The large majority was not of this character, and no qualification was made by Dr. Bennett and myself as to the kinds of patients to be sent us. Above all other diseases, the cure of epilepsy consists in prevention, or at least, in halting the progress of the disease before it has become utterly unconquerable. Most of the cases under discussion were, of course, inveterate and chronic. A number of patients could not answer questions sanely. Under such conditions the success of the test becomes all the more astonishing.

8. Even when they are complete and accurate, "statistics must be made to open their mouths and talk." There is no significance of those given, as I have intimated, except for the three months following the application of glasses, but even of these the lack of any statement as to the common influence of season, the length of the course of the disease, the age of the patient, the intensity of the disease, and the other details also, make the results too vague. Every case must be individualized and the personal details and reasons for success or failure given. Above all, is it necessary to state the exact kind and degree of the refractive error. Dr. Spratling forgets that if the glasses lessened the attacks in three months in 19 cases by 382 seizures, that is important, and certainly not "disappointing"; he forgets that if (as is very doubtful), the seizures in the second and third three months were increased and because of the glasses, this instead of the absence of it, shows an ocular factor with amazing clearness. He also forgets that if, according to the rumor of one vaguely reported case, the attacks were increased by mere mydriasis, this does not warrant any conclusion as to the action of mydriasis in increasing the number of seizures at Craig Colony. The effect of mydriasis would hardly last over three months! The mydriatic we used lasts for but one day. If mydriasis does, *per se*, increase seizures, as is hinted, it admirably demonstrates an ocular factor. My suggestion to Dr. Spratling to put 100 of the younger and less injured patients under permanent mydriasis for a month was not accepted. It would not surprise me if the number of seizures would be thereby lessened by 50% or 75%. Private patients report almost always absence of headache and other reflexes while under mydriasis.

9. By individualizing the patients and examination of their errors of refraction, there appear profoundly instructive lessons. Every one of the patients who was bettered has an error of refraction, which makes an oculist or capable neurologist shudder. Nearly all I can identify had unsymmetric astigmatism, and usually with high anisometropia. The few without asymmetry of the astigmatic axes had ametropia of a terrible and tormenting variety.

Take a few examples:

1. The one whose attacks were lessened the most, I. M. He was 25 years of age and had 306 attacks during 3 months before, but only 222 the 3 months after the examination of the eyes. What nervous system could endure the following ametropia:

R. + S. 375 + C.O. 75 ax. 90°.
L. + S. 275 + C. 2.75 " 105°.

If his glasses should be misplaced $\frac{1}{8}$ of an inch he would inevitably suffer great injury.

2. What can a nervous system do with L. DeR's. error:

R. + S. 3.50 + Cyl. 5.00 ax. 105°.
L. + S. 2.00 + Cyl. 5.50 " 70°.

3. Or with that of M. G.:

R. + Sph. 2.75 + C.O. 62 ax. 20°.
L. + " 2.75 + C. 1.25 " 125°.

4. A. J. had:

R. - S. 2.00 - C.O. 62 ax. 90°.
L. - S. 0.75 - C.O. 75 " 180°.

5. E. D. had:

R. - S. 0.25 - Cyl. 1.00 ax. 15°.
L. + Cyl. 1.25 ax. 165°.

6. The case of O. B., the man cured, has an error which all European science says can produce no reflexes, and yet which is peculiarly of the worst, i.e., reversed and unsymmetric astigmatism:

R. - S. 6.50 - Cyl. 0.50 ax. 75°.
L. - S. 6.50 - " 0.75 " 180°.

10. But according to the report there was 1 cure in 57 of the patients tested. How does this compare with the officially reported cures at the Colony since its foundation? To October, 1902, there have been admitted 1,286 patients and of these, 16 had been cured by all the methods of treatment. This is 1 in 80. By the treatment of the eyes alone, 1 in 57 has been cured. Thus the ocular treatment alone has proportionally cured nearly one third more cases than all the combined methods pursued at the Colony. Except in the sense that all the methods of cure tried at the Colony are "disappointing," the results of the ocular test are scarcely to be called so. There is a story in Matthew xviii, verses 12 and 13, that might be called to Dr. Spratling's attention. It may also apply to epileptics with eyestrain.

SUMMARY.

Two mistakes were made in conducting the experiment: 1. Young patients, and those only with less injured nervous systems should have been chosen. 2. Resident or frequently visiting opticians and oculists should have been insured to make the retestings, readjustments, etc., most necessary. Despite these faults, together with incomplete statistics, etc., 19 out of 57 patients, for the only comparable terms given of 3 months, showed a reduction of the number of seizures of 382 (44%), and 1 in 57 was cured against 1 in 80 by all other methods of treatment that have been tried at the Colony. From the result of the experiment at Craig Colony I judge that the permanent residence at such institutions of an expert ophthalmologist would result in great monetary saving on the part of the State. Spectacles would certainly lessen the special disease, and the number of seizures. Even if they would not do so they would tremendously lessen headache, digestiveal troubles, etc. For mere humanity's sake they should be ordered. The habit of depreciation and ignoring the eyestrain factor is both cruel and unscientific.

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"Cleveland Medical Journal."—The Cleveland Medical Journal, in its March number, announces a change in the editorship. Dr. P. Maxwell Foshay, who has formerly edited the journal in question in an able manner, has been succeeded by Dr. E. P. Carter. Hope is entertained by the medical profession of the middle west that Dr. Carter will be as successful in his labors as has been the former editor. Dr. Foshay has been one of the able young men in the State of Ohio in the furtherance of medical progress and ideals.

Summer Course at University of California.—At the next summer session of the University of California, which will be held in Berkeley for the 6 weeks beginning June 27th and ending August 6th, a number of European scientists will be on its teaching faculty. Professor Svante A. Arrhenius, the chemist of the University of Stockholm, will give in English a course of lectures on the application of physical chemistry to serumtherapy. This course will amount to 2 or possibly 3 lectures a week. Professor Arrhenius will also give a course upon the general subject of physical chemistry. Sir William Ramsay, of London, also will be a member of the summer faculty, and is now preparing a course of lectures to be published later, giving his views upon the recent developments in chemio theory, dealing with the ion and the electron and illustrated experimentally by the behavior and properties of radium. A third scientific visitor will be Professor Hugo de Vries, the botanist of the University of Amsterdam. He will deliver in English a course of lectures on natural plant breeding, giving his views on species and varieties, and their origin by means of mutations. The lectures will be illustrated by drawings and by specimens. The following will be the sequence in which he will deal with the subjects: Elementary species, constant varieties, over-sporting varieties, mutation and fluctuation. Seminars for special work will be held by all of these men in their special lines, and in all probability one large seminary will be formed in which all of them will participate.

THE PRELIMINARY REPORT OF A SERIES OF METABOLISM OBSERVATIONS MADE IN ATROPHIC ARTHRITIS, HYPERTROPHIC ARTHRITIS, OSTEITIS DEFORMANS AND THE NORMAL.

BY

JOEL E. GOLDTHWAIT, M.D.,

AND

CHARLES F. PAINTER, M.D.,

AND

ROBERT B. OSGOOD, M.D.,

of Boston, Mass.

[Concluded from page 553.]

G. I. A case of osteitis deformans :

Weight at beginning of the experiment.....140 pounds
 Weight at end of the experiment.....140 pounds
 Total amount of sugar eaten during the experiment.....182.0 gm.
 Total amount of salt eaten during the experiment..... 14.5 gm.
 Paper used after stools..... 40.44 gm.

FIRST DAY.

Breakfast.	Dinner.	Supper.
Steak..... 90.0 gm.	Consomme..... 200 cc.	Roast beef. 45.5 gm.
Potatoes..... 119.5 "	Bread..... 65.0 gm.	Potatoes..... 162.5 "
Rolls..... 80.5 "	Butter..... 18.0 "	Bread..... 80.0 "
Butter..... 20.5 "	Custard..... 140.5 "	Butter..... 21.0 "
Coffee..... 200 cc.		Cake..... 40.0 "
Charcoal..... 10.0 gm.		Tea..... 180 cc.
Acacia..... 10.0 "		
Peppermint water... 60 cc.		

SECOND DAY.

Breakfast.	Dinner.	Supper.
Beefsteak..... 97.0 gm.	Soup..... 200 cc.	Cold chicken.
Potatoes..... 97.0 "	Beef..... 60.0 gm.	Bread. Butter.
Bread..... 90.0 "	Potatoes..... 15.0 "	Cake. Tea.
Griddle cakes..... 87.0 "	Bread..... 49.5 "	
Butter..... 18.0 "	Custard..... 42.0 "	These were weighed but the record of the weights taken has been misplaced.
Coffee..... 175 cc.		
Syrup..... 16 "		

THIRD DAY.

Breakfast.	Dinner.	Supper.
Beefsteak..... 95.5 gm.	Lamb chops (meat)..... 43.0 gm.	Mutton..... 51.0 gm.
Potatoes..... 53.0 "	Bread..... 66.0 "	Bread..... 55.5 "
Omelet..... 53.5 "	Butter..... 21.0 "	Butter..... 17.5 "
Bread..... 91.0 "	Apple sauce..... 74.0 "	Cake..... 49.0 "
Coffee..... 200 cc.	Consomme..... 200 cc.	Tea..... 200 cc.

FOURTH DAY.

Breakfast.	Dinner.	Supper.
Beefsteak..... 126.0 gm.	Bread..... 34.5 gm.	Turkey..... 43.0 gm.
Rolls..... 88.5 "	Butter..... 8.0 "	Stuffing..... 20.5 "
Omelet..... 116.0 "	Apple sauce..... 84.0 "	Potatoes..... 108.5 "
Butter..... 19.5 "	Consomme..... 200 cc.	Butter..... 18.5 "
Coffee..... 200 cc.		Cranberry sauce..... 48.5 "
		Tea..... 200 cc.

FIFTH DAY.

Breakfast.	Dinner.	Supper.
Steak..... 77.0 gm.	Turkey..... 36.0 gm.	Beefsteak..... 41.0 gm.
Omelet..... 61.5 "	Bread..... 37.5 "	Potatoes..... 86.0 "
Bread..... 81.0 "	Butter..... 12.0 "	Bread..... 52.0 "
Butter..... 23.0 "	Apple sauce..... 63.0 "	Butter..... 18.5 "
Potatoes..... 99.0 "	Consomme..... 200 cc.	C's'mme..... 200 cc.
Coffee..... 300 cc.		

SIXTH DAY.

Breakfast.	Dinner.	Supper.
Lamb chops..... 48.5 gm.	Tripe..... 45.0 gm.	Lamb..... 45.5 gm.
Omelet..... 49.5 "	Potatoes..... 56.0 "	Caulifl'w'r 75.0 "
Potatoes..... 106.0 "	Bread..... 37.0 "	Bread..... 53.5 "
Bread..... 95.0 "	Butter..... 11.5 "	Butter..... 21.5 "
Butter..... 20.5 "	Cake..... 24.0 "	Cake..... 68.0 "
Coffee..... 280 cc.	Apple sauce..... 79.0 "	Tea..... 200 cc.
	Consomme..... 200 cc.	

SEVENTH DAY.

Breakfast	Dinner.	Supper.
Beefsteak..... 91.0 gm.	Bread..... 34.0 gm.	Beefsteak..... 48.5 gm.
Bread..... 93.5 "	Butter..... 8.0 "	Potatoes..... 76.0 "
Butter..... 21.0 "	Turkey..... 24.5 "	Bread..... 50.5 "
Scrambled eggs..... 91.0 "	Consomme..... 500 cc.	Butter..... 18.0 "
Rice cakes..... 81.0 "		Cake..... 45.5 "
Coffee..... 280 cc.		Tea..... 300 cc.

EIGHTH DAY.

Breakfast.	Dinner.	Supper.
Beefsteak..... 93.5 gm.		
Omelet..... 78.5 "		
Bread..... 95.0 "		
Butter..... 19.0 "		
Doughnut..... 87.5 "		
Coffee..... 280 cc.		

RESULTS. M&I.

Urine.	P ₂ O ₅ .	CaO.	MgO.
First day.....	2.156 gm.	.2875 gm.	.1892 gm.
Second day.....	1.835 "	.4015 "	.1176 "
Third day.....	1.859 "	.4915 "	.1450 "
Fourth day.....	1.693 "	.3595 "	.1066 "
Fifth day.....	1.678 "	.4900 "	.1345 "
Sixth day.....	1.795 "	.3005 "	.0870 "
Seventh day.....	1.791 "	.3660 "	.1149 "
Eighth day.....	.822 "	.1905 "	.0853 "
Total.....	13.63 gm.	2.887 gm.	.924 gm.
Feces.....	8.89 "	6.63 "	2.319 "
Total output.....	22.52 gm.	9.52 gm.	3.243 gm.
Food.....	21.28 "	10.18 "	4.047 "

In this experiment the calcium in the urine was high, the magnesium a little low. There was a small loss of phosphorus and a slight retention of calcium and magnesium.

Mr. McC. A case of hypertrophic arthritis in the active stage.

Salt used during the experiment.....16 gm.
 Stool paper.....41.74 "

FIRST DAY.

Breakfast.	Dinner.	Supper.
Beefsteak..... 82.5 gm.	Bread..... 47.5 gm.	Bread..... 42.5 gm.
Potatoes..... 67.0 "	Butter..... 17.0 "	Butter..... 15.5 "
Bread..... 67.5 "	Meat..... 41.5 "	Turkey..... 17.0 "
Butter..... 23.0 "	Potatoes..... 68.5 "	Milk..... 200 cc.
Crackers..... 20.5 "	Custard..... 77.0 "	During evening
Coffee..... 200 cc.	Milk..... 200 cc.	Crackers. 22.0 gm.
Cream..... 120 "	During afternoon	Milk..... 200 cc.
Milk..... 160 "	Crackers..... 20 gm.	
Preceded by	Milk..... 200 cc.	
Charcoal..... 10.0 gm.		
Acacia..... 10.0 "		
Peppermint water... 60 cc.		

SECOND DAY — WATER 400 CC.

Breakfast.	Dinner.	Supper.
Scrambled eggs..... 124.0 gm.	Beefsteak..... 56.5 gm.	Beef 'n' gue 22.5 gm.
Rolls..... 84.5 "	Sweet potatoes..... 42.5 "	Potatoes..... 57.5 "
Butter..... 20.5 "	White potatoes..... 34.5 "	Bread..... 32.5 "
Potatoes..... 62.5 "	Bread..... 34.0 "	Butter..... 17.5 "
Coffee..... 120 cc.	Butter..... 14.0 "	Apple
Cream..... 60 "	Rice pudding..... 68.5 "	sauce..... 95.0 "
During morning	During afternoon	Warm
Crackers..... 20.5 gm.	Crackers..... 22.5 "	milk..... 200 cc.
Milk..... 200 cc.	Milk..... 200 cc.	

THIRD DAY.

Breakfast.	Dinner.	Supper.
Omelet.....119 0 gm.	Roast beef..... 39.0 gm.	Hamburg steak..... 73.5 gm.
Potatoes..... 69.5 "	Sweet potatoes.. 44.0 "	Bread..... 37.5 "
Butter..... 15.0 "	White potatoes.. 36.0 "	Butter..... 9.5 "
Coffee..... 240 cc.	Macaroni..... 58.0 "	Apple sauce.... 83.5 "
Milk.....160 "	Bread..... 54.0 "	
During morning	Butter..... 19.0 "	
Crackers..... 19.5 gm.	Milk.....200 cc.	Milk.....200 cc.
Milk.....200 cc.	During afternoon	
	Crackers..... 19.5 gm.	
	Milk..... 200 cc.	

FOURTH DAY.

Breakfast.	Dinner.	Supper.
Scrambled eggs.. 91.5 gm.	Beefsteak 65.5 gm.	Cold roast
Baked potatoes.. 71.5 "	White potatoes.. 51.5 "	" duck..... 24.0 gm.
Bread 88.5 "	Sweet potatoes.. 54.0 "	Baked po-
Butter..... 14.0 "	Bread 44.5 "	tatoes..... 83.0 "
Coffee.....180 cc.	Butter..... 14.0 "	Bread 75.0 "
Cream .....100 "	Ice cream..... 12.0 "	Butter..... 18.0 "
During morning	Milk.....200 cc.	Milk.....400 cc.
Crackers..... 20.5 gm.	During afternoon	Water.....200 "
Milk.....200 cc.	Crackers..... 20.5 gm.	
	Milk.....200 cc.	

FIFTH DAY.

Breakfast.	Dinner.	Supper.
Scrambled eggs.. 67.5 gm.	Roast beef..... 45.0 gm.	Scrambled
Baked potatoes.. 94.0 "	Potatoes..... 70.0 "	eggs.....106.0 gm.
Rolls..... 87.0 "	Bread..... 45.5 "	Boiled po-
Butter..... 22.0 "	Butter..... 8.5 "	tatoes..... 70.0 "
Coffee.....130 cc.	Mushrooms..... 17.5 "	Bread..... 8.5 "
Cream.....120 "	Luncheon.....163.0 "	Butter..... 82.0 "
During morning	Milk.....200 cc.	Sliced
Crackers..... 2.0 gm.	During afternoon	peaches..... 80.0 "
Milk.....200 cc.	Crackers..... 19.5 gm.	Milk.....200 cc.
	Milk.....200 cc.	
	Water.....200 "	

SIXTH DAY.

Breakfast.	Dinner.	Supper.
Beefsteak.....65.5 gm.	Bread.....52.0 gm.	Scrambled eggs.....104.5 gm.
Potatoes.....69.0 "	Butter.....15.5 "	Fried potatoes.....48.0 "
Rolls.....72.5 "	Beefsteak.....95.0 "	Bread.....85.5 "
Butter.....15.5 "	Potatoes.....95.0 "	Butter.....10.5 "
Coffee.....180 cc.	Pudding.....74.0 "	Milk.....400 cc.
Milk.....120 "	During afternoon	
During morning	Crackers.....20.0 "	
Crackers.....200 gm.	Milk.....400 cc.	
Milk.....200 cc.		

SEVENTH DAY.

Breakfast.	Dinner.	Supper.
Lamb chops..... 81.0 gm.	Turkey (dark meat 24.0 gm.	Ham 89.0 gm.
Potatoes..... 97.0 "	Turkey (light meat)..... 22.0 "	Potatoes..... 78.0 "
Bread..... 34.5 "	Sweet potatoes..... 53.0 "	Bread..... 81.5 "
Butter..... 17.0 "	White potatoes..... 35.5 "	Butter..... 16.5 "
Coffee..... 180 cc.	Bread..... 36.0 "	Sliced peaches..... 86.0 "
Milk..... 120 "	Butter..... 16.5 "	Milk..... 200 cc.
During morning	Jelly (orange)..... 98.0 "	
Crackers..... 20.5 gm.	Jelly (cr'nberry) 53.0 "	
Milk..... 200 cc.	Milk..... 200 cc.	
	During afternoon	
	Crackers..... 19.5 gm.	
	Milk..... 200 cc.	

EIGHTH DAY.

Breakfast.		Dinner.		Supper.	
Sausage.....	51.0 gm.	Lamb.....	62.5 gm.	Cold ham..	40.5 gm.
Bread.....	57.5 "	Bread.....	35.5 "	Bread.....	57.0 "
Butter.....	18.0 "	Butter.....	7.5 "	Butter.....	13.5 "
Potatoes.....	69.0 "	Potatoes.....	104.5 "	Potatoes.....	82.0 "
Coffee.....	180 cc.	Squash pie mi-		Milk.....	400 cc.
Milk.....	120 cc.	nus crust.....	80.5 "		
During morning		During afternoon			
Crackers.....	19.0 gm.	Crackers.....	20.0 "		
Milk.....	200 cc.	Milk.....	260 cc.		

RESULTS OF EXPERIMENT ON MCC.

Urine.	P ₂ O ₅ .	CaO.	MgO.	S.	N.
First day.....	1.62 gm.	365 gm.	209 gm	.694 gm.	11.24 gm.
Second day.....	1.85 "	.435 "	.229 "	.725 "	10.65 "
Third day.....	2.08 "	.425 "	.253 "	.765 "	11.89 "
Fourth day.....	1.80 "	.415 "	.244 "	.856 "	12.22 "
Fifth day.....	1.79 "	.407 "	.230 "	.787 "	11.78 "
Sixth day.....	1.97 "	.415 "	.251 "	.822 "	12.35 "
Seventh day.....	1.81 "	.416 "	.258 "	.761 "	13.33 "
Eighth day.....	1.84 "	.406 "	.228 "	.765 "	11.75 "
Ninth day.....	1.06 "	.142 "	.126 "	.841 "	6.13 "
Total.....	15.82 gm.	3.43 gm.	1.998 gm.	6.51 gm.	101.4 gm.
Feces.....	14.68 "	20.28 "	2.362 "	1.21 "	6.36 "
Total output..	30.50 gm.	23.71 gm.	4.360 gm.	7.72 gm.	107.8 gm.
Food.....	31.66 "	21.24 "	4.778 "	19.25 "	182.9 "
Retain'd by b'dy retained of that in food.....	+1.16 gm.	-2.47 gm	+ .418 gm.	+11.53 gm.	+25.1 gm.
	+4%	-11%	+9%	+60%	+19%

The calcium in the urine in this case seems to be high, the magnesium about normal. The phosphorus seems to be a little low. It will be noticed that while there was a retention by the body of P_2O_5 , MgO , S , and N , a very large retention in the case of S and N , there was a loss of Ca .

Experiment on Mr. V.

Weight at beginning of experiment.....	98.0 lbs.
“ “ end “ “	89.5 “
Sugar used.....	229 gm.

FIRST DAY.

Breakfast.	Dinner.	Supper.
Oatmeal..... 58.6 gm.	Chicken..... 53 0 gm.	Roast beef. 21.2 gm.
Scrambled eggs. 105.1 "	Potatoes..... 123.7 "	Bread..... 45.9 "
Bread..... 24.6 "	Beans..... 34.9 "	Butter..... 14.1 "
Butter..... 1.0 "	Bread..... 23.3 "	Milk..... 200 cc.
Milk..... 120 cc.	Butter..... 6.7 "	Tea..... 200 "
Coffee..... 200 "	Ice cream..... 96.7 "	
Preceded by	Water..... 200 cc.	
Charcoal..... 10.0 gm.		
Acacia..... 10.0 "		
Peppermint		
water. 80 cc.		

SECOND DAY.

Breakfast.		Dinner.		Supper.	
Oatmeal.....	87.0 gm.	Roast lamb.....	56.2 gm.	Bread.....	36.6 gm.
Bread.....	40.3 "	Spinach.....	56.8 "	Butter.....	13.0 "
Butter.....	12.7 "	Bread.....	36.8 "	Scrambled	
Scrambled eggs.....	120 "	Butter.....	7.4 "	eggs.....	108.0 "
Coffee.....	180 cc.	Pudding.....	109.5 "	Jelly.....	55.8 "
Milk.....	80 "			Milk.....	20 cc.
				Tea.....	200 "

THIRD DAY.

Breakfast.		Dinner.		Supper.	
Bread.....	41.0 gm.	Beefsteak.....	79.0 gm.	Bread.....	40.5 gm.
Scrambled eggs.....	100.5 "	Bread.....	25.5 "	Butter.....	12.5 "
Butter.....	13.7 "	Butter.....	10.5 "	Scrambled	
Hominy.....	11.0 "	Boiled custard.....	110 cc.	eggs.....	80.0 "
Coffee.....	320 cc.			Jelly.....	40.2 "
Milk.....	160 "			Milk.....	20 cc.
				Tea.....	180 "

FOURTH DAY.

Breakfast.		Dinner.		Supper.	
Bread	26.9 gm.	Turkey	50.8 gm.	Bread	30.0 gm.
Butter	12.4 "	Bread	28.1 "	Butter	10.3 "
Beefsteak	101.3 "	Butter	12.4 "	Tongue	21.1 "
Onsteak	180.4 "	Peas	55.0 "	Jelly	49.5 "
Milk	20 cc.	Jelly	69.8 "	Ten	190 cc.
Coffee	180 "			Milk	10 "

The calcium in the urine was high, the magnesium, phosphorus, and nitrogen low. There seems to be a slight loss of all elements.

Second experiment on Mary P., the first case reported. This observation was made when the disease was inactive.

Weight at the beginning of the experiment.....132.3 lbs.
 " " " end " " " ".....132.5 "

Gain.....0.2 lbs.

Weight of stool paper used.....28.38 gm.
 " " salt.....2.5 "
 " " sugar.....49.0 "

FIRST DAY.

Breakfast.	Dinner.	Supper.
Bread.....50.0 gm.	Corned beef.....21.0 gm.	Bread.....32.0 gm.
Butter.....15.0 "	Potatoes.....50.0 "	Butter.....10.0 "
Oatmeal.....68.5 "	Bread.....19.5 "	Milk.....200 cc.
Milk.....200 cc.	Butter.....7.0 "	
	Milk.....200 cc.	

SECOND DAY.

Breakfast.	Dinner.	Supper.
Oatmeal.....110.0 gm.	Bread.....30.0 gm.	Bread.....52.5 gm.
Bread.....42.0 "	Lamb.....44.0 "	Butter.....14.5 "
Butter.....13.5 "	Butter.....11.5 "	Beef.....28.5 "
Milk.....200 cc.	Milk.....200 cc.	Milk.....200 cc.

THIRD DAY.

Breakfast.	Dinner.	Supper.
Bread.....50.0 gm.	Bread.....33.0 gm.	Bread.....38.0 gm.
Butter.....11.0 "	Fish.....42.0 "	Butter.....13.5 "
Oatmeal.....109.5 "	Potatoes.....70.0 "	Milk.....200 cc.
	Butter.....9.0 "	
	Milk.....200 cc.	

FOURTH DAY.

Breakfast.	Dinner.	Supper.
Corn bread.....75.5 gm.	Bread.....26.0 gm.	Bread.....39.0 gm.
Butter.....12.0 "	Butter.....7.5 "	Butter.....14.0 "
Milk.....200 cc.	Pudding.....61.0 "	Milk.....200 cc.
	Potatoes.....50.0 "	
	Milk.....200 cc.	

FIFTH DAY.

Breakfast.	Dinner.	Supper.
Beans.....85.5 gm.	Bread.....29.0 gm.	Bread.....40.0 gm.
Bread.....51.0 "	Butter.....5.0 "	Butter.....11.0 "
Butter.....15.0 "	Potatoes.....52.0 "	Milk.....200 cc.
Milk.....200 cc.	Beef.....31.0 "	

SIXTH DAY.

Breakfast.	Dinner.	Supper.
Bread.....50.0 gm.	Potatoes.....101.0 gm.	Milk.....200 cc.
Butter.....17.0 "	Beef.....36.5 "	
Oatmeal.....114.0 "	Bread.....35.0 "	
Milk.....200 cc.	Butter.....6.0 "	

SEVENTH DAY.

Breakfast.	Dinner.	Supper.
Bread.....29.0 gm.	Bread.....9.0 gm.	Bread.....29.0 gm.
Butter.....8.0 "	Butter.....4.0 "	Butter.....6.0 "
Oatmeal.....92.0 "	Potatoes.....61.0 "	Milk.....200 cc.
	Beef.....41.0 "	
	Pudding.....117.5 "	
	Milk.....200 cc.	

EIGHTH DAY.

Breakfast.	Dinner.	Supper.
Bread.....45.0 gm.	Bread.....22.0 gm.	
Butter.....8.0 "	Butter.....6.0 "	
Oatmeal.....86.5 "	Meat.....37.0 "	
	Milk.....200 cc.	

RESULTS OF SECOND EXPERIMENT ON MARY P.

Urine.	P ₂ O ₅ .	CaO.	MgO.	S.	N.
First day.....	2.196 gm.	.261 gm.	.1497 gm.	.553 gm.	9.084 gm.
Second day.....	1.997 "	.164 "	.1598 "	.528 "	10.280 "
Third day.....	1.757 "	.155 "	.1392 "	.632 "	9.728 "
Fourth day.....	1.395 "	.129 "	.1054 "	.517 "	9.156 "
Fifth day.....	1.380 "	.138 "	.1203 "	.450 "	8.308 "
Sixth day.....	1.440 "	.139 "	.1703 "	.494 "	8.036 "
Seventh day.....	1.443 "	.177 "	.1203 "	.499 "	8.264 "
Eighth day.....	1.377 "	.175 "	.0555 "	.51 "	8.048 "
Total.....	12.99 gm.	1.34 gm.	1.021 gm.	4.224 gm.	70.90 gm.
Feces.....	8.33 "	9.81 "	1.66 "	.40 "	4.83 "
Total output.....	21.32 gm.	11.15 gm.	2.68 gm.	4.66 gm.	75.73 gm.
Food.....	17.02 "	12.49 "	2.50 "	2.61 "	59.04 "
Body gains.....	-4.30 gm.	+1.34 gm.	-.18 gm.	-2.05 gm.	-16.69 gm.

The phosphorus in the urine was a little low, but it was twice as high as it was in the first experiment, although there was even less in the food in the second experiment. The calcium in the urine was about the same, the magnesium twice as high as in the first experiment.

In this experiment the body lost considerable phosphorus. In the first experiment it gained considerable phosphorus. In the first experiment there was a retention of phosphorus and magnesium, and a loss of calcium. In the second experiment, on the other hand, there was a retention of calcium and a loss of phosphorus, magnesium, sulfur, and nitrogen.

As a summary, I will group the results of all the experiments together:

M. P. ATROPHIC ARTHRITIS.

	P ₂ O ₅ .	CaO.	MgO.	S.	N.
Urine.....	6.63 gm.	1.22 gm.	.452 gm.		
Feces.....	8.07 "	6.31 "	1.46 "		
Urine.....	14.70 gm.	7.53 gm.	1.91 gm.		
Food.....	18.20 "	6.64 "	2.07 "		
Gain in gm.	+3.50 gm.	-0.89 gm.	+1.16 gm.		
Gain in % taken calling amount taken 100%.....	+19%	-13%	+8%		

MRS. E. RHEUMATOID ARTHRITIS.

	P ₂ O ₅ .	CaO.	MgO.	S.	N.
Urine.....	6.90 gm.	1.713 gm.	.453 gm.		
Feces.....	4.90 "	1.824 "	1.041 "		
Urine.....	11.80 gm.	3.57 gm.	1.494 gm.		
Food.....	11.10 "	1.876 "	1.50 "		
Gain in gm.	-.70 gm.	-1.661 gm.	.00 gm.		
Gain in %.....	-6%	-90%	.00%		

Normal.

	P ₂ O ₅ .	CaO.	MgO.	S.	N.
Urine.....	19.388 gm.	2.782 gm.	2.041 gm.		
Feces.....	7.786 "	5.158 "	2.444 "		
Urine.....	27.13 gm.	7.94 gm.	4.49 gm.		
Food.....	24.86 "	7.84 "	5.39 "		
Gain in gm.	-2.27 gm.	-.10 gm.	+0.90 gm.		
Gain in %.....	-9%	-1%	+18%		

G. I. OSTEITIS DEFORMANS.

	P ₂ O ₅ .	CaO.	MgO.	S.	N.
Urine	13.63 gm.	2.887 gm.	.924 gm.		
Feces	8.89 "	6.63 "	2.319 "		
Outgo	22.52 gm.	9.52 gm.	3.243 gm.		
Food	21.28 "	10.18 "	4.047 "		
Gain in gm.....	-1.21 gm.	+0.66 gm.	+0.804 gm.		
Gain in %.....	-6%	+6%	+20%		

MR. McC. HYPERTROPHIC ARTHRITIS.

	P ₂ O ₅ .	CaO.	MgO.	S.	N.
Urine	15.82 gm.	3.43 gm.	1.998 gm.	6.85 gm.	101.4 gm.
Feces	14.68 "	20.28 "	2.362 "	1.21 "	6.36 "
Outgo	30.50 gm.	23.71 gm.	4.360 gm.	7.72 gm.	107.8 gm.
Food	31.60 "	21.24 "	4.778 "	19.25 "	132.9 "
Gain in gm.....	+ 1.10 gm.	- 2.47 gm.	+ .418 gm.	+11.53 gm.	+25.1 gm.
Gain in %.....	+4%	-11%	+9%	+60%	+19%

MR. V. ATROPHIC ARTHRITIS.

	P ₂ O ₅ .	CaO.	MgO.	S.	N.
Urine	15.40 gm.	4.40 gm.	1.093 gm.	5.53 gm.	87.8 gm.
Feces	9.29 "	11.22 "	1.506 "	.87 "	7.2 "
Outgo	24.69 gm.	15.62 gm.	2.60 gm.	6.40 gm.	95.0 gm.
Food	22.46 "	13.60 "	3.09 "	5.93 "	87.4 "
Body gains in gm.....	- 2.23 gm.	- 1.62 gm.	+ .39 gm.	- .47 gm.	- 7.6 gm.
Body gains in % of the amount taken	-10%	-12%	+13%	-8%	-8.7%

Body weight at start.....98.0 lbs. Body weight at end.....89.5 lbs.
 Loss in weight..... 8.5 " Loss in %..... 8.7 %

MISS C. H. ATROPHIC ARTHRITIS.

	P ₂ O ₅ .	CaO.	MgO.	S.	N.
Urine	7.61 gm.	2.76 gm.	.598 gm.	3.31 gm.	54.8 gm.
Feces	11.50 "	11.07 "	2.13 "	.98 "	7.7 "
Outgo	19.11 gm.	13.83 gm.	2.723 gm.	4.29 gm.	62.5 gm.
Food	17.34 "	12.46 "	2.525 "	.....	51.6 "
Body gains in gm.....	- 1.77 gm.	- 1.4 gm.	- .2 gm.	.....	-10.9 gm.
Body gains in % of the amount taken	-10%	-11%	-8%	.....	-21%

Weight at start.....96.7 lbs. Weight at end.....95.6 lbs.
 Loss in weight..... 1.1 " Loss in %..... 1 %

MISS MARY P. NOW WELL. SECOND OBSERVATION.

	P ₂ O ₅ .	CaO.	MgO.	S.	N.
Urine	12.99 gm.	1.34 gm.	1.021 gm.	4.22 gm.	70.90 gm.
Feces	8.33 "	9.81 "	1.66 "	.40 "	4.83 "
Outgo	21.32 gm.	11.15 gm.	2.68 gm.	4.66 gm.	75.73 gm.
Food	17.02 "	12.49 "	2.50 "	2.61 "	59.04 "
Gain in body.....	- 4.30 gm.	+ 1.34 gm.	- .18 gm.	- 2.05 gm.	-16.69 gm.
Gain in %.....	-25%	+11%	-7%	-80%	-28%

Gain in weight.....+0.2 lb.

In the 1 normal experiment there was a retention of magnesium and a loss of phosphorus, but from this experiment we cannot make any conclusions.

In all the cases the phosphorus in the urine was rather low, the calcium high, and the magnesium low, and in all the cases of atrophic arthritis and hypertrophic arthritis there was a loss of calcium by the body, and on the other hand, a retention of magnesium.

A comparison of the two experiments on Mary P. is of interest. In the first experiment she was suffering from atrophic arthritis. The second experiment was performed 1½ years later after she had apparently

recovered. It will be noticed that in the first experiment there was a gain of phosphorus and magnesium and a loss of calcium. In the second experiment, on the other hand, there was a loss of phosphorus and magnesium and a gain of calcium.

The metabolism in the case of Mr. I., who had osteitis deformans, does not seem to have certain abnormalities that can be noticed in the other cases. If we compare the metabolism of Mr. I. and the normal patients, on the one hand, with the other patients, excluding Mr. V., several points of interest can be noted. In the first place, the atrophic patients all show a loss of calcium. More calcium, .89, 1.4, 1.8, and 2.5 gm. more respectively, is excreted in the urine and feces than is taken in the food. In the normal patients, in one case we have neither gain nor loss, in the other gains of ½ gm., 1.3 gm., respectively.

Voit,¹⁶ Tereg and Lehmann,¹⁷ Miller,¹⁸ Forster,¹⁹ Hoppe-Seyler,²⁰ and Rey,²¹ have shown that calcium is excreted in large part into the intestines. Our figures show that the excretion of calcium into the intestines is increased. In the normal cases 65%, 67%, and 78%, respectively, of the amount of calcium taken in the food is found in the feces. In the rheumatoid cases, respectively, 89%, 90%, 95%, and 97% as much CaO as there was in the food was found in the feces.

After feeding of calcium salts, decreased excretion of P₂O₅ in the urine has been found by Schetelig,²² Lehmann,²³ Tereg and Lehmann,¹⁷ Haubner,⁴ Riesell,⁵ Bertram,⁶ and v. Noorden.⁷ The phosphorus in this case seems to be carried into the feces. In our atrophic cases we should expect that the addition of calcium from the tissues to the excretory products would act like administration of calcium salts in this respect, and, in fact, this is so. We should expect a decreased excretion of P₂O₅ in the urine, an increase in the ratio $\frac{P_2O_5 \text{ in feces}}{P_2O_5 \text{ in urine}}$, and a decrease in the ratio $\frac{P_2O_5 \text{ in the urine}}{P_2O_5 \text{ in the food}}$.

In the atrophic cases, we have an average of about .85, .9, and .9 gm. P₂O₅ per day, respectively, in the urine. In the normal cases the figures are, respectively, about 1.5, 1.8, and 2.1 gm. P₂O₅ per day.

The ratio $\frac{P_2O_5 \text{ in urine}}{P_2O_5 \text{ in feces}}$ is about 1.34 : 1, 2½ : 1, and 1¼ : 1 in the normal case. In the atrophic cases, the ratio is about ¼-1, ⅔-1, 1⅓-1, and 1-1, respectively. That is to say, whereas normally there is about twice as much P₂O₅ in the urine as in the feces, and in the atrophic cases we have no more P₂O₅ in the urine than in the feces.

Again, in the normal cases, we have respectively, about ⅔, ⅔, and ⅔ as much P₂O₅ in the urine as in the food. In the atrophic cases only about ⅓, ⅓, ⅓, ⅓ as much P₂O₅ is found in the urine as in the food.

All the facts point to a loss of calcium from the body tissues in the atrophic cases. This calcium is excreted into the feces and carries P₂O₅ with it.

According to Heiss,²⁴ the muscles contain about twice as much MgO as CaO, and the blood 6 times as much. The bones, on the other hand, contain 60 times as much CaO as MgO. In view of the fact that the bones contain so much CaO, the abnormal metabolism CaO in these bone diseases is not so very surprising. The MgO does not seem to show such striking change.

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NERVOUS COMPLICATIONS OF TYPHOID FEVER.*

BY

HERBERT A. BLACK, M.D.,

of Pueblo, Colo.

Typhoid fever is no longer considered a disease of the small intestine alone, but one of general infection, in which all tissues of the body are more or less affected. The osseous, muscular, glandular, liquid, and nervous tissues, have in turn at some time borne the brunt of an attack, not only from the toxins but from the bacilli themselves, which have been found in nearly every organ of the body. It is not even necessary that we should have intestinal lesions to maintain our diagnosis of typhoid fever, for the primary foci may be entirely removed from the small intestine. There are recorded in medical literature many cases which clinically presented true pictures of typhoid, yet an autopsy revealed no lesion of the intestines whatever.

Lautigan¹ reports the case of a man of 35, who had the usual symptoms of the disease, with some vomiting, constipation, and delirium toward the end of his illness. At postmortem the intestinal mucous membrane, Peyer's patches, and solitary glands were found perfectly healthy; the liver was enlarged, and its cells had undergone cloudy swelling; the spleen and retroperitoneal glands were also enlarged, and sections of the mesenteric glands, liver, kidneys, and spleen showed bacilli resembling the bacilli of Eberth, while in cultures from the heart, blood, lung, liver, spleen, and gallbladder the typhoid bacilli were present in pure culture. Thus the microscope has shown that the extra intestinal symptoms are not due to bowel lesion alone, but to bacilli, as well as toxins, far removed.

From early record this fever has been recognized as having associated with it distinct nerve lesions, as is shown by the term "nervous fever," given by Gilchrist in 1734, and "meningo gastric," given by Pinel, 1798, but before considering in detail the nervous complications of typhoid fever, permit me to quote you an extract from a most interesting paper by Foulerton and Thompson,² on "Causation of Nervous Symptoms in Typhoid Fever": Two cases of marked cerebral irritation which came to autopsy were examined bacteriologically. The first patient had marked cerebral symptoms, but none that pointed to definite meningeal inflammation. Autopsy showed brain and membranes normal, and culture from surface of the brain and cavities of lateral ventricles gave no bacterial growth. The second patient suffered convulsive twitching, retraction of the head, facial paralysis, and slight oscillatory movements of the eyes. Upon autopsy there was found injection of the pia mater, and in the lateral ventricle an excess of reddish-brown fluid in which were found the bacillus of Eberth and *Bacillus coli communis*. Section from the cerebral cortex in these cases revealed in the first no pathologic change, while in the second the outlines of some of the cell bodies were indistinct, and some of the cells much swollen. In a few of the cells the Nissl bodies had disappeared, leaving small unstained areas. Nichols³ reports his conclusions, obtained partly from 3 cases of human typhoid, and partly from animals dying of typhoid infection, as follows:

That in typhoid fever the motor cells of the spinal cord and the nerve cells of the dorsal root ganglions regularly suffer pathologic change in the course of the

infection, though the alteration in the motor cells is more constant and intense than that in the cells of the sensory ganglia. The changes are identical with those found in most animals after section, destruction or injury of the peripheral nerves. From his findings in the sciatic nerve with infection experimentally induced, he believes that posttyphoid hyperesthesia and paralysis are due to lesions of the peripheral nerves.

The pathologic findings which have been recorded appear to establish the fact that nervous symptoms may be due either to the toxin or the typhoid bacilli, while the pathologic changes in the nerve tissues are more frequently due to the direct action of the bacilli. Leaving the pathology, I will now consider the various nervous symptoms encountered in this disease.

Cephalalgia.—No one symptom is more commonly present in typhoid fever than headache. Stewart,⁴ in a report of 620 cases, gives it as present in 93% others have found it as high as 96%. In my own cases I have found it is 94%. It may vary in degree from a slight frontal pain lasting only a few days to a severe frontooccipital headache of such intensity as to cause suspicion of meningitis, which may last during the greater part of the fever, though it usually subsides with the full development of the disease. The pain is usually more severe in the afternoon and early evening, although it may be either continuous or neuralgic in character.

Convulsions are a rare complication of the disease, although as we would naturally expect, more commonly encountered in children than in adults. Clayton⁵ reports 3 cases occurring between the twenty-seventh and thirty-fourth day of the disease, and attributes them to the intense action of the toxins upon the exhausted nerve centers, but convulsions may follow thrombosis of the veins or arteries of the brain. Convulsions may be due to nephritis, as Murchison reports this condition as obtaining in 1 out of the 6 cases he had observed.

Delirium is one of the most frequently encountered nervous symptoms in typhoid fever. It may exist before any elevation of temperature, as is shown by Dieters⁶ in his report of 2 cases in which there was maniacal delirium, in 1 case for 2 days and another 3 weeks before fever appeared, but usually the condition obtains about the second week and ceases during convalescence, although it may last after defervescence. The severity and type vary in different cases, more often it comes gradually, appearing especially at night and may at first amount to only slight confusion of thought or incoherence of speech, this increasing to a low-grade muttering delirium which may deepen to coma. When early in development, it is more apt to be active and maniacal in character, though it may show that tendency at any time. Usually the more active the delirium the more grave the danger, and we may get all the various forms of delirium in a single case. Rarely has there developed a suicidal mania. In many cases in which delirium is not present the patient will answer questions rather incoherently when no other mental aberration is noticeable. In such cases we find that upon recovery the patients remember dimly, if at all, anything which occurred during their illness. Since the more general use of cold applications in the treatment of typhoid fever, the mental conditions of our typhoid patients have been clearer and when delirium is present it is more mild than formerly.

Meningitis.—No complication of typhoid seems to have more doubt, and probably correctly, cast upon it, in respect to the accuracy of diagnosis than that of meningitis, for the symptoms given are probably produced by the action of the toxins on the nerve cells and not, in most cases, by a true inflammation of the meninges. The diagnosis of meningitis in a disease so constantly characterized by functional cerebral derangement is complicated with much to confuse the attending physician. Of 15 cases reported by Keen⁴ were first diagnosed postmortem. He also states that he believes many cases

* Read before the Pueblo County Medical Society, December 1, 1903.

are overlooked and symptoms of acute inflammation are masked by general stupor and supposed to be only a part of the typhoid delirium.

I have a case to report in this connection.

D. W., aged 25, American. Personal and family history good. About October 10, he began to lose appetite; malaise, and later slight diarrhea and afternoon headaches appeared. He worked until October 17, when I was called and found his temperature 103.3°, pulse 98. On pressure there was slight tenderness and gurgling over the ileocecal region; there was no tympany, tongue was coated, muscular pain was general. The patient complained of chilly sensations and at times would have marked rigor. Temperature remained about the same, although in spite of the ice-caps the headaches increased gradually. Active delirium was noticed during the night of October 20, subsiding on the following morning, only to recur again at night; this symptom increased until October 24, when the patient was delirious the entire time and required the constant attendance of a nurse to keep him in bed. On October 26, photophobia and retraction and rigidity of the cervical muscles were noted, followed by strabismus and intense injection of the conjunctiva of both eyes. October 28 deafness, due to otitis media, of the left ear became apparent and from then on till November 10, a foul discharge was present. From October 27, tremor was markedly noticeable together with frequent clonic spasms of the extremities. One feature of restlessness was a to-and-fro motion of the right forearm at right angles to the arm, which was maintained incessantly for 5 days and nights. The initial diarrhea was followed by slight constipation about the beginning of the meningeal symptoms but soon reasserted itself and from that time to November 6, there were involuntary passages from the bowels and bladder. On October 29, Dr. Work saw the case in consultation and diagnosed meningitis complicating typhoid. Prognosis, we both felt, was grave. Temperature ranged without rhythm from 100° to 103.1° per rectum. The pulse, which owing to restlessness could not be taken with regularity, ran from 110 to 142 beats per minute. On November 7, the disease appeared to reach its height and from then there was a gradual improvement until December 2, when the temperature remained normal all day. The recovery was complete except for deafness in the left ear, which later improved under treatment.

In this case I realize that the diagnosis of typhoid-meningitis is open to criticism, as no bacteriologic test was made of the cerebrospinal fluid, but against that, the symptoms scarcely admit of anything else, and as cerebral symptoms developed prior to the occurrence of the otitis media, I believe we should exclude it as a cause of the meningeal inflammation.

Keen found recorded since 1876, 15 cases of meningitis complicating typhoid fever, in 12 the bacilli were obtained in pure culture. In the literature of the past 5 years I find record of 6 cases in which Eberth bacilli were alone found. While the records of this complication are few, yet its existence is proved, and every case with cerebral symptoms should be carefully watched for its possible occurrence.

Cerebral Abscess.—McClintock⁷ found recorded, 5 cases, his own making the sixth, of cerebral abscess following typhoid fever, although in only one was there proof of its being due to typhoid bacilli.

Hemiplegia and aphasia are rare complications of typhoid, yet medical literature makes mention of some 20 cases, the majority of which occurred during convalescence or after the disease had reached its height. The only case I have ever seen occurred in my practice last year; the history is as follows:

A. R., aged 21, American, personal and family history negative. I first saw the patient on November 7, at which time he gave a history of about 10 days malaise, loss of appetite, very slight headache. His temperature was 101° in the evening, pulse 100. Intestinal symptoms were slight; later rose spots, and distinctive although mild bowel signs developed; fever ranged from 99.3° to 101.4°; pulse, 96 to 116. Examination of the heart revealed evidences of a mild endocarditis. The fever ran a low grade type, and all evidence pointed to a rapid convalescence until November 24, when I was hastily summoned about 6 a.m. Upon my arrival I found the patient was pale, face had an anxious expression, skin cold and moist, pulse very rapid and weak, temperature subnormal, intense lateral nystagmus, especially of the right eye, partial aphasia and complete hemiplegia of left side. The following day the active nervous symptoms were less marked, but hemiplegia was complete together with anesthesia. Dr. Work was called in consultation, and concurred in diagnosis of embolism lodged in right middle cerebral artery. On November 26, the right eye was found most completely injected and sensitive to the light,

temperature was 102° and rose to 103.1° in the next 2 days. From this time all symptoms improved, though very slowly, to February 20, 1903, when the last record was had of rise of temperature. The hemiplegia and anesthesia had improved, but had not entirely cleared away, and there was slight ptosis of eyelid when last heard of in November.

This case I believe (if my diagnosis of endocarditis was correct) one of embolism from the heart lesion, which in turn was induced by typhoid infection, or it may be that the cardiac murmur was only that commonly encountered in this disease, for after the patient was able to be up and about, no heart lesion was discernible. Had the typhoid infection been more severe we might have looked upon this condition as a result of dyscrasia, but with the mild symptoms presented it would hardly be probable in this case. Annequin⁸ reports a somewhat similar case with paresis of the left side of the body.

Neuritis occurs in a small number of cases. The most common form is probably the condition referred to by Osler and Hanford as "tender toes," when the tips and pads of the toes become extremely sensitive, so that the slightest touch causes pain, even the bed clothes causing unbearable suffering, which was the condition in the meningotyphoid case above referred to; this condition of the toes is not accompanied by any wasting or distinct loss of sensation. White⁹ reports a case of localized neuritis occurring about the commencement of convalescence. Pain of a sharp shooting character first appeared on the inner side of each elbow, radiated along the ulnar side of the forearms and extended to the ulnar side of the ring fingers; the fingers became stiff and useless, with atrophy of the interosseous muscles; there was inability to extend the fingers completely, strong flexion of the little finger, adduction of the thumb and anesthesia of the ulnar side of the hand, both sides of the little finger and ulnar side of the ring finger, the left hand being somewhat less affected than the right. Spiller¹⁰ refers to the report of 17 isolated ulnar paralyses following typhoid, collected by Liepelt (of 12 of which he made special study.) In 9 of these the paralysis began in convalescence, pain was an early symptom in 8 cases, and atrophy was present in 9 of the cases. In local neuritis there seem to be marked atrophy, affecting chiefly the extensor muscles, and more or less complete paralysis, together with degenerative change.

Paralysis in many forms other than those mentioned is encountered during or after an attack of typhoid fever. It may be due to degenerative neuritis or to a central lesion in the brain or spinal cord; acute anterior poliomyelitis, Landry's paralysis, acute ataxia, oculomotor palsy, and paralysis of the palate have each occasionally been carefully reported in medical literature, and in this connection with the more rare forms of typhoidal paralysis, I wish to mention a case which came under my care last December.

R. J., aged 17, an overworked, poorly nourished boy, whom I was called to see on December 4. I found the usual symptoms of beginning typhoid fever, but rather more catarrhal laryngitis than is usually present. Temperature during the attack ran from 101.3° to 104°; pulse was typical. Diarrhea was a little troublesome. On December 24, and again on the following night, the patient had difficulty in breathing, which his mother described as "croup." No ulceration of the larynx was to be found, mucous membrane was congested, and the voice had some laryngeal stridor noticeable the following morning. Fever disappeared on December 29, and the patient was apparently making a typical convalescence when I discharged the case on January 5. Previous to this, however, I prescribed strychnin and iron for an anemic condition, which had been present during the illness. On January 16 I was called; I had not heard from the patient since January 5; I found him sitting in a chair gasping for breath; face was waxy and of marble whiteness, eyes sunken, pulse rapid, breathing markedly embarrassed, total loss of voice, no cough and stridor only on deep inspiration. I called Dr. Bulette in consultation, and upon examination he found the mucous membrane of pharynx and larynx bloodless; a view of the trachea presented a like appearance; total bilateral paralysis of the abductor muscles of vocal cords was present. The patient had been unable to take food for 2 days previous, on account of choking when attempting to swallow; the family said he had been gaining until a week previous when the symptoms noted first appeared; electricity

and large doses of strychnin were administered, but without the slightest benefit, the patient dying 2 days later.

This case was evidently one of paralysis of the laryngeal branches of the pneumogastric nerve, but whether from posttyphoid neuritis or from a central lesion is a question I have never been able to answer to my own satisfaction, as an autopsy was not obtainable.

Among other posttyphoid nerve sequels is the so-called "typhoid spine," described by Gibney as an acute inflammation of the periosteum and fibrous structure, but which Osler believes to be a neurosis. Another rare sequel is insanity developing after a typhoid attack, a typical case of which is described by Farrar.¹¹

A woman of 41 developed after the fever an acute maniacal condition which with the typhoid attack extended over a period of 1 year, 6 months of which was spent in a hospital for the insane. Her condition improved, but was never so good after this illness as previously, and intermittent hysteric phenomena have been present during the 8 years following the posttyphoid mania.

There is hardly a nerve symptom which may not be present with or follow an attack of typhoid, and surely no set of symptoms present greater interest in connection with the disease than do those affecting the delicate nerve structures.

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CHOLECYSTECTOMY VS. CHOLECYSTOSTOMY. A PLEA FOR THE PLAINTIFF.¹

BY

MAURICE KAHN, M.D.,
of Denver, Colo.

Surgeon to the Emergency Hospital, Alternate Surgeon to St. Anthony's Hospital.

Hutchinson recently stated that the gallbladder is a nearly functionless organ, insufficiently capacious to act as a reservoir of any value, and inadequate in muscular power to exercise any important effect upon the pressure of the bile flow. It is chiefly noteworthy as a settling basin for stone formation, and as a suitable harbor for the multiplication of pathogenic bacteria. In short, it seems a source of danger greatly disproportionate to any usefulness which it may possess.

That it is not needful to health has been proved on innumerable occasions by its removal without noticeable injury. That its removal is essential to comfort in many cases is an indisputable fact.

Not long ago, Roswell Park directed attention to the many characteristics of the gallbladder analogous to the appendix, and advocated like treatment of this viscus when diseased, as would be afforded the appendix under similar conditions. The earlier writers on surgery of the biliary tract advocated cholecystostomy and drainage to permit the spontaneous discharge of stones frequently overlooked. While this was sufficient in Tait's day, it is insufficient now except, perhaps, for those few, found in every age who, recreant to their trust, remain stoically apathetic to the penetrating light of advancing science.

In the past, stones situated in the common duct were the ones most frequently overlooked, but at the present time, by practising the Robson technic, with which exposure of the common duct, even in obese subjects is accomplished with comparative facility, with patience and care such an event should not often occur. Further-

more, as impacted stones in the common duct usually result in a dilation of the ducts, digital exploration is frequently possible. Notice was first called to this by Mayo Robson, who strongly emphasized the point.

That cholecystectomy is not more hazardous than cholecystostomy is a fact substantiated by every surgeon of experience with the 2 operations. It may be said here that septic cholecystitis is no more a counterindication to cholecystectomy than septic appendicitis is a counterindication to appendicectomy. Further, the thick-walled bladders found in pus cases are functionally useless anyway, and should be excised to avoid the peril of a second operation.

Any operation on the gallbladder presupposes some disease thereof, if for cholelithiasis, then the presence of these stones, in accordance with modern pathology, is evidence of a diseased gallbladder, and as a diseased gallbladder is a menace to life, it should be removed, and not merely opened and drained. For weeks, and sometimes months, following cholecystostomy, there is a troublesome fistula discharging irritating secretion. The fistula may be persistent, necessitating secondary cholecystenterostomy or cholecystectomy. A grave toxemia consequent upon cholecyst disease is not uncommonly encountered. Drainage would afford temporary relief perhaps, but without any assurance of its permanency. Pancreatitis may be coexistent. Ablation of the gallbladder eliminates the risk of its aggravation from disease of this organ, and there will not be any stones subsequently to irritate the pancreas. By excluding the probability of stone formation we practically eliminate the possibility of cancer from this cause which is universally conceded to be by far the most frequent etiologic factor. Succeeding empyema is impossible as is also secondary obstruction of the cystic duct with its periodic colic, proceeding from gallbladder secretions being forced through the strictured duct, which stricture follows ulceration of the duct or kinking or constriction from adhesions. Again, postoperative adhesions are more extensive in cholecystostomy than in cholecystectomy, hence a greater likelihood of their limiting the normal movements of adjacent viscera particularly the stomach and duodenum, possibly demanding secondary operation for their release. Besides, in drainage cases there is greater danger of hernia developing.

In cases of impacted stone in the cystic duct, the trouble of its removal is avoided and time saved by ligating below the stone and removing duct, bladder and stone entire. Also, as stones in this situation have frequently escaped observation, this danger would also be avoided by its complete removal.

Mayo's method of removing the gallbladder, I consider the simplest. Briefly, it is as follows: The cystic duct is cut across, above curved forceps which clamp the duct and vessels. The duct and bladder are then removed from below upward, thus avoiding the troublesome hemorrhage with obscuring of the operating field which occurs in working from above downward when the same vessels are severed again and again.

As evidence of my robust faith in the procedure advocated, it will be sufficient to report a case in which operation was done some time ago. It is noteworthy that the case presented the two conditions which typify the classes wherein drainage is usually advised, viz., stones in the common duct and empyema.

I was summoned on the evening of December 24, 1902, to attend Mrs. G., aged 23. The patient had been married 2½ years and had 1 child, 2 months old, nursing. A miscarriage occurred 1½ years ago. Present illness began in July, 1900, since which time she has had occasional attacks similar to the one for the relief of which I was called, but less severe. She complained of excruciating pain in the epigastrium and right hypochondrium, and cried lustily for relief. Pain during the attack, extended up posteriorly to between the scapulas.

Examination showed a well-developed and well-nourished woman, slightly jaundiced; right rectus muscular rigid; epigastric and right hypochondriac regions sensitive, as was also a small area posteriorly about the eleventh dorsal vertebra;

¹ Read before the Colorado State Medical Society at its thirty-third annual meeting, held at Denver, Colo., October 6, 7, 8, 1903.

slight dullness over the area of the gallbladder; no nausea nor vomiting; no history of chill; perspiring some at time of visit. Temperature 99.6°; pulse 100.

The diagnosis of gallstones was made and operation advised. Periodic pain continuing, consent to operation was obtained December 29.

Operation December 30: A longitudinal incision of 3½ inches was made through the right rectus muscle, separating its fibers. After opening the peritoneum an exploring finger found the intestines adherent to the anterior abdominal wall.

The gallbladder was buried in adhesions, involving the stomach, small intestines, and colon. The gallbladder was liberated with great difficulty; profuse oozing was a bothersome accompaniment, particularly in breaking up some of the more recent adhesions. As is not infrequently the case, the tissues were so friable that the ligature could not be utilized for the control of hemorrhage. After walling off the thickened and distended gallbladder, it was incised and emptied of pus; 130 stones were also removed, many of which were packed in the common and cystic ducts. Some of these were extracted with forceps; some were extruded by a process of milking, with pressure from without the ducts. Following this, the gallbladder and its duct were removed *in toto* by transfixing the stump, tying in two directions, and cauterizing with carbolic. The friability of the surrounding tissues would not permit of the stump being overspread. By reason of the peritoneum being so easily lacerated, the abdominal wall was closed in two layers instead of the usual three. Patient left the table with pulse of 120. The wall of the gallbladder measured a quarter inch in thickness. She made an uneventful recovery. The wound healed kindly by first intention, and the patient was on the street on the fourteenth day following the operation without a postoperative abdominal belt.

It is remarkable that the patient was treated for 2½ years by numerous physicians for "stomach trouble." The age of the patient was doubtless a factor in the erroneous diagnosis. Be this as it may, I believe such errors are of too frequent occurrence, and should be carefully guarded against by the intelligent interpretation of the symptoms evidenced rather than by the search for a certain index or a pathognomonic sign.

CORNEAL ULCERATION DUE TO NASAL INFECTION.*

BY

S. LEWIS ZIEGLER, M.D.,
of Philadelphia.

Attending Surgeon, Wills Eye Hospital; Ophthalmic Surgeon, St. Joseph's Hospital, Philadelphia.

The microorganisms generated in the nasal cavities and accessory sinuses of the head have been gradually assuming their proper importance as pathogenic factors in ocular disease for more than a decade past. Ziem,¹ in his admirable monograph, states his belief that "two-thirds of all cases of ocular disease arise from nasal disturbances." In a paper presented some 9 years ago, the writer² made the following statement: "I think we may safely say that fully 90% of corneal lesions take their origin directly from preexistent pathologic processes affecting the intranasal tissues and secretions. Careful inspection will almost invariably reveal associated lesions of the eye and nostril of the same side, which is most markedly shown where the disturbance is confined to a single eye and the corresponding nostril."

There are 3 different avenues for the transmission of disease from the nose to the eye: (1) By the lacrimo-nasal duct; (2) by the blood and lymph streams, and (3) by reflex action through the nervous system. Although bacterial invasion has been traced through the blood and lymphatic circulation, we will only consider their transmission through the lacrimo-nasal canal.

In order to limit our discussion still further, we will confine our attention to *ulcerative* lesions of the cornea.

The cornea is probably the most vulnerable tissue of the eye, owing to its anterior location and its consequent exposure to traumatism and infection. Any inflammation of the corneal substance may so affect its transparency that vision may be partially impaired or even lost,

especially when the resulting opacity is centrally located. Such lesions should, therefore, receive early recognition, and have efficient treatment promptly applied in order that any disturbance of the visual acuity may be prevented.

For our present purposes corneal ulceration may be subdivided into 3 varieties—the simple, the phlyctenular, and the sloughing.

Simple corneal ulcer appears as a small gray or grayish-white lesion of the corneal surface, accompanied by pericorneal injection. Phlyctenular ulceration manifests itself as a pustule or vesicle, to which is attached a narrow leash of bloodvessels. Either of these varieties may become suppurative in character, or even result in perforation of the cornea, if proper treatment is not promptly instituted.

Accompanying these local symptoms is a characteristic clinical picture that cannot fail to indicate the diagnosis. There is intense photophobia, which the child attempts to alleviate by burying its head in a pillow or in the folds of its mother's dress. There is marked blepharospasm, the lids being gripped together so tightly that it is almost impossible to open them. Lacrimation is often excessive, and occasionally a mucopurulent discharge is present. The nasal secretions are viscid, acrid and irritating, often hanging down on the lip and causing eczematous excoriation. Occasionally the face is covered with an acneous eruption, and the skin of the whole body appears ashy-pale, relaxed and leaky, being bathed in perspiration, while the hair is matted together by the excessive moisture present. In cold weather the perspiration and chilliness of the body surface leads to excessive zeal in overdressing, which only adds to the existing trouble.

Sloughing ulcer usually arises in 2 ways: 1. From some small wound of the cornea, which is either infected by some germ deposit carried on the foreign body itself, or more frequently by the excessive bacterial growth occurring in the tear duct. 2. It may also occur in the course of the exanthems or other fevers; (a) by infection with excessively virulent bacteria following maceration and lesion of the corneal surface through acrid secretions, and (b) by actual local pustulation. The rapid breakdown of the cornea, the wide extent of the ulceration, the mucopurulent discharge and the extreme physical prostration of the patient will promptly indicate the more serious character of this lesion.

The pyogenic germs may penetrate the corneal layers before there is actual perforation, and cause what is termed hypopyon, or pus in the anterior chamber. In the simple or phlyctenular ulcer this material will be promptly reabsorbed; but in the sloughing variety a more serious infection may result.

The nasal etiology of these corneal lesions involves many factors. The inspired air carries into the vestibular air chambers innumerable spores, many of which are retained and undergo fermentation, because of the essential elements of heat and moisture present. The accessory cavities furnish in still greater degree these fermentative possibilities. If, then, their mucus contents become infected by these invading organisms, almost unlimited multiplication will occur. So long as the secretions can escape freely the bacteria are washed out by the flux. When, however, partial or complete occlusion of the sinus orifice occurs, a veritable bacterial pest-house or breeding-ground for germs is thereby established.

The accessory cavity that is chiefly involved in these processes is the maxillary sinus or antrum of Highmore. Its location, its ease of obstruction, and its anatomic conformation as a pear-shaped sac with a superior opening (thereby permitting retention of all fluids except the overflow), all tend to make this cavity what is practically a semiclosed cess-pool filled with the pathologic products of decomposition and fermentation. We must agree with Bosworth³ when he says, that "it is an invariable rule

* Read before the New Jersey State Medical Society, June 24, 1903.

that a catarrhal secretion in a closed cavity must give rise, sooner or later, to a purulent discharge."

The mucous membrane composing the orifice and canal, which is the means of exit from the antrum, is oftentimes tortuous in its passage through the bone; it may be loosely adherent and thrown up in folds; it may be unusually susceptible to vascular dilation and engorgement; or it may be easily irritated by the outflow of acrid secretions. Atmospheric humidity and low barometric pressure may cause venous stasis. Hyperesthesia of the Schneiderian membrane; the irritation set up by contact of the intranasal mucous surfaces themselves; the local irritation of particles inhaled in breathing; the influence of heat and cold, either local or systemic—one or all of these conditions present will quickly demonstrate how easily this small canal may become partially or wholly occluded, thus shutting off the antral cavity.

The mucous membrane lining the antrum is likewise subject to certain pathologic changes. There may be simple hyperemia with hypersecretion due to chilling of the surface of the body. If this chilling suddenly checks perspiration, the normal amount of urea excreted by the mucous membrane of the antrum is considerably augmented by the vicarious action which it assumes in order to help eliminate the excess of urea in the system. The congestion and closure of the antral orifice creates, therefore, what is practically a cyst or bladder, and we have set up by means of the bacterium urea, a pathologic process which is a pure analog of cystitis as it occurs in the urinary bladder, and which will run a similar course. The urea, through a biochemic action, changes into ammonium or ammonium carbonate, both of which are intensely irritating to the mucous lining of the cavity, and at the same time the excessive alkalinity coagulates the mucus contained therein. The fluid serum continues to be secreted, and thus the coagulated mucus rises to the upper portion of the chamber, and because so coagulated is extruded into the nasal cavity with difficulty.

If now we concede an infectious cystitis of the antrum, we can comprehend how it is possible for an unlimited stream of pathogenic microorganisms to be poured out onto the cup-like floor of the nasal chamber, and by capillary attraction drawn up into the lacrimo-nasal duct, and thence to the ocular culdesac.

The lacrimo-nasal duct itself is, moreover, a most fertile nidus for this bacterial development. The presence of strictures, viscid secretions, ulceration of the lining membrane, or interstitial thickening of the same, all tend to interfere with its syphonic action in the downward drainage of the tears. The bacterial growth is greatly facilitated by the consequent stagnation. Not only are the tears prevented from passing into the nose, but microbial infection is carried upward to the eye by the regurgitation of these septic secretions.

Whether the actual break in the corneal epithelium is due to the maceration caused by this acrid alkaline fluid, or whether there is a direct erosion due to adhesion of the bacterial colony, is immaterial. We believe that both pathologic processes are possible. Of course corneal abrasion by direct traumatism is always a possibility. The friction of rough granular lids may thus become a causative factor.

The microorganisms that have been most frequently found in these conditions are the pneumococcus, the staphylococcus, and the Klebs-Löffler bacillus, while the streptococcus and the gonococcus of Neisser are more infrequent factors of infection.

We must not overlook the fact that there is a constitutional element in the disturbance—chronic constipation, errors in diet, poor food, and unhygienic habits are important factors to be considered. Nasal obstruction and mouth-breathing are especially deleterious, because orally inspired air cannot evaporate intranasal fluids, and because lowered oxidation and metabolism almost invariably result.

In children the exanthems are immediately or remotely responsible for many of these conditions, while teething is often a causative agent. In hospital work, however, I have found the most unvarying genetic factor to be *over-indulgence in coffee, tea and sweets*. They sap the vitality and create a peculiar gastrointestinal irritability that is hard to overcome, and which reflexly adds to the nasal disturbance. When taken in excess they overload with xanthin compounds an already weakened system, and, like alcoholic excesses, inhibit proper elimination of the system's waste, thus resulting in what is practically katabolic stasis.

Having thus briefly reviewed the etiology of this disease, we may properly characterize corneal ulcer as a purely local inflammatory process, arising chiefly from infection by septic lacrimo-nasal secretions, and frequently complicated by lowered oxidation and metabolism.

TREATMENT.

The Nose.—The nasal origin of this affection indicates the treatment to be applied. Irrigation of the nasal chambers with an antiseptic or saline solution should be carefully carried out. If pus is present, hydrogen dioxid (diluted 1 to 4) should be dropped into the nostril by the ordinary eye-dropper, 2 or 3 times a day, and allowed to trickle back into the throat.

Local applications for the reduction of the turgescent membranes are often necessary. A weak solution of cocain (1% to 2%) may be applied with cotton wrapped on a wire applicator. This may be followed by an application of

Camphor	} of each . . . . .	.65 gm. (10 gr.)
Menthol		
Tr. benzoin comp.	7.5	cc. (2 fl. dr.)
Boroglycerin (50%) . . .	q.s. ad. 30	cc. (1 fl. oz.)

Apply to nose daily, or on alternate days.

If any more serious nasopharyngeal lesion is present the patient should be promptly referred to the rhinologist for relief. Enlarged tonsils or adenoid vegetations in the pharynx, and septal spurs, polypus or other nasal growths should have surgical attention. If the ocular condition has become chronic it may be necessary to reduce the hypertrophied and turgescent turbinates by galvanocauterization. The object to be accomplished by such a procedure is threefold—to promote free antral drainage, to secure freedom from pressure contact, and to obtain free nasal breathing.

The Tear Duct.—The lacrimo-nasal duct may be active or passive in the transmission of germs. It may contain septic secretions without a show of pus, and the amount escaping through the puncta into the eye may be so small as to be practically invisible. Even lachrymation may be absent. If the nasal swelling is reduced the turgid condition around the valve of Hasner will be lessened, and the secretions will have a natural downward drainage. Ocular irrigation may aid this somewhat. Pressure on the membranous duct will often empty its contents. The small canula of a lacrimal syringe may be introduced into the puncta and very gentle irrigation attempted. If these measures fail it is evident that a patulous tear duct must be secured either by incision or by rapid dilation. Such surgical intervention naturally demands the services of the ophthalmic surgeon.

As incision often leads to cicatricial contraction I prefer the method of rapid dilation without incision which I have practised for some 14 years past. This is done by first introducing a needle probe into the lacrimal puncta and passing it through the membranous canal to the bone. It is then withdrawn and my conical dilator with a maximum size of a No. 10 probe is passed through the previously stretched membranous canal, and thence, by gentle force, through the bony canal into the nose.

While the general shape of the dilator is conical, it is rounded or bellied just above the point, which allows it to dilate so rapidly that the point does not engage, and the dilator never becomes wedged, as with a simple cone.

The needle-probe has the same quick expansion just back of the point, which is sharper than that of the dilator.

The advantages of this method are the avoidance of cicatricial contraction about the lacrimal puncta, and the preservation of capillarity and syphonic action, thus directing the current of lacrimal drainage toward the



Dr. Ziegler's Lacrimal Dilator and Needle-probe.*

nasal orifice. A repetition of this procedure is seldom required, and the repeated use of probes is thus avoided.

When, however, blenorrhea of the sac, lacrimal abscess, or marked caries is present, incision should be promptly made, rapid dilation performed, and a lead style inserted. This should remain for a week, and be followed by lacrimal irrigation.

In very exceptional cases of corneal infection it may be necessary to prevent the regurgitation of these septic secretions by sealing up the lacrimal puncta with the galvanocautery point, or with a crossed suture.

The Eye.—In simple and phlyctenular ulceration of the cornea the treatment to be employed is somewhat similar. A mild, soothing lotion should be freely applied to the eye, consisting of

Sodium biborate . . . . .	.32 gm. (5 gr.)
Boracic acid . . . . .	.65 gm. (10 gr.)
Rose water	
Distilled water } of each	30 cc. (1 fl. oz.)

Drop in the eye freely, 4 times a day.

If the iris is at all sluggish atropin should be instilled. If the pupil dilates freely its further use should depend on circumstances. Calomel, or iodoform with compound stearate of zinc, may be insufflated or used in an ointment. Hot stupes for 10 minutes 3 times a day may be beneficial. A pressure bandage is occasionally useful, but should be closely watched, as the added warmth may increase the bacterial growth.

Silver vitellin, known as argyrol, in strengths of from 10% to 20%, will prove beneficial, both by its antiseptic action on the ulcer itself and also by its sedative action on the congested conjunctiva. The staining it causes is only temporary, as it is perfectly soluble in water. It possesses the important advantage of causing neither pain nor irritation.

Sloughing ulcer will require more vigorous treatment. The eye lotion previously mentioned, or mercuric chlorid solution, 1 to 8,000, should be used freely every hour or two. Ice compresses should be applied continuously day and night. Atropin should be instilled 3 times a day. Iodoform may be dusted in, or used as an ointment.

If the ulcer tends to spread, cauterization by the galvanocautery or by carbolic acid may be employed. Corneal electrolysis is equally efficient and less destructive. I prefer, however, a 1% solution of formalin, which is applied daily, under cocain anesthesia. A small bit of cotton is wrapped tightly on the end of a wire applicator. Dip this into the solution, wipe off all excess, and rub lightly but carefully over the ulcerated surface. The healthy tissue should not be touched, as some pain and irritation may result. The formalin method has this double advantage, it does not destroy corneal tissue, and it prevents or clears up a great part of the opacity which is so liable to result. It must, however, be used with great care.

* Made by Ferguson, and by Schneyder & Allen Co., in Philadelphia; by Meyrowitz, in New York, and by Lûer, in Paris.

The System.—The general treatment should be dietetic, hygienic, and tonic.

Errors of diet should be at once corrected. Coffee probably causes the most harm, although sweets are undoubtedly a close second. My invariable formula for children is, "No tea, no coffee, no cakes, and no candy." Salt-water baths with friction, followed by an alcohol sponging, will tone up the relaxed skin. Inunctions of sweet almond oil will stimulate the peripheral circulation, and protect the skin from cold and changeable weather. Proper physical exercise will promote oxidation. The bowels should be carefully regulated. A 1-grain tablet of cascara every night may prove useful. The granular phosphate of soda is a saline aperient, corrective, and cholagog, and especially valuable for children. Calomel is both anti-phlogistic and a stimulant to the dormant lymphatic system. The syrup of the iodid of iron is frequently indicated. When there is debility or prostration, milk punch will revive the vital forces. The following tonic mixture has proved its usefulness:

Mercuric chlorid . . . . .	.065 gm. (1 gr.)
Sol. of potassium arsenite	7.5 cc. (2 fl. dr.)
Tr. ferric chlorid	15 cc. (4 fl. dr.)
Diluted phosphoric acid	30 cc. (1 fl. oz.)
Syrup of lemon,	q. s. ad. 120 cc. (4 fl. oz.)

Take a quarter to one teaspoonful in water after each meal. (Dose according to age.)

To epitomize the treatment briefly:

1. The nose should have antiseptic irrigation and local treatment applied.
2. The lacrimonasal duct should be disinfected or dilated.
3. The eye should have a soothing lotion, a mydriatic instilled, and a cauterant applied to the ulcer, if necessary.
4. The diet should be regulated, tonic and anti-phlogistic treatment given, and the hygiene generally improved.

BIBLIOGRAPHY.

- ¹ Mon. f. Ohr., 1893, Nos. 8 and 9.
- ² New York Med. Jour., November 3, 1894.
- ³ Diseases of the Nose and Throat, Vol. 1, p. 466.

Free Pasteur Institute at New Orleans.—The Charity Hospital in New Orleans, an institution founded in 1727, has lately added to its equipment what is the only Pasteur Institute in America offering free treatment of hydrophobia. The hospital, which is one of considerable repute, has a capacity of 900 beds, and handles something over 7,000 cases each year. Its fine system of free clinics, the perfectly equipped amphitheater, and the efficient ambulance service make it one of the most complete institutions of its kind in the world. But its most distinctive and praiseworthy feature will be the new Pasteur cure. It is to be absolutely free to the people of Louisiana and the neighboring States of Alabama and Mississippi. These 3 States furnish a very large percentage of hydrophobia victims. During the past year Louisiana alone sent 36 cases to Baltimore for treatment at the Pasteur Institute, 34 to Atlanta, and 23 to Chicago, a total of 93. New Orleans has more stray curs on its streets than any other city in the world, and judging from the hydrophobia records, they all seem to get in pretty effective work.—[*Boston Transcript.*]

Report of Factory Inspectors.—The annual report of the State Department of Factory Inspectors, for the fiscal year ending October 31, 1903, shows that during the year a total of 367 fatal and 2,406 nonfatal accidents occurred in the establishments over which the Department has control. Of the fatal accidents 207 were either the result of unavoidable causes or accidents, and 1,550 of the nonfatal accidents were of like character. The estimate of the Department, based upon returns from every county in the State, shows that not more than 36,000 boys and girls between the ages of 13 and 16 years are employed in the several industries over which the Department has jurisdiction, and that 6.5% of this number were illegally employed at some time during the year covered by the report. The report also states that an analysis of the inspection of "sweatshops" does not indicate that these shops are a menace to health and safety of those employed therein or to the public, and that the sanitary requirements of the law have as a result been observed by the proprietors of bakeshops. The report indorses the act enacted by the last Legislature for the inspection of vessels engaged in carrying passengers upon inland lakes.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

April 2, 1904. [Vol. XLII, No. 14.]

1. The Use of Ethyl Chlorid as a General Anesthetic in Gynecology. E. E. MONTGOMERY and P. BROOKE BLAND.
2. The Etiology of Tabes Dorsalis. ARTHUR CONKLIN BRUSH.
3. A Study of the Anatomy, Pathology, and Etiology of Scoliosis, also Presenting the Scoliotome, an Apparatus for Elongating and Lessening the Rotation of the Spine in Lateral Curvature. COMPTON KIELEY.
4. A Study of Gonococcus Metastasis: With Report of a Case. JAMES MCCOLGAN and JAMES M. COOPER.
5. Treatment of Typhoid Perforations. LOUIS FRANK.
6. A Simple, Accurate and Rapid Method of Localizing Foreign Bodies in the Orbit. VARD H. HULEN.
7. Strictures of the Female Urethra. H. L. E. JOHNSON.
8. Tahiti from a Medical Standpoint. N. SENN.
9. The Influence of Dental Disease on the Etiology of Certain Ocular Disturbances. WILLIS O. NANCE.

1.—Ethyl Chlorid in Gynecology.—E. E. Montgomery and P. B. Bland recommend ethyl chlorid to allay pain and relieve muscular contraction in abdominal pelvic examinations on account of the short time required for anesthesia, the quickness of recovery, and the little tendency to nausea and vomiting, thus permitting its use in office practice. It is indicated also in minor operations such as vaginal incision for pelvic drainage. Its most effective employment is as a preliminary to ether or chloroform, distress and sensation of asphyxia being thus avoided. They believe it decidedly safer than chloroform or ethyl bromid, and possibly safer than ether. The disadvantages are the expertness required to avoid profound anesthesia and at the same time emergence from its effects at an important stage of the operation. The expense prevents its use in a general clinic. [H.M.]

2.—Etiology of Tabes Dorsalis.—A. C. Brush believes the disease can be as clearly attributed to other causes as to syphilis. In his own cases he assigns to syphilis 59.9%; alcoholism 5.7%; secondary to multiple neuritis 4.3%; spinal injuries 4.3%; injuries to the lower limbs 2.9%; blows on the back 4.3%; rheumatism 1.4%; sexual excess 1.4%; diphtheria 4.3%; unknown 11.5%. The method by which syphilis acts has not been explained. Possibly it is through its effect on the scanty vascular supply of the posterior columns. He explains the causal relation of trauma as follows: Disease of the peripheral portion of the spinal neurons may ascend to the columns and gray matter of the cord; and thus disease of the sensory fibers which ascends to the posterior ganglia may, by causing disease in them, cause similar conditions of their central branch and thus ascend to the posterior columns. Concussion, confusion or hemorrhage into the cord may be caused by the injury, and a subsequent thickening of the meninges may compress the cord and peripheral nerves, with secondary degenerative changes. Alcohol acts through its toxic effects on the nervous system and its power to produce vascular disease. The other causes may be classified as toxins due to contagious disease, toxins from perverted metabolism, and those factors which lower general vitality. [H.M.]

3.—See American Medicine, Vol. V, No. 23, p. 598.

4.—Gonococcus Metastasis.—J. McColgan and J. M. Cooper review the already recorded cases of suppurative lesions other than those in the urethra in which attempts have been made to demonstrate the gonococcus, and report one of their own in which an abscess occurred in the hand. The fact that such metastatic abscesses occur in the absence of urethral symptoms establishes the importance of routine examination of pus from such lesions. The liability of such a patient to contract ophthalmia or infect others is much greater than when the disease is localized in the urethra. It is probable gonococci will be found in greater number in the urethra whether there is a urethritis or not, and proper treatment directed to this condition should be instituted to prevent other metastases. [H.M.]

5.—Typhoid Perforations.—L. Frank states that perforations are to be expected in about 2.5% of all cases of typhoid. Prompt surgical intervention is the only treatment. Early diagnosis will greatly reduce the mortality as 55% to 60% would recover. This requires careful watching and proper interpretation of symptoms. The sphygmomanometer should come into general use. More patients die from delay than errors in

surgical technic, therefore in doubtful cases operate. No patient, unless dying, is beyond hope of saving. Be sure to drain. [H.M.]

6.—Localizing Foreign Bodies in the Orbit.—V. H. Hulen disapproves of the Haab magnet as a means of diagnosis and of attempting to remove a piece of steel before its location is known. He describes a "localizer" which can be made by any carpenter, illustrating the same by cuts. A piece of lead is fastened by adhesive plaster to the lower lid directly under the center of the pupil. The distance of this from the center of the cornea and its distance posteriorly or anteriorly from the apex of the cornea is measured. After making a photograph with the Crookes tube the latter is raised a definite distance and another photograph is taken. With these two plates and the accurate measurements one can quickly determine the exact position of the foreign body. The method by which he accomplishes this he describes in detail. [H.M.]

7.—Strictures of the Female Urethra.—H. L. E. Johnson finds that a large number of standard authors fail to mention this disease. Diagnosis is by olive pointed sounds, bougies, or metal catheters. The condition of the urine, even in advanced cases, is often misleading. No physical examination in "disease of women" should be considered complete until the catheter has been passed into the bladder. Prognosis is favorable in acquired cases, except when advanced bladder or kidney disease exists from infection or distention. Treatment consists in gradual or rapid dilation, and in some cases incision. [H.M.]

9.—Dental Disease in Ocular Disturbances.—W. O. Nance notes the close anatomic relations between the alveoli and orbit. Often the roots of the teeth extend into the antrum and disease reaches the orbit through the thin partition of bone. The ocular disorders ascribed to dental disease are orbital cellulitis and abscess, conjunctivitis, keratitis, corneal ulcer, iritis, scleritis, papillitis, mydriasis, lacrimation, amaurosis, amblyopia, strabismus, ptosis, interference with accommodation, and paresis or spasm of the several muscles of the eye and lids. The number of cases which a review of literature and the writer's own observation demonstrates suggests the necessity of a thorough examination by a competent dentist in those instances presenting uncertain causative phenomena. [H.M.]

Boston Medical and Surgical Journal.

March 17, 1904. [Vol. CL, No. 11.]

1. Forceful Correction in Lateral Curvature of the Spine. Fourth paper. ROBERT W. LOVETT.
2. Hydrotherapeutic Prescriptions. JOSEPH H. PRATT.
3. An Account of the Work, Including Obstetric Technic, at the Lying-in Hospital of the City of New York. CHARLES H. BRADLEY.

1.—Forceful Correction in Lateral Curvature of the Spine.—Robert W. Lovett holds that the best chances of improvement in severe cases of scoliosis are given by, (1) the use of a severe force to secure an improved and if possible and over-corrected position temporarily, and (2) to retain as much as possible of the position thus secured during part of the growing period. He recommends, with some modification, the method of Wullstein, whose plan is to forcibly extend the head while the patient's pelvis is strapped to a seat which can be tilted to make the pelvis oblique, and which also can be rotated to change the relation of the pelvis to the spine. Lateral pressure is made by pads running in horizontally from the sides of an apparatus which is described. By combined motion of the seat and adjustable pads, any degree of twist in the spine upon the pelvis may be produced. Wullstein uses at times a force of 250 pounds in the pull, and applies a plaster jacket while the patient is thus stretched and pushed into a corrected position. The jacket embraces the chest, shoulders, and head. Lovett does not believe that Wullstein's attempt to correct rotation by torsion of the whole spine is based on correct principles, nor that torsion can be so corrected, but with this unimportant exception he believes the method is progressive, rational, and effective. Lovett's paper is interesting and exhaustive. He explains his belief in this form of correcting scoliosis by various illustrations. [A.B.C.]

2.—Hydrotherapeutic Prescriptions.—J. H. Pratt quotes Cohen as suggesting that there should be in every city an insti-

tution to which any physician might refer his patients with a definite hydratic prescription, just as he can now send them to the apothecary. Precision of method is essential to success. In view of the institution already established in Boston he outlines the proper treatment in chlorosis and other forms of anemia, chronic muscular rheumatism, chronic arthritis, neuralgia, disease of the spinal cord, exophthalmic goiter, chronic pleurisy, cardiac insufficiency, gastric and intestinal disease, hypertrophy of the prostate, neurasthenia, hysteria, chorea, chronic nephritis, obesity, and diabetes, annexing 35 definite prescriptions applicable to one or more of the conditions described. [H.M.]

Medical Record.

April 2, 1904. [Vol. 65, No. 14.]

1. Hip and Thigh Amputations for Sarcoma of the Femur. GEORGE F. SHRADY.
2. The Diagnosis of Thoracic Aneurysm. CHARLES E. NAMMACK.
3. The Modern Treatment of Dacryocystitis. ALFRED WIENER.
4. Thymic Tracheostenosis, with Report of a Fatal Case. WILLIAM WESLEY CARTER.
5. The Kollmann Five-glass Test. GEORGE THEODORE MUNDORFF.
6. Antistreptococcic Serum in the Treatment of Smallpox. ALFRED C. SMITH.
7. Importance of Treatment in the Early Stages of Arterial Degeneration. LOUIS FAUGERES BISHOP.
8. Five Laparotomies on One Patient. HOWARD CRUTCHER.
9. Our Rural Water-supplies. HARVEY B. BASHORE.
10. A Radiographic Surprise. W. I. LEFEVRE.

1.—Hip and Thigh Amputations for Sarcoma of the Femur.—George F. Shradly reports that in 1882 he did a thigh amputation for sarcoma of the internal condyle of the femur, and the patient is well today. He deemed it wiser, at the time, to do a disarticulation at the hip-joint, but this the patient refused. The author reports the case because of its rarity, and enters into a discussion as to the relative merits of amputation in the thigh or disarticulation at the hip-joint. From the literature he is unable to find that disarticulation at the hip-joint gives better results than amputation through the thigh. He believes there is a certain susceptibility to neoplasms in some individuals which helps to account for malignant growths. He quotes Henry T. Butlin, who collected 68 cases of hip amputation for sarcoma of the femur and but one patient remained well sufficiently long to be considered cured. Other authors are quoted, particularly W. B. Coley, Frederick S. Dennis, John A. Wyeth, etc., and of the whole number of cases reported there were barely 11 that outlived the three-year period. [A.B.C.]

2.—Thoracic Aneurysm.—C. E. Nammack believes this is not so rare as has been stated. The diagnosis is determined by the recognition of the causative conditions, the symptoms, and physical examination. Any tumor lying across an artery will have pulsation communicated to it, but the pulsation will not be expansile as in aneurysm. Aspiration is a final test. The value of the röntgen ray is considerable. The danger of Porter's method of diagnosis with an esophageal tube distended with water outweighs its advantages. The writer has verified the accuracy of Eccles' sign in a number of cases, a sensation of dread, faintness, or giddiness, when the head is thrown back as in shaving. [H.M.]

3.—Dacryocystitis.—A. Wiener in partial stenosis syringes the sac, using massage, together with proper treatment of the nose. If there is organic stricture and the contents of the sac are not purulent he removes the anterior portion of the inferior turbinate, its lacrimal process, and the inferior turbinated crest on the superior maxillary bone. He then slits open the nasal duct to the neck of the sac. The indications for extirpation are fistula (acute cases excepted), chronic blenorrrhea, chronic catarrh with organic stricture, chronic blenorrrhea with caries, and fresh blenorrrhea in ulcer serpens or when operation for cataract or glaucoma is contemplated, in fresh injuries of the cornea, or in tuberculosis of the sac. He describes the technic of the operation. Epiphora does not follow, except on exposure to sudden changes of temperature. Should it be annoying, the gland may be removed. The conjunctiva contains enough mucous glands to keep the eye moist. [H.M.]

4.—Thymic Tracheostenosis.—W. W. Carter reports a case suggesting the following: In laryngeal stridor it should always be determined whether or not the thymus is enlarged. As surgical shock is badly borne by infants, especially those in

this condition, if the symptoms are not urgent, postural treatment should be tried, and if in any position of head and neck, relief is afforded, that position should be maintained by apparatus until nature has effected a cure by enlargement of the thorax, strengthening of the tracheal rings and diminution in the size of the gland. Intubation, tracheotomy, and artificial respiration do no good. Opening the mediastinum, bringing forward the gland, and stitching it to the tissue over the sternum should be done immediately if there is danger from asphyxia. [H.M.]

5.—The Kollmann Five-glass Test.—G. T. Mundorff states that, while the urethroscope is specially valuable in making a diagnosis of intraurethral morbid conditions, there remain some cases in which, for various reasons, the use of the urethroscope is not practical. In these, and as a confirmatory test in others, he recommends the five-glass test of Kollmann. The plan of procedure is as follows: After cleaning the meatus, the physician introduces a catheter up to the external sphincter, care being taken not to force it beyond this point. Steadying the catheter in this position by grasping the penis with the left hand and holding the catheter by the forefinger and thumb of the same hand, the physician attaches a syringe filled with a mild boric acid solution, and gently forces the fluid into the urethra. The returning fluid is allowed to fall into a urine glass held by the patient. The physician examines this and notes the presence of shreds and mucus. The irrigation is continued until no more shreds are found in the irrigating fluid. Ten to 15 irrigations may be necessary before this result is reached. The physician allows the fluid returning from the last injection to remain in the glass held by the patient, and designates this as No. 2, or the "control glass." The catheter is then withdrawn and the patient is permitted to urinate into the remaining 3 glasses, numbered respectively, 3, 4 and 5. Glass No. 3 should always be regarded as doubtful, since it is possible that some shreds in the anterior urethra did escape the irrigation. Shreds in glasses Nos. 4 or 5 signify pathologic changes in the posterior urethra, bladder, and possibly kidneys. [A.B.C.]

6.—Antistreptococcic Serum in Smallpox.—A. C. Smith reports a series of cases treated with the serum with a shortening of duration, absence of secondary fever, prevention of pus formation, and thus of absorption of septic matter. No pitting, no marked debility, less suffering, and much less danger of lung and kidney involvement with a much more rapid convalescence. The serum should be used early and in sufficient quantities to completely neutralize the toxins of the disease. The writer has given two doses of 20 cc. each. [H.M.]

7.—Early Treatment in Arterial Degeneration.—L. F. Bishop notes that the degeneration of function is more striking during life than degeneration of tissue and we must be guided by the former. The earliest sign is an irregularity of tension going on to pretty high arterial tension. The defect is concealed by compensatory hypertrophy. The expectation of life is in inverse proportion to the postponement of treatment. [H.M.]

New York Medical Journal.

March 26, 1904. [Vol. LXXIX, No. 13.]

1. The Best Time for Repairs of Lacerations of the Cervix. ROBERT L. DICKINSON.
2. A Case of Cerebral Diplegia (So-called "Spastic Spinal Paraplegia"), with Pseudohypertrophy. P. W. NATHAN.
3. The Effect of Violet Rays on Nebulas. ALFRED W. HERZOG.
4. Primary Trachelorrhaphy: A Restatement. GEORGE H. DONAHUE.
5. Laparotomy for Gunshot Wounds of the Abdominal Viscera, with Report of Five Successful Cases. ROBERT W. JOHNSON.
6. The Use of Injections of Sodium Cinnamate in Locomotor Ataxia. PAUL BARTHOLOW.
7. Skiagraphic Errors: Their Causes, Dangers, and Prevention. LEWIS GREGORY COLE.
8. Normal Saline Solution: A Review of Some of Its Clinical Uses. E. PAYNE PALMER.
9. Some Clinical Features of Diseases of the Gallbladder and Bile Ducts Due to Gallstones, and the Indications for Their Surgical Treatment. CHARLES A. ELSBERG.
10. The Influence of Typhoid Fever on the Nervous System. C. C. HERSMAN.

1.—Repair of Laceration of Cervix.—R. L. Dickinson says the best time to repair a laceration of the cervix is when swelling has subsided and the parts are fairly normal in contour and proportion if not in size; when ether can be given;

when bleeding will be slight; when the surfaces are yet raw and ready to unite; when no contractions or inflammatory processes have altered the structures; and when patient and doctor are ready for unhurried work. Such favoring conditions are to be found from the third or fourth to the fourteenth day, more or less after delivery. His practice is (1) to suture cervical injuries at the close of labor when they seem to be the cause of postpartum hemorrhage; (2) to sew up all cervical tears in the first week in conjunction with the perineal operation when the pelvic floor injury is of such character that a few days' delay is desirable; and (3) to restore severe injuries to the cervix from the third to the tenth day after delivery. [C.A.O.]

2.—Cerebral Diplegia.—The case reported by P. W. Nathan is of special interest, not alone on account of the hypertrophy of the calves, but also because of the difference between the circumferences of the two sides of the body, which apparently were similarly affected by the palsy. The illness of the patient, a boy aged 10, dates back to six weeks after birth, when he had convulsions. These recurred at the age of one and a half years, and from that time until the seventh year he was subject to attacks of a peculiar and constant character. From the seventh year to the present time he has been free from attacks, and during that time has been much improved in health. He began to walk at the age of three, but at present is unable to walk at all. He stands with feet in the equinovarus position, and is very unsteady. When standing there is a decided lordosis of the spine. The calf muscles stand out prominently, and are evidently hypertrophied, which, together with the lordosis, gives him very much the appearance of a patient with pseudohypertrophic paralysis. Nathan says so far as he can determine, this is the only case on record in which the pseudohypertrophy occurred in a case of so-called spastic spinal paralysis; all the previously reported cases were hemiplegias. [C.A.O.]

4.—Primary Trachelorrhaphy.—G. H. Donahue says the best time to repair the cervix is from 24 to 36 hours after confinement. The torn surface will then still be fresh enough to obtain perfect union. Right after delivery the cervix is so soft and swollen and edematous, as to be distinguishable from the vaginal wall only with difficulty. Twenty-four to 36 hours later it will have regained its individuality, and the os and the canal will be easily recognized. With proper precaution, antiseptic and otherwise, the operation at this time is well borne; it is safe, it is easy to perform, and it is likely to be successful. If successful, it assures normal involution with all its health-promoting consequences, as against possible subinvolution with its interminable and baneful sequels. [C.A.O.]

5.—Laparotomy for Gunshot Wounds.—R. W. Johnson reports five successful cases. The first is that of a girl of 18, whose abdomen had been penetrated near the median line by a 32-caliber ball. The wound in the stomach was about 5 cm. (2 in.) in length and the liver which was perforated about 2.5 cm. (1 in.) from the lower edge of the right lobe was bleeding profusely. The wound in the stomach was closed by interrupted Lambert suture, the liver sewed up with catgut, and the abdomen closed without drainage. The second case is that of gunshot wound of the liver in a man of 22; 27 hours after the injury the abdomen was opened and the liver found perforated. The third case is also one of gunshot wound of the liver, occurring in a boy of 12. The liver had been furrowed by a bullet of 38 caliber, which was found in the upper surface of the liver under the diaphragm. The fourth case is one of gunshot wound of intestine. The ball had ploughed across the gut without entering its lumen. The edges of the furrow were brought together with Lambert sutures. The fifth case is that of a negro of 17 who was shot in the left side just above Poupart's ligament. A median incision was made below the umbilicus and the belly found to be full of blood; 17 perforations of the small intestine and 11 of the mesentery were successively closed by silk Lambert sutures. He was discharged cured three weeks later. [C.A.O.]

6.—Sodium Cinnamate in Tabes.—Paul Bartholow has used subcutaneous injections of sodium cinnamate in several cases of locomotor ataxia with gratifying results. The site of operation was the interscapular space. The formula used follows: Sodium cinnamate, 10 parts; sterilized water, 100 parts. —M. The solution should be kept in dark-colored bottles, or

be freshly prepared for each injection. As a rule three injections a week were deemed sufficient; sometimes, though rarely, one was given daily until some evidence of excess appeared, as indicated by a temporary irritability of the stomach. Beginning with 20 m. the amount was slowly raised to 60 m. In conclusion he says that sodium cinnamate benefits the organism in two ways chiefly: 1. By promoting appetite and digestion and, consequently, nutrition. 2. By setting up chemic changes in the outlying regions of degeneration, in the cells and connective tissue of the nerve substance. [C.A.O.]

9.—Diseases of Gallbladder.—C. A. Elsberg discusses some clinical features of diseases of the gallbladder and bile ducts due to gallstones, and states some of the indications for their surgical treatment. He says that no operation should be performed in (1) cases with mild symptoms, especially if the diagnosis is in doubt; (2) cases with recurrent mild attacks with long intervals of health; (3) acute obstruction of the common bile duct; (4) and in any disease which would contraindicate a surgical operation of any kind, unless under vital indications. Operative interference is indicated in (1) acute inflammatory diseases of the gallbladder with signs of severe infection or peritoneal invasion; (2) cases with very frequent mild attacks, which incapacitate the patient for work, which are accompanied by much loss of flesh and strength, or in which the patient is in danger of acquiring the morphin habit; (3) persistent biliary fistula; (4) rare cases in which the symptoms are due to adhesions of the normal gallbladder to neighboring organs; and (5) chronic obstruction of the common bile duct. [C.A.O.]

Medical News.

April 2, 1904. [Vol. 84, No. 14.]

1. Specific Therapy of Tuberculosis and Vaccination Against the Disease. PROF. EDOARDO MARAGLIANO.
2. The Treatment of Neurasthenia. HOWELL T. PERSHING.
3. Abdominal Ascites with 150 Tappings. E. K. BROWN.
4. Gastroenterostomy Without a "Loop." JOHN ROGERS, JR.
5. Home Treatment of the Tuberculous "Is Just as Good"—But It Is Not. HENRY LEVIEN.
6. Importance of Dropsy as a Symptom. A. C. MORGAN.

1.—Specific Therapy of Tuberculosis and Vaccination against the Disease.—E. Maragliano, as a result of 15 years' research, states that it is possible to produce a specific therapy and to immunize against tuberculosis, and that there is good reason to hope for an antituberculous vaccination for man. He has produced serums with an agglutinating power of 1 to 2,000 and 1,000 antitoxic units to 1 cc. By exact measurement, he has found that the serum increases the defensive substances of the blood in more than geometric proportion, showing that the organism plays an active part in this increase. There follows disappearance of fever, sweats, cough, and bacilli, and foci of bronchopneumonia, the production of connective-tissue foci, and improvement in general nutrition. He gives the statistics of cures. In animals immunization has been demonstrated by means of intravenous injections of virulent cultures. He describes immunizations by attenuated cultures and by dead bodies of bacilli by the expressed and filtered juice of bacilli. These materials may be given subcutaneously, intravenously, or by mouth. The leukocytes are much richer than the plasma in antitoxins and antibodies. The latter are found in the milk of immunized animals. This milk and the flesh also of immunized animals used as food will produce corresponding immunity. By creating a focus of tuberculous inflammation without living bacilli the active production of defensive materials is brought about. In this way a true vaccination may be practised. Slight feverishness is the only disturbance. The abscess lasts three or four months. Analogous results are seen in cured cases of surgical or cutaneous tuberculosis, in which foci do not develop elsewhere. [H.M.]

2.—Treatment of Neurasthenia.—H. T. Pershing classifies remedies into whatever tends to check the loss of nervous energy or to increase its income, providing it is not incidentally harmful. Rest is of no avail if worry goes on. Treatment must largely be determined by the characteristics of the physician. If he is buoyant he will depend largely on mental influence, if scientific on physical treatment. Loss of nervous energy is checked by prevention of emotional disturbances,

reassurance and favorable suggestion, by forming habits of muscular relaxation and repose, limitation of work, prevention of toxic conditions, removal of peripheral irritations, reduction of cortical irritability by medicines and by sleep. Remedies which increase nervous energy are food and medicines. Remedies used empirically whose action is complex or obscure, are electricity, massage, hydrotherapy, exercise, change of climate, and these are the least important. A valuable resource in controlling a depressing emotion consists in the voluntary suppression of its motor reaction and the imitation of the attitudes and actions which express the opposite emotion as in cultivating the bearing of courage and repose. The writer believes long continued doses of bromids aggravate the disease, and prefers codein or opium. He prescribes the latter with strychnin and laxatives so the patient has no discretion as to dosage. [H.M.]

3.—Abdominal Ascites with 150 Tappings.—In the case reported by E. K. Browd, the tappings have extended over 10 years, the patient refusing radical operation. She is now 69 years old, is in fairly good condition, and is not bedridden except for a day or so after each tapping, which is done biweekly. She has lost altogether 1,441½ quarts, or 360½ gallons, of fluid. [H.M.]

4.—Gastroenterostomy Without a "Loop."—John Rogers recommends the method prescribed by Petersen and used in Czerny's clinic. The latter surgeon reports 215 cases without an instance of serious vomiting. It is based on the fact that the first few inches of the jejunum descend vertically behind the stomach, and in this part lie directly in contact with the posterior surface of the stomach, separated from it only by the nonvascular portion of the mesocolon. The ordinary retrocolic posterior operation is performed by drawing the omentum and transverse colon out of the median epigastric wound, and stitching the margins of the exposed posterior surface of the stomach near the greater curvature, to the edges of a rent made in the mesocolon. The jejunum near its origin is held perpendicularly to the spine, and attached some 2 in. to 4 in. below its origin at the plica duodenojejunalis, to the exposed posterior surface of the stomach by a row of Lembert sutures placed transversely to the long axis of the gut, and in its free border. In front of this the stomach and intestine are opened with due precautions, and the fistula completed with stitches or the Murphy button and surrounded externally by a continuation of the Lembert stitches. The jejunum is thus anastomosed to the posterior surface of the stomach in its normal descending position and without any twists. There is no loop to become occluded, and no chance for volvulus or hernia above it. Rogers reports in detail five cases successfully operated upon by this method. [A.B.C.]

5.—Home Treatment of the Tuberculous.—H. Levien emphasizes the need of educating the public as to the importance of fresh air and nourishing food and rigid supervision by physicians and nurses. This can be best attained by sanatoriums in sufficient numbers to supply the demand. "Home treatment" is meaningless and may prove a menace and mislead the public and the term should not appear in the medical press. [H.M.]

6.—Dropsy.—A. C. Morgan defines this and synonymous terms. When unilateral the cause is to be found in immediate proximity as an obstruction to the return circulation. In bilateral edema the cause is generally central. Local edema may be acute, caused by abscess, subacute as from a rapidly growing tumor, chronic as from lymphangitis, operation scars, etc. Section of a nerve causes local edema through dilation of the arteries. Edema of the ankles is often caused by anemia which in turn may be due to any cachexia. In a transudate the skin is cold, symmetrically swollen, pale, shiny, and slowly resumes its former shape on removal of pressure. With an exudate it is hot, nonsymmetric, red, pitting quickly disappears. Edema of the arm or neck including the upper thorax may be due to aneurysm or mediastinal growths or an enlarged auricle pressing on the vena cava. The initial dropsy of Bright's appears in the lower eyelids, of valvular heart disease in the ankles, of failure of compensation in the portal circulation in the abdomen. General dropsy may be recovered from if the patient is in the prime of life with good muscles, and the

poison or factor causing the condition can be removed. When it occurs in cachectic conditions it can be inferred the last stages are near. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Lymphatic Varices.—It is evident, and microscopic researches have demonstrated, that in the vast majority of cases, if not to say all, lymphatic varices simply represent a manifestation of filariasis. Infrequent are the instances where one has not been able to discover the embryos in the fluid coming from the varix or in the patient's blood, and even admitting that the examination has remained negative, one must not conclude that the subject does not possess the parasite. To find the filaria it must be searched for at the proper time, when the patient is quiet, preferably in deep sleep. Several careful examinations may be required and it must also be remembered the difference in number of embryos will vary greatly in the same individual in the interval of several days. It is true that the adversaries of the origin of lymphatic varices from the filaria point out, that these lesions only occur in subjects born in hot countries or at least having resided in them for several years, but we must admit the climacteric influence necessary for the lesions of filariasis to become manifest. Although obstruction arising in the thoracic duct is not the cause of lymphatic varices, a more or less complete obliteration of the lymphatics is a necessity, if not in itself sufficient, for the production of this lesion. Adult filaria coiled up so as to completely obstruct the lymph current have been found in the lymphatics, and although the size of the parasite will not permit it to pass through the lymph-nodes, a case is recorded by Schwartz of a patient afflicted with lymphatic varices and in one of the extirpated lymph-nodes was found an adult filaria in the center of a nodule composed of giant cells, the so-called pseudotubercle of filariasis of Marie. This must however be exceptional and usually thromboses caused by enormous agglomerations of embryos produce an obstruction to the lymph current. When examined, the lymph will be found literally teeming with embryos. The most frequent site for the lesion is in Scarpa's triangle, the lymphatics of the spermatic cord or those of the groin being involved, either separately or both at the same time. The dilation continues beyond the lymph-nodes in the abdominal lymphatics and even extends to the thoracic duct. The pathology of this lesion varies and presents various degrees. In some the varices will collapse when punctured and this would lead to the conclusion that the lymphatics were merely distended, but in other instances the lymphatics appear as dry, knotty cords. The histology of this pathologic process is similar to that of varicose veins. One finds an irregular hypertrophy of the walls of the lymphatics, hyperemia of the adventitia, inflammatory foci especially numerous around the capillaries, and lastly a proliferation of the elastic tissue. The lymph-nodes receiving the diseased lymphatics take part in the processes; the node takes on a cavernous aspect the result of chronic sclerotic inflammation accompanied by an hypertrophy of all the connective-tissue structures. The follicles are increased in size but apparently are not histologically changed. The clinical signs naturally vary with the seat of the lesions, but the varices are more frequently found in Scarpa's triangle, commencing in the lymphatics of the spermatic cord. In the early stage, examination would lead one to conclude that the case was one of varicocele, but later, when the dilation becomes more marked, when the testicle becomes involved in the process, the condition may be easily mistaken for tuberculosis, for hydrocele or what is more likely, a hernia. A careful examination with a detailed

history of the case, should however prevent such diagnostic errors from occurring.

REVIEW OF LITERATURE

Chlorid Metabolism in Chronic Nephritis.—E. v. Kozičkowski¹ says that sodium chlorid holds a special position, and cannot be used as an indicator of the behavior of other salts, especially in nephritis. In health the excretion of chlorids varies with the ingestion of salt, of water, and with other conditions. In nephritis without edema there is a remarkable regularity in their excretion. The amount of sodium chlorid in the urine varies inversely with the extent of edema present, and is independent of the amount of water excreted by the kidneys. The retained chlorid is not contained altogether in the edematous fluids, but also is found in the tissues themselves. The retention of salt is probably due to disturbances in the circulation. The excretion of phosphates and sulfates does not undergo the variation seen in the case of the chlorids, but increases and decreases with the amounts ingested, whether the kidneys be healthy or diseased. The chlorid excretion may be taken as an index of the prognosis in renal disease. Increased excretion following retention is a favorable sign. Considerable diminution in the chlorids is a bad prognostic sign. The author believes the retained salt to be an important factor in the development of edema. Hence, the mean employed to combat edema should have for their object the removal of sodium chlorid from the body. The ingestion of salt should also be restricted. [B.K.]

Bronchial Asthma the Type of Nervous Catarrh.—Schmidt² finds, from a scrutiny of literature and personal work, that the Bienger-Curschmann asthma theory, which considers spasm of the bronchial muscle fibers the deciding factor in producing asthmatic attacks, possesses numerous weak points. They are: No one has ever been successful in producing an asthmatic attack experimentally, although the pneumogastric nerve, the motor nerve of the bronchial muscle, has often been irritated. During such an experiment the bronchial lumen contracts, showing that the bronchial muscle is irritable, but this has always lasted but a short time and has affected the lungs but slightly. The respiratory mucous membrane participates in every asthma attack. Postmortem findings have shown that asthmatic attacks occur in cases in which the bronchi have been dilated, and under conditions making spasmodic cramps of the bronchial muscle improbable; such attacks have occurred in cases in which a large number of the smallest bronchi are occluded by a stringy secretion. In fact, the mechanical occlusion of the bronchioles or the inflammation of the mucous membrane is sufficient to produce and explain such attacks and the presence of such a focus within the respiratory mucous membrane must therefore be considered as the principle cause of the asthmatic attack. For the origin of a number of peculiarities, which the attack offers, the causal agency must be found in the nervous system. The nervous components are the sudden exacerbation of the catarrh, the hypersecretion, and the concomitant bronchial cramp. [E.L.]

Yellow Fever.—C. J. Finlay³ says all transmission is caused by the mosquito, and when this disease is so carried the mosquito must have punctured the original patient during the first three days of illness, to obtain virus in an effective state. How long the mosquito retains this, effectually, is not established. The only variety of mosquito known to carry the virus of yellow fever is *Stegomyia fasciata*. The period of initial incubation is from 40 hours to 13 days. The injection of sanguineous serum obtained from convalescents will act as an effective measure of prophylaxis. While the virus of yellow fever will continue active after five days if blood-serum containing it, be guarded from the air, with free access to air the virulence disappears in about 48 hours. Blood-serum from a person suffering from yellow fever, if injected into the subcutaneous tissue of a well person, reproduces the disease. The writer so long ago as 1898 has written concerning a "method of vaccination against yellow fever." [T.H.E.]

Excretion of Nitrogenous Substances in the Urine in Acute Infections.—F. Erben¹ examined the urine in measles, scarlatina, varicella, typhoid fever, and a streptococcus angina. In all cases during the period of elevated temperature, an increase was found in the nitrogenous excretion, depending chiefly on an increase in the urea. The increase was in proportion to the height of the temperature, and was more marked in the diseases of short duration than in the longer ones. A distinction is made between the nitrogen precipitated by tungstophosphoric acid and that not precipitated. During the fever and the first few nonfebrile days, there was a much greater increase in the precipitated nitrogen than in the nonprecipitated. The ammonia was found to run a course parallel to the nitrogen. The intermediate products of proteid decomposition, namely, uric acid, xanthin bases and amids, were regularly increased during the fever. This seems to depend upon the increased proteid decomposition within the organism. In scarlet fever, and to a lesser degree in typhoid fever, there was a preponderating increase in the nonprecipitated residual nitrogen (amids); this is traced to the resorption of lymphatic tissue during recovery from these diseases. [B.K.]

Antityphoid Inoculation.—A. E. Wright² concludes his article on antityphoid inoculation, which has parts in 3 numbers of the journal. Part I explained the general principles of the physiology of immunization; Part II, the application of these principles to immunization against typhoid fever; Part III deals with the technic of antityphoid inoculation, the clinical symptoms following inoculation, and statistics showing the results. The latter include many thousands of cases, mainly of soldiers in the British army, contrasted with cases under the same circumstances that were not inoculated. The results of the antityphoid inoculation are given under the following heads: (1) The effect on the incidence of the disease. The incidence of typhoid fever was diminished by at least half in the inoculated; (2) the effect on the case mortality. This has been rather less than half that among the uninoculated; (3) effect on the deathrate from the disease. This has often exceeded, and seldom fallen below, a four-fold reduction; (4) duration of the protection conferred by inoculation. This persists during the second and probably during the third year. It is not infrequent to find an agglutinative power in the blood of inoculated persons as long as 2 years after inoculation. [A.G.E.]

Tachycardia.—Fernet³ advises the application of cold compresses to the precordium; there is a reaction of the muscles which seems to include those of the heart, and the patient is relieved. Formic acid is to be given cautiously. It is known to remove that sense of fatigue with which some people suffer. The acid, regularly taken, markedly increases the power of muscular activity. But it may be necessary to reduce the dose, or to withdraw the acid for a time, on account of its vasodilator properties. [T.H.E.]

Physiology of the Esophagus and Cardia.—From experiments in man and animals, J. von Mikulicz⁴ finds that the esophagus in the adult is closed only in the cervical part. The thoracic part is an open tube, containing air. In a state of rest the pressure is a little less than that of the atmosphere; it is diminished during inspiration, and increased during expiration. In swallowing, the pressure rises a little higher than in forced expiration; a part of the contained air is always retained, all of it being expressed only during violent coughing. During rest the cardia is completely closed by means of the tone of the circular muscles, and also by a valve-like arrangement. It is readily opened for fluids and gases passing from the esophagus into the stomach, but is opened with difficulty by currents passing in the opposite direction. The cardia is automatically opened from the esophageal side by a pressure less than that of a column of fluid filling the thoracic part of the esophagus. [B.K.]

Open-air Treatment of Bronchopneumonia Complicating Whoopingcough.—C. B. Ker⁵ has succeeded by this treatment in considerably reducing the deathrate in the Edin-

¹ Zeit. f. klin. Med., Bd. li, p. 287.

² Würzburger Verhandlungen, lii, 215.

³ Rev. de la As. Med. Farmac de la Isla de Cuba, January, 1901.

⁴ Zeit. für Heilkunde, Bd. xxiv, Heft 2, p. 83.

⁵ The Practitioner, March, 1904.

⁶ Il Policlinico (Rome), No. 13, 1904.

⁷ Mitth. a. d. Grenzgeb. d. Med. und Chirurg., Bd. xii, p. 599.

⁸ Scottish Medical and Surgical Journal, January, 1904.

burgh City Hospital. Those who see whoopingcough only in good class practice do not realize how serious it is liable to be in the children of the poor. In Edinburgh nearly one-third the zymotic deathrate is caused by this disease, bronchopneumonia undoubtedly being responsible. In this complication, rest, which is so important, is impossible on account of the cough, and patients are hard to feed and lose what they take by vomiting. The lung often becomes tuberculous. Tuberculosis and the fact that some children contracted the bronchopneumonia in the wards suggested the open-air treatment. The experiment was begun with four children who were left out six hours daily in clear weather. These were the worst in the wards and regarded as hopeless. There was marked improvement in some of them, though the recovery rate was not the same as with those treated later from the start. The main contraindication is laryngitis. The children were warmly covered and the chests protected with cotton wool. Screens were placed to the windward side of the cots. The whoops were unaffected in number or severity. The patients took food ravenously and strength increased. They slept better. Convulsions did not markedly decrease, but the whole nervous tone seemed better. The temperature was not affected so rapidly as expected, but there was usually steady improvement of all symptoms. Owing to the better ventilation of the ward, bronchopneumonia of hospital origin became extinct. Under the old regime two out of three children with bronchopneumonia died; under the new, two out of three recovered. [H.M.]

Cases of Incipient Tuberculosis Suitable for Sanatoriums.—C. H. Cattle,¹ after considering the diagnosis of incipient tuberculosis, makes the following suggestions regarding the selection of cases for sanatorium treatment: 1. Cases in which the disease is limited to one lobe of one lung without clinical signs of cavity, and where the temperature does not range much above the normal after the patient has been put at rest for one or two weeks. 2. A great many cases of pleurisy, after the active symptoms have subsided, would be better for a three months' course at a sanatorium, because a considerable number of pleurisies are tuberculous. 3. Acute cases which show an early tendency to cavity formation should be ineligible for sanatoriums that aim at cure within a limited period. 4. The possibility of relapse ought to enter into our calculations before sending poor patients to sanatoriums. This raises the question whether the provision of sanatorium treatment is in all cases the best method of applying charitable assistance for the comparatively poor. Many of them can take the few dollars saved or obtained from friends and sustain themselves in the country for several times as long as the fund would last at a sanatorium. The former plan is undoubtedly better for those patients in whom there is strong probability of a relapse after the brief sojourn possible at a sanatorium. [A.G.E.]

Influence of Fever and Other Factors on Sweat Secretion.—The experiments of G. Lang² show that about 13 gm. (3.5 dr.) of water are given off per hour, per square meter, by the skin, both at normal temperature and in fever, provided the stomach be empty. After taking food, the output of water increases about 50%, both in fever and in health. Antipyrin was administered to persons with normal temperature, and it was found that 20% less water was secreted in these persons than in the control experiments. In fever, antipyrin increases the amount of perspiration, and thus increases the heat dissipation. During sleep the evaporation of water from the skin is lessened. [B.K.]

Anal Dilation for Mucomembranous Colitis.—Roussel³ has cured five successive patients by treatment in the form of forced dilation of the anal sphincter. The revulsive effect seems to bring about the favorable result. [T.H.E.]

Idiopathic Dilation of the Esophagus.—Lossen⁴ reports five cases. The etiology is not clear, but he is inclined to the view of Kraus, that there is spasm of the cardia, and at the same time a defect occurs in the muscle about the cardiac opening. He further says that several combined factors may be concerned in the production of the condition, such as

primary atony of the esophagus musculature, congenital defects, or primary esophagitis. Some of the patients complained of pain, some had a feeling that the food would lodge before reaching the stomach. Some patients succeed best in getting liquids, others solids into the stomach. Lossen says the patients utilize various methods in order to force the food into the stomach—some swallowed air, others threw back their heads, putting the esophagus upon a stretch, and in that way forced the food onward. The diagnosis in his cases was easy because he was able to pass the bougie into the stomach without changing its course, thus ruling out a diverticulum. The fluid obtained was free from hydrochloric acid and other gastric ferments, and since it was slightly alkaline and presented evidence of ptyalin fermentation, he concluded the material had not been in the stomach. The prognosis as to complete cure is unfavorable, although vast improvements are attained by therapeutic measures. [J.F.]

Mitral Nanism.—Under this name, Gilbert and Rathery¹ describe a dwarfed state, the result of mitral stenosis, either inherited or acquired early in life. There are pure and impure types of this mitral dwarfism. The condition expresses itself in a retardation of the growth, *e. g.*, the preservation in adult life of the anthropometric indexes of the child, and the symptoms of feminism; also the premature union of the epiphyses. Congenital anomalies, such as syndactyly, congenital amputation of the fingers and toes, accessory fingers, prognathism, fusion of the ear-lobules, malformation of the nasal cloaca, hare-lip, deformity of the sternum, and absence or deficiency of the hair, may be present. Visceral hypoplasias have also been noted. These manifest themselves in visceral dwarfism and in psychic disturbances (hysteria); also in what the authors call mitral chlorosis. Genital disturbances, such as infantilism and sterility, may also be present. At times, the thyroid is imperfect and there is an association of mitral stenosis with myxedematous infantilism. [D.R.]

Abdominal Massage in Heart Disease.—A. Neumann and F. Frick² have employed the various methods of abdominal massage in 24 individuals suffering with different cardiac and vascular lesions, to determine the behavior of the pulse and blood-pressure, and to control their subjective condition during and after the treatment; their reason for this research has been the differences of opinion expressed by different observers, and especially since some have claimed that the method is contraindicated in these diseases. In most cases the pulse became somewhat slower, while the blood-pressure remained uninfluenced or increased; sometimes a slight lowering of blood-pressure was noted. Subjectively the patients invariably felt improved. Irregular pulses became regular during the treatment. They conclude that in cardiac disease without grave disturbances of compensation, abdominal massage is permitted, and in many cases it will even be of service as regards the heart itself; in cases with high pulse-rate this will usually be lowered. Kneading and stroking in the direction of the colon will be of most service. [E.L.]

Management of Acute Nephritis: The Baccelli Method.—De Rossi³ says Baccelli emphasizes the fact that to the actual venous stasis, in the kidney, is due much of the derangement. He has practised for many years in his clinic at Rome systematic blood-letting in these cases. Pressure must be reduced. The tendency of some clinicians is to advise nephrotomy. Conservative opinion will reserve this for unilateral and localized pathologic processes; nephritis may be neither. While some may object to blood-letting because of a debilitating outcome, it should be remembered that clinical facts outweigh theoretic objections. A case is reported by the writer which illustrates his teaching. It is noted that improvement advanced, albumin rapidly disappeared, and edema and other troublesome symptoms disappeared in 10 days. Baccelli insists on absolute milk diet. Later, the hydrocarbon element is cautiously added. Helays stress on the advantage of giving regular quantities of distilled water, which is a diuretic. [T.H.E.]

¹ The Practitioner, February, 1904.

² Deut. Arch. f. klin. Med., Bd. lxxix, p. 343.

³ Il Policlinico, Rome, February 20, 1904.

⁴ Mitth. a. d. Grenzgeb. d. Med. and Chir., 1903, 13 d. xii, Heft 2 u. 3.

¹ Arch. gen. de Med., March, 1904.

² Therapeutische Monatshefte, xvii, 611, 1903.

³ Il Policlinico, Rome, No. 9, 1901.

GENERAL SURGERY

A. B. CRAIG MARTIN B. TINKER
C. A. ORR

EDITORIAL COMMENT

The Closure of Bone Cavities.—One hardly appreciates how large a number of procedures have been tried to aid in closure of bone cavities until he looks through the literature of this subject. These varied and persistent efforts give sufficient evidence of the difficulties which have been met and show the urgent need of some efficient means for accomplishing this end. Among the different procedures which have been tried are: Closure under blood clot, as suggested by Schede, a procedure which has not proved very successful in the majority of cases; direct transplantation of human bone, which it is usually very difficult to obtain, but this succeeded with Ollier, and has been tried by a few others; insertion of bone from animals, either removed entirely or allowed to grow in place before being detached, as was done by Morton,¹ of San Francisco, who successfully grafted the ulna of a living dog into a defect caused by a compound fracture. All of these methods are so difficult to carry out that they have not come into general use. The insertion of aseptic materials, such as aluminum, celluloid, or guttapercha into bone cavities, has been tried by many surgeons, but these materials usually act as a foreign body, causing necrosis and suppuration, which necessitates removal. Successes with absorbable material, such as catgut, sponge, and decalcified bone, have not been numerous. The latest attempt of this kind which we have noticed is by Fantino and Valan,² who report a series of operations carried out during the past 3 years, in which they have used ground decalcified bone mixed into a paste with thymol and iodoform. They found that it was possible to use decalcified bone alone in aseptic cavities, but it was difficult to fill the cavity entirely, and if blood accumulates, it is easily decomposed and gives rise to failure. After trying different ways of rendering bone cavities aseptic, they have now adopted the method of filling with 10% iodoform and glycerin emulsion, and they develop iodoform vapor by heating the emulsion in the bone cavity with the red-hot blade of a thermocautery. They find that the high temperature produced in this way does not give unfavorable results. The thymol and iodoform were chosen after considerable experimentation, because it was found that while they make a fluid mass at 75° C., when mixed in proportion of 1 to 2, this mass hardens at 60° C., which prevents it from being absorbed and causing symptoms of poisoning. Histologic study of sections from animals shows that this mass is penetrated by connective-tissue fibers in which bone salts are rapidly deposited. Very little of the mass is found after 6 months. Because of its antiseptic properties this mass can be used in cavities that are not entirely aseptic. The transformation of the mass into new bone tissue was found complete in from 3 to 8 months. Brief histories are given of 30 patients in whom this material was used for filling and closing bone cavities with favorable results. The large number of cases in which the originators of this method have used it successfully seem to give promise that it will prove a greater help in the closure of bone cavities than many of the other methods which have been tried. The fault of all of these methods has been, either that they have been extremely difficult to carry out, or limited in applicability to comparatively few cases, or that they have not given very satisfactory results. It has not been a very difficult matter to close bone defects in cases in which no serious disease existed, but in cases in which there is a suppurative process it is a decidedly different matter. This method seems to have the advantage of

simplicity and applicability in suppurative cases, and the large number of favorable results reported by its originators certainly entitles it to a trial by other surgeons.

REVIEW OF LITERATURE

Modern Ether Narcosis.—C. Hoffman¹ recommends the Witzel drop method of giving ether; it combines the unlimited admission of atmospheric air during the narcosis, the amount of ether necessary is kept at as low a level as possible and where it is insufficient to produce narcosis, adjuvant measures such as morphin and chloroform are permitted. These substances, however, do not constitute the narcotizing elements, but are only, as he states, adjuvants to the production of the anesthesia. He also lauds the drop method because of its simple technique; anyone knowing how to administer chloroform can etherize by this method, especially as it does not require the same painstaking care. He feels certain that ether will displace chloroform from its throne as anesthetic of the future. [E.L.]

The Surgical Treatment of Chronic Ulcerative Colitis.—Nehrkorn² says two objects are desired: (1) The affected intestine should be kept at rest and free from feces; (2) local treatment should be applied to the ulcerated and inflamed mucosa. He does not favor primary intestinal anastomosis. The production of a fistula not only is a much simpler operation, but also affords opportunities for local treatment. The operation can be done upon greatly exhausted patients, and without an anesthetic. Nehrkorn says the stool is nearer the normal at the sigmoid than at the cecum, and since it has been shown that local treatment can be applied just as efficiently at this point as at the cecum, he urges that the colostomy be done at the sigmoid. For local treatment he uses either camomile tea or a weak alcoholic solution of salicylic acid. [J.F.]

Tuberculous Ulcer of the Rectum.—D. P. Mayhew³ says that the diagnosis of these ulcers rests on vision. For examining the lower 3 inches of the rectum he prefers the ordinary nonfenestrated bivalve, aided by a laryngoscopic mirror. Unless the ulcer be very large it can thus be seen plainly throughout its entire extent which cannot always be done with the proctoscope. A method of treatment that has given entire satisfaction in several cases is the following: The ulcer is painted with a saturated solution of trichloroacetic acid. This is repeated the next day and after waiting a few minutes for the acid to act, the pellicle of destroyed tissue is removed with a curet. The treatment is repeated, if necessary, until the fibrous floor of the ulcer is reached. The cleaned ulcer is then dusted with one of the iodine-containing powders. At each dressing the ulcer is washed with Lugol's solution and the powder again applied. Whenever the ulcer looks unhealthy and the granulations show signs of breaking down the acid and curet should again be used. The rectal mucosa should be treated with irrigations of krameria and protargol. [A.G.E.]

Experimental Investigations Concerning Decapsulation of the Kidney.—B. Asakura⁴ finds that unilateral decapsulation of the kidney in animals may be performed without any noticeable injury. A new capsule is formed, accompanied by the development of a collateral circulation between the kidney and the abdominal wall. This process entails no harmful influence on the kidney substance. The writer produced acute purulent inflammation of the kidney in animals, and then tried the effects of decapsulation; the results were entirely negative. Decapsulation seemed to exert a favorable influence on infections produced subsequent to the operation. Bilateral decapsulation seems to be borne almost as well as the unilateral operation. The results in man, as reported by Edebohl, have been very favorable and promising. [B.K.]

Kocher's Osteoplastic Resection of both Upper Maxillas.—Payr⁵ after reporting a case of cavernous fibroma of the superior maxillary bones which he removed by Kocher's operation, discusses the various procedures practised in the removal

¹ Münchener medicinische Wochenschrift, 1, No. 46, 1903.

² Mitth. a. d. Grenzgeb. d. Med. und Chir., 1903, Bd. xii, Heft 2 u. 3.

³ Colorado Medicine, February, 1904.

⁴ Mitth. a. d. Grenzgeb. d. Med. und Chir., Bd. xii, p. 602.

⁵ Archiv für klinische Chirurgie, 1904, lxxii, 284.

¹ American Medicine, 1902, Vol. iv, p. 55.

² Archiv für klinische Chirurgie, 1903, Vol. lxx, p. 730.

of such tumors. He considers that Kocher's method of osteoplastic resection of both maxillary bones offers a better view of the nasopharyngeal space than any of the operations practised. It guarantees the complete removal of the tumor. In simple fibroma he advises less dangerous methods at first. The technic is not more difficult; the method does not disfigure nor is the function of the parts operated upon disturbed. Although the operation is grave, all cases thus far operated on have recovered. Preliminary tracheotomy and preventive ligation of both external carotids are made unnecessary by the Trendelenburg position. [E.L.]

Hemorrhoids in Children.—Reinbach,¹ reports four cases, the first of which was in a child of 14 years, the second in a child of seven weeks and the third was three and one-half years old, and the last a boy of eight years. The child of seven weeks was not only born with the hemorrhoids but had contractures of the three middle fingers, changes in the phalangeal joints, the chin was drawn back, right-sided congenital dislocation of the hip and pes planus. In the first case he effects a cure by carbolic injections and in the third case he did a Whitehead-Mikulicz operation. The pieces he took for microscopic examination were in the majority of instances made up of spaces filled with blood; the walls were composed of fibrous tissue which at times contained some elastic tissue at other times a small amount of smooth muscle tissue. He says the picture is essentially that of a newgrowth. Reinbach says the theory that obstruction in the liver produces hemorrhoids fails when we consider that the inferior hemorrhoidal veins concerned in the production of external hemorrhoids and the middle hemorrhoidal veins concerned in the production of the internal hemorrhoidal are both tributaries of the internal iliac veins. He is not inclined to the view that hemorrhoids are due to accumulated fecal masses, since in many of the cases there is no history of even sluggishness of the bowels. The occurrence of hemorrhoids in children is a very important fact in this connection. He is strongly of the opinion that hemorrhoids are essentially newgrowths. [J.F.]

Pancreatic Cyst and Extirpation.—Andreoli² considers occlusion of the duct most commonly the cause of cyst, but refers to more obscure reasons which may be causative. He believes calculus, as lithiasis elsewhere, is parasitic in origin. Difficult as diagnosis may be, once the laparotomy is done, a pancreatectomy is indicated; partial interference is not satisfactory, but when adhesions, or extensions of morbid processes, forbid, may be enforced; and mere tapping the cyst will be reserved to such cases as are absolutely inoperable. [T.H.E.]

Treatment of Fractures.—J. P. Warbasse³ says the unsatisfactory results in the treatment of fractures, which still occur in the hands of the most careful and experienced, are usually attributable to one or both of two things—too great deference to the whims and present comfort of the patient, and a division of the responsibility by the two or more surgeons in attendance. In a young or healthy person the securing of a perfect mechanical result is the prime object and the opinions and pleasures, even the personal comfort, of the patient should all give way to this end. One surgeon should hold himself responsible for the result, no matter how much counsel he may call in; the full treatment must be in his hands. Nothing but harm will come from the violation of this rule. An apparent persistence of callus, except in cases of imperfect immobilization, should suggest the presence of overriding or of osteosarcoma. Warbasse believes that there is too much tendency to cling to the traditions in the treatment of fractures. Advance in the surgery of fractures has not kept pace with that of the abdomen and brain. A fracture complicated by irreducible displacement, or pressure or injury to a nerve trunk, should be given the advantages which surgery can now offer. [A.G.E.]

Acute Intestinal Invagination in Childhood.—L. Kredel⁴ has observed 12 cases, in 9 of which operation was performed. Shock is the greatest source of danger in young children. In order to avoid this, it is necessary to operate early, within the first 24 hours, especially in infants. Injections of

water or inflation with air should not be performed in children under 2 years, except as preparation for operation. If the invagination is found to be irreducible at operation, the prognosis is very unfavorable, and it becomes necessary to adopt operative measures that are as conservative as possible. In many cases the establishment of a temporary artificial anus is all that can be done. [B.K.]

Perityphilitis, Peritonitis, Meteorism.—A. Oppenheim¹ calls attention to the fact that an abscess in the region of the appendix or pelvis may remain in a latent state, sometimes for three years. As a result of a slight trauma it may become active and give rise to a purulent peritonitis. Since the pus in the abdomen in his case was odorless, he concludes the peritonitis was secondary to a latent abscess. When the peritonitis is due to a perforation of the intestine, various bacteria enter and produce a penetrating odor. He says if meteorism exists for any length of time it produces paralysis of the splanchnic nerves with a resulting dilation of the mesenteric vessels, consequently a weak rapid pulse, such as is seen in hemorrhage. [J.F.]

Contribution to Functional Kidney Diagnosis.—R. Goebell² publishes the results of the various functional kidney tests from 7 cases of different varieties of renal disease. They were not as invariably accurate as have been reported by others. He was able to determine by combining the various methods which kidney was the more diseased, but he found it impossible to be certain, whether in case one kidney was removed, the other would be sufficiently well to carry on the work by itself. The freezing-point of the blood was rarely the same in 2 examinations; and when the same, it was not necessarily to be trusted; had he depended upon it alone erroneous deductions would have been drawn from the findings. In one case the freezing-point was -0.60° . The left kidney was removed in spite of that and the patient recovered. In another case, left-sided tuberculosis and right-sided pyelitis, the freezing-point was 0.565° . The left kidney was removed and the patient became uremic, remaining so for 5 days, but recovered ultimately. The phloridzin method was found absolutely unreliable. Even though the results of the various tests are not reliable, Goebell does not think that they should be discarded, especially as, if certain precautions, which have been followed by him lately, are observed, their results can be made much more trustworthy. The patient should be kept on a test diet for several days prior to the examination; urine should be taken from both kidneys by ureteral catheterization a definite period after a meal; the catheter should be permitted to remain in place for several hours and urine taken at definite intervals should be examined; the amount of urine passed during these periods from the 2 kidneys and its molecular concentration should be noted. These conditions should be obeyed, because surgically diseased kidneys cannot work equally and regularly, as neither the relation between the freezing-point nor the molecular concentration of the urine of the 2 kidneys is constant, and because this relation cannot enlighten us absolutely regarding the functioning ability of the 2 kidneys. [E.L.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

EDITORIAL COMMENT

The Diagnosis of Primary Carcinoma of the Vagina.—Primary carcinoma of the vagina, as usually seen, will represent a circumscribed neoplasm, and only rarely comes under the observation of the surgeon at the period when it simply forms a cauliflower growth situated in the vaginal walls. When the patient seeks advice for the first time, it is usually with a broken-down ulcer, with a crater-like aspect, with a tendency to involve the underlying structures and presenting an infiltrated base. In other cases the affection may be met with under the form of a diffused neoplasm involv-

¹ Mitth. a. d. Grenzgeb. d. Med. und Chir., 1903, Bd. xii, Heft 2 u. 3.

² J. Policlinico, Rome, February 20, 1904.

³ Brooklyn Medical Journal, March, 1904.

⁴ Mitth. a. d. Grenzgeb. d. Med. und Chir., Bd. xii, p. 698.

¹ Berliner klin. Woch., 1904, Bd. xli, No. 5.

² Münchener medicinische Wochenschrift, 1903, I, No. 46.

ing almost the entire vaginal surface, which changes the canal into a rigid, unyielding tube. In both forms the lymph-nodes are secondarily involved at an early date. The symptoms observed in the early stages are the same as those met with in carcinoma of the cervix. The disease, which in the beginning is superficially seated, bleeds easily from the slightest touch, especially during coitus, and for this reason this symptom must be considered as one of the most important. Unfortunately, like in carcinoma of the cervix, it appears in many cases at a comparatively late date in the development of the affection. In patients who are cleanly and who observe themselves carefully, a changed condition of the vaginal secretions will be noted. A more or less disagreeable odor will be remarked, which will always draw the patient's attention to her genital organs. Unfortunately for the surgeon, the presence of suppuration or ulceration within the vagina are the conditions which lead the patient to seek the advice of her physician, and which indicate that the malignant affection is already advanced. Since the connective tissue of the pelvis is involved rather early in the course of the disease, symptoms of general cachexia are met with at a rather early period. Added to these, other phenomena occur which indicate that the neoplasm has involved other organs, such as the rectum, and, in rare cases, the bladder, when the disease starts in the anterior vaginal wall. We then find these unfortunate patients afflicted with a rectovaginal fistula or a vesicovaginal fistula. There are few, if any, difficulties in making a diagnosis of vaginal carcinoma, because by digital examination the finger readily detects the growth by its peculiar uneven surface, with its tendency to break down. Then again, a more or less extensive infiltration will be discovered, involving the tissues of the neighboring structures, but it will be necessary to find out whether or not the neoplasm originated primarily in the vagina, or has extended from a uterine neoplasm. It is quite important to differentiate a carcinomatous growth of the vagina from a syphilitic or tuberculous lesion. In both of these affections we find a similar breaking down and extension into the neighboring organs, but the history of the disease and the local examination will usually clear up all doubts as to the true nature of the disease. Primary tuberculosis of the vagina is extremely rare, and usually is only present when tuberculosis of the vulva or uterus is manifest. A microscopic examination should certainly render the diagnosis evident. The prognosis of vaginal carcinoma is the same as in any other malignant affection, namely, very poor, and it is only by an early, radical interference that it can be improved on.

REVIEW OF LITERATURE

Abdominal Hysterectomy in Carcinoma.—Pettazzi¹ admits the rationality of this, theoretically, but claims from experience that success is not certain. When possible, he limits the operation to selected cases. The vaginal route is advisable, if the lesion permits. His experience in laparotomies has enabled him to observe the frequency of shock following abdominal interference. He believes the abdominal cavity may be infected during laparotomy; cases of recurrent cancer are due to this very much more often than admitted. He exercises a narrower selection than Makenrodt's formula might render operable, for the reason that his results have been unsatisfactory in diffuse cases. [T.H.E.]

Tuberculosis of the Urinary System in Women.—G. L. Hunner² reports 35 cases occurring in the service of Dr. Kelly and his assistants at the Johns Hopkins Hospital. The right kidney was operated upon in 17, the left in 18 instances. The paper deals mainly with the question of diagnosis. Hunner believes that by far the larger number of cases of urinary tuber-

culosis in women begins in the kidney; he classes only 5 of the 35 cases as primary bladder infection, and says that in the past 6 years he has seen only 2 cases of tuberculosis of the bladder in which other portions of the urinary system were intact. While the ability to do cystoscopic work is of very great help in the diagnosis and treatment of this condition, inability to use that instrument does not excuse the physician from making the diagnosis. Tubercle bacilli should be found in practically every case; do not examine 20 or 30 slides in one day but 2 or 3 slides daily for a week or more. Hunner severely denounces what he calls the abuse of cystoscopy. This consists principally in catheterizing supposedly healthy kidneys through bladders known to be infected or a supposedly sound organ when the opposite one is diseased. The writer is sceptical regarding the topical treatment of bladder tuberculosis; he has never seen a patient recover without operation. [A.G.E.]

The Clinical Importance of Retroflexio Uteri.—G. Winter's³ researches have shown that of 710 apparently normal women 154 had retroflexed uteri; of these 154 women, 90 (60%) complained absolutely of no gynecologic symptoms. A closer examination of the symptoms complained of by women with this condition revealed that in nearly all cases the symptoms are due to some coexisting complication. Of 90 women with retroflexion complaining of symptoms which were at first believed to be due to the retroflexion 88 were found to have a complicating condition: 6 were pregnant, 5 had puerperal hemorrhage, 6 prolapse, 15 catarrh, 31 adnexal disease and perimetritis, 18 parametritis, and 3 had rarer complications. Upon removal of the complications the symptoms claimed to be due to the retroflexion disappeared; only in the cases of puerperal hemorrhage was it necessary to treat the retroflexion. He found further that the complications did not produce the retroflexion, nor the retroflexion the complications, even where it had existed for years, nor was it capable of producing diseases of the nervous system, as hysteria. The treatment of retroflexion therefore is the treatment of its complications. Simply to operate on a healthy woman because she has retroflexion is absolutely uncalled for. [E.L.]

Surgery for Inoperable Uterine Cancer.—R. S. Gamboa,² in an incomplete report, suggests the value of cutting down on the lesion and ligating the branches of arterial supply. Many cases so treated show improvement, and the wretched discharge is greatly lessened. One death occurred among 37 patients. When hysterectomy is impossible, and the patient will bear etherization, the writer offers the above procedure. He cannot report the outcome of all his cases, since it is difficult to trace them after leaving the clinic, but those now known are in the best condition to be hoped for, considering the lesion which, of course, remains. [T.H.E.]

Practical Lessons from Cases of Eclampsia.—Barton Cooke Hirst³ gives valuable points learned from an experience of more than 100 cases of eclampsia. He finds nothing in the clinical observation of nephritis in pregnancy to shake his belief in insufficient renal activity as a cause of eclampsia; we should hold fast to the lesson taught by experience, that nephritis in pregnancy is one of the gravest complications. Among the premonitory signs of eclampsia there is nothing comparable in value to the presence in the urine of considerable and increasing quantities of albumin. The urea excretion is valueless in comparison. A certain number of cases occurs without precedent albuminuria, but the number is much smaller than might be inferred from the reports in medical literature of sporadic cases. Hirst has finally reached the conclusion that the view that rapid evacuation of the uterus is the proper treatment for eclampsia is erroneous. He is better satisfied with treatment directed solely to the eclampsia without regard to the uterine contents, until such a degree of dilation of the os is secured spontaneously that delivery can easily be secured without violence. The use of opium is not recommended. Hirst closes by emphasizing the advantages of treating cases of eclampsia in a well-appointed hospital. [A.G.E.]

¹ Wiener klinisch-therapeutische Wochenschrift, 1904, No. 1.

² Crónica Médica Mexicana, March 1, 1904.

³ Proceedings Philadelphia County Medical Society, December 31, 1903.

¹ Il Policlino, Rome, No. 14, 1904.

² Johns Hopkins Hospital Bulletin, January, 1904.

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Cumulative Action of Digitalis.—A. Fränkel's¹ investigations with the different members of the digitalis group were made for the purpose of determining their therapeutic and toxic doses, the duration of their action and, if possible, the cause of their peculiar cumulative effect. He found that none of the animals ever became accustomed to the drugs, and that their cumulative action is a very prominent property. The symptoms of cumulation always developed as the individual doses were increased or the period between doses diminished. Idiosyncrasy on the part of the animal was of very little importance. All the drugs belonging to the group are very slow in producing their first effect on the circulation; if but one therapeutic dose of digitoxin is given, the slowing of the pulse does not appear for at least 60 hours, with digitalinum verum the action was noted after about 24 hours, but even with strophanthin, the quickest of them all, it took four to five hours before its circulatory activity was established. Large fatal doses act quicker, but in the case of digitoxin six hours usually elapse, with strophanthin, 10 to 20 minutes. The first symptom of poisoning is invariably vomiting; this occurs before the circulatory changes are noted. Very small doses of any of the drugs may be toxic in time, and to stay within safe limits doses should be given, which even when several are counted together, will not produce physiologic results; such doses can then be given for a long time without showing cumulative action, but should the interval be shortened or the dose be increased, vomiting will quickly occur. Symptoms of poisoning were never very far off. Digitoxin is the most dangerous of them all. A dose of 0.2 mg. of digitalinum verum (one-half the lowest fatal dose) could be given for weeks, while 0.03 mg. of digitoxin (one-third the lowest fatal dose) produced poisonous symptoms after the third dose. The effects of the drug pass off very slowly; after a single dose of any of them the pulse-rate will remain below normal for over a week. The cause of the cumulative action is not due to slowness of elimination, as strophanthin, which shows the same cumulative activity as the others, is easily eliminated, being very soluble. The rapidity of the action of the drugs is on a parallel with their solubility. The cumulative action must be due to firmness with which they unite themselves to the sensitive cardiac muscle. The practical deductions from this series of observations are that it is much easier to obtain therapeutic results by the repeated administration of small doses than by the use of one or two large single doses. When these drugs are used over a period of time the occurrence of even physiologic alterations in the pulse-rate should be the sign for the withdrawal of the drug for two or three days, to see if their action is going to become more accentuated with the production of toxic symptoms. Digitoxin is not to be recommended for any therapeutic purpose, and is especially dangerous when the effects of a single dose are desired. If a prompt action is desired, strophanthin is certainly the most desirable of the agents mentioned. Although strophanthin has less tendency to produce an outbreak of toxic symptoms through its cumulative action, the frequent use of it may nevertheless lead to the occurrence of this condition. [E.L.]

Saline Infusions in the Treatment of Mental Diseases.

—W. S. Greidenberg² has employed subcutaneous saline infusions in mental diseases and recommends the method very warmly. He has seen excellent results from its use. The infusions have a sedative effect, promote sleep and appetite, are well borne, and under elementary aseptic precautions there is no danger to be feared. They are indicated chiefly in all psychoses of an infectious, toxic or autotoxic nature. Psychomotor excitement, insomnia, and anorexia call directly for saline infusions. The technic is simple and needs no description here. The ordinary physiologic saline solution (.7%) has been used, beginning with 250 cc. and going up to 1,500 cc. at a single injection. There are no serious contraindications to the

use of saline infusions, though some additional caution is appropriate in the presence of cardiac disease, chronic pulmonary affections, intracranial hyperemia, and generally in conditions rendering an increase of vascular tension undesirable. [L.J.]

Therapeutics of the Ichthyol Compounds.—James Burnet,¹ of the Royal Infirmary, Edinburgh, has heretofore called attention to the value of various ichthyol compounds. In the present paper he devotes special attention to ichthoform, a compound of ichthyol and formic aldehyd; and ichthargan, a compound of ichthyol and silver salt. He has used ichthoform as an intestinal astringent, an antiseptic, as a dusting powder, as an ingredient in ointments, and as a means of impregnating gauze. His general conclusions with reference to its use are that (1) it is one of the most efficacious antiseptics which we at present possess, more especially in cases of intestinal disease where its action is more certain and less harmful than salol and some other substances; (2) it is an excellent substitute for iodoform in all cases where the latter is indicated. It is odorless and practically nontoxic; (3) for intestinal administration it is even given in small doses, frequently repeated. As much as two drams may be given in one day if divided into small repeated doses. Ichthargan is a brownish-black, amorphous powder containing 28.7% of silver. He has had beneficial results from its employment in gonorrheal urethritis, gynecologic affections, in dermatologic practice, in affections of the nose and throat, in diseases of the eye, etc. Concerning the two drugs he believes they are of special value as antiinflammatory agents; they are trustworthy in action, and deserve to be more extensively used by the profession than has heretofore been the case. [A.B.C.]

Olive Oil in Diseases of the Stomach and Intestines.

According to P. Cohnheim,² large doses of olive oil (100 gm. to 150 gm. daily) exert a powerful curative influence in cases of gastrectasia due to pyloric spasm resulting from ulcer or fissure; also in relative stenosis with hypersecretion and pylorospasm; also in ulcer of the pylorus with or without hypersecretion. It is also of considerable palliative value in carcinomatous stenosis of the pylorus, with or without gastrectasia. The oil is best given continuously for some time, three times a day, one-half to one hour before eating; it may be introduced through a tube if necessary. Usually a wineglassful in the morning, and two tablespoonfuls at midday and in the evening, are the proper doses. The oil serves three indications; it stops the pylorospasm, diminishes friction, and supplies nutriment. It produces no ill effects. It has no effect in gastric pain of pure neurotic or hysterical origin. It acts very favorably in the pains of hyperchlorhydria and atrophic gastritis. [B.K.]

Some Therapeutic Applications of Chloretone.—D. M.

Hutton³ writes of the value of chloretone in nausea and vomiting. In the vomiting of pregnancy out of six cases treated in four it ceased to be distressing and in one in which previous pregnancies had ended in miscarriage the child was carried to full term. It is exceedingly useful in the sickness accompanying menstruation in many girls, what they call a bilious attack accompanied by nausea and retching. It prevents certain forms of seasickness. It relieves stomach pain of neurotic origin. It acts by rapidly numbing sensation in the stomach. It has a pleasant taste, produces an agreeable feeling of warmth and the slight hypnotic effect produced by 12 gr. or 15 gr. frequently aids the process of relief. [H.M.]

The Pharmacology of Veronal.—N. T. Botcheroff⁴ has made a number of experiments on dogs, frogs, and rabbits. He found that veronal paralyzes the central nervous system, small doses affecting chiefly the cerebrum. The sleep of veronal is very long, followed in the case of large dosage by weakness and depression. The number of heart-beats is seriously affected only by very large doses. In general, the author remarks that veronal is very similar to trional in its action, being free, however from the untoward effects of the latter. This freedom is due to the absence of the sulfogroup in veronal, and thus its prolonged use is safer than that of trional. [L.J.]

¹ The Lancet, March 12, 1904.² Zeit. f. klin. Med., Bd. lili, p. 110.³ Liverpool Medico-Chirurgical Journal, January, 1904.⁴ Russki Vrach, February 7, 1904.¹ Archiv für Experimentelle Pathologie und Pharmacologie, li, 84.
² Russki Vrach, December 31, 1903.

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"Consumption Rows" and "Lung Blocks."—According to the Charity Organization Society's most excellent *Handbook on the Prevention of Tuberculosis*, there is one block in New York city called "The Lung Block," which houses 478 human beings to the acre, or a total of nearly 4,000 for the whole block, not to mention animals. In the past nine years 265 cases of pulmonary tuberculosis have been reported from it. In Chicago it has a rival called "Consumption Row," from which 138 cases have been received at the Cook County Hospital in the last four years. Doubtless in these two cities these rows and blocks are not the only ones serving as such breeders of the disease, and just as certainly these two cities are not the only ones having such buildings. The facts bring out plainly the truth of the infectiousness of tuberculosis, and that the germs remain in the places for indefinite periods and for an indefinite number of reinfections. Either this, or that the conditions of ill-ventilation, darkness—there are said to be 350,000 persons in New York living in windowless rooms—and filth produce the disease. Unquestionably both causes cooperate. The remedy is not a scientific one, as scientific knowledge has long pointed out the way of relief. The cure is a social and largely a legal one. Such tenements and conditions must be legally abolished, and the community must take up the reform. We are our brothers' keepers.

The railway hospital car, concerning which reference was made in a recent issue of *American Medicine*, according to Dr. Fairchild (*International Journal of Surgery*, April, 1904, and *The Railway Surgeon*, February, 1904), has been already placed in use by the C. & N. W. R. R. He says the original idea of putting up such a car came from Mr. Cooper, the master car-builder of the railroad. One may feel a little regret that it did not come from a physician. The fact at least shows the excellent motive of self-interest on the part of the railway officers, and again illustrates the frequent identity of a wise selfishness and a wise humanity. Dr. Fairchild, in describing the car, says that in one end of the coach five sections were made, each having an upper and lower berth, thus accommodating ten patients. The water heater is in the center, and nearby are the surgeon's supply press, clothes closet, washstand, water closet, etc. The supplies in the surgeon's press comprise everything that may be required in emergencies, operations, etc. The

central part of the car has two tables at one side arranged similar to those in a dining car, corresponding on the opposite side is a writing desk and a seat running along parallel to the side of the car; this portion is well supplied with windows. At the other end is a cupboard and icebox, and opposite to this is a range stove. Up in the top in the cupola is placed a stretcher, also an operating table, and whenever the car is called and an accident has occurred, the table is taken down and firmly placed, one end resting on the side table running across the car, with portable legs at the other end resting on the floor.

Clinical Prejudices.—A famous physician, once, going through the hospital wards told a new patient to "put out his tongue." It was pointed, with a streak down the center. "You see here, gentlemen, an infallible sign of gastritis." "Have you any appetite?" "I could eat a horse," said the patient. "It is gastritis, nevertheless. Any thirst?" "No, no thirst." "Gastritis, notwithstanding. Any pain in your stomach?" "None at all, sir!" "Well, you see the pointed tongue, gentlemen; it is gastritis! Fifty leeches to the stomach!" The anecdote suggests many lessons, and perhaps to every reader it will recall memories of similar experiences. "Make a snap diagnosis and stick to it," was the advice of another wellknown teacher. But we are nowadays fast learning better than that—if not a better science, at least a better policy. The mystery of disease bears too heavily upon the conscience of the modern physician to permit him to judge hastily from insufficient data, and from single symptoms. The individuality of each case of disease, when closely studied, demonstrates that none is like another, and that the best rule in diagnosis and treatment is to have no rule.

"Gastritis Nevertheless!"—There are four truths which are not recognized by the *gastritis, nevertheless*, physicians. 1. Giving a disease a name does not in the least explain its origin, and of pathogenicity these men are seldom curious. If it is gastritis, that's enough. But three-fourths of the whole battle of medical science is to determine the cause of disease. 2. Supposing the disease to be caused by disease of the local organ, or to be located only in the organ, where one of the symptoms

appear, is the stupidest and commonest of blunders. 3. The treatment—"fifty leeches to the stomach"—has no physiologic relation to the real disease, and is not effective as a therapeutic measure. The patient gets well in spite of or at least regardless of the fifty leeches. 4. The fourth, and an unexpected lesson in this old morality is that whenever in olden times (and not infrequently today) the doctor could not fathom the mystery of his patient's absurdly persistent disease, he had refuge to the stomach. It was something like the method of the old piano tuners, who got rid of the dissonances of the keyboard by gathering them all in one octave, which they named "the devil." The player was to avoid this octave as much as possible. In the last century Europe turned itself largely into making dieting establishments, cookery books, health resorts, sanatoriums, etc., for the cure of "dyspepsia." And today there is no agreement, no science as to the causes of the "dyspepsias" which as much as ever afflict modern patients.

Vanity and the Persistence in Error.—"Gastritis, notwithstanding!"—said the great clinical teacher, and passed on with perfect self-satisfaction to the next patient. But he did not notice that among his pupils following him through the wards, not all were dumb with awe and admiration. There was one, at least, who tells the story. The reverence due to authority has often led the authoritative to sorry ends, even when the reverence was real and the authority meritorious. But, as all know, the reverence may be only acted, and the worshiper may smile secretly, perhaps grimly at the plight both of the false divinity and of the sceptical suppliant. There are no students more expert than the medical variety in exposing the errors and make-believes of their teachers. Every medical college rings with the laughter,—but not where the learned one can overhear! In after-life it is the same. The younger practitioners quickly penetrate the disguises of sham intellect, the pretenses of clinical insight, on the part of unwary consultants and leaders. But the sorriest part of the farce is when the "gastritis-nevertheless" professors do not suspect the real feelings of their colleagues, and do not dream that with death, the account on the slate will quickly be rubbed out. Scientific progress cannot allow individual prejudices and vanities long to block her way. How many famous physicians disappear in an instant and nothing is thereafter heard of them! It is not because they did not write or make great discoveries. It is because they taught the theory and not the practice of medicine; because preformed conceptions of disease governed their opinions rather than careful clinical observation; because they cared more for the science of disease, and for their individual idea of the science, than for the patients' single and peculiar disease; because they treated the disease rather than the patient; because, in a word, they were, *gastritis-nevertheless* physicians.

New Medical Truth.—In our time we are accustomed to think the new truth is accepted too readily—even before it is at all certain that it is true. The avid hunger for the novel, however, has little or no relation

with the discernment or the acceptance of the really progressive steps made in medical science. It would be strange indeed if the world-old law should be suddenly changed. In all times and in all kinds of discovery, woe has been to him who dares to question the accepted and to replace it by the hitherto unknown; and medical progress can scarcely be an exception to the law, although the very condition of science is openness of mind to the new view. And it is no exception. Without knowing anything of bacteriology and disease germs, guided solely by observed clinical fact, Semmelweiss had proclaimed the truth that puerperal fever was due to poisonous matter carried by the physician or accoucheur. Semmelweiss was persecuted by his medical colleagues, his views were denounced by the professional leaders, and he was turned out of his professorship and ruined. Facts, however, were upon his side. In the Paris Maternité 64 women out of 347 died, in 1856, in a few weeks, and in 1864 out of 1,350 admissions 310 died. When it came again to the acceptance or rejection of the greatest modern medical truth, the germ theory of disease, there was again shown the same "tyranny of medical education," as Dr. Roux calls it. The younger men were the first to see the truth. There is a strange fatality which makes the official spokesmen fail to speak rightly. The leaders hardly ever lead. The fact may encourage the timid to rely less on the guides who do not guide than on their own careful personal observation and independent judgment. There is doubled certainty of tragedy to the reformer, however, if the supposed truth is not true. If it does turn out to be true, the false critic is perfectly unharmed; he smiles loftily at the old battle, and from his reporting, one would never suspect that he fought on the wrong side.

The Stages of Progress in Practical Sanitation.

—In a thesis by Dr. Wm. H. Allen for the degree of Doctor of Philosophy (Seventeenth Report, Pennsylvania State Board of Health) the steps in the evolution of practical sanitation are traced as follows:

1. The period of racial tutelage, when the fundamental lessons of personal hygiene were taught by the process of natural selection.
2. The period of esthetic or comfort sanitation, street paving, sewerage, waterworks and baths.
3. Commercial sanitation, the era of quarantine protection against imported plagues, and street care in the interests of guild commerce.
4. The period of nuisance abatement and the evolution of a code to insure the leisure class against annoyance.
5. Leisure class sanitation for the protection of the upper class against the filth and disease of city slums.
6. Philanthropic sanitation in the interests of the submerged classes.

The sixth is the stage in which we now find ourselves, or are preparing to enter. But the actual difficulties encountered depend upon the lack of local interest and cooperation, and in the want of State appropriations. In 1898, only 231 out of 800 boroughs of the State had appointed local Boards of Health, and many of those appointed were inactive, and the majestic State

appropriates only \$6,000 for the expenses of the State Board! The truth is that the science of hygiene has vastly outrun the practice, and that all progress now awaits the participation of the public. "Sanitary progress depends upon society's appreciation of health, not upon technical knowledge of disease." The death-rate may be reduced one-half whenever the people and their legislators wish. There is little evidence at present of the existence of the wish.

Bovine Tuberculosis and Public Health.—The present status of this most important question is briefly set forth by D. E. Salmon in a publication¹ embodying the annual reports on the relationship between bovine and human tuberculosis made to the American Public Health Association for the years 1901, 1902, and 1903. Parts of the subject matter have been previously published in bulletins of the department and elsewhere, but the three conjoined reports form a pamphlet that is of value alike to physicians, sanitarians, and the laity. Much of the last report is occupied by a rebuttal of the postulates of Koch as announced at the British Congress on Tuberculosis. Reference is made to the work of DeSchweinitz and of Mohler, not yet published, in which two distinct lines of experiments were carried on in such manner that one might serve as a check to the other. The results were in accord in showing that a certain percentage of tubercle bacilli obtained from man were virulent for animals. These were identical in their cultural and morphologic characteristics with bovine bacilli. Comparative studies of bacilli from various sources confirm previous experiments, showing that the types of both human and bovine tubercle bacilli are very inconstant and readily change in morphology and virulence. The results of the German tuberculosis commission, as shown by the preliminary announcement of Kossel, tend to support these findings. From the work done during the past two or three years it now appears to be demonstrated without a doubt that bovine tuberculosis is communicable to man. The proportion of human cases to be attributed to this source still remains to be determined.

Sleeping-sickness in Uganda.—An exceedingly interesting pamphlet of 87 pages is that containing the "Further Report on Sleeping-sickness in Uganda," by Bruce, Nabarro, and Greig.² The main conclusions arrived at in this report were published some time since in the British journals, but many suggestive data are now supplied. Briefly, the authors consider it proved that sleeping-sickness is caused by the entrance into the blood and cerebrospinal fluid of a species of trypanosoma, probably the species discovered by Forde and described by Dutton as *Trypanosoma Gambiense*; that the trypanosomes are transmitted only by a species of tsetse fly, *Glossina palpalis*; that sleeping-sickness is, in short, a human tsetse fly disease. It must be said that the results of their investigations and animal experimentations as set forth in the report appear fully to justify

the above conclusions, and thus render it reasonably certain that the etiology of one more hitherto obscure disease has been definitely settled. The various steps in the working out of this problem form one of the most fascinating chapters in the history of modern investigative medicine. Incidentally another member of the protozoa, long known as infesting the lower animals, has been added to the list of blood parasites in man. An important question, one that we may hope to see solved in the near future, is that raised by the statement in the report that the so-called cases of trypanosoma fever may be, and probably are, cases of sleeping-sickness in the earliest stages.

The Weather and Pneumonia.—There seems to be a difference in the rate of increase of the mortality from pneumonia in different parts of the country which is very puzzling. But still more noteworthy is the difference of conclusion as to the agency of weather. The last report of the Indiana State Board of Health is of value in giving the comparative mortality in an entire State due to the disease for several years, and especially as this is a large inland State of the Middle West. The increase is clear. These are the figures:

PNEUMONIA DEATHS BY MONTHS FOR FOUR YEARS.

	1900.	1901.	1902.	1903.	1904.
January.....	385	622	427	410	540
February.....	401	608	512	399	711
March.....	594	603	470	402	.....
April.....	463	404	352	317	.....
May.....	224	250	192	209	.....
June.....	102	101	83	124	.....
July.....	63	53	60	77	.....
August.....	54	63	62	79	.....
September.....	61	73	112	110	.....
October.....	136	129	157	132	.....
November.....	191	206	181	241	.....
December.....	299	380	267	392	.....

After comparing the weather conditions during the winter months of greatest mortality, the *Bulletin* concludes that the weather had no influence whatever in changing the mortality rate. There is a falling back upon the mystery of "an infection of unusual virulence and in unusual quantity."

Röntgen Rays in the Dublin Law Courts.—The surgical possibilities and the legal liabilities of the use of the röntgen rays were—for the first time within the British dominions—exhaustively investigated in the Dublin Law Courts last month. A lad, resident in Galway, the seat of one of the "Queen's Colleges," was suspected of having a needle lying within or near one of his knee-joints. Professor Colohan (of Queen's College) sent him to the assistant in the physical laboratory, a man named Haire, to have the joint skiaographed—in order to perfect the diagnosis. The result was not satisfactory, and after some repetition a röntgen-ray burn appears to have been developed. Ultimately the boy was sent to Dublin for advice and treatment, and the comments there made on the origin of the cutaneous sore led to the legal proceedings. There were three actions brought by the guardians of the boy—one against Dr. Colohan; one against the laboratory assistant, Haire; and one against the college authorities.

¹ Bulletin No. 53, Bureau of Animal Industry, U. S. Depart. of Agriculture.

² Royal Society: Reports of the Sleeping-sickness Commission, No. 4, 1903.

The trial lasted seven days; twelve K. C.'s were retained throughout; the most noted experts were summoned from the other side of the Irish channel; and those of Dublin were necessarily pressed to the front. The evidence of Dr. W. S. Haughton, the premier röntgen ray specialist of Dublin was the conspicuous expert feature of the whole trial. Every possible aspect and every practical property of the röntgen rays, in their relationships with human tissues, were thoroughly thrashed out in open court, and the most up-to-date röntgen ray machinery was made to display its modes of action to the jury. After the brilliant display of native science and native wit, nobody was surprised that the röntgen ray specialists carried the opinions of the jury, and that a verdict was recorded in favor of the defendants. The result must have taught something to the lawyers, as well as to the general medical and lay public for the trial was one of the most expensive that has taken place in Dublin for a long period, and the plaintiffs do not appear to be persons of any substance.

The Verdict.—Judge Gibson's charge to the jury occupied about three hours, and at the close he submitted the following series of questions for their consideration. Their perusal will well repay attention. We subjoin thereto the answers which were given by the unanimous decision of the jurors, after a conference of one hour:

1. Were the Queen's College, Galway, and Haire, or one, or which of them, employed for reward to photograph by röntgen rays in December, 1902, and in April, 1903? Haire was so employed. College was not.
2. Was the sore caused by the rays? Yes.
3. Were the rays negligently applied as regards:
 - (a) Distance? No.
 - (b) Duration of such exposure? No.
 - (c) Consecutive multiplication of exposures? No.
 - (d) The type of machine? No.
4. Was the sore caused by the operation
 - (a) Of December 15? Cannot say which.
 - (b) Of December 26 and 27? Cannot say which.
 - (c) Aggravated by those in April? No.
5. (a) Did the operation of Dr. Colohan, for which Haire is not responsible, contribute to the sore? Yes.
- (b) Did the operations of Haire, for which Dr. Colohan is not responsible, so contribute? Yes.
6. (a) Was Haire negligent in applying the rays? No.
- (b) Was Dr. Colohan negligent in applying or superintending? No.
7. Before the rays were applied in April was:
 - (a) Dr. Colohan negligent in not diagnosing the sore as caused by röntgen rays? No.
 - (b) Was Haire so negligent? No.
8. (a) Was Dr. Colohan negligent in applying the rays in April after the sore appeared? No.
- (b) Was Haire so negligent? No.
9. To what damage, if any, is the plaintiff entitled? None.
10. Is any, and what amount of such damages attributable to acts of Dr. Colohan only? Not answered.
- (b) Is any, and what amount thereof attributable to acts of Haire only? Not answered.

Vacancies in the Medical Department of the U. S. Army.—There are 20 vacancies in the junior grade of the Army medical department, and candidates for the places will be examined beginning April 18. A second class of candidates will be examined on May 2. There will be two boards of examination this year. One will convene in Washington and the other in San Francisco, where there are a number of candidates.

BOOK REVIEWS

A System of Physiologic Therapeutics. A Practical Exposition of the Methods, other than Drug-giving, Useful for the Prevention of Disease and in the Treatment of the Sick.—Edited by SOLOMON SOLIS COHEN, A.M., M.D. Vol. VIII: **Rest, Mental Therapeutics, and Suggestion.**—By FRANCIS X. DERCUM, M.D., Ph.D. P. Blakiston's Son & Co., Philadelphia, 1904. Eleven volumes, \$27.50.

The title of this volume suggests that in many respects it must have been one of the most difficult to prepare—since the subjects of which it treats so nearly approach, in fact have cunningly been made part and parcel of charlatanism, that the sifting of the wheat from the chaff required the exercise of a nice discrimination; and yet, gauged by the result, the efforts of the author and the editor could scarcely have been more successful. Part I comprises an account of the functions and results of rest, and of the nature of, and the application of rest in, such diversified though commonly confused disorders of the nervous system as neurasthenia (the fatigue neurosis), the different spurious forms of neurasthenia (which the author speaks of as the neurasthenoid state and symptomatic neurasthenia), hysteria, hypochondria, chorea and other functional nervous disorders, and certain organic nervous disorders. Although, as is eminently proper, special attention is given to the remedial applications of rest, to an exposition of that systematic method of cure known as the "Rest Cure," the exigencies of the situation demanded a somewhat detailed discussion of the nature and diagnosis of neurasthenia, hysteria, hypochondria, etc. This is most praiseworthy, and its study is commended to the large body of practitioners whose conception of these states is rather hazy and who but too frequently use the terms hysteria, neurasthenia, and hypochondria, almost if not quite interchangeably, entirely forgetting that each is a readily differentiable clinical entity. Part II comprises an account of the therapeutics of mental diseases, in which are discussed the prevention of insanity, the general principles underlying the treatment of the insane, details of asylum management, and the treatment of special forms of mental disease, such as delirium, confusion, and stupor; melancholia, mania, and circular insanity; paranoia; the neurasthenic insanities; simple dementia; paresis; drug habits; and the insanities of intoxication. This is especially valuable from a practical point of view, since there is little doubt that if the suggestions embodied in the chapter were more generally carried out there would be less insanity, less crime due to insane states, and more cures in the cases curable in the early stages of the insanity. Part III deals with suggestion, with the influence of the mind upon the causation, course, and cure of disease. This, which includes a discussion of suggestion by mystic and religious methods, suggestion under artificially induced hysteria—hypnotism, pythonism, shamanism, magnetism, mesmerism, metallotherapy, Perkin's tractors, mind cure, faith cure, eddyism, etc., though brief is one of the sanest, and withal one of the most valuable and interesting chapters on the subject that we have read. The author points out and clearly shows that the underlying principle of the different faith cures—using the term in the wide sense—is the inducing of an abnormal mental state which he believes to be identical with hysteria. As a volume it is practical and valuable; it well exemplifies and fittingly reflects physiologic therapeutics in its widest sense, and it is by no means the least interesting of its healthy family.

Blood Immunity and Blood Relationship.—By GEORGE H. F. NUTTALL, M.A., M.D., Ph.D., including Original Researches by G. S. GRAHAM-SMITH, M.A., M.B., D.P.H. (Camb.), and T. S. P. STRANGEWAYS, M.A., M.R.C.S. The University Press, Cambridge, 1904.

The book is a most welcome addition to medical literature, as well as to biologic and anthropologic literature, since it is the first embodiment of the practical results of the recent work upon the interreactions of various bloods. Part I, reviews concisely the antibodies in general, and the antibodies other than the precipitins, and is a succinct review of our present knowledge of the various phenomena exhibited by normal and immune serums. Part II, takes up the main field

covered by the book—the description of everything which pertains to the precipitin test, both in the general biologic problem of the relation of species, and in the specific medicolegal problem of the recognition of bloods. The attention to detail, and the thorough treatment given every phase of the subject, make this part of Nuttall's book an ideal textbook for the biologist, and particularly for the medicolegal expert; the criminal lawyer would also find much food for thought. Part II is subdivided into a discussion of methods, of the nature of the precipitin reactions, and of the specificity of precipitins, beside other chapters of theoretic interest. Nuttall's own work concludes with a summary, and a tabulated analysis of the results obtained from 16,000 precipitin tests on 900 specimens of blood. Section VII, by Nuttall and Strangeways, takes up the question of quantitative precipitin tests. The conclusion from 500 quantitative tests is that this method excludes the personal equation which must interfere more or less in the qualitative method, but that the results of the simpler qualitative method are practically accurate. Section VIII, by Graham-Smith, discusses the bearing of 2,500 tests with precipitating antisera on the question of the relationship among the lower vertebrates and arthropods. Section IX, "On the practical application of the precipitin reactions in legal medicine," covers the application of the antisera to the identification of bloods and bloodstains, the examination of meats, of bones, of certain commercial preparations, and to the study of urine. The exceptional quality of Nuttall's book is due to two facts; it not only contains the results obtained by a master workman, but also a complete record of the work of others, the appended bibliography covering 15 pages.

Preventive Medicine.—Published by the Maltine Company, Brooklyn, N. Y.

Under this title the Maltine Company has printed the prize essays of Drs. W. Wayne Babcock and Lewis S. Somers, which were published in the *Brooklyn Medical Journal* and the *Medical News*, respectively. It is a paper covered book of some 280 pages for gratuitous distribution to the medical profession. It is well printed, contains but few advertisements, and the essays will repay careful reading.

Acute Poisoning.—Published by Victor Koechl and Company, New York City.

This is a chart about 25x29 inches in size, giving a list of poisons, their classification and varieties, chemic and physiologic antidotes, fatal doses, simple tests, and brief remarks on treatment. It makes a very convenient reference list for physicians, and would also be of value to the laity in cases of poisoning.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Commoner Diseases of the Eye: How to Detect and How to Treat Them.—By CASEY A. WOOD, C.M., M.D., D.C.L., Professor of Clinical Ophthalmology in the University of Illinois, etc.; and THOMAS A. WOODRUFF, M.D., C.M., L.R.C.P., Professor of Ophthalmology in the Chicago Post-Graduate Medical School, Chicago, etc. With 250 illustrations, 7 colored plates, 500 pp. Bound in green buckram, gold side-title and top; \$1.75 net. G. P. Engelhard & Co., Chicago, 1904.

The International Medical Annual: A Year Book of Treatment and Practitioners Index. 1904. Twenty-second year. E. B. Treat & Co., New York City. Price \$3.00.

Treatise on Diseases of the Skin: For the use of Advanced Students and Practitioners.—By HENRY W. STELWAGON, M.D., Ph.D., Clinical Professor of Dermatology in the Jefferson Medical College and Woman's Medical College, Philadelphia; Dermatologist to the Howard and Philadelphia Hospitals; Member of the American Dermatological Association; Associate Member of the French Society of Dermatology and Syphilography and of the Italian Society of Dermatology and Syphilography. Third edition. With 220 illustrations in the text, and 26 full-page lithographic and half-tone plates. W. B. Saunders & Co., Philadelphia, New York, London, 1904.

Manual of Clinical Microscopy and Chemistry: Prepared for the Use of Students and Practitioners of Medicine.—By DR. HERMANN LENHARTZ, Professor of Medicine and Director of Hospital at Hamburg, etc. Authorized Translation from the Fourth and Last German Edition, with Notes and Additions, by HENRY T. BROOKS, M.D., Professor of Histology and Pathology at the New York Post-Graduate Medical School and Hospital; Member of the New York Academy of Medicine, etc. With 148 illustrations in the text and 9 colored plates. Bound in extra cloth. Price, \$3.00 net. F. A. Davis Company, Publishers, Philadelphia, Pa.

Transactions of the American Climatological Association for the year 1903. Vol. xix. Printed for the Association, Philadelphia, 1903.

Bulletin of Iowa Institutions (Under Board of Control.) Published quarterly. Vol. v, 1903. Franklin Printing Co., Des Moines, 1904.

AMERICAN NEWS AND NOTES

GENERAL.

Knife Blade in Brain for 20 Years.—News from New Haven, Conn., states that a portion of a long, thin knife blade, which had remained embedded in the skull and projected an inch into the brain of a negro, was recently removed by a surgeon. The patient is 57 years of age, and 20 years ago, in a quarrel, was struck on the head with a knife, the blade breaking off, where it had remained without producing symptoms until very recently, when the patient began to have convulsions. These increased in frequency and led him to seek medical relief, with the above result.

Miscellaneous.—**Springfield Ill.:** H. C. Fairbrother, of East St. Louis, has been appointed a member of the Illinois State Board of Commissioners of Public Charities.—**New York:** Ernest J. Lederle, until recently Health Commissioner in New York City, has established a laboratory for sanitary, chemic, and bacteriologic investigations.—**Philadelphia:** The trustees of Frankford Hospital recently elected the following physicians to membership on the visiting staff of physicians: W. H. Morrison, C. M. Nassau, S. K. Bolton, E. E. Keiser, and George C. Hanna. Dr. James K. Young has been elected assistant professor of orthopedic surgery in the University of Pennsylvania.

Bequests to Charity.—The children of the late Mayer Lehman, who, for 19 years, was director of Mt. Sinai Hospital, have given \$93,000 for the construction of a complete dispensary building which is to be dedicated in memory of their father. By the will of Herman Weiller, \$500 each is left to the Jewish Hospital Association and the Jewish Foster Home of Philadelphia. By the will of Mary M. Johnson, of Philadelphia, who died in 1884, about \$150,000 was left to various charitable institutions, mostly of Philadelphia. The funds have but lately become available. By the will of Julia F. H. Nevins, who recently died in New York, \$1,000,000 was left to establish a home for aged incurables. Provision is to be made for 100 people in the home.

Treatment of Children.—From *Charities* we quote the following: The seventieth annual report of the Boston Children's Friend Society is of peculiar interest. The society, one of the oldest children's institutions and child-saving agencies in the country, has, within the past few years, changed from the institutional to the placing-out system, an unusually radical change for a conservative institution. Referring to this, the board of directors says: "From time to time the question is asked if the new method of placing the children in homes is the best way of helping them? We, as directors, say yes, and the opportunities which we have of judging prove to us that in no other way could the child be given such a chance for development."

Increase in the Price of Quinin.—Quinin, which was advanced February 16 to the extent of 2 cents an ounce, is likely to go still higher, in the opinion of some men in the trade, while others do not look for any further advance. A report has been circulated that the Russian Government is negotiating in European centers for large supplies for its army and navy. A representative of a prominent New York firm has stated that war is not likely to have any immediate effect upon prices of quinin. The soldiers now in the field, for the most part, were in military service before hostilities began, and were consumers of drugs. The exposure of men to campaign hardships may call for the use of somewhat larger quantities of the drug, but this additional amount will have little influence on the market.

The House, its History and Influence in Hygienic Progress.—This the title of a lantern lecture which under certain conditions will be given, gratis, by Dr. George M. Gould. It is designed to interest a lay audience and to render aid in sanitary house-building and housekeeping, in tenement house reform, and in the warfare against ill ventilation, and the diseases, tuberculosis, etc., which according to modern scientific conclusions are dependent upon unhygienic houses and house life. It is illustrated by about 100 lantern slides. Preference will be given to invitations of medical societies under the auspices of which the public meeting should be held. The local expenses for the hall, lantern, etc., are to be arranged for and paid by the local committee. The lecture was given at Atlantic City by invitation of the Atlantic City Medical Society, April 14.

Open-air Hospitals for the Tuberculous in the Naval Service.—An exchange states that Surgeon-General P. M. Rixey, of the Navy, finds it necessary to visit the naval station at Port Royal, S. C., before he submits to the Navy Department his detailed plan for an open-air hospital for the tuberculous in the naval service. In this plan of the surgeon-general to establish such a camp at Port Royal he has the support of the officers of his corps and the experts in the treatment of tuberculosis outside the service. The neighborhood has for many years been regarded as a health resort, and it is believed that no better use could be made of the abandoned naval reservation at Port Royal than to convert it into such an institution as is recommended by the surgeon-general. That officer will make a visit of inspection to Port Royal within the next few weeks, just as soon as his official duties permit him to leave Washington.

Proper Ethics of the Newspaper.—A correspondent writes to *American Medicine* that he recently wrote a private communication to one of the editors of the *Montreal Daily Witness*, asking the question "are you aware that Peruna advertised in your paper has been analyzed and found to contain about 50% of bad whisky? I ask this knowing your interest in the cause of temperance." The correspondent writes that his question was answered in a practical and satisfactory manner and further and better than the Peruna advertisement, which was an extensive one, was promptly omitted in the further issues of the *Daily Witness*. He concludes by saying "such an instance of consistent and conscientious action on the part of a newspaper should, I think, receive some word of commendation from the profession, and I should feel personally grateful to see, in an early issue of *American Medicine*, a short notice of the above facts."

Panama Commission Sails.—The Panama Canal Commission, accompanied by a number of engineers and contractors has departed for the Isthmus. Accompanying them were Colonel William C. Gorgas and Dr. Louis LaGarde, of the United States Army, and Dr. Ross, of the Navy. These men are all experts in tropical diseases, and their duty will be to find the necessary means of making the Isthmus sanitary. A correspondent, more humorous than truthful perhaps, states that in some way it became noised abroad that the government is prepared to pay large rewards to the scientist or inventor who can exterminate the bugs that infest the Panama Canal strip, and there were at least 40 bugkillers on the *Alliance*, which sailed for Colon. If variety and oddity of apparatus and the smell of chemicals can kill the bugs on the Isthmus, the party which sailed will surely be successful. They carried all kinds of sprays, explosives and bug foods, and each man had a complete library of books dealing with his subject. One tall, lean fellow, with blond hair that hung in ringlets on his shoulders, exhibited a revolver by the explosion of which a chemist dust was liberated which floated through the air, and was guaranteed to kill all bugs within a radius of 100 yards.

EASTERN STATES.

Boston Mortality.—According to the annual summary of deaths in Boston furnished by the Health Department, the rate for last year was 17.69 per thousand, which is a decrease of more than one death per thousand from the year before. Leaving out the infant mortality, which amounts to 28.96% of the total, the principal cause of death is no longer pulmonary and laryngeal tuberculosis, but pneumonia. The decrease in the number of deaths due to tuberculosis is no doubt due to the sanitary precautions which Boston has observed in the last few years, by the prohibition of expectoration in street cars or public places.

Adulterated Food.—From New Haven, Conn., comes the information that the Connecticut Agricultural Experiment Station has issued its eighth annual report on human food products. Over 1,000 samples were examined, special attention being paid to plain and sweet chocolate, coffee, and lard. Of 40 samples of chocolate examined, 11 were adulterated within the meaning of the law. The adulterants were usually in the form of starchy matters, used as make-weights and diluents. Each of the 17 samples of whole coffee examined was found to be pure, while out of 29 samples of ground coffee 9 were adulterated, chicory, brown lumps of wheat flour, and pea hulls being used. Lard was very largely adulterated on account of the present high price. In general, says the report, it would appear that the adulteration of food products is very common at present, but, as a rule, the adulterants used are not injurious to health.

NEW YORK.

Mortality in New York City.—Not only in New York city, but throughout the State, there was a fearful mortality during February. The bulletin of the State Department of Health shows that there were 12,749 deaths in this State during that month, an average of about 440 deaths per day. This record exceeds by almost 2,000 the average for the month during the past five years. Pneumonia was the chief cause of the increase, there being 1,820 deaths from that cause, or 14.3% of the total number.

The Queens-Nassau Medical Society held a special meeting at Jamaica, N. Y., Tuesday, March 29, and the following resolution was adopted:

Resolved, That the Queens-Nassau Medical Society hereby ratifies, approves and adopts the Agreement for the Consolidation of the Medical Society of the State of New York and the New York State Medical Association which was unanimously approved and adopted at the annual meeting of the Medical Society of the State of New York, held at Albany on January 26, 1904; and the Queens-Nassau Medical Society hereby waives notice of an application to Court for an order consolidating said corporations pursuant to the terms of said Agreement, and hereby consents to the entry of such an order without notice.

New York Hospital Still Crowded.—The current issue of *Charities* says that "a census of all the municipal hospitals and the general private hospitals of New York shows that the unusual number of patients has been continued steadily through the winter, and that the total number of patients in 20

hospitals on March 19 was greater than on January 23. On the former date the total was 5,202, and on the latter 5,390. As the capacity of the hospitals is given as 5,446, there are now, on paper, only 56 vacant beds in all the general hospitals of New York. It appears, therefore, that conditions now are really worse than in January, when there was the most talk and newspaper comment on the congested condition. But the hospitals have met the tax on their resources and, except in the municipal hospitals on the East River islands, are in good shape to deal with the epidemic of grip and pneumonia."

Bill Abolishing Coroners in New York.—An exchange says there is one good thing that the Legislature has done, and that is to abolish the antiquated and ridiculous coroner system in New York City. The bill abolishing the office of coroner passed both houses recently. Instead of coroners, who are continually at war among themselves and with the district attorney's office, there will be, at the end of the term of the present coroners, a board of medical examiners, appointed by the mayor. They will assume all the duties of the coroners, with the exception that they are to make their reports in all suspicious deaths to the city magistrates, and if an examiner is not satisfied with the result of an examination into the cause of death of a person, he is to notify the district attorney, and is then to make an autopsy in the presence of that officer and a policeman. For several years, the city authorities, aided by the medical societies, have endeavored to effect this reform, and it is cheerfully placed upon the credit side of the legislative account.

Typhoid in Watertown.—From January 1 to March 22 there were 569 cases of typhoid fever in Watertown, having a population of 22,000; the number of deaths reported to that time were 43. Dr. Geo. A. Soper, of the State Board of Health of New York, was sent to investigate the condition and reported the epidemic was caused by the polluted water used by the town. This water-supply came from Black River which has situated upon its banks above Watertown, some 30 villages and towns largely engaged in manufacturing and whose sewers, almost without exception, emptied into Black River. Dr. Soper at once instituted reforms in the town, procured water from uncontaminated source, required the registering and reporting of all cases of typhoid fever, and as a result, the epidemic is now abating. A filter plant is being constructed that it is hoped will supply pure water to the town, but opinion is expressed by those in authority that some cases of typhoid are yet to be expected for a considerable length of time. A New York exchange, commenting editorially on the subject and commending the work accomplished after the people were once aroused, says: All of this is very creditable. But how much wiser it would have been to have done these things before the calamity of a typhoid epidemic made them necessary.

Would Return the Mentally Deficient and Insane.—News from Albany states that a State board of expert sanity inspectors, to be stationed at Ellis Island, and to inspect immigrants with a view of detecting those in such stages of mental weakness as would lead to their becoming a public charge, is provided for in a bill to be introduced in behalf of the State Commission in Lunacy. Although immigration is wholly a national government affair, it is said that the United States Commissioner of Immigration is in favor of the proposition for a State board, and that the necessary permission would be granted by the general government. The United States Marine-Hospital has charge of this matter at present, but it does not employ experts in mental disease, and there is no means of detecting mental disease except through a physical manifestation of it. It is said by the chief officer of the New York City Pavilion for the Insane, that often insane patients are received who have been in the country only a few days or months. Commissioner of Immigration Williams says that whenever this proposed board should determine that an immigrant was insane at the time of his taking passage, he could be deported at the expense of the steamship company; and that if no such proof existed he could be deported at any time within 2 years at the expense of the government.

PHILADELPHIA, PENNSYLVANIA, ETC.

Summer Course in Medicine.—The Medical Department of the University of Pennsylvania will conduct, as usual, a summer school in medicine. It is announced that the course will begin on May 9 and extend over a period of six weeks. In most instances the individual courses will be limited to 10 students.

The Associated Health Authorities and Sanitarians of Pennsylvania will convene at Gettysburg, Franklin county, May 26 and 27, 1904. This will constitute the Thirteenth Annual Sanitary Convention. The subjects of smallpox and typhoid fever and of proper legislation for the prevention of the spread of these diseases will be very fully discussed. The registration of vital statistics and its importance to the well-being of the State will be presented in an address by Dr. Cressy L. Wilbur, the expert statistician of the United States Census Bureau, who for many years has been at the head of the Department of Registration of Vital Statistics of the State of Michigan.

Daily Medical Inspection of Schools.—The corps of 50 medical inspectors appointed for the purpose of making a daily inspection of the public schools, among other work, have received their final instructions from the health authorities and are performing their "new duties." The object of the inspection is to prevent the spread of contagious diseases through the schools, and to detect weaknesses that parents or teachers have overlooked.

Efficacy of Enforced Vaccination.—An exchange states that Dr. Lee, secretary of the State Board of Health, gives convincing testimony of the necessity of a compulsory vaccination law which shall apply to all portions of the State. He shows that in the smaller towns and cities where Boards of Health have power to enforce scientific precautions against the spread of smallpox the authorities have been able to check the disease. It is only in cities of the first and second class, where the authorities are handicapped and where a few persons can jeopard the safety of the entire community by resisting vaccination, that the scourge is still epidemic.

Typhoid Fever in Philadelphia.—During the week ended April 9 there were reported to the health authorities in Philadelphia 389 new cases of typhoid fever. This is the greatest number that has ever been reported in any week since the health records of the city have been kept; the number during the previous week being 321. Only three out of the 42 wards failed to report cases, these being the Ninth, Seventeenth and Thirty-fifth. In the Twenty-first and Twenty-second wards, which are supplied with filtered water from Roxborough, there were but six cases of the disease reported, which fact is considered proof of the efficiency of filtration.

Free Hospital for Poor Consumptives.—In an address lately made, Dr. Lawrence Flick stated that the Free Hospital for Poor Consumptives was seriously handicapped during the year 1903, by reason of a decrease of \$11,000 in the public contributions. He expressed the opinion that it could be attributed to the erroneous impression that Henry Phipps, who established the Phipps Institute for Consumptives in Philadelphia, had also founded the Free Hospital for Consumptives at White Haven. Concerning the work for the coming year, Dr. Flick is quoted as saying: There are 2 projects which ought to be established during the coming year. One is a convalescing farm, where the patients who recover in the sanitarium may live and work 8 hours a day, receiving \$5 and \$10 a month for their labor. He said such a farm could be made self-supporting and would pay the interest on the capital invested. He also advocated the establishment of an intermediary place between the city and White Haven for hopeless cases.

Increase in Negro Population in New Jersey.—The report of the Chief of the Bureau of Statistics of New Jersey contains information in regard to the negro population, which increased 46.6%, against an increase of 29.8% of whites from 1890 to 1900. The previous decade, the increase of white population was 27.8%, while there was a colored increase during this 10 years of 22.6%. The largest increase of negro population was in Atlantic county, where it was 674% in the 2 decades from 1880 to 1900. In Essex it was 168.2%; in Hudson, 173.2%; in Monmouth, 99.5%; in Morris, 100%; in Ocean, 175.5%; and in Union, 98.7%. The biggest increase was in the cities and seaside resort counties, where the negroes find employment as servants, while the lowest percentage was in the agricultural counties. In Warren it was 3.1%; Salem, 9.8%; while Hunterdon shows a decrease of 6.1%; Somerset, 6%; and Sussex 8.6%. The total number of negroes in New Jersey in 1880 was 38,853, and in 1900 it was 68,844, an average increase of 76.9%. The negroes make a favorable showing in general and mechanical knowledge, though they take a longer time than the whites to acquire skill. Out of 398 manufacturing establishments, representing 80 different industries, only 83 employed negro labor in any capacity, there being 963 of them, against 38,364 whites.

SOUTHERN STATES.

The West Virginia State Medical Association will hold its thirty-seventh annual meeting at Fairmount, W. Va., May 10, 11, and 12, 1904.

Has the Germ Causing Parotitis Been Discovered?—According to newspaper reports, Dr. Samuel Darling, of the College of Physicians, and pathologist at the City Hospital, in Baltimore, has isolated the germ which causes mumps.

Typhoid Fever and the Agricultural Department.—It is reported that experts in the Agricultural Department at Washington have announced the discovery of a substance which will kill not only typhoid, but many other germs in stagnant water. The substance is none other than the Bordeaux mixture, a preparation of copper sulfate, lime, and water. It is claimed that in contaminated water an amount of this mixture added not sufficient to render the water unfit for drinking purposes, will kill typhoid germs within a short time, as it does also malarial germs, the algae, and various other noxious substances. Expert sanitarians doubt the efficiency of this mixture to accomplish what is claimed by the department.

Texas Epileptic Colony.—An exchange states that the magnificent institution provided by Texas for the care of her epileptics has been formally opened. It is located at Abilene, Texas, and though not yet completed, has sufficient accommodations for 250 patients. It is built on the cottage plan, so many patients to each cottage, each of which is a complete household, with its kitchen, dining-room, servants, nurses, and its own garden for vegetables, etc. Dr. John Preston, formerly superintendent of the State Lunatic Asylum, at Austin, is the superintendent. The magnificent sum of \$250,000 was appropriated by the Legislature for this great humanitarian work. This is ahead of any State in America, excepting, perhaps, New York. The law stipulates that epileptics now cared for in the 3 insane asylums (Austin, San Antonio, and Terrell) shall be received first, and then those still uncared for, at home or in jails as the case may be, are to be admitted in order of application filed, until the full capacity is reached.

WESTERN STATES.

New Hospital to be Erected in Tacoma.—The Northern Pacific Railroad Company is soon to erect a new hospital in Tacoma, Washington, at a cost of \$100,000. The structure is to be of brick, and the employees of the railroad company are to pay 50 cents each per month from their wages toward a fund, out of which they are to be taken care of when ill or injured.

Contaminated Milk Started Typhoid Epidemic.—News from Muscatine, Ia., under date of April 4, says: Contaminated milk sold by a man whose wife was lying ill with typhoid fever is alleged to have caused an epidemic of typhoid on East Hill, a suburb of this city. Two are dead and 35 are under treatment for typhoid in this section, and it is alleged that all are users of the milk sold by this man.

Mortality in Chicago.—The Bulletin of Chicago's Health Department for the week ended April 2 says: Compared with the other large cities of the country, Chicago has come out remarkably well through the trying ordeal of a memorable winter. The 7,675 deaths reported during the first 3 months of the year represent an annual deathrate of 15.77 per 1,000 of population. For the corresponding quarter of 1903 the total deaths were 7,856, and the annual deathrate was 17.10 per 1,000, or nearly 8% (7.7%) higher.

Druggist Physicians.—A decision was handed down in the St. Louis Court of Appeals March 30, which will prevent physicians who are also druggists, from filling their own prescriptions when the principal ingredient of the prescription is whisky. The case was that of T. S. Manning, of Audrain county, who was found guilty of violating the drug dramshop law, and was fined \$100. He appealed on the ground that he was a physician and also a druggist, and had a right to prescribe whisky as a physician, and fill the prescription as a pharmacist. The court holds that the requirement of a prescription is intended as a check on the pharmacist, and that if the same man is permitted to write and fill a prescription calling for whisky the check is virtually removed, and therefore the judgment of the lower court is sustained.

FOREIGN NEWS AND NOTES

GENERAL.

Bubonic Plague in India.—From Bombay, under date of March 29, came the news that the latest available bubonic plague returns for the whole of India for the week ended March 19 show the appalling mortality of 40,527, an increase of 7,000 over those of the preceding week. In the Punjab and the Northwest provinces each there is a deathrate of 10,000 weekly; in the Bombay presidency the deaths number 8,500, and in Bengal 5,000.

Deathrate on the Isthmus.—Official reports from both sides of the Isthmus show that there were many cases of death from several causes during the week ending March 13. In Panama, where there is a population of about 18,000, there were 31 deaths during the week. This is equivalent to an annual deathrate of about 90 per 1,000 of population. The least healthful of the cities of the United States has a deathrate of only about 21. During the same week in the city of Colon, where there is a population of 8,000, there were 8 cases of death. This figures out an annual deathrate of 52. No one died, so far as was reported, of yellow fever, but there was a high mortality from other fevers and from tuberculosis. This is the dry season on the Isthmus, but there have recently been two or three heavy rains.

Miscellaneous.—Hamburg: Two physicians of the Hamburg Institute for Tropical Diseases, Messrs. Otto and Neumann, have gone to South America for the purpose of studying yellow fever. They are supplied with considerable means, furnished by shippers and merchants of Hamburg. In addition to scientific studies, they are to collect information with reference to the new preventive measure now used in South America against yellow fever, and to devise means to prevent the heavy damages which the German merchant marine has suffered

in the several years of yellow fever epidemics. Dr. J. H. van't Hoff, the eminent chemist, has been made an honorary doctor of medicine by the University of Utrecht.—**France:** Dr. Renault, a young chemist of Marseilles, has invented a tablet which not only contains enough nourishment, he claims, for a man for 24 hours, but they also act as a stimulant, and he is in St. Petersburg to offer his services to the Czar.—**Santiago de Chile:** Bubonic plague has reappeared at Antofagasta, a seaport and the capital of the Province of Antofagasta.—**England:** Dr. George H. F. Nuttall, editor of the *Journal of Hygiene*, London, and who is an American, has been nominated by the council for membership in the Royal Society, which holds its election in May. The honor is one much coveted in England and America.

OBITUARIES.

Louis A. Kengla, editor of the *Occidental Medical Times*. Dr. Kengla had suffered with an affection of the heart for some time and had been for several weeks confined to his bed. His death on March 26, while not wholly unexpected, came as a shock to the profession of the Pacific Coast, who held him in the highest esteem. Dr. Kengla was president of the San Francisco County Medical Society last year and had been secretary of the California Academy of Medicine for several years. He was a native of Washington, D. C., and a graduate of the Medical Department of the University of Georgetown, D. C., '86. The profession and the nation owe Dr. Kengla much for his fearless and noble work with regard to the plague question on the Pacific Coast.

James Brownlee Sanford, at St. Luke's Hospital, Denver, Col., from appendicitis, March 16, aged 35. He was Speaker of the House of Representatives at the time of his death and was widely known throughout Colorado and the West. He was born in Penn Yan, N. Y., was a graduate of the medical department of Baltimore University; a delegate from the state of Colorado, the National Medical Legislative League and secretary of that body; and a member of the Royal Geographical Society of London, England.

Peleg Wadsworth, at his home in Malden, Mass., April 4, from heart disease, aged 70; a graduate of Dartmouth Medical College, in 1880. During the war he served in the hospital corps of the Army of the Potomac and in the hospitals at Washington. He returned and located in Portland, Me., and subsequently in Malden, where he practised for 35 years. He was prominent in Masonic and other fraternal organizations.

J. Carroll Monmonier, at his home in Franklin, Md., April 6, aged 61. He was graduated from the Medical Department of the University of Maryland, in 1866; was attending physician at Mount DeSales Academy and Epiphany College, Walbrook. He was one time member of the Maryland Legislature and one of the best known physicians in Baltimore county.

Israel Parsons, at his home in Marcellus, N. Y., March 24, aged 82; a graduate of the College of Physicians and Surgeons, New York, in 1848. He was one of the best known physicians in the vicinity of Marcellus, and in 1899 the Onondaga County Medical Society gave a banquet in honor of Dr. Parsons' semicentenary in medicine.

Charles C. Carter, at his home in Rock Island, Ill., from pneumonia, aged 51; a graduate of Bellevue Hospital Medical College in 1876; a member of the American Medical Association, Association of Military Surgeons of the United States, Illinois Military Association and one of the best known physicians of Rock Island.

Elisha Crowell, at his home in Philadelphia, Pa., April 6, aged 76; a graduate of the University of Pennsylvania in 1851. Also a graduate in the arts of Princeton in 1849. He attained prominence during the Civil war as visiting surgeon to the different hospitals for the convalescing soldiers in the city.

John G. Brooks, at his home in Belfast, Me., March 23, aged 83; a graduate of Jefferson Medical College, Philadelphia, in 1851; at one time Mayor of Belfast. He served in the Maine State Senate in 1873 and in the lower house in 1880.

George H. Butler, at his home in New York City, March 28, aged 61; a graduate of Bellevue Medical College, New York, in 1869; member of the New York County Medical Society and the New York Academy of Medicine.

Denis N. Conner, at his home in Philadelphia, Pa., January 20, aged 59; a graduate of the University of Pennsylvania, in 1867. He was a member of the Philadelphia County and the Pennsylvania State Medical Societies.

Harry S. Dissler, of Schoeneck, Pa., from acute nephritis, at the Medico-Chirurgical Hospital, Philadelphia, at which he was resident physician, March 20, aged 22; a graduate of the Medico-Chirurgical College, in 1903.

William H. Heller, at his home in Abington, Ill., April 5, aged 82. He began the practice of medicine in Cuba in 1846 and later moved to Abington, where he had practised over 50 years.

Percy L. Jermaine, of Holton, Kan., at Stormont Hospital, Topeka, from general peritonitis, March 22, aged 36; a graduate of the Jefferson Medical College, Philadelphia, in 1892.

Harry J. Chapman, of San Antonio, Texas, was shot and instantly killed while driving, March 25, aged 37; a graduate of the University of Pennsylvania, Philadelphia, in 1895.

Horace W. Burg, of Northumberland, Pa., at the Medico-Chirurgical Hospital, Philadelphia, February 16, aged 58; a graduate of the Jefferson Medical College, in 1877.

Philander S. Brewster, of paralysis, at his home in Berwick, Pa., March 5, aged 78; he attended lectures in Philadelphia and registered under "years of practice."

Arthur R. Simmons, at his home in Utica, N. Y., March 27, from heart disease; a graduate of the College of Physicians and Surgeons, New York, in 1875.

John Paul Dombrowski, at his home in Peoria, Ill., from pneumonia, March 28, aged 47; a graduate of the University of Berlin, Germany, in 1880.

Crawford E. Fritts, at his home in Hudson, N. Y., April 6, from neuralgia of the heart, aged 54. He was one of the leading physicians in Hudson.

John Kennier Patterson, suddenly, at his home in Philadelphia, Pa., January 14, aged 61; a graduate of the Jefferson Medical College, in 1868.

Albert Stanley Dolan, at Riverside, Cal., March 21; a graduate of the University of Michigan Homeopathic Medical College, in 1882.

William E. Schlemm, at his home in Reading, Pa., February 29, aged 79; a graduate of the University of Pennsylvania, in 1854.

Guy Michener, formerly of Coles and Edgar counties, Ill., committed suicide at Guthrie, Okla., on March 29.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 9, 1904:

SMALLPOX—UNITED STATES.			Cases	Deaths
Florida:	Jacksonville.....	Mar. 26-Apr. 2....	1	
Illinois:	Chicago.....	Mar. 26-Apr. 2....	5	
	Danville.....	Mar. 26-Apr. 2....	6	
Indiana:	South Bend.....	Mar. 26-Apr. 2....	1	
Kentucky:	Covington.....	Mar. 26-Apr. 2....	2	
Louisiana:	New Orleans.....	Mar. 26-Apr. 2....	4	
			Two imported.	
Maryland:	Baltimore.....	Mar. 26-Apr. 2....	4	
Massachusetts:	Lowell.....	Mar. 26-Apr. 2....	1	
Michigan:	At 75 localities.....	Mar. 19-26.....	Present.	
Missouri:	St. Louis.....	Mar. 26-Apr. 2....	15	
New York:	Buffalo.....	Mar. 26-Apr. 2....	3	
	Niagara Falls.....	Mar. 26-Apr. 2....	1	
Ohio:	Cleveland.....	Mar. 25-Apr. 1....	6	2
	Dayton.....	Mar. 26-Apr. 2....	5	
Pennsylvania:	Carbondale.....	Mar. 24-31.....	1	
	Erie.....	Mar. 26-Apr. 2....	2	
	Philadelphia.....	Mar. 26-Apr. 2....	32	7
	Pittsburg.....	Mar. 26-Apr. 2....	4	
			3 imported.	
South Carolina:	Reading.....	Mar. 28-Apr. 4....	1	
	Charleston.....	Mar. 26-Apr. 2....	2	
	Greenville.....	Mar. 19-26.....	2	
Tennessee:	Nashville.....	Mar. 26-Apr. 2....	5	
Virginia:	Poehontas.....	Mar. 24-31.....	6	2
Wisconsin:	Milwaukee.....	Mar. 26-Apr. 2....	3	

SMALLPOX—FOREIGN.			Cases	Deaths
Austria:	Prague.....	Mar. 6-12.....	2	
Belgium:	Antwerp.....	Mar. 12-19.....	16	4
Brazil:	Rio de Janeiro.....	Feb. 28-Mar. 6....	45	3
Canada:	Quebec.....	Mar. 12-19.....	1	
Colombia:	Barranquilla.....	Mar. 7-20.....	1	3
Formosa:	.....	Jan. 1-31.....	9	
France:	Paris.....	Mar. 12-19.....	15	1
Great Britain:	Edinburgh.....	Mar. 12-19.....	8	1
	Glasgow.....	Mar. 18-25.....	46	4
	Hull.....	Mar. 12-19.....	6	
	Leeds.....	Mar. 19-26.....	2	
	Leith.....	Mar. 12-19.....	1	
	London.....	Mar. 12-26.....	84	
	Manchester.....	Mar. 12-19.....	3	
	Newcastle-on-Tyne.....	Mar. 12-19.....	7	
	Nottingham.....	Mar. 12-19.....	13	
	Sheffield.....	Mar. 6-19.....	3	
	South Shields.....	Mar. 12-19.....	1	
India:	Bombay.....	Mar. 1-8.....		19
	Calcutta.....	Feb. 20-Mar. 5....	16	7
	Karachi.....	Feb. 28-Mar. 6....	2	
Mexico:	Mexico.....	Mar. 13-20.....	11	6
	Vera Cruz.....	Mar. 19-26.....	1	
Netherlands:	Amsterdam.....	Mar. 19-26.....	3	
Russia:	Moscow.....	Mar. 5-12.....	5	1
	St. Petersburg.....	Mar. 5-12.....	10	1
Straits Settlements:	Singapore.....	Feb. 20-27.....	1	
Turkey:	Constantinople.....	Mar. 13-20.....		5

YELLOW FEVER.

Brazil:	Rio de Janeiro.....	Feb. 28-Mar. 6....	9
Mexico:	Merida.....	Mar. 13-19.....	1
	Tehuantepec.....	Mar. 19-26.....	3
			1

CHOLERA.

India:	Bombay.....	Mar. 1-8.....	1
	Calcutta.....	Feb. 20-Mar. 5....	77
	Madras.....	Feb. 13-Mar. 4....	7
Turkey in Asia:	Bassorah.....	Feb. 9-12.....	6 4

PLAGUE.

Africa:	Port Elizabeth.....	Feb. 27-Mar. 5....	8 4
Australia:	Brisbane.....	Feb. 6-20.....	5
	Sydney.....	Mar. 10.....	1
Brazil:	Rio de Janeiro.....	Feb. 28-Mar. 6....	1
India:	Bombay.....	Mar. 1-8.....	968
	Calcutta.....	Feb. 20-Mar. 5....	294
	Karachi.....	Feb. 28-Mar. 6....	106 90
	Madras.....	Feb. 27-Mar. 4....	1
Peru:	Lima.....	Mar. 23-30.....	28 4

Changes in the Medical Corps of the U. S. Army for the week ended April 9, 1904:

- ALLEN, IRA A., OLMON P. GOFF and JAMES M. FEENEY, contract surgeons, are relieved from further duty with the Eleventh Infantry, in camp, Presidio, in order to enable them to avail themselves of leaves granted in the Philippines division.
- DENNIS, MILLS, contract surgeon, in camp, Presidio, will report to the commanding officer, Eleventh Infantry, in camp, Presidio for duty to accompany that regiment to Fort D. A. Russell. Upon the completion of this duty he will proceed to his home, Temple, Tex., for annulment of contract.
- NORVELL, BONAPARTE P., contract surgeon, is relieved from further duty with the Eleventh Infantry, in camp, Presidio, and assigned to duty with the Battalion of Philippine Scouts, in camp, infantry cantonment, Presidio.
- AMES, ROGER P., contract surgeon, is granted leave for one month.
- MACY, FREDERICK S., contract surgeon, is granted leave for fourteen days from about April 15.
- NORVELL, BONAPARTE P., contract surgeon, is relieved from further duty with the Battalion of Philippine Scouts, infantry cantonment, Presidio, and will proceed to his home, St. Louis, Mo., for annulment of contract.
- MANY, HARRY C., contract surgeon, is granted leave for two months from about June 1.
- MAREE, First Lieutenant JAMES I., assistant surgeon, is granted leave for one month.
- MILLER, First Lieutenant REUBEN B., assistant surgeon, is granted leave for two months, to take effect upon his relief from duty at the Army Medical School, with permission to apply for an extension of one month.

Changes in the Medical Corps of the U. S. Navy for the week ended April 9, 1904:

- TAYLOR, E. C., assistant surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the Naval Hospital, Naval Station, San Juan, P. R., sailing from New York, N. Y., about April 9-April 1.
- CAMPBELL, F. E., assistant surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the Constellation—April 1.
- MANCHESTER, J. D., assistant surgeon, ordered to the Columbia, April 11—April 1.
- PEASE, T. N., assistant surgeon, ordered to the Hartford, April 14—April 1.
- REEVES, I. S. K., assistant surgeon, ordered to the Minneapolis, April 14—April 1.
- WENTWORTH, A. R., surgeon, granted leave for one month from April 5—April 3.
- BISHOP, L. W., assistant surgeon, detached from treatment at the Naval Hospital, Mare Island, Cal., ordered home and granted sick leave for two months—April 3.

Changes in the Public Health and Marine-Hospital Service for the week ended April 7, 1904:

- VON EZDORF, R. H., passed assistant surgeon, detailed as recorder of board of examination which met at Washington, D. C., April 4, 1904, for the examination of candidates for appointment as assistant surgeon—April 6, 1904.
- FOSTER, M. H., passed assistant surgeon, bureau letter of March 19, granting leave of absence for ten days from March 30, amended so that said leave shall be effective from April 29—April 6, 1904.
- ANDERSON, J. F., passed assistant surgeon, relieved from duty as recorder of board of examiners which met at Washington, D. C., April 4, 1904, for the examination of candidates for appointment as assistant surgeon—April 6, 1904.
- MCCLEINTIC, T. B., assistant surgeon, relieved from duty in the Hygienic Laboratory, Washington, D. C., and directed to proceed to Tampico, Mexico, for duty in the office of the United States Consul—April 2, 1904.
- GLOVER, M. W., assistant surgeon, to proceed to Vancouver, B. C., for special temporary duty—April 2, 1904.
- WARREN, B. S., assistant surgeon, granted leave of absence for six days from April 10—April 5, 1904.
- MONCURE, J. A., acting assistant surgeon, department letter granting leave of absence for thirty days from April 1, 1904, amended so that said leave shall be effective from April 10—March 31, 1904.

Board Convened.

Board convened to meet at Stapleton, N. Y., April 4, 1904, for the physical examination of officers of the Revenue Cutter Service.—Detail for the Board: Passed Assistant Surgeon A. C. Smith, chairman; Assistant Surgeon T. W. Salmon, recorder.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

AN EFFICIENT ARMY MEDICAL SERVICE.

BY

JAMES S. KENNEDY,

of Fort McDowell, Angel Island, Cal.

Late Captain Assistant Surgeon U. S. Volunteers; Contract Surgeon U. S. Army.

To the Editor of American Medicine:—It seems strange that so little, or no notice, has been taken, editorially, of the new "bill to increase the efficiency of the Medical Department of the U. S. Army," now being earnestly pressed by the Surgeon-General, and which is of the most important interest to the medical profession at large, from whence the new material must come.

This bill is simply an act of justice, as well as the entering wedge to shelve forever the impossible "contract surgeon" system as it now exists, and to increase the medical corps by a trained set of surgeons, who have already served from the first call for help, and to place it in the first class as to efficiency and service.

The main feature, as restricted to a short article, consists of a positive rank as first lieutenant, longevity of service, the privilege of quarters, allowances, etc., of the officer of the same rank in the regular corps. These features are good, but they do not go far enough. To these should be added "retirement" for long and faithful service, which is but placing it on a par with the other staff departments.

In brief this bill for the "medical reserve corps" allows for past service as a volunteer medical officer, or for service in the "reserves," and in case the medical reserve officer desires to take the examination for the regular corps, and provided he has three or more years of service, he is, if passed, made a captain at once and not as a former correspondent stated, have to wait for from five to eight years for a captaincy.

Better than all else, this bill will do away with the impossible contract system entirely, and in its place there will be organized a commissioned force of experienced medical officers (reserve) with actual rank and its privileges, and in number no more than are now serving under the present regime, for the Surgeon-General will not recommend any officer for appointment who has not passed a satisfactory examination, and whose services have not been of the highest character as to efficiency and professional ability.

There are several changes that would make this bill as near perfect as possible, one of which is the question of relative rank. The new bill states that the officer entering the "reserves" must take rank next after all other lieutenants of the line or staff. Far better would be the plan that worked so smoothly in the volunteer medical corps during the campaign in Cuba and the Philippines—that of taking rank according to date of commission—but in the bill as it is now those who have served since the first call would have to come in after the recent graduate, who has had no service at all.

As a class we are much pleased to see the interest taken in this bill by the different societies at large and resolutions are looked for from the National Associations, urging their representatives to take this matter up with the Committee on Legislation, and the added influence of personal adherents on the floor of the House and Senate.

We also owe much to the brilliant ex-Governor of the Philippines—now the Honorable—the Secretary of War—who has been in constant contact with the medical officers, constituting the Contract Surgeons of the U. S. Army in the Philippines, and who has favorably endorsed this bill on account of his personal knowledge of the difficulties under which the contract system worked.

To the present Surgeon-General of the U. S. Army, for his earnest efforts in the passage of this bill, and for his sense of respect and courtesy due to the contract surgeons as professional men, and universal kindness to us as a class, Surgeon-General O'Reilly has earned the undying gratitude, the sincere

respect, admiration, and esteem of every member of the medical corps who has gone into the army as a contract surgeon, or who has served under him in the volunteer medical corps.

Speaking as a member of the late volunteer medical corps and as a contract surgeon, who has the best interest of this bill at heart, and who, from personal observation, having served in both capacities, is familiar with the sacrifices made and the injustice of the present system, earnestly solicit the power and influence of your pen in securing the favorable consideration of this bill by the Senate and the House, and also to further the adoption of the "retirement" clause as well as the actual rank from the date of commission.

By so doing you would be conferring an incalculable benefit and favor to the medical men who are now serving as contract surgeons in the United States Army.

A CASE OF RABIES AND ONE OF UNDIAGNOSED FEVER.¹

BY

CARL S. TOMPKINS, M.D.,
of Randolph, N. Y.

HYDROPHOBIA.

CASE I.—The patient was G. K., a school boy, aged 11. Family and personal history are good. About January 22 he was bitten on the left hand by a strange dog. The wound was not cauterized, but the hand was soaked in warm salt water. His health was good until the evening of March 2, when he complained of feeling tired. He lay on a couch all the evening, which was very unusual for him. He did not go to school March 3, on account of headache and feeling tired out. He did not sleep well that night, vomited frequently, and choked when he tried to drink.

On March 4 the patient behaved peculiarly all the morning. About 2 p.m. he began screaming and running about the room. He had a sensation of smothering, and would turn his head away from water when it was offered him.

At 3 p.m. Dr. Arthur Sage was called, and found the patient in a state of marked mental excitement. Temperature at that time was 100.5°. Bowels and kidneys had been acting normally.

He slept about two hours that evening. At 11 p.m. he became violent. The doctor was called, and he gave the patient a tablet, which he swallowed. He was offered water; he took one swallow, and jumped to the center of the room. He had no fear of water before trying to swallow it, but after that refused to take it into his mouth.

He talked ramblingly, but coherently. He was rational at intervals. He had hallucinations of seeing cats and dogs, made a peculiar cry that might be thought to sound like the barking of a dog, and tried to bite the doctor.

He began frothing at the mouth at midnight; this condition continued throughout the night, except when controlled by morphin.

On March 5, at 8 a.m., temperature was 103° by axilla, pulse 120. There was tremor and twitching of the eyelids.

During the morning spasms of the legs appeared, rapid kicking of the legs rather than spasms of groups of muscles. This was controlled by morphin, and he was given a large dose before being taken on the ambulance; he was in a comatose state when he entered the hospital at 4 p.m.

The stupor diminished in the course of half an hour, so that he recognized his father and mother. The spasms of the legs returned, but there was no twitching of the eyelids. He was given no more morphin. A small dose of bromid and chloral was administered per rectum. He would take nothing by mouth.

Temperature per rectum was 106°, pulse 130, when he entered hospital. By 7 p.m. convulsions had stopped, and he passed into a stupor, from which he did not rally.

Death occurred at 9 p.m.

Autopsy.—The coverings of the brain and cord appeared somewhat red. No other pathology found.

Portions of the spinal cord were removed by Dr. Matzinger. Two rabbits were trephined and subdural inoculation of a solution of the cord made. Both rabbits developed the paralytic form of rabies, one dying on the seventeenth, and the other on the nineteenth day.

AN UNDIAGNOSED CASE OF FEVER.

CASE II.—L. A., aged 22, born in southern Italy, is a laborer, and single.

He entered Buffalo General Hospital February 18, 1903, and was discharged April 1, 1903.

Family History.—Good.

Personal History.—The patient came from Italy 11 months

before entering hospital. He had been sick only once before—that was two years ago. He was in bed one month, had fever, and lost weight. He thinks his fever was high for two or three days at a time, then two or three days would intervene without fever. He had no chills, epistaxis, nor diarrhea. He never had a chill before or since.

Present Illness.—One month before entering the hospital he had to stop work and go to bed. He had fever, headache, loss of appetite, and had lost weight.

A few days before entrance he expectorated a little blood. He feels about the same as he did when sick two years ago, but worse.

Physical Examination on Entrance.—Lungs clear; first heart sound weak; second pulmonic somewhat accentuated; spleen palpable, large and firm.

Temperature was 98°, pulse 120, respirations 20 when entering February 18.

Temperature remained at 98° until 2 a.m., February 20, when it was 97°, but it returned to 98° at 6 a.m. Pulse had dropped to 60. Respirations did not rise above 25 throughout illness. Temperature rose gradually until at 2 p.m. on February 21 it reached 103.4°; at 6 a.m., February 23, it was 99°; at 6 p.m., 106.2°; at 10 a.m. February 24 it was 98°; at 6 p.m., 104°; at 6 a.m., February 25, it was 97°; at 6 p.m., 103.4°; at 2 a.m., February 26, again 97°.

Pulse followed rises in temperature, 120 being the highest. No antipyretics were used. When temperature was 102.5° or above, a cold sponge or a hot mustard foot-bath was given.

Two more periods of high temperature occurred, but were not so severe. At 2 p.m. on February 28 the temperature had risen to 103.2°, and at 6 p.m. on March 4 it was 103°.

On March 4 quinin was administered in 60 cg. doses at 10 a.m. and 12 m., and continued until March 18.

The temperature did not rise above 99° after March 4, except that on the evening of March 8 it reached 101°. Bowels had not moved for 36 hours. Temperature dropped to normal in four hours after a bowel wash was given.

The meager history was obtained through an interpreter. It was impossible to determine whether he had been given an antipyretic before entering the hospital.

At no time did he have a chill. He was not extremely prostrated, and was never delirious.

Special Examination.—Urine practically normal; first examination showed a faint trace of albumin.

Sputum.—February 25, streptococci, staphylococci, and a few pus cells present.

No tubercle bacilli, diplococci of pneumonia, or bacilli of influenza found.

Blood.—February 20, hemoglobin, 65%; erythrocytes, 4,400,000; leukocytes, 7,600. Differential count of leukocytes:

Lymphocytes (small), 25%.

Lymphocytes (transitional and large), 6%.

Polymorphonuclear neutrophils, 65%.

Eosinophiles, 3%.

Plasmodium of malaria was not seen. Frequent examinations for the plasmodium were made, but it was never found.

Widal reaction was positive on February 27. Stools were not of a typhoid character.

ANAESTHOL.

To the Editor of American Medicine:—We herewith state that the use of the name of Dr. Willy Meyer, of New York, upon the label of the new anesthetic "Anaesthol" was made without his knowledge, though in entire good faith upon our part.

At his request the label has been changed and, in order to protect the medical profession against unreliable imitations, it will henceforth bear the name of Dr. Weidig, the originator of the new compound.

LEHN & FINK,

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March 29, 1904.

CHAS. COOPER & Co.

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Women Physicians.—The question of the suitability of women for the medical profession has been raised again by the action of the Western Infirmary, Westminster, in dispensing with the services of a lady doctor after a probationary of 3 months. There was no question of incapacity raised in this instance; but the decision to cancel her appointment was purely the result of what is called prejudice. With this prejudice we must confess to have considerable sympathy. That it is a good thing for some women to enter the medical profession we have no doubt; but it must remain a profession for women of exceptional nerve and capacity. It must not count as one among many professions of equal suitability for all women of the intellectual ability to enter it, for a nervous breakdown, as we were tragically reminded not long ago, is far more serious in the case of a woman than a man. It is a question not of the equality of, but of the difference between the sexes.—[Lancet.]

¹The cases occurred in the Buffalo General Hospital, service of Dr. Charles Stockton.

ORIGINAL ARTICLES

A REVIEW OF LITERATURE RELATING TO SERUM DIAGNOSIS.*

BY

RANDLE C. ROSENBERGER, M.D.,
of Philadelphia.Associate in Bacteriology, Jefferson Medical College; Director of the
Clinical Laboratory of the Philadelphia General Hospital.

(From the laboratories of the Jefferson Medical College Hospital.)

It is not my purpose to attempt an exhaustive review of all the literature bearing upon this interesting subject, but to include, so far as possible, the most recent progress in serum diagnosis.

As is well known, the first application of serum reaction to diagnosis was in enteric fever. Ross claims that the discovery should be accredited to Grünbaum who, in 1896, while working in Gruber's laboratory, in Vienna, obtained positive agglutinative reactions in typhoid fever. The first test was made on March 14. This discovery was promptly corroborated and quickly followed by other investigators obtaining agglutinative reactions in other diseases and with other bacteria. As examples of the widespread application of the test, the following organisms are now agglutinated by the serum in their selective cases: *Streptococcus pyogenes*, diplococcus of pneumonia, bacillus of plague, colon bacillus, bacillus of dysentery (Shiga), paratyphoid bacillus, paracolon bacillus, Gärtner's bacillus, Booker's bacilli, staphylococci, gonococcus, spirilli of cholera and of relapsing fever, bacillus of tuberculosis, members of the proteus group, bacillus of tetanus, *Oidium lactis*, bacillus of diphtheria, and others. Not only are bacteria subject to this reaction, but animal parasites, as the trypanosomes, have been agglutinated by the serum of patients suffering from sleeping sickness and trypanosomiasis fever.

Freyer¹ claims that the blood of all native Indians possesses agglutinating power in health, but this statement is contradicted by W. C. Brown,² who made a number of tests with negative results.

Technic.—The technic of the Widal test is perfectly simple, and usually consists in bringing together the bacilli in young bouillon culture, or a water suspension from an agar culture, and the serum of the individual in a proper dilution. The culture should not be over 24 hours old, and the bacilli actively motile, although dead typhoid bacilli may also be used for the reaction. Examine the culture before beginning the test, to see that clumps are not present. If they exist, the culture should be filtered through paper and the filtrate used for the test. The blood or serum may be collected in various ways: (1) By a capillary pipet in which coagulation and separation occur; (2) by the white blood cell pipet in which a dilution of 1 to 20 is made; (3) obtain pure serum from a blister; (4) dried blood may be used.

The technic employed at the Jefferson Hospital and Philadelphia Hospital is the use of a nonincubated bouillon culture of the typhoid bacillus not over 24 hours old, mixing 1 drop of this culture with 1 drop of diluted blood. The dilution of the blood, 1 to 20, is facilitated by means of the pipet used for counting leukocytes; using a drop of each, a dilution of 1 to 40 is obtained; 30 minutes is given as the time limit.

Haedke³ recommends the mixture of a loop of solid culture with typhoid serum on a glass slide. McWeeney,⁴ by mixing 1% serum in a hanging drop with bouillon culture, and placing in the incubator at 37° C. for 4 hours; twisted and convoluted chains of motionless bacilli will form if the case is one of enteric fever.

When a test is made with dried blood, it must be moistened with distilled water, the difficulty of obtain-

ing an accurate dilution being one objection to this method. There is much difference of opinion as to just how much the serum should be diluted. Most observers recommend a dilution of 1 to 20; or 1 to 40; some use 1 to 200, and even 1 to 20,000 has been found effective in an occasional case. It has been found very often that the reaction is negative with dilution of 1 to 20, and positive with dilution of 1 to 50, and *vice versa*. This apparently is accounted for by the presence of certain bodies—proagglutinoids, described by Shiga⁵—that develop from the agglutinins and combine with the bacilli, but lose the power of combining with the agglutinin. These bodies—proagglutinoids—are developed from the agglutinins through extraneous influences, and possess a greater affinity for the bacilli than the unchanged agglutinins, having lost their agglutinophore group, but retaining the haptophore group; they have been produced artificially by heating dysentery-immune serum to 60° C., or by shaking with chloroform, or exposing it to sunlight for a few days (Eisenberg and Bail). Coleman and Buxton⁶ insist upon a dilution of 1 to 50.

J. S. Billings, Jr., uses a dilution of 1 to 20; clumping and death of the bacilli must occur in 10 minutes.

Bryant⁷ says that in Guy's Hospital it is customary to use 50%, 5%, and 0.5% dilution and Widal's reaction is not considered positive unless clumping and immobility of the bacilli occur with the 1 to 200 dilution within half an hour. Examinations made before the eleventh day of the disease with a negative result are of little value. In this connection he mentions W. C. C. Pake's analysis of 304 consecutive cases, in which the error was only 3.03%.

Baltharde⁸ states that by the injection of nonfatal doses of the typhoid toxin an antityphoid serum possessing agglutinating power of 1 to 100,000 but without decided bactericidal action (*in vitro*) may be obtained.

Libman⁹ claims that if the blood is employed immediately after drying, the result is not so good as when it is used some hours later. However, in the summer, if the blood is not taken for the test within 24 hours, it is not so easy to obtain the Widal reaction.

Ficker¹⁰ has perfected a fluid to which he has applied the name diagnosticum, with which it is possible to obtain the Widal reaction without the necessity of living cultures of typhoid bacilli. The fluid is sterile, slightly turbid, and is said to keep well for 9 months. The reaction is perceptible to the naked eye, absolutely unmistakable, and occurs at ordinary room temperature. "The fluid is derived once from one and the same typhoid stem."

A. J. Wolff¹¹ recommends smearing an agar slant with typhoid feces and from the growth resulting, inoculating 1 or 2 tubes of bouillon. The bouillon must react from 1% to 2% alkaline with $\frac{N}{10}$ acid, using phenol-

phthalein as indicator. A sample of the blood is taken and mixed with the bouillon culture and placed under the microscope. If there is sufficient agglutinative material present, the typhoid bacilli will clump while the colon bacilli remain active. In 35 tests thus made, every case that gave a positive reaction by this method proved to be typhoid fever.

Proescher¹² recommends collecting the blood in U-shaped tubes of a diameter of 2 mm. The tubes are closed, centrifugalized, and the serum separated by breaking the tube with a file. The serum is then transferred by capillarity from the tubes to pipets graduated in 0.01 cc. This is then diluted in 1 to 10 normal salt solution, and portions are placed in small test-tubes, the first part without additional dilution, the second diluted one-half, and so on through 5 dilutions. Each tube then receives 5 cc. of typhoid bouillon culture, which, after 24 hours' growth, has been killed by adding 1% formalin. This diluted culture is then added to the tube, in quantity equal to that which the tubes already contain. The tubes are at once emptied into small glass

* Read before the Pathological Society of Philadelphia, February 11, 1904.

dishes and placed in the incubator for 1 to 2 hours. After this they are examined with relatively low powers (about 50 diameters) when the agglutinative masses can readily be seen.

The reaction occurs, by the methods just given, in from 15 minutes to 2 hours; while in the macroscopic test in which a small tube of the culture has added to it blood or serum from the patient, 5 or 6 hours is necessary for the reaction to be completed.

In the microscopic test a positive reaction is said to occur when all the organisms in the field, group or agglutinate and motility ceases. In the macroscopic or tube test a positive reaction is said to occur when the uniform turbidity clears and the bacteria settle in small masses at the bottom of the tube.

A. E. Wright,¹³ in the case of patients suffering from or preventively inoculated against tuberculosis, uses a suspension of extremely fine detritus of tubercle bacilli in carbolized water. By employing 1 to 1,000 solution of common salt to dilute the serum, instead of 8.5 per 1,000 solution prescribed by Koch, fallacious agglutinations and precipitations are completely avoided.

Wright's modification of Koch's procedure is as follows:

A minute quantity of powdered tubercle bacilli is placed in an agate mortar, to which is added, drop by drop, a 0.5% solution of carbolic acid. After triturating for a few minutes the turbid suspension is siphoned into a capsule. After sealing the ends of the capsule it is centrifugalized and the supernatant milky fluid, which separates in a few minutes, is used for the test. The blood is obtained in a special capsule, which is then placed in a centrifuge until the serum separates from the cellular elements. A capillary pipet is then used, and into this is aspirated one volume of the undiluted serum, and one volume of the test fluid described before. This mixture is expelled, and after thoroughly mixing upon an ordinary microscopic slide, exactly one volume is reaspirated into the stem of the pipet.

Having divided off with a suitable bubble of air, there is introduced into the stem of the pipet one volume each of serum and of the inert diluent (1 to 1,000 solution of sodium chloride). These two last mentioned volumes are again expelled, and after mixing, constitute the quantity of diluted serum for our second test dilution. Having mixed this on a slide the mixture is again reaspirated, and as in the former case and all subsequent dilutions, using exactly one volume of the mixed fluids. Another serum dilution is now made, employing for this purpose a full volume each of two-fold dilution of serum and of the inert diluent. We then fill upon these principles in succession (into the stem of our pipet) a series, ordinarily 7 or 8 graduated dilutions of serum mixed in each case with a precisely equivalent volume of the bacterial suspension. Completion of the series is reached by introducing into the pipet a mixture of equal volumes of the inert diluent and test fluid to serve as a control. The pipets are then sealed and placed upright in the incubator or on the laboratory bench. After an interval of 12 hours, flocculation and deposition associated with a corresponding clearing of the supernatant fluid takes place. The precipitate in the two-fold dilution is in most cases—presumably as a consequence of bacteriolysis—markedly less in bulk than the precipitate in the succeeding dilution. After standing for a long time, a deposit makes its appearance also in the higher dilutions of the serum and in the control.

Besides tuberculosis, this method is also useful in those suffering from or preventively inoculated against typhoid and Malta fevers.

Romberg¹⁴ recommends mixing a dry culture of tubercle bacilli with 1 liter of bouillon containing 5 grams of carbolic acid. For use 1 part of this is mixed with 3 parts of distilled water. One part of serum extracted by wet cups is added to 5, 10, 15, or 20 of the emulsion which is left in the tubes. If at the end of 24 hours this becomes clear, the reaction is considered positive. The test is not entirely reliable.

Koppen¹⁵ treats the tubercle bacilli with caustic potash solution, thus saponifying them. The stem fluid which he uses for the agglutination test is milky, and homogeneous, and does not become putrid. After this saponification the tubercle bacilli take the stain as readily as before.

Thellung¹⁶ finds that agglutinins can be produced by the injection of tuberculin into guineapigs and rabbits. It is also claimed that the agglutination does not occur constantly or regularly in tuberculosis.

Lagriffoul,¹⁷ in the serum diagnosis of tuberculosis, adopts the technic of Arloing and Courmont. The cultures are made in a 2% peptone medium containing 6% glycerin. This medium is reinoculated every 20 days and incubated at 30° C. with agitation once daily. Macroscopically the test was facilitated with dilutions of 1 to 5, 1 to 10, and 1 to 15.

Loeb¹⁸ uses an 8 to 12-day old culture of the tubercle bacillus previously grown on potato and homogenized. To this is added clear blood-serum or serous effusion in the proportion of 1 to 5 or more. This is followed if the reaction is positive by a flocculent precipitate in the course of 6 hours.

Neufeld¹⁹ studied the agglutinative action of the serum of immunized animals on cultures of the pneumococcus in broth by the usual methods and was thus the first to note typical agglutination reactions in various dilutions, both microscopically and macroscopically. In dilutions of 1 to 50 he was able to obtain the reaction in from 15 to 30 minutes.

Bezancon and Griffon²⁰ inoculated 1 cc. to 2 cc. of clear undiluted serum with pneumococci and observed the appearance of the growth, at the end of 15 or 16 hours' incubation, to be characterized by the formation of a membrane at the bottom of the tube. This membrane consisted of branches and chains of pneumococci; this so-called agglutination can be observed by the unaided eye. These two observers then applied the method to 186 patients, among these being 64 of undoubted pneumococcus infection. In the serum from these patients the growth in bunches and chains was observed easily and constantly. The dilutions used were 1 to 50; they found that the results were very uncertain.

Weaver²¹ in testing the agglutination reaction in scarlet fever patients and others, used cultures of the streptococcus in bouillon which was neutral to litmus and 1% acid phenolphthalein. The blood was obtained from a vein of the arm and serum allowed to separate from the clot in an icebox. The serum was diluted with the same bouillon as used for the culture in strengths of 0.5, 0.25, and 0.125; by means of pipets of uniform size, one part of these various strengths was added to 30 parts of the 24-hours' bouillon culture. The mixtures of serum and culture were then placed in small test-tubes each containing about 1 cc. kept at room temperature and examined. If a positive agglutination reaction took place, a sediment formed at the bottom of the tube made up of flakes and granules, which would not break up upon agitation. The agglutination takes place more rapidly in the incubator than at room temperature, often being complete in 1 hour and usually in 3 to 5 hours; at ordinary room temperature agglutination took place in 18 to 24 hours.

Wadsworth²² in the agglutination tests in cases of pneumococcus infection in man and animals, uses a peptone broth made from meat infusion, which has been carefully neutralized before boiling. In a flask containing 200 cc. of this medium, the maximum growth of the pneumococcus was evident in 24 or 36 hours. At this stage the culture was centrifugalized, the clear fluid decanted, and the sediment shaken with about 15 cc. of isotonic (0.85%) salt solution. This left a dense, finely divided suspension of pneumococci, less than 48 hours old. Dilutions, with the serums to be studied, were then made in small, slender tubes and observed for some 12 to 18 hours at 37° C. The more marked reactions may be complete in 5 or 6 hours or less, but 12 or more hours are often required to bring out the more delicate tests. Serums stored in the icebox were found to be active for 4 or more months; the lytic power was gone, and the agglutination did not appear in high dilution; but in low dilutions immediate and complete reactions took place.

The normal serum of the rabbit always failed to agglutinate the pneumococcus cells. This was also the case with the serum of the cat and dog. Normal

bullock's serum, however, gave some very marked agglutinations, even in dilutions of 1 to 50. Ascitic fluids tested also failed to agglutinate in dilutions of 1 to 5, and 1 to 15, but normal serums (human) gave reactions in dilution up to 1 to 10 in less than 18 hours; 1 to 30 failed to agglutinate. In 3 cases of lobar pneumonia positive reactions were obtained in dilutions of 1 to 10 after 5 hours' incubation.

Cairns²³ insists upon a perfectly homogeneous culture of *Bacillus pestis* for the serum diagnosis of the disease. For the reaction he uses a small test-tube 9 cm. in length and 0.7 cm. internal diameter, into which a drop of the blood-serum (collected in a small Pasteur pipet) is placed, and then the culture of the organism, up to the required dilution. The cultures are prepared by taking a 24 or 36-hour incubated growth upon agar, and filling with 0.75% sterilized salt solution to cover the solid medium. The growth is then as far as possible transferred to the salt solution by rubbing the surface of the agar with the blunt end of a Pasteur pipet. These emulsions are then set aside in a sterile test-tube for a short time, to allow any cohering masses to settle. A too concentrated emulsion is agglutinated very slowly and often very imperfectly; while the exact degree of dilution is undoubtedly a matter of some importance, it can only be determined after considerable experience in agglutinative work. The tubes are then set aside and when complete sedimentation occurs—18 to 24 hours—a positive reaction is recorded.

Klein,²⁴ in preparing a homogeneous culture of *Bacillus pestis* for the agglutinative reaction, used a gelatin culture distributed in a 0.75% physiologic salt solution. His reason for using a gelatin culture is that, in his opinion, the surface colonies upon this medium are less viscid and drier than those upon agar. "If to a good salt emulsion of plague bacilli—taken from the gelatin surface—bouillon is added in the proportion of 1 of bouillon to 20 of emulsion, the result of positive agglutination is evident in from 12 to 15 minutes." Experiments were then made with blood of rats that had been injected first with Haffkine's prophylactic, then with small doses and finally larger doses of living plague organisms. Klein found that in several animals thus treated, 3 and 5 weeks after recovery, agglutination took place in dilutions of 1 to 20, and 1 to 40, in 10 minutes.

McFadyean²⁵ showed that serum from horses with glanders possessed the power of agglutinating glanders bacilli. In the great majority of cases of glanders a 1 to 50 dilution of the serum produces marked agglutination in a few minutes, while in that of nonglandered animals no effect is produced under these conditions. He finds that a more delicate and reliable method is to grow the bacillus in bouillon containing a small proportion of the serum to be tested. In this way he has obtained a distinct sedimenting action with a serum, which did not agglutinate at all distinctly in the ordinary method.

Heanley,²⁶ in testing the sedimentation and agglutination reaction in cases of glanders, used one part of glanders serum diluted with 109 parts of normal salt solution, and 110 parts of emulsion of glanders bacilli in normal salt solution. The same procedure was adopted with 2 samples of serum from diphtheria patients. When examined in 10 hours the glanders specimen showed definite sedimentation, the others did not. A repetition of the experiment gave the same result, and a dilution of 1 in 505 also proved positive; typhoid and normal serum showed no sedimentation.

The glanders serum could be differentiated from the others in about 4 hours, but the reaction became more obvious later. Eleven tubes containing blood were numbered, and included blood from 1 normal person, 2 from enteric fever patients, 2 patients with scarlet fever, 2 with glanders, 1 with tuberculosis, 1 with scarlet fever and diphtheria, and 2 patients with diphtheria. Dilutions of 1 in 505 were made and only the 2 glanders

specimens gave the reaction. In another experiment samples of blood from 2 patients with enteric fever, 2 with scarlet fever, 2 with diphtheria, 2 with variola, 2 with glanders, and 2 specimens of normal blood were examined in dilutions of 1 in 220, and 4 tubes showed sedimentation. Dilutions of 1 in 505 were then made, and all showed sedimentation. These 4 cases included 2 cases of glanders, 1 of variola, and 1 of scarlet fever. With dilutions of 1 in 2,500 sedimentation was produced only in the glanders cases. In the microscopic agglutination test an emulsion of bacilli was made from a growth on sloped glycerin agar by half filling the tube with previously boiled salt solution and gently agitating for a few minutes. In one series of observations, a 36-hour culture was used and the serums and emulsion were mixed on a slide and covered by a cover-glass. Serum from a patient with glanders of 6 months' duration was diluted with 9 times its volume of normal salt solution, and then 10 of bacterial emulsion was added, making a dilution of 1 in 20. Serums from 2 patients with diphtheria were treated in the same way. It was found that in mixtures containing the serum of the diphtheria patients, clumping was marked, while in the preparation containing the glanders serum more bacilli were free than clumped. In using diphtheria antitoxin as the diluent of cultures, clumps were also quickly and completely formed.

Typhoid.—In typhoid fever the reaction sometimes is absent throughout, and this may be due to a too high dilution, therefore, a low dilution, 1 to 20, or 1 to 10 in some cases, should be used. Curschmann²⁷ claims that the reaction takes place only in the minority of cases before the termination of the first week; most frequently not until the second week, while rarely it is delayed beyond that time. Complete absence of the reaction is one of the rarest exceptions. Kennedy²⁸ claims that Widal's reaction may be present as early as the fourth day and may be continuously or intermittently present throughout the disease, or in unfavorable cases it may be absent altogether in the first few days. To obtain the full value of the reaction, tri-daily tests should be made throughout the disease.

In 165 cases of enteric fever, Libman²⁹ obtained a positive reaction with 1 to 20, and 1 to 50 dilutions in 127 cases. In some instances as many as 16 days elapsed before the reaction was positive in 1 to 50, and in 8 cases that were positive in 1 to 20, there was no reaction in a dilution of 1 to 50. He claims that it is essential in performing the test that at least two dilutions should be made—1 to 20 and 1 to 50.

Cabot,³⁰ in a collated series comprising 5,978 cases of enteric fever, has found that a positive reaction occurred in 5,814 or 97.2%, while in 5,668 control cases, a positive reaction occurred in 323 or 5%. Gwyn and Block, in 151 cases of enteric fever, obtained a positive reaction in 144. In 4 cases it developed on the twenty-second, twenty-sixth, thirty-fifth, and forty-second days respectively. In only 26 cases was the reaction present before the seventh day of the disease. Stengel and Kneass,³¹ in 2,392 collated cases of enteric fever, found that a positive reaction was obtained in 2,283, and negative in 109 cases. Coleman and Buxton³² state that Brill finds that of 4,879 cases of typhoid, the Widal reaction occurred in 4,781, or 97.9%. The reaction is absent in paracolon infection.

S. S. Adams³³ reports that of 70 cases of enteric fever in which the Widal test was made, 50 gave positive reactions. Widal³⁴ states that the agglutination reaction fails in 1 case out of every 40 of enteric fever. He has seen it as early as the third day. The most reliable results are obtained during the second week. It may be positive in dilution of 1 to 8,000.

Allaria and Bozzolo³⁵ show that *Bacillus typhosus* may be recovered from the spleen and other organs of the newborn at autopsy, when before death the Widal reaction was negative. In 4 out of 11 cases a positive

reaction was obtained at varying days following birth. In 2 cases placental blood gave a positive, and the blood of the newborn a negative reaction.

J. S. Billings,³⁶ in 1,908 specimens of blood examined during 1901 by the Board of Health, found that 304 showed a positive reaction, and 111 cases were considered typhoid clinically, although the blood was doubtful or negative. In 131 cases in which the reaction was doubtful, and in 1,362 in which it was negative, the cases proved not to be typhoid. In a large number of the positive cases the reaction was not obtained until the seventh or eighth day. In a comparatively large number several examinations were made with negative results, and yet the autopsy showed the correctness of the clinical diagnosis. It, therefore, follows that although a positive reaction may be taken as meaning typhoid with almost absolute certainty, yet a negative result does not by any means preclude the possibility of typhoid, and demands that another specimen be sent if the clinical signs persist.

Libman,³⁷ in 3,514 tests in 816 cases, comes to the conclusion that the Widal reaction, when positive, always means the presence or preexistence of typhoid. Partial reaction should be negative, and a negative reaction does not exclude the existence of typhoid. Wilson,³⁸ in a study covering 1,650 blood-examinations for the Widal reaction, states that less than 7% are what might be called partial or incomplete. They occur with much greater frequency in tuberculosis and malaria than in typhoid. Wright and Semple³⁹ report 18 cases of enteric fever in which, after subcutaneous injections of 1 cc. of sterilized cultures of *Bacillus typhosus*, the blood of the patients caused arrest of motility and agglutination of bacilli as seen in Widal's reaction.

McFarland and Anders,⁴⁰ in reporting 230 cases of enteric fever, obtained positive reactions in 219, or 95.64%. Of these 219 cases, 128 showed the reaction before the eighth day, 36 during the second week, 45 between the seventeenth and twenty-first days, 8 not until the twenty-fifth day, and 2 as late as the twenty-eighth day.

Vickery⁴¹ obtained a positive Widal reaction in 41 out of 49 cases of enteric fever. Sears,⁴² in 203 cases of typhoid fever, obtained the Widal reaction in 168, and negative results in 33. Ruediger⁴³ in 30 cases of enteric fever, obtained a positive Widal reaction in 26 cases.

Elsberg,⁴⁴ in 36 cases of enteric fever, found the reaction present in 8 cases one month after convalescence. Hektoen,⁴⁵ in 2 cases of typhoid fever that were at first confounded with scarlet fever, obtained pure cultures of the typhoid bacillus from the blood, which in each case was agglutinated by the serum of the patient. Thacher⁴⁶ cites an observer who had applied the Widal test in 334 cases. He found it present in only 6% at the end of the first week, in 36% at the end of the second week, 67% at the end of the third week, and 94% on the thirtieth day. Dun⁴⁷ reports a case of typhoid fatal on the thirteenth day. The Widal reaction was absent on the eleventh and twelfth days. He mentions that Wright (Glasgow) has observed that in severe cases the reaction is frequently absent.

Haim,⁴⁸ in a case of typhoid fever, isolated from the stools *Bacillus proteus vulgaris* which was agglutinated by the serum of the patient in dilution of 1 to 50. Widal's reaction was also positive in dilution of 1 to 50.

Harrington,⁴⁹ during an epidemic of typhoid fever, found that of 90 cases in which the Widal test was performed, 58 were positive, 25 negative, and 7 unsatisfactory for "various reasons." In some of these, 2 or 3 examinations were necessary before a positive reaction was obtained.

Pallard⁵⁰ has shown that in typhoid spine (*spondylitis typhosa* of Quincke, 1899) the Widal reaction becomes more marked and increases with the augmentation of the spinal symptoms. He concludes that the condition is an osteomyelitis due to the Eberth bacillus.

Carr and Roughton⁵¹ report a case of sapremia in which, in the first days of the disease, a positive Widal reaction was obtained, but after 6 weeks failed to give the reaction.

The writer contributes 134 cases of enteric fever, of which 109 gave positive, and 25 negative reactions. In 153 cases other than enteric fever, a positive reaction was obtained in 4 cases each of influenza and pleurisy, 1 each of malaria, peritonitis, parotitis, and pneumonia. A number of cases of typhoid fever in which a negative reaction was obtained, were diagnosed as "abortive typhoid."

Browne and Crompton⁵² state that Widal, in the examination of 40 cases of typhoid, found 11 that gave the reaction long after convalescence. One reacted 8½ years after with a dilution of 1 to 18,000. Browne and Crompton examined 68 cases from 1 to 48 months after the attack. Only 3 gave positive reactions in dilutions of 1 to 20, or 1 to 50. One of these was a case of biliary calculi, and they think that the late reaction was due to the persistence of the bacillus in the gallbladder.

Fison,⁵³ in 21 cases, found 18 that gave a positive reaction from 3 months to 8 years later. Dilutions used were 1 to 2, 1 to 9, in 30 minutes. Renard,⁵⁴ in 104 cases of enteric fever, obtained a positive reaction in 35, 5 of these being 20 years after the attack. Dilutions were 1 to 10.

Stern and S. Klower,⁵⁵ in 100 persons ill with diseases other than typhoid fever, obtained a positive Widal reaction with the typhoid bacillus in 25 cases, with a dilution of 1 to 10; in 10 with a dilution of 1 to 20; 2 in which a dilution of 1 to 30 was used, and 1 in which a positive reaction occurred in dilution of 1 to 40.

Lagriffoul⁵⁶ in cases of divers affections, including bronchiectasis, brown induration of the lung, syphilis, osteosarcoma of the knee, neurasthenia, disseminated sclerosis, pneumonia of the aged, and 1 case of typhoid fever, found the Widal reaction negative. The reaction was positive, however, in 9 cases of typhoid, 1 case each of articular rheumatism, enteritis, syphilitic fever, and hemichorea.

Zupnik⁵⁷ obtained a positive Widal reaction in 4 of 6 cases of Weil's disease, 6 of cholelithiasis, 1 of cholangitis, 1 of carcinoma of the liver, all of which were complicated by icterus. Eckardt⁵⁸ records 2 cases of Weil's disease in which the blood gave the Widal reaction with the typhoid bacillus in dilutions of 1 to 1,000 after 2 hours. Joachim,⁵⁹ in a patient suffering from purulent cholangitis and one of carcinoma of the ductus choledochus, obtained a positive agglutination reaction with *Bacillus typhosus*, the cholera spirillum and *Bacillus pyocyaneus*. In the latter case the test failed in high dilution, while it was positive in the first case in dilution of 1 to 50. Koehler,⁶⁰ in 10 cases of disease of the liver, of which 8 were icteric, found an agglutination with the typhoid bacillus present in 6. The highest dilution employed was 1 to 50, although 1 to 40 was generally used, and once 1 to 10.

Magele⁶¹ reports an abscess of the liver with positive Widal reaction in dilution of 1 to 100. At the autopsy the findings excluded typhoid. The positive Widal reaction was attributed to the bile in the blood. Libman⁶² claims that the presence of jaundice, leading to a positive Widal reaction, is far from being convincing, as no effort has been made by bacteriologic examinations to determine whether or not typhoid bacilli were present in the gallbladder, feces or urine. Even with dilutions of 1 to 1 he had not obtained any characteristic reaction. In only 4 cases had he obtained a positive Widal reaction in the presence of jaundice.

Koenigstein,⁶³ using mixed cultures of *Bacillus typhosus*, colon bacillus and cholera spirillum with gall (taken from cadavers under sterile precautions) in dilutions of 1 to 10, to 1 to 100, found that in 21 tests there was no positive agglutination reaction; in 2 a partial reaction occurred. He injected 2 dogs with small

amounts of a hemolytic poison which resulted in the production of icterus. The serum before the jaundice developed gave a negative reaction in one dog, while in the second animal a positive reaction occurred in dilution of 1 to 10. The results remained the same after the development of jaundice. Tests made with the serum from patients affected with icterus gave negative results in 7 cases, using the typhoid bacillus. In 1 case agglutination of the colon bacillus was obtained.

Cantani⁶⁴ reports experiments to determine the agglutinating power of bile from normal animals and from those immunized against different bacteria. Bile from normal dogs, guineapigs, oxen and rabbits did not agglutinate *Bacillus coli communis*, *Bacillus typhosus*, *Bacillus influenzae*, staphylococci and streptococci. The bile from animals inoculated with these organisms failed to cause agglutination during the stage of acute infection. On the other hand, when bile from animals highly immunized against a specific organism was used, agglutination occurred rapidly and in high dilutions. The agglutinating power of the bile never exceeded or even reached that of the serum. From these observations the author concludes that if agglutinins are present in the serum in small amount they do not appear in the bile, and when in great quantity in the blood, they may then pass over into the bile.

Pneumococcus.—Rosenow⁶⁵ obtained agglutination with the pneumococcus in 77 out of 83 cases of pneumonia (croupous). Ludwig Jehle,⁶⁶ in 6 cases of pneumonia, came to the conclusion that in all the cases that end by crisis there was present a relatively high degree of agglutinating power in the serum. The power of the agglutination appears at the beginning of the disease and remains to the onset of the crisis. After crisis there is a rapid diminution in the agglutinating power, so that in 48 hours it is present only to a slight degree and in 4 days has entirely disappeared. He suggests that the test may be of diagnostic value in the early stages of pneumonia in doubtful cases. Huber⁶⁷ studied the agglutination of the pneumococcus with the serum of patients having pneumonia. The reaction could be obtained about the fifth day and remained until the crisis.

Tuberculosis.—Arloing and Courmont, in 191 clinically tuberculous patients, obtained a positive agglutination in 87.9%, 12.1% did not give the reaction. Of 130 clinically nontuberculous, 34.6% reacted, 85.4% did not. Of 41 healthy individuals 26.8% reacted, 73.2% did not. Loeb personally examined 52 cases in which the technic of Arloing and Courmont was followed. His results are as follows: 1. Cases in which blood-serums were used: (a) Nontuberculous, 2+ (100%), 0—. 2. Cases in which serous effusions were employed: (a) Nontuberculous, 6+ (30%), 14— (70%); (b) tuberculous, 12+ (72%), 4— (27%). In 15 cases of pulmonary tuberculosis most of them with bacilli in the sputum, 13 reacted and 2 did not (Lagriffoul). Four of the former were quite cachectic, of these 2 gave the reaction while in the other 2 the reaction was negative. In 5 cases of surgical tuberculosis, all reacted. In 10 cases of pleural effusion all were positive with blood-serum. In 5 cases the serum of the effusion was used and 4 reacted positively and 1 negatively. In 1 case the serous fluid was negative and the blood-serum positive.

Lagriffoul and Pages⁶⁸ claim that the serum of a newborn child of a tuberculous mother does not generally agglutinate the tubercle bacillus. If the agglutinative substance exists in abundance in the blood of the mother a certain quantity may enter the fetal organism.

Marchetti and Stefanelli⁶⁹ conclude from researches in tuberculosis that the serum reaction, applied according to the method of Arloing and Courmont, is positive within the first 6 hours in 43% of cases. In incipient or light cases it gives positive results in 88%. In cases of lupus the reaction was negative, as it was in 9 cases out of 10 in which no clinical symptoms of tuberculosis

were present. It should be relied upon as a test only when the reaction occurs during the first 6 hours, as in cases other than tuberculosis the reaction may take place after this time.

Dysentery.—Wollstein⁷⁰ found the Shiga bacillus in 39 out of 114 cases of summer diarrhea of infants. The organisms reacted in 21 cases to the Flexner (Manila) serum in dilutions of from 1 to 50, and 1 to 3,000; while Shiga serum gave the agglutination test in dilutions up to 1 to 200. The serum reaction is uncertain during the first week, frequently positive after the sixth day, but may be absent for 2 weeks. It cannot be relied upon for early diagnostic purposes in infants and young children.

Rosenthal,⁷¹ in 30 cases of dysentery occurring in Moscow, found the reaction absent during the first week, strong from the tenth to twelfth days, and less intense after the fourth week. Fifty-two days was the latest time in which he was able to obtain an agglutination.

Strong⁷² isolated a bacillus from patients with dysentery in Manila and tested the serum of 100 individuals, some of whom were suffering from various disorders. In 2 a previous history of dysentery was obtained, and 12 were healthy. In all these cases a dilution of 1 to 10 was employed and a time limit of 30 minutes given. A positive reaction occurred in a surgical case and a partial reaction in a specimen of normal blood. Leonard Rogers⁷³ found in cases of dysentery that the serum reaction was present from the sixth day on, but least marked under 10 days.

Duval and Bassett⁷⁴ in 43 typical cases of summer diarrhea in infants succeeded in isolating *Bacillus dysenteriae* (Shiga). The organisms were agglutinated by the blood-serum of patients from whom they were secured, the serum of other infants suffering with summer diarrhea, the serum of patients with acute dysentery, and with antidyenteric immune serum, but not with the blood-serum of healthy children.

Park and Dunham⁷⁵ examined 22 cases of dysentery occurring in different localities and obtained a positive agglutination reaction in 12 cases in dilutions of 1 to 50.

Doerr⁷⁶ in an epidemic of dysentery occurring in an Austrian town (Bruck), observed 168 cases. The bacillus isolated by him was agglutinated always by the serum of convalescents from the disease in dilutions of 1 to 50; some dilutions were used 1 to 200. The serums of individuals from whom the bacilli were isolated did not seem to agglutinate the bacilli any more or less than heterologous serums.

Lawrence B. Pilsbury⁷⁷ in an article upon the agglutination of dysentery bacilli by the blood of noninfected persons, examined 114 cases of diseases other than dysentery. He obtained a positive agglutinating reaction varying from "complete" to "slight" with the bacillus of Shiga in 108 cases in dilutions of 1 to 10; in 93 cases in dilutions of 1 to 20; in 71 cases in dilutions of 1 to 50; and in 29 cases in dilutions of 1 to 100. With Flexner's bacillus agglutination occurred in 93 cases in dilutions of 1 to 10; in 72 cases 1 to 20 dilution, in 33 cases dilution 1 to 50, and in 15 cases with dilutions of 1 to 100. The term "complete" was applied only to those reactions in which no free bacilli were seen and the clumps were large; "good" was applied to those reactions where small clumps occurred and a few free bacilli. This reaction was especially seen in dilutions of 1 to 20. "Fair" agglutination was applied to those showing fairly good clumps, and when a great many free bacilli retained their Brownian movement to a considerable degree. A "slight" reaction implied one which showed any uniform grouping, however little, well scattered over the field. His conclusions are as follow: 1. That the serum of nondysenteric adult patients does agglutinate the Shiga and acid type (Flexner) bacilli frequently in a dilution of 1 to 20 and occasionally in a dilution as high as 1 to 100. 2. That this agglutinating

power is wanting in the blood of nondysenteric young infants (under one year), rarely being present even in a 1 to 10 dilution. 3. That there are certain differences in agglutinating capability between the Shiga and acid type (Flexner) bacilli, the former in these tests, clumping more readily than the latter. 4. That a decided and prompt reaction, under two hours, with *Bacillus dysenteriae* in dilutions of 1 to 20 or higher in young subjects (under 1 year) and 1 to 50 or higher in older persons who have not recently suffered from chronic or subacute intestinal disease, is probably pathognomonic of acute epidemic dysentery.

Flexner⁷⁸ claims that the serum reactions of cases of dysentery are of the greatest importance, indicating a close relationship between the bacilli from Japan, Manila, Porto Rico and Germany and rendering probable the identity of the epidemic dysentery of this country with that of the East and Germany. S. Ito⁷⁹ has isolated a bacillus from a peculiar form of dysentery in Japan, which organism resembles the colon bacillus. The organism was agglutinated by the serum of patients recovering from the disease, while the serum of normal individuals or of those who had suffered with dysentery or acute enterocolitis had no effect. The serum of patients recovering from the disease did not cause clumping of the dysentery, colon or typhoid group of organisms.

Jürgens,⁸⁰ in a garrison epidemic of dysentery, comprising 26 cases, isolated from the feces a bacillus resembling that described by Kruse. It differed, however, from the latter organism in its forming acid on mannite agar, and resembled more closely Flexner's bacillus. It was agglutinated by the serum of the patients in dilution of 1 to 100 up to 1 to 500, and even higher, while no agglutination occurred with the bacillus of Kruse.

Hewlett⁸¹ tested a number of cases of dysentery for the agglutination reaction upon a strain of *Bacillus dysenteriae* obtained from Dr. Flexner. All the cases, with one exception, failed to give the reaction, while 2 or 3 cases of other diseases gave the reaction. The case of dysentery which reacted was one of amebic type, though there may have been a double infection. Two fresh cultures of *B. dysenteriae*, a Shiga, and a "Flexner" strain, were used, and of 4 cases of dysentery 3 reacted markedly and the fourth slightly. An amebic case did not react at all. Two cases of asylum dysentery also reacted well. It was noteworthy that these cases reacted with the Flexner strain only and not with the Shiga bacillus.

Hiss and Russell⁸² isolated from a case of enterocolitis in a child an organism that presented many points in common with Shiga's bacillus, but was agglutinated by normal horse serum and antityphoid serum. J. H. M. Knox,⁸³ in a series of cases of infantile diarrhea, from which a bacillus was isolated resembling *B. dysenteriae* (Shiga), obtained a positive agglutination reaction in 10 out of 13 cases during the first week of the disease. "As the reaction persists in the chronic cases for weeks or months, it is in this class of cases that the blood tests may prove useful." Cordes⁸⁴ examined the stools of 51 patients suffering from gastrointestinal diseases. *B. dysenteriae* was found in 26 cases. In 25 the acid mannite type of the bacillus was found; in 1, the alkaline mannite form. Agglutination as high as 1 to 3,000, and 1 to 3,500 was obtained with the bacillus of the acid type in 6 cases. The blood of 45 patients was tested with the Harris and Shiga dysentery bacilli in dilutions of 1 to 40, or 1 to 50, with a positive agglutination in 10 cases.

Bergey,⁸⁵ in an article on the reaction of certain water bacteria with dysentery immune serum, concludes that: 1. The agglutination reaction with dysentery immune serum cannot be relied upon in the differentiation of organisms of *Bacillus dysenteriae* group unless we know the limits of the agglutinating power of the serum employed for the particular organism against which the

animal has been immunized. 2. The normal serum of the horse, rabbit, and dog contains agglutinins in relatively small amounts for a variety of organisms. 3. The immunization of an animal against a particular organism increases not only the agglutinins for that organism, but likewise induces an augmentation of the agglutinins of other organisms which are closely related in their receptor apparatus. Van de Velde⁸⁶ was the first to demonstrate agglutination of streptococci by immune serums. He studied the action of the serum of horses, which were artificially immunized against streptococci (quoted by Weaver⁸⁷). Bordet⁸⁸ observed agglutination reaction occurring between antistreptococcal serum and cultures of *Streptococcus pyogenes*. Salge⁸⁹ found that streptococci isolated from cases of scarlatina were agglutinated by the serum of patients in dilutions up as high as 1 to 500. (Quoted by Weaver.) Wlassjewski⁹⁰ obtained agglutination with streptococci obtained from different sources and an antistreptococcal serum. Serum from a case of puerperal fever agglutinated *Streptococcus pyogenes* in dilutions of 1 to 400.

Moser and Pirquet⁹¹ claim that for streptococci the macroscopic test is more readily done, but the reaction is better observed and the details more evident in the microscopic method. Neither shows an advantage in the constancy of the reaction, both evincing great variations. They injected a horse since the first of the year 1900 with streptococci derived from the heart blood of scarlet fever patients. This serum agglutinated the strain of streptococci injected, microscopically and macroscopically, in dilutions of 1 to 1,000. With one exception, it agglutinated streptococci taken directly from the heart's blood and lymphatic abscesses. The streptococci derived from other sources beside scarlet fever did not agglutinate at 1 to 1,000, but a streptococcus isolated from an empyema gave the reaction in a dilution of 1 to 250. They conclude that streptococci from the blood of scarlet fever patients when cultivated upon artificial media for some time, will agglutinate in an immune serum produced by similar streptococci. They find that agglutination of the streptococcus with the serum of scarlet fever patients occurs in 54% of cases. The agglutination in scarlatina is more marked in severe than in mild cases.

Perkins and Pay⁹² found that some cultures of *Streptococcus pyogenes* isolated from the blood and lesions of variolous patients gave a positive agglutination with the antiserum used in the treatment of variola. The method of Meyer was adopted, in which only those cultures which diffusely clouded bouillon were used. Of 9 cultures tested against the antiserum, only one—and that the one used in the preparation of the serum—was agglutinated by it, while in 2 other cultures there was a feeble reaction, but not conclusive.

H. De Waele and E. Sugg⁹³ isolated a streptococcus from the heart's blood in cadavers dead of variola. This organism was agglutinated by the blood of all patients having variola, and conversely the serum agglutinated any of the streptococci isolated from other cases of smallpox, but not other streptococci, except those which were specific for diseases which the patient passed through. The serum of every vaccinated individual also agglutinated this streptococcus, but less so than after an attack of the disease. The serum of nonvaccinated individuals or of newly-born infants possessed no agglutinating power.

Piasetzka⁹⁴ finds that the antistreptococcal serum of rabbits agglutinates completely homologous streptococci, but that heterologous serum rarely produces a complete reaction, and more often no reaction at all. H. Schiller⁹⁵ points out by experiments that serums which have been produced with virulent and unchanged streptococci agglutinate very promptly all the forms of streptococci. Aronson⁹⁶ has produced a highly valent serum which has brought about agglutination with all forms of streptococci derived from pathologic processes, such as angina,

erysipelas, sepsis, scarlet fever, and acute articular rheumatism. As a result of numerous experiments, Weaver has found that of streptococci cultivated from cases of scarlatina, some are agglutinated by almost all scarlatinal serums, but at dilutions varying from 1 to 60, to 1 to 400, others are agglutinated by the same serums with less constancy and at lower dilutions, and many are not agglutinated at all. Streptococci cultivated from cases of scarlatina are agglutinated by serum from cases of lobar pneumonia and erysipelas, in about the same dilutions as by scarlatinal serums, and in the case of erysipelas at even higher dilutions. The same appears to be true of typhoid serum, so far as limited tests indicate, and to almost the same extent of puerperal fever serum. The agglutination reaction between the streptococci cultivated from cases of scarlatina and the serum from cases of scarlet fever is in no way specific, and cannot be of any value as a means of diagnosis. The effects produced by heat and the slight alteration of reaction of the media serve to emphasize the importance of very exact methods in the study of agglutination phenomena in connection with streptococci, as well as with bacteria in general.

Plague.—Wysokowitz and Zabolotny⁹⁷ state that the agglutinative power of the serum in cases of plague is not manifest during the earliest and most acute stage of the disease. It first appears in the blood about the seventh day of illness, gradually increases until the fourth week, and declines after this period. In cases fatal during the first week of illness they found it absent. Polverini,⁹⁸ in regard to the agglutination reaction in plague, claims that it may not be present in severe cases during the first 10 days of the disease and hence concludes that it is of little value.

In 25 cases of plague Cairns has obtained a positive agglutination reaction in 20 in dilutions of 1 to 10 and 1 to 25. In no case has an undoubted reaction occurred in dilution higher than 1 to 75; quite a number (10) gave the reaction in dilutions of 1 to 50. The agglutinative phenomenon is most marked after the second week of illness, and the agglutinative power, insignificant at the commencement of the illness, progressively increases up to the sixth or seventh week of the disease. It then declines, but may be present in wellmarked cases 4 or 5 months after the primary illness.

Raw⁹⁹ states that the plague commissioners came to the conclusion that the serum diagnosis of plague was of no practical value, inasmuch as while the observation takes at least 20 hours to give pronounced opinion, the clinical features of the disease develop with such rapidity as to leave no doubt of the nature of the disease.

Paratyphoid.—W. P. Johnston¹⁰⁰ reports 4 cases of paratyphoid fever. The serum from 2 of these cases agglutinated the paratyphoid bacillus isolated from the blood. In the other 2 cases the diagnosis was made upon the ability of the patient's serum to agglutinate Gwyn's paracolon bacillus, and the organisms isolated from the other 2 cases. In all 4 cases the Widal test was negative. This report includes Gwyn's case. Of 194 cases of enteric fever in which the agglutination tests were made with the bacillus "O" and Gwyn's paracolon bacillus, the results, except in the 4 cases mentioned, were negative.

Hewlett mentions Achard and Bensaude's¹⁰¹ 2 cases of paratyphoid fever in which the Widal reaction was negative throughout. Agglutination reaction was positive, however, with the bacilli isolated, in 1 case from the urine, and in the other from pus in the right sterno-clavicular articulation. He then reports a case coming under his observation in which the serum of the patient gave a positive reaction (with a bacillus obtained from the blood) in dilution of 1 to 100.

Longcope (quoted by Hewlett) reports a case of paracolon infection in which the serum of the patient gave a reaction in dilution of 1 to 200; with Gwyn's bacillus, at 1 to 500; with the Cushing bacillus, 1 to 200; and "Carlez" bacillus 1 to 20. The serum also agglutinated

the typhoid bacillus in low dilution. The work of Cushing,¹⁰² with the bacillus "O," isolated from a costochondral abscess which was agglutinated by the patient's serum in a dilution of 1 to 800, and that of Schottmüller¹⁰³ with cases similar to those of Gwyn is too well known to require elaboration here. Wells and Scott¹⁰⁴ isolated a bacillus which was agglutinated by the patient's serum in dilutions of from 1 to 40, to 1 to 50,000 in cases of paratyphoid fever. Four Widal reactions were made on different days, and all were negative.

Kurth,¹⁰⁵ in 5 cases of Bremen gastric fever, isolated from the feces of one, and from the urine of another, bacilli which were agglutinated by high dilutions of the serum of 4 of the cases.

Brion and Kayser,¹⁰⁶ Libman,¹⁰⁷ and Hume¹⁰⁸ have each observed cases and isolated organisms that resemble yet differ from the typhoid and colon bacilli, which were agglutinated by the serum of the patients.

DeFeyfer and Kayser¹⁰⁹ report an epidemic of paratyphoid fever. Fourteen cases were observed, and the serum of all the cases agglutinated paratyphoid bacilli of the type "A" and "B" of Schottmüller.

L. F. Jermain¹¹⁰ reports 3 cases of paratyphoid fever, the duration of the illness being 16 days. The Widal reaction was negative in each case, though in 1 a serum reaction was positive with Gwyn's paratyphoid bacillus. Kayser¹¹¹ describes 2 organisms isolated from cases of paratyphoid, 1 belonging to the "paracolon group A," and the other to "group B." He thinks that all cases thought to be typhoid fever should be tested with 3 groups of bacteria—the typhoid bacillus and the 2 groups of paratyphoid organisms. The same writer¹¹² observed 3 patients suffering with paratyphoid fever, the diagnosis being made upon the basis of a specific agglutination in high dilutions (1 to 100 and 1 to 1,000) with Schottmüller's paratyphoid bacillus (type B). Bertrand Smith¹¹³ reports 2 cases of paratyphoid infection with positive agglutination reactions in dilution of 1 to 50 up to 1 to 2,000 with the serum of the individual and with the serum of immunized animals. Walker reports a case of paratyphoid fever in which the Widal reaction was negative.

Colon Bacillus.—LeSage,¹¹⁴ in 40 out of 50 cases of enteritis occurring in infants, isolated *Bacillus coli communis* which was agglutinated by the blood of all the patients.

Johnson and Goodall¹¹⁵ have experimented to ascertain the effect of the action of blood-serum in the different forms of insanity on cultures from mixed strains of *Bacillus coli communis* in order to determine whether by the agglutinins direct evidence could be adduced as to the influence of the colon bacillus in such cases or the indirect evidence of a similar action on the part of other organisms related to the colon bacillus. In all, 25 cases were employed. Good agglutination occurred in 4 out of 5 cases of acute melancholia; 1 out of 3 cases of general paralysis; 1 out of 2 cases of delusional insanity. Partial agglutination appeared in 6 out of 11 cases of acute mania; 1 out of 2 cases of delusional insanity; 1 of alcoholic insanity. No agglutination occurred in 5 cases of mania, 1 of melancholia, 1 of puerperal insanity, 2 of general paralysis, 1 of recurrent mania. Agglutination, therefore, was present in 60% of all cases, in 28% good, and in 30% partial. With control experiments, which were made each time, only 1 showed a slight partial agglutination.

Bruce¹¹⁶ found in the blood in a case of acute mania a short bacillus growing singly, in pairs and chains, which was partially agglutinated by the blood of 5 other patients suffering from acute mania.

Micrococcus melitensis.—Musser and Sailer¹¹⁷ obtained a positive agglutination reaction with *Micrococcus melitensis* in a case of Malta fever. Wright and Smith¹¹⁸ also obtained the same reaction. P. W. B. Smith¹¹⁹ reports a case of Malta fever in an officer, who, after 3 years,

still has irregular attacks, and whose blood reacts with well-marked agglutination reaction in dilution of "1 in 40 and over." W. B. Banister,¹²⁰ in a patient who had been in the Philippines where he had been suffering from a fever thought to be malarial, found that the disease presented the clinical features of Malta fever. Serum reaction with *Micrococcus melitensis* was evidenced by marked agglutination.

In Mediterranean fever Aldridge¹²¹ obtained a positive reaction in 30 of 34 cases with *Micrococcus melitensis*.

Miscellaneous.—Vagades¹²² states that we can sometimes show in the blood of patients recovering from influenza a body that gives rise to agglutination of the influenza bacillus.

Wildbolz¹²³ observed agglutinating bodies in the serum of guineapigs intraperitoneally inoculated with cultures of the gonococcus grown upon serum bouillon; the animals developed emaciation and other symptoms. He tested old cultures of the gonococcus as well as young cultures and found the agglutination reaction positive. In 2 cases of gonorrhea, one of which presented epididymitis and elevation of temperature, no agglutination reaction occurred, while in the second case the serum reacted with a young culture of the gonococcus and not with an old culture. He also found that the serum of normal guineapigs and the serum of man did not give this reaction with the organism.

Lerch¹²⁴ obtained a positive reaction in 1 case of yellow fever with *Bacillus icteroides* in dilution of 1 to 10 and 1 to 40 upon the second day of illness. Archinard and Woodson¹²⁵ claim to have obtained agglutination with the bacillus of Sanarelli in 75% of cases of yellow fever. Reed and Carroll¹²⁶ have shown that the same reaction occurs with the bacillus of hog cholera in a small percentage of cases of yellow fever. Pothier,¹²⁷ in 154 cases of yellow fever, failed to get a positive agglutination test with *Bacillus typhosus*. In 19 cases the serum reaction was tried with *Bacillus icteroides* with slow clumping and without loss of motility in 8 cases.

J. B. Tombleston¹²⁸ during two successive attacks of yellow fever, found a bacillus in his own blood that he recognized in 6 other cases of the disease. The serum of a dog immunized against the bacillus produced agglutination with young agar cultures. Lowenthal¹²⁹ diagnosed relapsing fever during the apyretic interval when parasites are absent from the blood. The specific agglutination was most marked immediately after the paroxysm, and sometimes became appreciable just before the next chill. When patients overcame the infection, the reaction lasted longer and if it persisted for 7 days in sufficient intensity to cause cessation of motility of the organisms in 1 hour, no further relapses ever occurred. Gabritschewsky¹³⁰ found that the blood of a patient who had just recovered from relapsing fever would cause an agglutination of spirilla in a specimen of blood kept in the thermostat for 30 minutes to 1 hour.

Spronck¹³¹ claims that the serum of lepers, in dilutions of 1 to 60 and 1 to 1,000, agglutinates fresh living cultures of the bacillus of Hansen.

In diphtheria the serum test does not at the present day figure in the diagnosis of the disease. The bacilli, however, have been agglutinated by antidiphtheric serum by Delepine,¹³² and by Nicholas and Charrin,¹³³ and others. Schwoner¹³⁴ divides the pseudodiphtheria bacilli into 2 groups. The first group, the Hoffman type of organism, is agglutinated partially with normal serum, and completely with monovalent and polyvalent serum, in dilutions of 1 to 10 to 1 to 2,000. In the second group, comprising those bacilli resembling the xerosis bacillus, only homologous varieties are agglutinated with homologous serum.

In tetanus, usually negative results have been obtained; however, Sabrazes and Rivière¹³⁵ by using cultures in a vacuum, obtained clumping with the serum

of a patient on the eighth day of the disease. Bordet was the first to show that *B. tetani* was agglutinated by serum of normal horses.

Achard and Lannelongue¹³⁶ have obtained positive agglutination reactions with *Proteus vulgaris* and *Proteus mirabilis* in animals immunized against the organism.

Rogers¹³⁷ found that *Oidium albicans* grew feebly in the serum of animals immunized against it and formed in masses at the bottom of the tube.

Achard and Bensaude obtained a positive agglutination reaction in 10 out of 14 cases of cholera in dilutions of 1 to 10 and 1 to 20.

SUMMARY.

In summarizing it will be seen that of 17,280 cases of enteric fever, 16,352 gave positive reactions and 928 did not; positive, 94.6%.

In paratyphoid fever 42 cases have been collated, and in 40 of these, or 95.2%, a positive reaction was obtained.

In tuberculosis 221 cases were enumerated, and of them 194, or 87.7%, gave a positive reaction.

Of 390 cases of bacillary dysentery 313, or 80.2%, responded to the agglutination test.

In the other diseases only a small number have been reported, hence no reasonable estimate can be given of the percentage of reactions obtainable.

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APPENDICITIS: ITS RELATION TO PELVIC INFLAMMATIONS.

BY

J. M. BALDY, M.D.,
of Philadelphia.

There seems to be considerable difficulty among surgeons in regard to the status of this subject. Much is written concerning it by men who appear to have a good conception of the underlying conditions, much by men who seem to have a very confused idea, and much by men who apparently have not the faintest idea of that about which they are writing, and whose conclusions are consequently worthless. The subject is complicated in some of its aspects and becomes the more confused as there is a lack of common understanding as to the definite meaning of terms used in the discussion. There is, of course, but one basis on which to consider the relation of these two diseases—the pathologic. I use the expression "two diseases" advisedly, as in spite of all that has been written, I am firmly of the opinion that they are absolutely independent conditions and in no way (except in certain peculiar rare circumstances) related one to the other—either in cause or effect. Pelvic inflammatory disease and appendicitis are both infec-

tious in origin. In the case of pelvic inflammatory disease the source of this infection is from the uterus; in the case of appendicitis, it is from the interior of the vermiform appendix or the intestine.

I do not mean to deny that pelvic inflammatory disease may occur from traumatism, nor that appendicitis may arise from the same cause, but this is true so rarely that I wish to be understood as excluding such from present consideration, in order that we may have a definite and common understanding as to the terms "pelvic inflammatory disease" and "appendicitis" as applied to the relation of these conditions. Otherwise there will be as much confusion in understanding as has occurred in the past. It is definitely understood then that in the use of these terms an infective origin is understood.

It is not an uncommon experience for operators to find on opening the abdomen that both the vermiform appendix and the pelvic organs are bound up in a common mass, and this condition is by no means dependent on an advanced degree of inflammatory process. I have myself seen over 100 such cases. For this reason many surgeons find great difficulty in making a diagnosis between these diseases and both worry themselves and endanger their patients by unnecessary delays in trying to be too refined. The comparatively exact methods of diagnosis of the day are such as to render any extended remarks on this part of the subject superfluous. The diagnosis is fairly easy in the majority of cases and when any serious doubt obtains it rarely fails eventually to be settled in favor of pelvic inflammatory disease. The fact of a doubt existing in the mind of a skilled diagnostician is a strong element pointing to the pelvic origin. After the abdomen has been opened, I have yet to see the first case in which a doubt remained in my mind as to which organ was the cause of the inflammation. If then one has a reasonable cause for doubt, the incision should be made as for pelvic disease, because the chances are largely in favor of this trouble, and if by chance it turns out that an appendicitis exists and that the pelvic inflammation is merely secondary, it is because the colon and vermiform appendix are so low as practically to be lying in the pelvis and can readily be dealt with through the median incision.

Kelly has canvassed the methods of practice of some 50 or 60 of the surgeons of the country in the treatment of the vermiform appendix when the abdomen has been opened for any cause whatever. Some 15 or 20 of these men remove this organ as a routine in the practice of abdominal surgery; a very large proportion of them remove it always, if it is adherent. Kelly himself is among this number. A few remove it only if it is otherwise diseased. The reason given by most writers for removing it, if it is adherent, is that its vitality is lowered and that appendicitis is very liable to follow, or that it is already the seat of appendicitis; in fact, the assumption is that in large numbers of these cases the disease is originally appendicitis, and that the pelvic inflammation is secondary.

I am able to appreciate the reasoning (although not agreeing with them) of the class of surgeons who remove the vermiform appendix as a routine practice as a prophylactic measure, but am unable to follow the reasoning of the class who adopt the practice of removal on the ground that the condition of adhesion implies appendicitis or future danger of this disease. In the first place, 90% to 95% of this mixed class are in origin, cases of pelvic inflammatory disease, and the adhesion of the vermiform appendix is a mere coincidence, due to inflammation of contiguous serum surfaces, as is so commonly the case of adhesion of intestines in pelvic inflammatory diseases. Whoever thinks of confusing these adherent knuckles of intestine (to a pus-tube or a salpingitis) with infective disease of the intestines? And how can the mere denuding of the peritoneal coat (and often only the surface portions of it) of the vermiform

appendix predispose it to a future appendicitis or originate an infective process in its mucous membrane lined cavity? Anyone at all familiar with intraabdominal processes is surely aware of the fact that at the end of a week or two, one of two things has occurred to such a vermiform appendix; the serous membrane is fully reformed, or the organ, at the worst, is bound down or covered over by a film of serous adhesion. The formation of the latter condition is well known to be a favorite way of nature to cure certain mild cases of real appendicitis. Call the conditions what you will, a vermiform appendix so involved emphatically is not appendicitis, and its removal cannot, therefore, be justified on this plea. Its removal for the other causes noted is unnecessary in the vast majority of cases, is adding always a certain element of danger to the operation, and not infrequently is so dangerous as to be absolutely unjustifiable.

The justification of taking the additional risk of infection and loss of time is, of course, closely bound up in the future behavior of these cases, and one must in the long run be governed by experience. Personally, in over 100 such cases I have not found sufficient cause to make me remove the vermiform appendix more than once; and this in spite of the fact that in not a few of them, inflammatory products had invaded the underlying coats of the peritoneum. In no such case have I ever had to reoperate on account of the condition of the vermiform appendix, in none have I found symptoms remaining referable to that organ, and in no case in which for any cause I have had occasion to enter that individual abdomen again, have I failed to find the local repair satisfactory (although I admit such opportunity of proof has been rare). In no case have I known appendicitis to occur subsequently in an appendix I have so treated. I do not wish to convey the impression that an appendicitis could not occur under these conditions as well as under normal conditions, because I can see no reason why it should not. I merely record the fact that it has not done so, and only for the purpose of supporting my position, when I assume that this class of injury does not predispose to a future attack of appendicitis. My experience has led me to differ also with those who hold that appendicitis generates pelvic inflammatory disease or that pelvic inflammatory disease generates appendicitis. The 2 diseases are rarely associated, and only then as a coincidence. I am firmly of the opinion that the one never causes the other. The association we so frequently see is the one disease involving the other organ by the spread of inflammation by contiguity, which spread of inflammation does not carry with it the elements of the original infection. And when the one organ or the other is so involved (simply by reason of anatomic relations) the disease can in no sense be called appendicitis on the one hand nor pelvic inflammatory disease on the other, and in neither case is there sufficient reason in the vast majority of cases for so treating it. The mere deposit, as shown by the microscope, of a few inflammatory products in the walls of the vermiform appendix or in the walls of the fallopian tubes or broad ligaments does not make appendicitis in the one case, nor does it make pelvic inflammatory disease in the other case; call it what else you will.

I would record this one other fact as substantiating the position of the one disease not being a causative factor for the development of the other. In all my experience, I have not seen a single case in which, having found pus in a fallopian tube, I have found pus in the involved vermiform appendix; nor have I found a perforated or gangrenous appendix in such a case. And on the other hand, when having found a perforated or gangrenous vermiform appendix, or one which contained pus, either in its cavity or enclosed in its walls, have I ever noticed pus in a fallopian tube or ovary. Should I discover such a condition it would appear to me (so rare must it be) that the 2 diseases existed as a coin-

cidence independent of each other so far as direct infection from one to the other was concerned. If such was not the case the complications would certainly be of frequent occurrence, much more frequent than is even claimed by the advocates of this theory, because it is so exceedingly common to find this association even to the extent of the contiguous formation of pus. I have not infrequently seen the pelvis full of pus in appendicitis and have just as frequently seen the vermiform appendix form part of the walls of a pelvic abscess due to pelvic inflammatory disease.

RESUSCITATION AFTER APPARENT DEATH IN CHLOROFORM ANESTHESIA: WITH A REPORT OF TWO CASES.*

BY

EMIL KING, M.D.,
of Fulda, Minn.

Reports of deaths during anesthesia are comparatively common. The lethal effect comes so swiftly, is so painful to all those concerned that its causes, prevention and treatment are of importance to every surgeon and physician liable to meet such an occurrence. The discovery of anesthesia marked a grand epoch in medical science, it robbed the surgeon's knife of most of its terrors, it made possible the invasion of all parts of the body and is the cornerstone of the practice of surgery as known today. Soon after its introduction sudden deaths were from time to time reported, and as accidental deaths invariably make a profound impression on the public mind, numberless experiments were made and are being made today to determine their cause and prevention. Our knowledge of this subject is still in a somewhat chaotic condition, yet we may accept the points of agreement and use our best judgment when opinions differ.

A study of the reported cases shows that as a rule collapse came suddenly, apparently without a sign of danger respiration and circulation ceased. In some cases there were undoubtedly danger signals which were not observed. Perhaps with or without good reason an unskilled person acted as anesthetizer, or when this was not the case the attendants were too interested in the operation to watch the patient carefully. Chloroform kills through respiratory paralysis and not through its effect on the heart; this must be considered as thoroughly established and the occasional evidence to the contrary finds its explanation in undiscovered pathologic conditions. Most of the studies in this line were made on animals which were presumably healthy, but as we employ anesthesia in disease and injury, which may modify its action, and are debarred from experimentation on the healthy human body, we cannot rely implicitly on the conclusions made in the laboratory. Yet clinical experience shows that death occurs most often in the apparently robust rather than in the sickly and weak, thus in a way corroborating the evidence presented by animal experimentation. As employed in anesthesia, chloroform powerfully depresses the vasomotor centers; as its effect deepens, the respirations gradually decrease in number and depth until they cease several minutes before final cardiac arrest. Coincident with this there is an enormous fall in the blood-pressure which also has its share in causing the respiratory failure. While its main effect on the circulation is through the vasomotor centers it can hardly be questioned that it also depresses the heart directly and so for purposes of treatment we may assume that in collapse we have to combat failure of both respiration and circulation.

On studying the causes leading to this accident I am led to conclude that overdosage is the most important.

* Presidential address at the sixteenth annual meeting of the Southwestern Minnesota Medical Society, Luverne, Minn., January 14, 1904.

The application of concentrated chloroform vapor causes struggling and holding of the breath, intrathoracic pressure is raised, the lungs are compressed and largely emptied of blood leading to engorgement and congestion of the right heart and venous system. Then several deep respirations are taken, and, if the anesthetic is not removed there is a rush of a mass of blood surcharged with chloroform to the left ventricle and the heart already overloaded, is paralyzed.

An interesting observation on this question of overdosage was made by J. Harris¹ in India. On testing an apparatus designed for the painless killing of animals he found that he could not obtain the lethal effect unless ice was placed in the chambers. With the high temperature prevailing there the air would not hold sufficient of the vapor to cause death. Clinical reports from surgeons in that country are also in accord, chloroform being there considered a very safe anesthetic. Most deaths occur early, often before operative procedure. Lawrie² reports the case of a man who went into collapse 2 minutes and 25 seconds after anesthesia was started; he was restored. A few days later this same man was again placed under chloroform, this time anesthesia was complete in 4 minutes and 35 seconds without untoward effect. The surrounding conditions were identical each time except that the drug was given more slowly the second time and Lawrie himself blames the too rapid administration as the cause of the collapse in the first instance. Overdosage may, therefore, occur through too great concentration of the vapor in the air, too rapid pushing of the drug even when an inhaler which is supposed to deliver a proper mixture is used, and when the administration is continued immediately after the patient holds his breath.

Shock must be considered an etiologic factor. On this point there is much difference of opinion, yet it is an undoubted element of danger. Shock in itself is a vasomotor paralyzant, the arterial pressure is lowered, the skin is moist, there is a fall in temperature, all of which is also true of the effects of chloroform, so we may say shock and deep anesthesia are conditions of prostration in which circulatory depression is a vital factor. Deaths from surgical shock are, of course, much less frequent now than formerly, since anesthesia abolishes pain and guards the central nervous system from receiving impressions of the serious damage done the body. In one of the cases to be reported, this question was of vital importance, and I finally decided to operate if the heart's action became stronger and there was no noticeable failure in the patient as anesthesia became surgical. I was led to try this test on account of a case seen in one of Professor Deaver's clinics years ago. A man was brought in in deep shock from a crushed arm; anesthesia, ether was tried; the heart and other conditions not reacting, operation was deferred, the patient dying later from shock. A point of value in determining the safety of anesthesia in similar cases is the rapid estimation of the hemoglobin percentage by Tallquist's³ method, which is accurate enough for the purpose, and consists of the application of a drop of blood from a puncture to clean white blotting paper, and comparing the stain with a series of test tints. If the hemoglobin is below 30%, operative interference is contraindicated. I do not know of any other rule to guide us, and in most cases other attending circumstances must enter into our judgment.

Loss of body temperature may become an element of danger, vital resistance is certainly lessened as the temperature falls. We have all seen patients thinly dressed, large surfaces covered with cloths wrung out in antiseptic solutions, lying on an iron or glass table in a room barely comfortable to men fully clothed.

Fear has been known to kill. We all realize how hard it is to carry safely through sickness a patient who has made up his mind to die.

Certain conditions of illness also predispose to danger

in chloroform anesthesia. Briefly mentioned they are organic lesions in the heart, brain, and kidneys. With the heart the important point is not the loudness of a murmur, but the state of the muscle itself. So long as there is fair compensation and sound muscle fiber there is little to be apprehended, but if there be fatty degeneration the danger is great. Atheromatous arteries in the brain, and certain tumors and inflammations in this organ become elements of danger. Serious chronic or acute kidney lesions, acute inflammations of the lungs and adenoid growths in the upper air passages all offer contraindications to chloroform anesthesia.

Before discussing the treatment of collapse we will consider briefly its prevention. First in importance is the proper administration of the drug. We are all in sympathy with the thought that only those especially trained in anesthesia should have charge of it. It would certainly add a factor of safety to the patient, relieve the operator of any anxiety on this point and leave him free to devote his entire attention to his work. Unfortunately, many practitioners live far removed from competent help, accidents occur, and conditions arise making immediate operation a necessity. Let those who criticize place themselves in a similar position, and then judge leniently. I will not enter into the preparation of the patient further than to state that he should be warmly dressed, the clothing so arranged that respiration is not impeded, fear be calmed and the stomach be empty. I cannot help believing that in a warm room, 80° F. to 85° F., the anesthetic is safer, surgical shock is lessened, and the return of consciousness is more rapid. The question of inhalers is of some moment. I think, outside of a hospital, the simplest and one of the best methods is to fold a clean handkerchief or small towel 2 or 3 times, wet a small spot in its center, and then hold it 1 to 1½ inches from the patient's mouth and nose. This insures slow administration and lessens the chance of overdosage through insufficient admixture with air. To obtain surgical anesthesia by this method requires from 10 to 15 minutes. I very rarely see asphyxia and struggling. Gauze stretched over a light frame of wire, the chloroform put on drop by drop is perhaps the method most commonly employed. Many ingenious and more or less complicated inhalers are on the market, each designed to regulate the percentage of chloroform vapor and air to a nicety. All are more or less objectionable, being either too complicated, cumbersome, or needing an expert for their use. I have seen cotton stuffed into a glass, a quantity of chloroform poured in and then inverted over the patient's mouth and nose. It is a practice fraught with danger. The patient's position is of importance, and should be horizontal. So many deaths have been reported in the dental chair that one can hardly fail to believe that in many of these cases the head was raised. We know that during anesthesia the blood-pressure is low, the floodgates are open, there is more or less vasomotor palsy. During this condition the blood obeys the law of gravity and flows to the lowest point, and if now the head be too high, how easy for the vital centers to be arrested through cerebral anemia. Struggling indicates asphyxia, and invariably the anesthetic must be removed and several respirations of pure air be permitted. Asphyxia may also be due to sinking of the tongue, which is prevented by supporting the chin, pulling it upward and forward.

Asphyxia is one sign of danger, shallow and irregular breathing, weak and irregular heart and widely dilated pupils are the others. The anesthetizer must, therefore, observe all of these signs most carefully. The color of the face is to some extent an index, venous congestion will darken while in collapse its deathlike pallor if once seen is never forgotten.

Certain drugs judiciously employed may be of great benefit. If the patient is nervous and excited, hypodermics of morphin and atropin are a help; if the heart seems weak, strychnin and spartein are indicated, the

former acting as a powerful respiratory stimulant. Digitalis is the ideal heart stimulant, but on account of the pain and abscesses attending its hypodermic use is not well suited for this purpose; its alkaloids are also so uncertain in potency that they too are unsafe. In spartein we have a drug in its action similar to digitalis and its employment should be more frequent. Experiments by Rosenberg⁴ have shown that chloroform vapor exerts its depressing effects at least partially through the nerve supply of the nasal mucous membrane. To overcome this it has been suggested, by Franz Bruck,⁵ to spray the nose with cocaine solution, and those who advocate and have tried this measure claim it makes anesthesia more pleasant, quicker, and safe.

We will now consider our line of conduct in a case of collapse. It comes like a stroke of lightning out of a clear sky. The most painful impressions received during my work as a physician are connected with the 2 cases here reported. While it is agreed that chloroform practically always kills through respiratory arrest, we nevertheless also have a profoundly depressed circulation; in all cases we must assume that we have a failure of both functions, and the more quickly measures of resuscitation are started the greater our chance of success. Our object is, of course, to restore to activity the respiratory and heart centers, and I consider the plan advocated by Kelly⁶ combines the maneuvers first to be tried in an effective manner. On the first appearance of serious symptoms, suspend the anesthetic and protect the wound, if there be one, with gauze pads. An assistant steps upon the operating table, takes one leg of the patient under each arm, and raises the body until it rests on the shoulders. The head is brought to the edge of the table, where it hangs extended and inclined slightly forward. The clothing of the patient is pulled up to the armpits and the operator practises artificial respiration in the following manner: The open hands are placed on each side of the chest posteriorly; the chest is drawn well forward and outward and held thus for 2 seconds, then the movement is reversed by replacing the hands on the front of the chest and pushing backward and inward, at the same time compressing the heart. By this method we get the benefit of position, the elevation of the extremities will by gravitation drive blood to the anemic brain, the filling and emptying of the chest will remove the excess of chloroform and supply fresh air to the lungs and the compression of the precordial region tends to empty the engorged heart and furnishes a stimulant by mechanical irritation. Artificial respiration may of course be performed by any of the many methods known, and at times direct insufflation, mouth to mouth, with bellows, if such are at hand, or through a tracheotomy, has saved life. Other means are suspension by the feet; or the operator may take the patient upon his back, one leg over each shoulder, and trot around the room, causing succussion of the abdominal viscera, as recommended by Prince.⁷ Our efforts so far failing, we may now resort to tongue traction, known as Laborde's method. This investigator found that the rhythmic pulling forward of the tongue, 18 to 20 times a minute, furnishes a powerful stimulus through mechanical irritation of the glossopharyngeal and superior lingual nerves. Dr. Laborde, with the usual French enthusiasm, wrote a book entitled "A Method of Restoring the Dead," strongly advocating this method in all cases of sudden apparent death in which asphyxia is a factor, and while the test of time has considerably curtailed the claims first made, yet so many cases of success are now on record in which other measures had failed, that it undoubtedly has a distinct value. W. Freudenthal⁸ has brought forward a modification, which consists of tickling the posterior surface of the epiglottis with the index finger. This idea seems very sensible, since we all know that the epiglottis is the most sensitive portion of the respiratory tract. For traction of the tongue, that organ may be grasped with especially de-

signed forceps, hemostats, or with the hand. If the hand be used, it is best to cover the tongue with gauze.

If the Laborde method is a distinct advance in the treatment of asphyxia so also is the König-Maas⁹ method of precordial pressure. The operator faces the patient standing on the left side, places the ball of the thumb of the opened right hand midway between the apex beat and the sternum and presses in the thoracic wall with a quick strong movement at the rate of 30 times a minute. Mass¹⁰ failing to resuscitate a boy who collapsed during a circumcision by the usual methods of artificial respiration and slow precordial compression, became excited and increased the rate of compression to 120 per minute. Signs of life appearing in the contraction of the pupils and faint attempts at respiration the rapid compression was continued for one hour before the patient was saved. The same author has also reported other successful cases. This method practised on the fresh cadaver will drive blood to the brain, a distinct pulse wave can be felt in the carotids and the pupils contract as circulation is established in the iris. It is of course easiest to carry out in the young subject in whom the ribs will bend but it is undoubtedly of value also in adults. J. Prus¹¹ made a series of experiments in which he opened the chest wall and massaged the exposed heart itself. He found the human heart responsive to direct mechanical irritation two hours after death by hanging, and actually restored a man, apparently dead, by this means. He recommends the opening of the chest in from 3 to 9 minutes after chloroform collapse, and though heart suture appears to be a safe surgical procedure, we will probably hesitate until further trials have been made as to its efficacy before resorting to such an extreme measure.

I purposely mention the use of drugs in chloroform collapse last in order to emphasize artificial respiration and precordial pressure, because they are most efficacious and quickly applied, two very material considerations. Of the secondary efforts worthy of trial, venous infusion of normal salt solution is of value. Rein¹² reported in 1895 that for a number of years this had been tried in Russia, especially in Moscow, in cardiac paralysis due to chloroform, with great success. Observations on animals show that this infusion raises the blood-pressure and when the heart was not completely arrested recovery would take place. Infusion of salt solution or other medication is indicated either before arrest of circulation and respiration or after they are at least partially restored. The drugs of any real value are adrenalin, strychnin and digitalis. These may be given intravenously with the salt solution, by acupuncture of the heart and injection directly, or hypodermically. There are others such as amyl nitrite, glonoin, cocaine, caffeine, hydrocyanic acid, ether and alcohol all of which have at times seemed useful but the first 3 mentioned have best stood the test of clinical experience and are most strongly supported by wellknown physiologic action.

The cases of apparent death during chloroform anesthesia occurring in my practice have the following histories:

CASE I.—November 12, 1902, O. L., a large, powerful man, aged 27, railroad brakeman by occupation, slipped and fell under a moving car and sustained a crush of the left leg, the foot hanging by mere shreds of skin. I saw him 35 minutes after the accident; there had been a furious hemorrhage, which his companions had only partially controlled. He was much shocked, delirious, and was crying out in an agony of pain. I first applied a tourniquet to arrest hemorrhage completely, then gave morphin, atropin, and strychnin hypodermically and had him carried to a warm room and surrounded with hot water bottles and wrapped in blankets. After a quarter of an hour a second hypodermic, the same drugs as before, was given, and a quart of saline solution was injected per rectum. Forty minutes from the time he reached the room his condition was distinctly worse, and as he was surely sinking, I decided to try an anesthetic. Ether happened to be unobtainable, so chloroform was of necessity the choice. He took the anesthetic well, the pulse becoming much stronger. I amputated the leg 5 inches above the knee, working rapidly, the flaps were cut by transfixion, the femur had been severed, and I was just attempting

to grasp the femoral artery with a hemostat when the anesthetist, Dr. J. D. Kenedy, a dentist with theoretic and some practical knowledge exclaimed, "the breathing has stopped." On looking up I saw the waxy pallor of death on the patient's face and instantly began Sylvester's method of artificial respiration, which was continued 2 minutes without success. Laborde's tongue traction with tickling of the glottis was then tried for 2 minutes. Listening over the heart a few moments, no sounds could be detected, and I had just exclaimed, "the patient is dead," when heart compression flashed into mind. Compression was at once begun at the rate of about 80 a minute; in a short time color appeared in the face and respiration began. My efforts were continued for about 8 or 9 minutes, when he seemed to have recovered from the collapse. I now tried to tie the femoral artery, and on removing the tourniquet a brisk hemorrhage followed, and again respiration failed. I directed Dr. Kenedy to "compress the heart," had one of the witnesses elevate the right leg, and grasped the ligature on the obliquely cut femoral artery and surrounding veins and religated *en masse*, a few stitches were taken, which with Z. O. adhesive strips held the flaps in place; the usual dressings were applied and the stump was tightly bandaged. The patient was breathing feebly, the radial pulse was barely perceptible when we removed him from the table to the bed. Reaction was very slow, the temperature being subnormal for several days. The operative wound was, of course, infected; the muscles in the stump retracted 5 inches, the patient being 6 feet 3 inches tall, and this in due time left the end of the femur at the edge of the wound. He was then sent to the railway hospital, where a secondary operation was done to shorten the femur, without further accident. He is today in good health and wears an artificial limb. I believe had I deferred operation he would have died in shock, the crush wound being so large that it extended into the knee-joint.

CASE II.—D. B., aged 20, a German-American, was first seen March 23, 1903, and had been in labor for 5 days. I found the fetus in the first position, the head presenting, and the amniotic fluid drained away. The cause of the dystocia was a much enlarged and elongated cervix, which had been dilated to a diameter of 1½ inches. The mother was getting weak, and as the cervix could be dilated so the hand could be pushed through an instrumental delivery was attempted. Following a hypodermic of morphin, atropin, and strychnin, I gave chloroform, and when anesthesia was nearly complete I had to entrust this important detail to the patient's husband, not because I wished to, but because the state of the roads made it impossible to get counsel under 15 hours. I then forcibly dilated the cervix, attempting to overcome its resiliency, which was only partially successful, and which finally prevented me from applying both blades of the forceps. I then did a podalic version, and had just delivered the second arm, when the patient stopped breathing. My attempts at resuscitation were the same as in the first case, everything failing until precordial compression saved the life. It took fully 15 minutes until respiration was voluntary and I could give a hypodermic of strychnin and adrenalin solution, which I had ready for an emergency. Collapse came about 25 minutes after I began to deliver, and it was an hour and 12 minutes later when the head was finally born. The placenta was easily delivered by Credé's method, the uterus contracted well, and the patient had the usual puerperium, doing her own housework after the second week. She is now in the eighth month of her second pregnancy.

This case illustrates the difficulty of making a correct judgment as to operation without counsel, just as my first case raises the question of operating during severe shock. I would gladly have divided responsibility in either case.

November 10, 1902, I made an interesting experiment on a stillborn child. Its mother has a malformed uterus. Twice previously she had to be delivered instrumentally, once by myself, and once by my former colleague, Dr. L. L. Rewalt, for ear and brow presentation; and twice I had delivered her by podalic version on account of transverse position with prolapse of the arm; resulting in 4 living children. On my arrival this last time I found another transverse presentation, with the arm out and the cord in the vagina, still pulsating. The os being fully dilated, I gave the mother chloroform and did a podalic version as on the 2 previous occasions. This time, however, the head could not be readily delivered, on account of the os contracting around the neck, forceps could not be applied, and 10 minutes were lost before the head was born. I tried all the usual methods in attempting to resuscitate the child, slapping, hot and cold water, Shauta's artificial respiration, direct insufflation, and tongue traction, without effect. Finally I began rapid precordial compression, according to Maas, and from complete cardiac arrest I succeeded in getting strong pulsations, which, however, failed in about 30 minutes.

It seems to me this case illustrates the irritating effect on the heart of the König-Maas method. I firmly believe my 2 patients were saved by precordial compression, and they are here reported to attempt to show the efficacy of the method. So many cases of success after

other measures had failed are now on record that we should always give it a faithful trial.

To cover the title of this paper fully would require all of the time at the disposal of this society, it is therefore necessarily incomplete, but in closing, I wish to call attention to the following conclusions:

1. Deep anesthesia is always a condition of danger. Therefore every precaution must be taken to guard against danger.

2. When serious accident occurs we must have ready a well-matured plan of treatment which meets the indication in the best possible manner.

3. Death usually resulting from failure of the vital centers the first indication is their stimulation. Artificial respiration, tongue traction and heart compression should be first tried. The application of cold, ether being poured on the abdomen according to Hare, inversion, suspension and succussion, dilation of the sphincter ani and electricity are worthy of trial if the others fail.

4. Hypodermic injections during the stage of collapse are a waste of time. The arterial pressure being nil there can be no effect from medication unless the injection be into the heart. They may do good before cardiac arrest or after the contractions are resumed, and then the remedies of value are limited to a few.

5. Injections of ether and alcohol in any form are apt to be harmful. Their effect in overdose is so similar to chloroform in their action on the vital centers that we only add to the danger by their use.

6. Mechanical efforts at resuscitation must not be so rough that internal organs are injured. That this is possible is proved by reported cases where the liver was torn, blood found in the pleura and the tongue wounded.

7. Since we cannot know when the molecular changes separating true from seeming death take place our efforts at resuscitation should continue for at least one hour.

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Microbes Used in Warfare upon Rats.—A report from Paris describes a new method of exterminating rats and mice. The process was devised by the Pasteur Institute, and use is made of microbes. Scientists recently experimented on a tract of nearly 3,000 acres badly infested with vermin. Four tons of bread and 9 tons of oats were used as bait. These had been treated with a solution in which the microbes were cultivated, and were placed near the holes made by the rodents. The scientists estimated that they killed fully 95% of the rats and mice living in the tract treated. A field of two and a half acres was chosen, and 12,484 Ratholes were counted. These were closed, and 2 days later it was found that 1,304 had been opened. The bait was used, and 8 days later only 37 holes had been opened. Fifteen and 20 rats were frequently found dead in one hole. The Chamber of Deputies has been asked to pass a law requiring farmers to cooperate to exterminate rats with microbes. The Government will furnish the solution. The cost of the "cultures" is 3 cents an acre.

A CASE OF PEMPHIGUS VULGARIS, WITH SOME OBSERVATIONS ON ITS BACTERIOLOGY.*

BY

A. C. EUSTIS, B.S., PH.B., M.D.,
of New Orleans, La.

Assistant Demonstrator of Chemistry, Medical Department of Tulane University; Visiting Physician to Charity Hospital, New Orleans, La.

The rare occurrence of pemphigus in this country, together with the chaotic condition of the literature as to its etiology, is my excuse for offering the report of the following case, observed by me during my service as interne at the Charity Hospital in New Orleans.

E. J., a colored male, aged 55, was admitted to the Charity Hospital, July 4, 1901.

Family History.—His father is unknown. His mother died at the age of 74, of asthma. He has 1 sister living, in good health, and he is the father of 2 healthy children.

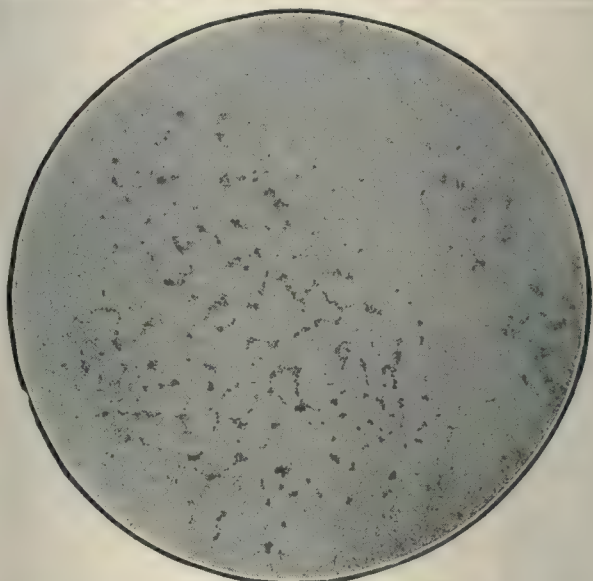
Personal History.—He is a native of San Domingo, but has been a resident of New Orleans since he was 3 years of age, and has not left the town since his arrival. For the past 4 years he has been working on the drainage and sewerage systems, as a laborer. When a child he had several severe attacks of rheumatism; the first attack when he was 7 years of age. He denies ever having had any venereal disease, but states that he had double nonsuppurative bubo in 1868. He has never been vaccinated. Had smallpox in 1865. Other than this he had never had any eruption on his skin previous to the present one. He had been living in a camp of laborers, working on the sewerage system of this city, and stated that the camp was free from the disease until a German, who had recently joined them, developed it. It quickly became epidemic, and three of his fellow laborers died, while another lost his eyesight as a result of it. On March 3, 1901, he first noticed a small elevation at the root of the penis, which burned considerably. In 6 hours this developed into a "blister containing clear fluid." On the following day he had several vesicles over the scrotum and some on the inner surfaces of the thighs. From here the eruption spread to the right axilla, the left side of the neck, and right leg. For 2

F., pulse 82, respirations 26; heart and lungs normal, liver and spleen not noticeably enlarged. Mucous membrane of the mouth was healthy, but the conjunctivas were somewhat injected.

The following notes will illustrate the course of the disease:

Second day after admission, temperature 100.2°. The patient complained of intense burning pains in both hands, both feet, and the scrotum. There was no apparent change in the eruption. The patient, however, was apparently much depressed. Examination of the urine showed nothing pathologic; specific gravity, 1.018. His temperature ranged from 100° to 102.5° for 7 days, when it gradually dropped to normal. Rapid convalescence followed.

From the second day after admission he complained of intense burning pain in the palms of both hands and soles of



Photomicrograph No. 2.—Magnified 900 diameters. Agar culture from blood of rabbit.

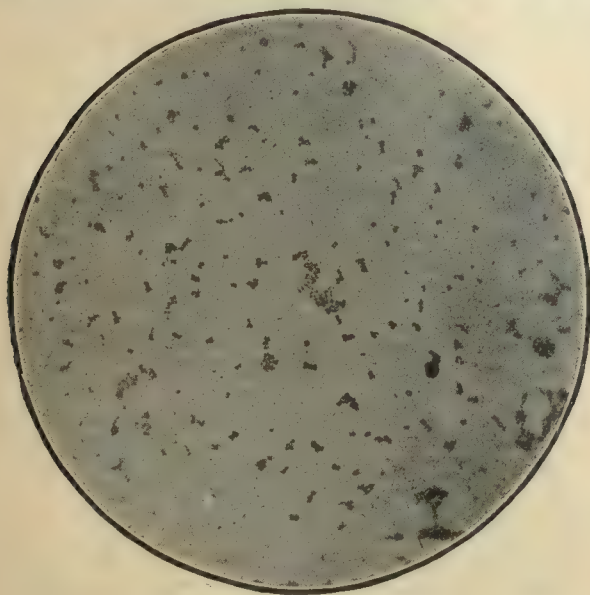
both feet. Two days later numerous petechias could be seen beneath the epidermis of the palms of the hands and soles of the feet, followed 3 days later by complete desquamation of the epidermis, without any signs of vesicles.

On the second day he had a purulent discharge from the eyes and nostrils, and complained of "sore throat." Examination of the mouth showed several small ulcerations on the buccal mucous membrane, while the pharyngeal mucous membrane presented a uniform redness, with swelling of the tonsils, but no ulcerations.

Several of the lesions coalesced, forming tremendous bullas, measuring in some places 6 inches in diameter. Where the lesions broke there were left exuding surfaces, especially noticeable over the sacrum, axillary regions, and scrotum. Several subsequent crops appeared, which would persist for 2 to 3 days, and then either be absorbed or burst. In some instances crusts formed. On the ninth day he was practically free from any vesicles or bullas, but the entire body was covered with patches of fresh epidermis, which was free from pigment. Urinary examinations made from time to time showed that the specific gravity ranged from 1.011 to 1.025. No albumin was found at any time, and no casts excepting once when the urine contained a few hyaline casts. Excretion of urea was not diminished, and the quantity of urine for 24 hours ranged from 50 oz. to 75 oz. There was no diarrhea at any time. All examinations of the lungs were negative throughout.

Treatment.—Treatment consisted of .32 gm. (5 gr.) of quinin sulfate and strychnin sulfate every 4 hours, with increasing doses of Fowler's solution up to the point of tolerance. Daily baths of warm water containing soda were given, after which the body was dusted with boracic acid. For the burning pain in the hands and feet, poultices of soda were applied with great relief. The arsenic was discontinued on the disappearance of the eruption. He was allowed to get out of bed on the tenth day, and was put upon a tonic of iron, quinin, and strychnin.

He remained in the ward as a "helper" and was free from any signs of the eruption until August 1, when he experienced a burning sensation on the right side of the penis, and examination revealed the presence of a small vesicle. There were no signs of an inflammatory condition of the part and the vesicle was identical with the lesion presented on admission. The following day the contents of this vesicle had been absorbed, but 4 fresh vesicles from $\frac{1}{8}$ inch to $\frac{1}{4}$ inch in diameter could be seen on the penis. He was again put on .24 cc. (4 m.) doses of Fowler's solution every 4 hours, increased each day, and with the exception of a few small vesicles on the thigh and abdomen,



Photomicrograph No. 1.—Magnified 900 diameters. Agar culture from patient.

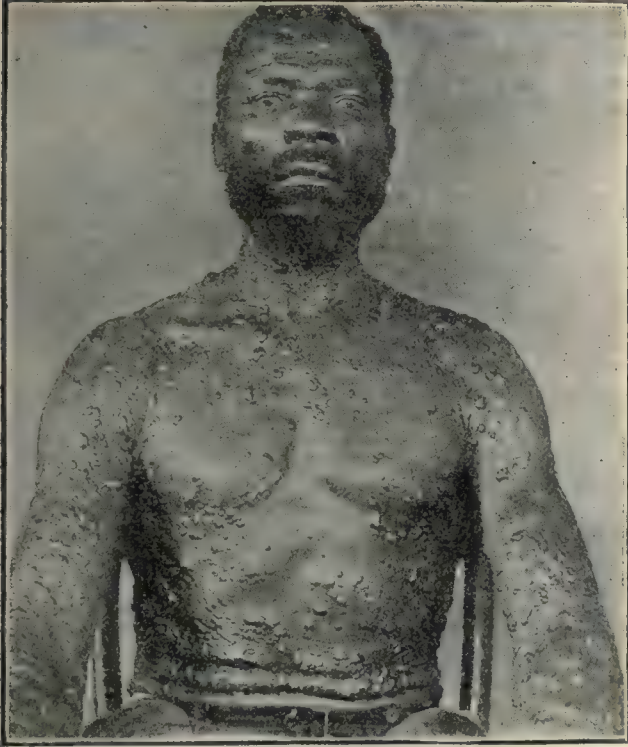
months previous to admission the eruption had been general, the vesicles coming out in crops, and each crop being preceded by intense burning.

Examination at Time of Admission.—Patient was well-nourished and muscular. His entire body was irregularly studded with blebs, ranging in size from that of a pea to that of a hen's egg, universally distributed over the entire body, both on the flexor and extensor surfaces, without any regularity or grouping. The scalp, beard, and pubis, however, were entirely free from lesions. The lesions consisted of multiple bullas, which rose suddenly from sound skin. The contents of the bullas consisted of a clear fluid, and in a majority of instances were quite tense. Several of them could be seen apparently undergoing absorption. The skin was unbroken, temperature 100.5°

* Read at the meeting of the Orleans Parish Medical Society, held January 28, 1904.

which appeared 3 days after the initial one on the penis, there were no subsequent lesions. He was thereafter continued on tonic doses of Fowler's solution and was discharged August 10, with no evidences of ever having had the disease, the fresh epidermis having regained its pigment.

Bacteriologic Experiments.—The day following admission, tubes of agar, bouillon and blood-serum were inoculated under strict aseptic precautions, with the clear fluid from a bleb on the ear. After 24 hours at 37° C., only one small speck could be seen on the blood-serum, while there was apparently no growth on the agar or in the bouillon. At the end of 48 hours, how-



Photograph taken 1 day after admission.

ever, there was a cream-colored growth in the form of rosettes, while a similar growth, less profuse than the former, could be seen on the agar. The bouillon presented a slight cloudiness in the bottom of the tube. Smears stained by Loeffler's solution showed a pure culture of a diplococcus in each instance. It resembled the diplococcus found by Demme, Claessen, Wells, Hadley and Bulloch, and Daehnhardt. It is a slow-growing organism, but grows at room temperature as well as at 37° C. in agar, glycerin agar, bouillon and blood-serum. On solid media the growth is at first white, but in 48 hours develops yellow pigment, imparting a cream-colored tinge to the growth. Occasionally the formation of pigment is excessive and the growth may be orange in color. In bouillon culture a heavy deposit formed in the bottom of the test-tube, the supernatant fluid remaining clear. In shape it resembles the gonococcus, but is larger, ranging in size from $\frac{1}{10}$ of a micron to $\frac{1}{10}$ microns. Hanging drop cultures in bouillon observed from day to day and kept in the incubator at 37° C. showed them occurring almost invariably in pairs, but they may exist in chains of three, four or more. Individual small cocci observed in this manner grow to the size of the larger ones and divide in two, remaining thereafter as diplococci. The larger pairs were seldom found arranged as chains and all were nonmotile. They stain readily with Loeffler's solution, gentian violet, methylene-blue and by Gram's method. Apparently, it occurs in chains of diplococci only when cultivated in bouillon; for, cultures in bouillon, in which they existed in chains, when planted on agar, failed to grow in chains in any instance. This may explain the identity of Gibier's organism referred to below. Cultures in lactose bouillon and glucose bouillon produced no fermentation even after 7 days at 37° C., although there was profuse growth. Likewise, cultures in milk containing litmus failed either to produce fatty acids or to coagulate the milk, contrary to the behavior of the organism found by Wells and reported by Whipple.¹¹

Several animals were injected with cultures of the organism to test its pathogenesis.

EXPERIMENT No. 1.—A male white rabbit weighing 2½ kilos was injected in the marginal vein of the right ear, with

20 m. of a 48-hour bouillon culture of the organism. The back and abdomen of the animal was shaved and he was placed in a small cage for close observation. There was no appearance of an eruption, but its temperature, taken by the rectum on the fourth day after inoculation, was 106.8° F. The temperature was above 105° F. almost constantly, until the tenth day after inoculation, when the animal died, after having lost half a kilo in weight. An autopsy, held 2 hours after death, showed the lungs congested in spots, heart normal, liver normal, spleen congested, kidneys slightly congested, large intestine normal, while the small intestine showed several areas of localized inflammation, together with several small superficial ulcers. The stomach presented 1 ulcer about half an inch in diameter, at the cardiac end, which had penetrated to the external coat of the organ, with another smaller ulceration not far from the first. Specimens of the organs were mounted and stained and the diplococcus was found in the alveolus of the lungs, in the kidney and in the spleen. Unfortunately the mounted specimens of the ulcers in the stomach and intestines were lost and were not examined.

On the seventh day (i. e., 3 days previous to death) several minims of blood were withdrawn with a sterile hypodermic syringe from the marginal vein of the left ear. The blood was dropped into sterile bouillon and plate cultures on glycerin agar made from this. After repeated plating, a pure culture of the original organism was obtained, which was preserved for inoculation into other animals.

EXPERIMENT No. 2.—A young pig, weighing about 35 pounds, was injected subcutaneously in the iliac region with 45 m. of a 24-hour bouillon culture of the organism, obtained from the rabbit. Its temperature, taken daily by rectum, ranged from 103° F. to 104° F. for 6 days. The animal developed 1 pustule on the inner surface of the thigh 4 days after inoculation, but otherwise the inoculation was negative in results; for cultures made from the pustule and plated several times never produced the original organism. The yeast fungus was present to such a great extent and it grew so rapidly that the plates would be covered with it before the diplococcus, if present, could have grown.

EXPERIMENT No. 3.—Another pig, 1 month old, weighing 20 pounds, was injected in the left femoral vein with 1.9 cc. (30 m.) of a 48-hour bouillon culture of the organism obtained from the rabbit. This animal developed only 1 degree of temperature above normal, but on the second day after inoculation it developed a small pustule on the under surface of the neck, while on the fourth day there were several pustules on the inner surface of the right thigh and 1 large pustule on the abdomen. Cultures were again made after very carefully disinfecting the skin, but again I was unable to obtain the diplococcus owing to the yeast fungus.

EXPERIMENT No. 4.—Still another pig, weighing 20 pounds, and from the same litter as pig No. 2, was injected in the left femoral vein with 2.8 cc. (45 m.) of a 24-hour bouillon culture of the organism obtained from the rabbit. Although the animal developed a pustular eruption I was again unable to isolate the original organism.

EXPERIMENT No. 5.—A male white rat was injected in the scrotum and inner surface of the thigh with .6 cc. (10 m.) of a 24-hour bouillon culture from the rabbit. There was apparently no effect on this animal and no signs of an eruption could be seen.

EXPERIMENT No. 6.—A guinea pig weighing 590 gm. was injected in the peritoneal cavity with .9 cc. (15 m.) of a 72-hour bouillon culture obtained from the rabbit. There was very little effect, except a slight loss of appetite and the animal was apparently well until 3 weeks after inoculation, when it emaciated very rapidly and died. Absence from the city pre-



Photograph taken 9 days after admission.

vented my holding an autopsy on this animal, but I feel positive that had I done so I would have recovered the organism.

In referring to the latest literature on the subject one is struck by the various causes, or rather hypothetic causes, assigned to pemphigus therein. I shall not enter into a discussion of these various causes nor shall I try to persuade you that the etiologic factor is to be found in a particular microorganism, but I shall merely mention a few observers who have isolated an organism in the disease.

As early as 1886 Demme² isolated a diplococcus, resembling the gonococcus, from the contents of the bullas of a case of acute pemphigus. Strelitz,³ in 1889, claims to have found two kinds of organisms in the contents of the bullas. His organism, a coccus, sometimes grew white and at other times yellow on solid culture media, and measured from .5 microns to 1.3 microns. Next we find that Almquist⁴ in 9 cases of pemphigus neonatorum found a diplococcus similar to that found by Demme and Strelitz, and he was able, in from 2 to 3 days after inoculation into his forearm, to produce a typical pemphigoid lesion at the site of inoculation. P. de Michelle,⁵ in Italy, in 1891, recovered a similar diplococcus in the pancreas, kidneys, and from the contents of the bullas in a fatal case of acute pemphigus. He found the organism nonpathogenic to 2 guineapigs when injected subcutaneously.

Peter,⁶ in 1896, isolated a diplococcus from the blebs of an infant 8 days old suffering with pemphigus neonatorum, and in addition was able to isolate it from the mother's milk. In the same year, Whipham,⁷ in England, reported the finding of a diplococcus in 2 cases of acute pemphigus, measuring from .8 micron to 1.5 microns, and which induced death in 4 to 8 days when inoculated into mice and guineapigs. Pernet,¹² Bulloch,⁸ Claessen,⁹ Hadley and Bulloch,¹⁰ Wells,¹¹ and Daehnhardt have all isolated a diplococcus.

Paul Gibier,¹ on the other hand, isolated a beaded organism, and Hamburger and Kubel¹³ have found a bacillus.

CONCLUSIONS.

1. In cases of pemphigus a diplococcus can be isolated from the contents of the bullas.
2. This diplococcus when injected intravenously into the rabbit will cause death.
3. A diplococcus removed from the blood of the rabbit and identical with that obtained from a case of pemphigus vulgaris, when injected into the pig (*Sus scrofa*) produces a pustular eruption in the latter animal, attended with mild constitutional disturbances.
4. Arsenic is the main remedy to be relied upon in the treatment of pemphigus vulgaris.

Before closing I wish to thank Dr. O. L. Pothier, pathologist of the Charity Hospital, for his ever ready advice and assistance in the bacteriologic work; Dr. E. D. Fenner, at that time first assistant house surgeon of the Charity Hospital, under whose direction the patient was treated; Dr. Ralph Hopkins, visiting dermatologist, for his aid in arriving at a diagnosis, and Prof. R. Matas for the use of his library and for his kind aid in securing the literature upon the subject.

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BLOOD IRON.

BY

EDWARD T. WILLIAMS, M.D.,

of Boston, Mass.

Iron is a universal element. It is found in the heavenly bodies and widely distributed throughout the earth. It is an essential constituent of animals and plants, and occurs in small proportions in sea-water and mineral springs.

Metallic iron is insoluble in water, but combines chemically with oxygen to form 2 principal oxids, the green or protoxid (FeO), and the red or sesquioxid (Fe₂O₃). Both these oxids are insoluble in pure water, but combine with acids to form 2 distinct series of salts, the protosalts and sesquisalts, which are for the most part soluble. The protosalts, which contain the most iron, are as a rule bluish-green in color, while the sesquisalts are mostly reddish-yellow.¹ There are of course exceptions to this rule.

Metallic iron, as has been said, is insoluble in pure water, but water containing carbonic acid, as all natural waters do, attacks it and converts it into carbonate of the protoxid of iron, which is soluble in carbonic acid water and forms the effective constituent of all chalybeate waters. Under exposure to oxygen the protocarbonate decomposes and changes into the red sesquioxid, a reaction witnessed every day in the formation of iron rust.

The chemistry of the common compounds of iron is sufficiently treated in the books and need not be considered here. There is also a vast number of medicinal compounds prepared for therapeutic purposes, but, as they are all converted into chlorids by the gastric juice, there is really no very great choice between them, as chemiscience and clinical experience abundantly prove.²

The iron albuminoids are a more difficult study. It is well known that soluble preparations of iron will, under certain circumstances, combine with soluble albuminoids to form soluble compounds. This occurs naturally in the human stomach and may be imitated artificially outside the body. If an indifferent iron salt and a watery solution of egg albumen be digested with hydrochloric acid a neutral compound is formed of soluble albuminized iron. In this process the acid is decomposed and the chlorin set free, the combined iron being left behind in the condition of a sesquioxid.

An iron peptone may be prepared in a similar way by adding a little pepsin to the hydrochloric acid.

The same reactions take place under similar conditions in the human stomach, whence the products are naturally carried into the blood and tissues.

Organic iron is found in the muscles, liver, bone marrow, and spleen.³ It is said to be an essential constituent of all nuclei. It may have some part in the polar actions of cells. It forms nearly half a hundredth (.42%) of the substance of the red blood-corpuscles.

This substance, popularly called hemoglobin, has not yet been fully analyzed. It consists of an albuminoid, with 4% of iron pigment, and a minute proportion of salts in organic combination. The exact condition of the iron is unknown. It is known, however, that there are 2 forms of hemoglobin, the oxidized and deoxidized. The former is peculiar to the arterial blood, the latter to the venous blood. They differ in color, the former being bright red, the latter bluish. They give different spectrums. From these facts it appears that hemoglobin is a variable and unstable compound. It is constantly passing from a state of oxidation to a state of deoxidation, and from

a state of deoxidation back again into a state of oxidation. The oxidizing process takes place in the lungs under exposure to the air, the deoxidizing process takes place in the systemic capillaries under exposure to the products of the destructive metabolism of the tissues. It is well known that such products have a deoxidizing effect on the sesquioxid of iron and its salts.⁴ The carbon, hydrogen and nitrogen bodies are breaking up and appropriating oxygen from all available sources. Hence we may infer that the iron in oxidized hemoglobin is in the form of the sesquioxid or some of its salts, while that in deoxidized hemoglobin is the protoxid or its carbonate. Von Liebig and Bunge say the latter. This accounts perfectly for the color change, and all the connected phenomena. It explains the respiratory function of the red cells and their agency in the production of animal heat. It would be gratifying, of course, if we had an absolutely accurate knowledge of all the components of hemoglobin. At present we must content ourselves with the closest possible approximation to the truth, which is, I believe, pretty nearly as I have stated it. I am aware that my conclusions are somewhat at variance with those of Bunge and others, but this is not a question of authority, but of plain deduction from admitted facts.

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MULTIPLE MYELOMA.¹

BY

GEORGE F. ZINNINGER, M.D.,

of Canton, Ohio.

Cases of which the following is a type are of sufficient rarity to warrant me in placing it on record even if it can be but incompletely reported owing to incomplete clinical as well as anatomic data. On May 21, 1902, I was called in consultation with Dr. H. A. Myers (through whose courtesy I report the case) to see the patient for the purpose of making a diagnosis. The case is as follows:

Mr. B., aged 75, a farmer, of good antecedents. Nothing in the family or past history has any bearing on the case. He had unusual health and vigor and had been a hard worker all his life. His present illness dated back to December, 1901, at which time he fell, striking the sacral region on the hard ground. The fall was quite severe, the patient being unable to walk for several weeks, no fracture however, was sustained. From this time on he began to decline in health and strength. Beside his gradual loss of strength he began suffering with a slight pain in the left inguinal region, associated with gaseous distention of the bowels. He was much relieved after a bowel evacuation. There was also an increasing constipation demanding large doses of cathartics or enemas. There was also manifested a vesical irritability, the patient passing urine rather frequently; it was often distinctly bloody.

Physical Examination.—Patient 5 feet, 6 inches in height, rather emaciated, skin pale, a characteristic straw color, conjunctivas clear and pearly, mucous membrane pale. Pulse 70, temperature 98°. Vessel walls of radial, temporal and tibial arteries were hard and beaded. Nothing further was noted externally, no glandular enlargement. Lungs were entirely negative. Heart, apex least feeble to touch in fifth interspace, 3 cm. within the nipple line. A loud blowing systolic murmur could be heard most distinctly over the apex and was well transmitted toward the axilla. No murmur was heard over the base of the heart except as transmitted from the mitral area. Nothing abnormal was elicited on examination of the abdomen. Sounding the bladder failed to reveal the presence of stone. Prostate was small and hard to the palpating finger. Digital examination revealed high up in the hollow of the sacrum a solid, apparently bony mass, which could be just

reached by the examining finger, it was not attached to the bowel.

A clinical diagnosis of general arteriosclerosis, calcification of mitral valve (there was absolutely no signs or symptoms of insufficiency), and malignant neoplasm, most probably osteosarcoma of the sacrum, was made.¹

There was nothing of importance in the subsequent history of the case, except that on September 25 Dr. Myers detected the presence of an additional tumor the size of a walnut, involving the anterior third of the right clavicle; at this time the tumor was very hard, but it soon grew soft, producing solution of bony continuity. The patient declined gradually, death occurring October 25, 1902.

Autopsy.—Mr. B., aged 75, body 5 feet 6 inches in length, very much emaciated. Nothing was noted externally except that in the anterior third of the right clavicle there was a soft tumor, producing solution of bony continuity. There was also on the right arm a postmortem wound produced in embalming the body (the body had been embalmed with a fluid of secret formula, of which formalin was unmistakably the chief ingredient, and in subsequent descriptions this factor must be reckoned with). The pericardial sac contained no fluid. The heart was about normal size, no excentric hypertrophy; tricuspid and pulmonary valves delicate, mitral valve thickened, being heavily calcified but competent.

Lungs were large, dry, crepitant throughout, and showing a slight degree of emphysema. Liver, spleen, pancreas, and stomach were apparently normal. Kidneys were of normal size, surface slightly uneven, "patchy" capsule, stripping with difficulty. A few retention cysts were noted. Bladder mucous membrane was pale. The bladder contained no stone, but upon its left lateral wall was found a very vascular papilloma, about the size of a cherry. In the hollow of the sacrum, especially to the left and passing out over the sacroiliac synchondrosis, was found a circular tumor, 10 cm. in diameter and 4 cm. in thickness. It was about half buried in an erosion of the bone which was thrown up in a ledge around the edge of the tumor. The tumor had a mottled red and gray appearance, and was of soft, marrow-like consistency. In the anterior third of the right clavicle was found a tumor about the size of an average walnut, the bone being entirely replaced by it. On the anterior third of the third, fourth, and fifth ribs on the right side were found oblong shaped tumors about twice the width of the ribs, displacing the bone, except a thin shell on the anterior side. These tumors could not be palpated externally, even after our attention had been directed to their presence. They were all of the same general nature and appearance as the sacral tumor, except for a firmer consistency. I am convinced this was due to a better fixing by the embalming fluid.

Histopathologic Examination.—The general characteristics of the tumor are a delicate connective-tissue stroma and large thin-walled vessels and capillaries forming a loose mesh-work in which are loosely placed the characteristic tumor cells. The prevailing cell is large and oval, in some instances angular from mutual compression, sharply circumscribed with excentric nucleus and nucleolus, and of clear, smooth, distinct cytoplasm. It greatly resembles a plasma cell of Unna, but is much larger in size and the nucleus which is found (both single and multiple) is always vesicular. Indeed the number of multinucleated cells found is quite remarkable and as many as 4 distinct nuclei have been found, but more often 2 or 3 only are present, and often instead of being distinct and separate they are polymorphous, being connected by threads of chromatin. A distinct nucleolus is seen in nearly every cell. Besides the characteristic tumor cells, numerous polymorphonuclear leukocytes and nucleated red blood corpuscles are found. Many of the tumor cells contain cell inclusions. The tumor contains a very delicate connective-tissue stroma usually accompanying and supporting a very rich vascular supply. The veins and capillaries are very thin-walled, often only an endothelial layer. They are greatly distended and apparently contain more than the usual number of polymorphonuclear leukocytes. The characteristic tumor cells are in intimate proximity to these capillary spaces.

Wright,² of Boston, holds that the characteristic cell in multiple myeloma is the plasma cell and he speaks of these tumors as plasmoma and to account for their presence assumes that plasma cells are histologic constituents of the bone marrow.

Against this conception is that of McCallum,³ of Baltimore, who after dissecting and studying a case seen by me during life in Dr. Osler's wards at the Johns Hopkins Hospital, concluded that the tumor cell is a derivative from the myelocyte of the bone marrow.

Virchow, in formulating his classification of tumors seems to have anticipated a place for myelomas; but it is doubtful if the type of tumor under consideration really

¹ Subsequently, autopsy showed that that which the examining finger in the rectum palpated was not the tumor, which was beyond reach, but an elevated ledge of bone at the margin of the erosion.

² Contributions to the Science of Medicine by the students of William H. Welch.

³ Journal of Experimental Medicine, Vol. vi, No. 1.

¹ Reported before the Canton Medical Society, Friday, March 4, 1904.

belongs to true tumors or neoplasms, but rather to the group of granulomas.

The points emphasized by Mr. McCallum are: 1. The cells are larger in size than plasma cells. 2. They do not react characteristically to the staining methods, especially to polychrome methylene-blue as do plasma cells. 3. In morphology they more nearly correspond to myelocytes of the bone marrow. 4. The gradual transition of bone marrow into the tumor, the myelocytes gradually merging into the tumor cells. 5. Even though the tumor cells do not show neutrophilic granulation when treated by Ehrlich's method, neither do young myelocytes show such granulation.

Since it is my object merely to place this case on record as one of that rare condition, true multiple myeloma, I will not enter into a discussion of it, but will merely say that a study of my case inclines me to accept McCallum's rather than Wright's conclusions. It is regretted that no blood-count was made during life to determine the presence or absence of myelocytes in the circulating blood or any neutrophilic leukocytosis.

Neither was the urine tested for albumose which has invariably been found when looked for in every reported case, so far as I am aware.

Fresh tumor smears could not be made owing to the very thorough and effectual embalming with formalin.

In conclusion I wish to add that specimens have been submitted to Wm. H. Welch who confirmed the diagnosis of myeloma.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

April 9, 1904. [Vol. XLII, No. 15.]

1. Some Toxicogenic Germs Found in Drinking Water. VICTOR C. VAUGHAN.
2. A Case of Atrophy of Hand Muscles with Localized Sensory Disturbances; Possible Early Syringomyelia. D. I. WOLFSTEIN.
3. Accidental Perforations of the Uterus. D. S. FAIRCHILD.
4. The Chemistry of the Medical School. J. H. LONG.
5. Tropical Cutaneous Myiasis in Man. J. LEE ADAMS, JR.
6. Carcinoma of the Lung; Pancreatic Cyst. W. W. GRANT.
7. Tahiti from a Medical Standpoint. (Concluded.) N. SENN.
8. Laryngectomy for Cancer. H. H. GERMAIN.

1.—Toxicogenic Germs in Water.—V. C. Vaughan reports the finding of such germs in 30% of 709 samples sent by physicians to the University of Michigan. Ten samples contained no bacteria capable of growth at 38° C. These cannot cause disease. Waters are not condemned which contain no toxigenic germs, nor those containing only a typical colon bacillus or a typical proteus bacillus. A typical colon bacillus is nonmotile, produces indol abundantly, produces acid in milk, coagulates milk within 24 hours and evolves gas from glucose and lactose cultures. It requires repeated plating of cultures made from the heart's blood of the inoculated animal to exclude certain germs. Waters that contain any member of the venosus group or any germ with doubtful characteristics are condemned. The writer has never found a germ that responded to the Widal test. Sixteen years of experience with the methods used has convinced him that they are satisfactory. [H.M.]

2.—See American Medicine, Vol. V, No. 24, p. 945.

3.—Accidental Perforations of the Uterus.—D. S. Fairchild thinks this accident more frequent than reports show in gynecologic work and efforts to produce abortion. The sound and curet cause it most frequently in legitimate practice. When the uterine walls are softened by inflammation or degeneration an instrument will pass so easily into the abdomen that the fact may not be recognized. Even when healthy the tissues may be penetrated with greater facility than is generally supposed. Examinations by the sound are more frequent than they should be, and there are often better means of treatment than by the curet. Perforation by the latter would not be so serious were it not for the associated irrigations by which infection is washed into the abdominal cavity. If infection is mild, treatment by rest and ice may be sufficient. If septic peritonitis threatens, a

vaginal hysterectomy with drainage is indicated. In extensive laceration, the fundus may be delivered through an anterior vaginal incision and sutured. If the accident occurs in curetage preliminary to some operation on the uterus, per vaginam or abdomen, the choice lies between suturing or a hysterectomy, according to indications. If an opening of any considerable size is left, there is danger not only of infection, but of strangulated hernia of the intestine. [H.M.]

4.—The Chemistry of the Medical School.—J. H. Long thinks what has usually been understood as medical chemistry is not what the student needs most. That which prepares for the understanding of the why is more important than the learning of isolated tests. Modern physiologic and pathologic chemistry is based largely on physical and general chemistry, as in the problems of immunity and toxicity, the electrolytic components of the blood, etc. [H.M.]

5.—Tropical Cutaneous Myiasis in Man.—J. L. Adams, Jr., states that cutaneous myiasis in Darien is usually due to the *Dermatobia noxialis*. Man and dog are host by preference. It attacks all who are properly exposed. The white-skinned are more susceptible than the darker races. Incubation covers from 16 to 23 days. Larvas differ in shape according to anatomic location. Grub or larvas, if left alone, will not produce injurious results. Abscess and ulceration are the results of attempted expulsion without proper preliminary treatment. The larva lessens its hold if asphyxiation is brought about by closing the opening in the tumor with adhesive plaster, cotton, and collodion, a postage stamp, tobacco leaf, or other measures. After 24 hours only slight pressure is necessary for expulsion. [H.M.]

6.—Carcinoma of the Lung; Pancreatic Cyst.—W. W. Grant reports two cases of carcinoma of the lung—one recurring after an interval of four years from excision of the primary lesion and having at one time coincident tubercle bacilli; the other seemingly primary. Cases of primary carcinoma of the lungs are rare. Pancreatic cyst is usually due to obstruction by stone. There was no evidence of stone in the case reported. Inflammatory conditions may result in hemorrhage and cyst. Without intelligent clinical history the diet is guess work. The disease is essentially surgical and delay is as dangerous and fatal as in appendicitis. The sac may be dissected out if small; if large, the best treatment is to attach the sac to the parietal peritoneum and drain. [H.M.]

8.—Laryngectomy for Cancer.—H. H. Germain compares the deathrate before 1888 with that since, a difference between 35% and 14.5% with a corresponding fall in the number of recurrences, 11.2% as compared with 30.3%. The improvement is due to methods which avoid sepsis and do away with aspiration pneumonia, to early and more radical operating with regard for the lymphatics. In the case reported the coracoid was left in place and yet there is no dysphagia. The tampon canula is being superseded by the Trendelenburg-Rose position. Primary suture of the pharyngeal and esophageal wounds saves weeks of convalescence, while turning the tracheal stump forward and sewing it in the lower wound angle obviates the necessity of a permanent canula and in a great measure prevents aspiration pneumonia. Rectal feeding is necessary for a few days, followed by esophageal feeding, then liquid and solid food in the order given. The slit representing the new larynx is formed between the tongue and posterior laryngeal wall. A distinct pseudovoice is developed after some operations. [H.M.]

Boston Medical and Surgical Journal.

March 24, 1904. [Vol. CL, No. 12.]

1. Ultimate Results of Some Gynecologic Operations at Massachusetts General Hospital. RICHARD G. WADSWORTH.
2. Eyestrain Considered as a Factor in Production of Lateral Curvature of Spine (Preliminary Communication.) HENRY W. KILBURN.
3. Supernumerary Breasts and Nipples, with Report and Photograph of a Case. ERNEST BOYEN YOUNG.
4. Ring Bodies in Anemic Blood, Additional Forms. RICHARD C. CABOT.
5. Typhoid Fever in Infancy, with Report of Case Complicated with Meningitis Terminating in Recovery. CHARLES P. SYLVESTER.

1.—Ultimate Results of Some Gynecologic Operations.—R. G. Wadsworth, in summing up results, finds that

out of 53 cases of laceration of cervix and perineum, in 26% there was no relief of symptoms. Curetage for endometritis in 22 cases gave complete symptomatic relief in 45.5% and partial relief in 31.8%, the remaining 22.7% having received no benefit. Ventral fixation for retroversion in 22 cases was anatomically successful in 77.3%, but only 23.5% received satisfactory symptomatic relief. Of 6 cases of Alexander's operation for retroversion, only 16% were cured, 84% having received no benefit. Of 18 cases of procidentia, 11.1% have been entirely relieved, 33.3% partially relieved, while 55.6% have received no benefit. Of 42 cases of hysterectomy for fibroids, 85.7% have shown satisfactory results and of 5 cases of myomectomy, 80% showed symptomatic relief. Of 12 cases of cancer of uterus on whom radical operation was performed, 3 show no sign of recurrence after 4½ years, in 5 cases recurrence and death occurred within 3 years, and 4 cases are still in doubt. [W.K.]

2.—Eyestrain in Lateral Curvature of the Spine.—H. W. Kilburn reports three cases showing connection between eyestrain and spinal curvature. In two of the cases the curvature caused the patients to approach too near their desks, thus increasing their myopia and setting up a vicious circle. In one of the myopic cases there was a hyperphoria of 1.5°, which disappeared when the faulty attitude was corrected, the latter, probably, having been the cause of it. In the other case, the hyperphoria probably caused the tilting of the head and body. In two of the cases there were unsymmetric axes of astigmatism. Relief from eyestrain not only caused marked improvement in attitude, but when the curvature was corrected, the myopia stopped increasing. [H.M.]

4.—Ring Bodies in Anemic Blood.—Richard Cabot says since his first article on the subject of ring bodies he has examined in all 14 cases of pernicious anemia in the active stages, 9 of which (or 64%) showed the presence of rings more or less similar to those previously described. He has also found them in the anemia secondary to lead-poisoning and in lymphatic leukemia. Negative results were obtained in 4 cases of pernicious anemia in the stage of remission, in 10 cases of leukemia (6 of the lymphatic and 4 of the myelogenous type), 9 cases of severe secondary anemia from various causes, and 22 cases of various skin diseases. In the accompanying cuts are shown some forms not previously illustrated and serving to increase, rather than to dissipate, his ignorance in regard to their origin and nature. [A.B.C.]

5.—Typhoid Fever in Infancy.—C. P. Sylvester discusses the disease in infancy in a general way, and reports a case in which the diagnosis might have been meningitis from the increasing severity of the nervous symptoms, had not the mother suffered from typhoid or had not the Widal reaction been persistently sought. The case forces him to believe that the period of incubation may be 39 days, and that the insusceptibility of the infant was overcome only after a long struggle. [H.M.]

March 31, 1904. [Vol. CL, No. 13.]

1. The Partial Passing of Neurasthenia. CHARLES L. DANA.
2. The Cystoscope: Its Diagnostic Value. A. M. WOSE.
3. Ligation of Lacrimal Canal to Prevent Infection Following Cataract Extraction. ALEX. QUACKENBOSCH.

1.—The Partial Passing of Neurasthenia.—C. L. Dana contends that 50% of so-called neurasthenias and all the hysterias should be classed as prodromal stages, abortive types, or shadowy imitations of the great psychoses, for it is the morbid mind that dominates the situation, not a weak eye-muscle, a poor stomach, a heavy womb, uric acid, arterial sclerosis, or even an exhausted motor nerve cell. There are five types of insanity, precocious dementias, paranoia, manic depressive and melancholia, phrenasthenic psychoses, toxic and exhaustion psychoses, organic psychoses. Neurasthenia proper rarely occurs under 20. What we see then is pseudoneurasthenia of dementia præcox or dementia præcox itself; slight attacks of recurrent melancholia or manic depressive insanity; or some early development of a phrenasthenia showing itself in chronic headache, spinal irritation, hysterical seizures, fears, and obsessions. Depressive forms of neurasthenia with symptoms of exhaustion and retardation of thought without adequate cause or many bodily symptoms are forms of manic depressive insanity. Neurasthenia in the luetic is often, not always, a pre-

cursor of paresis. Treatment should be directed to the mind rather than the body. [H.M.]

2.—Diagnostic Value of the Cystoscope.—A. M. Wose rehearses the evolution of the cystoscope up to the perfection of the modern instrument. The cystoscopic picture of the normal bladder appears strikingly pale, whereas the mucous membrane after a suprapubic cystotomy is usually dark red in color. At the base of the bladder one finds the ureteral openings, which are often in diseases of the pelvis of the kidney or the kidneys, reddened, swollen and edematous. In renal hematuria or pyuria the blood or pus can be detected coming from the ureter or ureters. The cystoscope is of the greatest aid to differentiate the origin of intermittent hematuria, whether the blood comes from the kidney or its pelvis, the bladder, prostate or urethra. In the male a question of import, many times, is the contour and relation of the prostate gland. The cystoscope gives positive evidence in hypertrophic conditions of the median or lateral lobes. There is a comparable value between the permeability of the kidneys and the catheterization of the ureters. This value is in the phloridzin test, the methylene-blue test and the cryoscopic test, in estimating the functional activity of the kidneys. [A.B.C.]

3.—Ligation of the Lacrimal Canal to Prevent Infection after Cataract Extraction.—Alex. Quackenboss states that infection through the tear-duct is one of the common causes of suppuration following cataract extraction. To overcome this difficulty various means have been employed in cases in which disease of the tear passage exists. He quotes Knapp as advocating ligating the lacrimal canal as a temporary or permanent means of shutting off the infection. Buller has advocated the same. Quackenboss reports in some detail the history of a case in which he performed this operation. Before operating for cataract, the contents of the mucocoele were squeezed out, then a small probe was inserted into the upper punctum and a suture passed around the canal from the inside of the lid out. This was repeated on the lower lid, the cataract was then extracted without difficulty; the usual dressing applied, and changed daily until the sixth day, when it was omitted. The healing process was normal and the operation entirely satisfactory. [A.B.C.]

Medical Record.

April 9, 1904. [Vol. 65, No. 15.]

1. Joseph O'Dwyer, M.D. W. P. NORTHUP.
2. What Shall We Do with the Nervous Woman? WILLIAM C. SEBBERG.
3. The Rectal Segment of the Ureter. BYRON ROBINSON.
4. The Technic of the Removal of One-half of the Thyroid Gland. JOHN G. SHELDON.
5. Two Cases of Splenomedullary Leukemia: Treatment and Recovery. BERTRAM L. BRYANT and HAROLD H. CRANE.

3.—Rectal Segment of the Ureter.—Byron Robinson has dissected and examined a number of subjects, and from these examinations he concludes that in the male, the ureter is more intimately related to the rectum than in the female. The distal ends of the male ureter are imbedded in cellular tissue resting in direct contact with the rectum. The relation of the ureters to the rectum varies according to the resting or distended state of the rectum, vagina, and bladder. Distension of all of these, forces the peritoneum on the bladder a remarkable distance upward, permitting safe abdominal and bladder incisions, to inspect the, or to manipulate the distal peritoneal ureteral ends. In abdominal operations, when the peritoneum is opened the ureter may be recognized close to the rectum by manipulating the cellular tissue between the finger and thumb. In general the ureters and rectum are not parallel in the pelvis, the former following the curve of the lesser pelvic wall, while the latter follows the sacral curve. [A.B.C.]

4.—Technic of Removal of One-half of the Thyroid Gland.—John G. Sheldon describes a method of extirpation of one lobe of the thyroid gland, the method having been first advocated by A. Pearce Gould. Sheldon has employed the method in several instances, which he describes in part as follows: The gland being exposed, the next step is to pass a Kocher's director or one blade of an artery forceps between the trachea and the isthmus. When one clamp has been applied,

a second one is placed close to the first and an incision made between the two clamps. Now turn the isthmus and the lobe to be removed outward and separate the under surface of the gland from the underlying structures with the finger covered with a piece of gauze. The thyroid arteries are exposed as they enter the under surface of the gland. If a transverse incision has been made, the inferior thyroid is first exposed and clamped; if an angular incision has been used, it is easier to expose and clamp the superior thyroid before dealing with the inferior vessel. After the arteries are clamped close to the gland and cut, the removal of the remainder of the lobe is easily accomplished by blunt dissection. The main difficulties in operations on the thyroid are: (1) Hemorrhage; (2) injury to the recurrent laryngeal nerve, and (3) expression of the contents of the gland by manipulation of the organ during the operation, and these are all overcome by this method. [A.B.C.]

5.—Splénomedullary Leukemia.—B. L. Bryant and H. H. Crane report two cases treated by arsenic in one of which the röntgen ray was used. It is a question how much good the ray did. It seemed to hasten matters. The woman had been under treatment but a few days before there was noticeable diminution in the size of the spleen, followed by a severe constitutional reaction, while the second patient improved slowly with no marked disturbance, but the tumor did not begin to disappear until three or four months after the beginning of treatment. [H.M.]

New York Medical Journal.

April 2, 1904. [Vol. LXXIX, No. 14.]

1. A Critical Review of Some of the Recent Literature of Tuberculosis. JONATHAN WRIGHT.
2. When Should the Tuberculous Patient Be Sent from Home? C. P. AMBLER.
3. On Laboratory Diagnosis. M. P. OVERHOLSER.
4. Skiagraphic Errors: Their Causes, Dangers, and Prevention. (Continued.) LEWIS GREGORY COLE.
5. A Case of Infection with *Bacillus Aerogenes Capsulatus*. S. W. SAPPINGTON.
6. Some Drug and Alcoholic Habitués. SAMUEL B. LYON.

2.—The Tuberculous Patient.—C. P. Ambler says that if destructive processes have progressed in the lung to the point where cavity formation can be detected, great care should be used in advising the patient to leave home. Particularly if high temperature is present, is this true. In such cases, a few weeks' rest in bed at home, preferably in the open air, will see a marked improvement in the general condition. A patient should not be sent away from home in a day or two following hemorrhage. The strongest point for recovery is a full appreciation on the part of the patient of the dangers that are ahead of him. Great care is necessary in selecting a climate for the patient. Hemorrhagic patients should, generally speaking, not go to an altitude of over 3,000 feet. Heart complications should, of course, always receive careful consideration. He says the sanatorium probably offers the greatest hope to the average patient, and is certainly much the better place for those hard to control. If improvement or recovery occurs, every endeavor should be made to remain in the region where such improvement has been brought about. Months should certainly elapse after all signs and symptoms have subsided before the patient should consider the advisability of returning to his old home. [C.A.O.]

5.—A case of infection with *Bacillus aerogenes capsulatus* is reported by S. W. Sappington. The patient, a man of 39, had been drinking heavily and died suddenly a few hours after he was brought to the hospital. At the time of death he had a bowel movement of about 50 cc. of clotted blood. An autopsy was held 12 hours later. The subject was apparently a very large man with tremendous musculature. The phenomenon was explained by palpation, which revealed over the supposedly massive parts subcutaneous crackling. Practically the entire body, with the exception of the feet, showed the subcutaneous tissues to be the seat of marked interstitial emphysema. A large quantity of gas was under pressure in the peritoneal cavity. The stomach was filled with about 2,000 cc. of blood clot, and clotted blood was also found in the small and large bowel. A careful search for the cause of this hemorrhage was futile. The bacteriologic findings are

given in detail. The organism found corresponded morphologically and tinctorially to *Bacillus aerogenes capsulatus*. [C.A.O.]

6.—Drug Habitués.—S. B. Lyon discusses a number of liquor or drug habits treated at Bloomingdale. He says the moral treatment is, as affects permanent results, more important than the medicinal. The therapeutic treatment of drug cases has for years involved the sudden withdrawal of the drug and the substitution of a sustaining agent, such as strychnin and capsicum, upon the theory that a more thorough elimination of the opium from the system is obtained by the copious discharges which occur. The alcohol may be more gradually withdrawn, but a very quick return to the natural conditions is the usual practice. He has found that the systematic bathing relieves the discomfort, itching, etc., which sometimes follows drug withdrawal, and produces a good mental impression. [C.A.O.]

Medical News.

April 9, 1904. [Vol. 84, No. 15.]

1. Tuberculosis of the Spinal Cord: With Reports of Cases of Tuberculous Myelitis and of Tuberculous Pachymeningitis. CHARLES L. DANA and J. RAMSAY HUNT.
2. The Outlook for a More Sanitary Street-car Service in New York. GEORGE A. SOPER.
3. Early Diagnosis of General Paresis. WILLIAM A. WHITE.
4. Pulmonary Tuberculosis as an Infectious Disease: Its Early Diagnosis. JAMES J. WALSH.
5. Pathologic Changes in Tissue Under the Influence of the Röntgen Ray. WILLIAM S. NEWCOMET.
6. A Historical Sketch of Some of the So-called Cures for Tuberculosis: With a Few Notes on Later-day Treatment. J. EDWARD STUBBERT.
7. Normal Labor Considered from a Surgical Standpoint. A. M. POND.
8. Rubber Cushions for General Surgical, Gynecologic and Obstetric Use. HOWARD A. KELLY.

1.—Tuberculosis of the Spinal Cord.—C. L. Dana and J. R. Hunt report a case of progressive amyotrophic lateral sclerosis, upon which was superimposed acute tuberculous infection and also softening of the previously diseased cord. This suggests that the perforating neuroses which accompany some severe cases of myelitis or cord degeneration are really tuberculous phenomena and not primarily hemorrhagic, although there may be associated hemorrhage. The interesting features in the case of pachymeningitis are as follows: The acute onset after exposure to cold; the three months' duration of lancinating pains without other symptoms referable to the spine or nervous system which, in view of the histologic examination, were caused by infiltration and compression of the posterior roots; the very acute onset of the paralysis; the dissociated anesthesia with complete paralysis of motion, which suggested a central lesion of the cord. The spinal cord nerve fibers showed swelling of the sheath and absent or swollen axis cylinders. The dissociation of sensation was not explained by any distinct focus of central softening. [H.M.]

2.—Sanitary Street Car Service.—G. A. Soper discusses the special problem in New York, giving the report of the Merchants' Association. The principal sanitary conclusions are that the sand piles used in lieu of spittoons on the elevated railroad are a great menace to public health. Cuspidors of ample size should be provided. Passengers and train crews should be prohibited from spitting into the streets and on the tracks. Mops, soft brooms, and cloths should be used in cleaning, in order not to raise dust. Sand should never be used except to guard against slipperiness. Cocoa mats on car floors should be prohibited. Catch pans under elevated tracks should be kept clean. Proper attention should be given to the plumbing, ventilation, and warming of stations, and the ventilation and warming of cars. Spaces under the seats should be open, in order that dirt thrown into window casings may be removed. Suitable shelter should be provided at points of transfer, etc. [H.M.]

3.—Early Diagnosis of General Paresis.—W. A. White emphasizes the danger to both patient and family in failure to make a correct diagnosis early. This does not rest primarily on mental symptoms. The dementia manifests itself at first by failure of memory, defective judgment, inability to apply the mind, and failure of moral sense. Symptoms of excitement or depression and delusion may be considered as

unessential accompaniments. The most important physical signs are the oculomotor and tendon-reflex disturbances. They include the Argyll-Robertson pupil, loss of consensual light reflex, loss of sympathetic reflex (dilation of the pupil on stimulating the skin of the neck); 63.6% show this symptom. Knee-jerk may be normal, exaggerated, diminished or lost on one or both sides. There may be slight hesitation and almost unnoticeable defect in the pronunciation of single words and slight tremor about the mouth. [H.M.]

4.—Pulmonary Tuberculosis.—J. J. Walsh points out that the medical profession has not practically applied recent knowledge of the contagiousness of this disease. The physician should ascertain whether the patient has been in contact with others suffering from the disease at home, at school, or at work. Washerwomen and scrub women are especially prone to it. As soon as chronic infection develops anywhere in the body there is disturbance of the pulse long before any sensible variation of temperature is caused. The rate is far from normal and subject to facile and frequent variations. The only way to obtain definite information is to have the patient make a record three times daily for four or five days. The physiologic temperature rhythm does not exceed 1.5° F. daily. The temperature should be taken before 8 a.m., about noon, and about 6 p.m., for three or five days, and if the range is over 1.5° F., there is ample confirmation of suspicions. If at the same time there is cough and loss of weight, there is little doubt of the nature of the disease. [H.M.]

5.—Pathologic Changes in Tissues under the Influence of the Röntgen Rays.—William S. Newcomet discusses at some length the "burns" produced by the röntgen rays. The records of some German authorities go to show that this process closely resembles sunburn, but the effects are much deeper. The general systemic disturbance in these cases is very irregular, but in a general way it follows the course that might be expected from ordinary ulcers. The appearance of the slough differs from that of an ordinary scald, in that it is extremely difficult to remove, and will often cause pain. The explanation is that the slough caused by the röntgen rays is a cell necrosis, and the living and dead cells are intertwined. His conclusions are as follows: (1) That no single form of degeneration is characteristic to the röntgen ray, and that the form of degeneration observed depends upon the tissue exposed and the method of röntgen ray application; (2) it would seem that the effect of the röntgen ray was upon the cell elements in the exposed parts, but why certain normal cells, such as those in hair follicles, etc., should be more susceptible than other tissue is still a question of doubt, but in lieu of the vascular disturbance found by many observers it might be thought that this cause plays an active part. [A.B.C.]

7.—Labor Considered from a Surgical Standpoint.—A. M. Pond asserts that if the study of the history of puerperal sepsis proves anything it is this: In point of technic, the practice of obstetrics is a surgical procedure. The time to save your patient's life is when you are preparing her for, and during confinement, not after the infection has taken place. He summarizes as follows: 1. Success in obstetrics depends wholly upon your ability to secure and retain surgical cleanliness. 2. The same infective agents encountered in surgical practice are the causative agents in producing puerperal complications, and are only successfully combated by the employment of astringent aseptic and antiseptic technic. 3. Refrain from making numerous vaginal examinations, and when done, execute great aseptic care. 4. Do not wait until you are called to the case to make the preparations for confinement. 5. The practice of carrying a confinement pad is dangerous. 6. Sunshine is itself a valuable germicide; do not exclude it. 7. Unless the vaginal discharge is known to contain pyogenic bacteria, the douche is contraindicated. 8. Exert the same surgical technic in dressing the umbilicus that would be demanded in any other fresh wound. 9. Be clean, and be sure that you are clean. [W.K.]

8.—Rubber Cushions for Obstetric Use.—H. A. Kelly gives an illustrated description of the rubber cushion used by him in his obstetric practice. The obstetric cushion is made with a reversible closed sleeve, which hooks up to the rim in such a manner as to catch amnion, blood and placenta, which collected in this pocket can be transported to the bathroom,

weighed and inspected, without the use of any other vessel. For gynecologic and general surgery, it is best to place a sterilized towel between the cushion and the patient. He would also use a sterilized towel or gauze in all obstetric cases. His own practice is to consume from one-half pound to one pound of sterilized absorbent cotton in each obstetric case, unrolling and tearing off a good handful of the cotton at a time and stuffing it between the buttocks below the vulva. When the cotton becomes saturated it is dropped into the receptacle formed by the apron and another piece substituted. Kelly sterilizes the cushions by soaking them for 24 hours in a bichlorid solution 1 to 1000 or stronger. [W.K.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

The Pathologic Manifestations of Filariasis.—If one reviews the various organs that may be attacked by filariasis, it will at once be observed that the lymphatic system pays the highest tribute to the disease. Thrombosis, ruptures, and varices of the lymphatics result, while the serous cavities, such as the peritoneum, vaginal membrane, and pleura are very frequently involved in the process. There is nothing astonishing in the fact that the serous cavities are affected, because both serous and synovial membranes should be considered as lymphatic organs, and histology shows, for example, that the endothelium of the mesentery shows the presence of some lacunas in certain spots, denied, it is true, by some authorities; but in all cases it is quite certain that the leukocytes do penetrate the thin endothelial layer in order to reach the lymphatics or reciprocally, either by traversing the cells or by spreading them apart during their migration. In the peritoneum masses of lymphatic cells are to be found under the endothelium, and pathology has proved the relationship existing between the lymphatic system and the synovial membrane, a relationship so intimate that it is of frequent occurrence to observe fluid collections arising in the knee during the progress of a lymphangitis of the lower limb. The biology of the filaria shows us that the embryos are also found in the blood of subjects infected by the disease, but the reason why emboli and vascular obliteration do not arise, and why it shows an elective predilection for the lymphatic system, can be explained if one considers an all-important factor, namely, the profound influence exercised by hot climates on the entire lymphatic system, an influence that Corre has designated as lymphatexia. It is well known that individuals submitted to a prolonged impression of a hot and damp atmosphere quickly acquire the external attributes of a lymphatic temperament; their flesh becomes soft and colorless and everything in their appearance denotes a general debility of their vital functions. They consequently offer a lessened resistance to the invasion of the principles of infection. Now still more; the blood-pressure and respiratory activity are decreased, there is a tendency toward stasis, especially in the lower limbs and scrotum, which are more passively submitted to the action of pressure, and, from this stasis, the lymphatics which are less resistant suffer more than the others. Thus, it is more than probable that the sluggish lymph current and the lessened resistance produced by the climate in all lymphatic organs explain why the lymphatic system is the favorite one for the lesions produced by the filaria. There is also a latent filariasis, that is to say, one finds in tropical countries individuals enjoying an apparent perfect health, who nevertheless carry embryos of the filaria in their blood. General pathology teaches that the general infections may remain latent and only show their presence when a lessened vital resistance occurs in the individual. The experimental work of Max Schuller in tuberculosis and that of Jaboulay for staphylococic infection and osteomyelitis of young animals is ample proof of this.

One may consequently assume that in the case which now is under consideration, those individuals whose lymphatic system has been able to withstand the climatic influences, or has not become infected, will show no evidence of filariasis, and this will not occur until the general or local state of the individual will permit.

REVIEW OF LITERATURE

Value of the Röntgen Ray in Bronchiectasis.—D. B. King¹ furnishes notes on 20 cases studied by the röntgen ray in addition to other usual methods of examination. In each the endeavor was made to detect the presence or absence of (1) dilated bronchi. In advanced cases where the bronchi were much dilated, as shown by the stethoscope or at autopsy, the röntgen ray failed to reveal their presence; (2) saccular cavities. The röntgen ray failed to reveal such cavities, probably because of the associated fibrosis of the lung; (3) condition of the lung tissue. Fibrosis of the lung was shown by increased intensity of the shadows; (4) foreign bodies. For the detection of foreign bodies in the bronchi, the röntgen rays are undoubtedly of use; (5) action of the diaphragm. This was found to be impaired or obscured, depending upon the degree of change in the lung. King states that the general value of röntgen ray examination in cases of bronchiectasis is sufficient to warrant the röntgen raying of the chest on more than one occasion, though this may give no further information as to the real nature of the case than is furnished by ordinary clinical methods. At present the röntgen rays are of little or no aid in the surgical treatment of bronchiectasis. [A.G.E.]

Ulcerative Endocarditis with Subcutaneous Hemorrhages.—E. Wurdack² reports a fatal case of ulcerative endocarditis, in which peculiar, hemorrhagic changes took place in the skin, especially on the face, but also in other parts of the body. In the face these changes consisted of sharply circumscribed areas of bluish-red coloration, having the form of butterfly wings, one on each cheek. The pathologic process was evidently one of mycotic embolism from the diseased valve, followed by hemorrhage into the skin, and necrosis. [B.K.]

Seventy Cases of Lobar Pneumonia.—E. C. Austin³ reports the series of cases of which 32 males and 6 females recovered and 21 males and 11 females died. Above 50 years of age the prognosis is grave, but even between 60 and 70 years usually some other lesion than pneumonia was found to complicate the condition. In the young the prognosis is good, while in the middle-aged it is dependent upon the other organs, especially the kidneys. In his series, double pneumonia occurred in six cases with one recovery; this one was a teetotaler aged 44. He is of opinion that the pulse-rate is of great value in prognosis. In the series it was very rarely above 120 in those that recovered; in those that died it was very rarely below 120 toward the end of the illness. Diagnosis in a typical case is easy; in an atypical case it is difficult. In seven instances in the series, diagnosis was made only in the postmortem room, and in one instance a diagnosis of pneumonia proved erroneous. Treatment consisted in securing sleep by Dover's powder in the early stages, generally with success. In the latter part of the illness, relief of the heart by means of leeches, strychnia, digitalis, and brandy even proved unsuccessful; benefit from brandy in doses above four ounces was not observed. [A.B.C.]

Tuberculosis Inoculations from Man into Animals.—Fibiger and Jensen⁴ were able to induce tuberculosis of a progressive character five times into calves by inoculating them with tuberculosis material obtained from human beings. In 2 cases the bacilli inoculated proved to be avirulent, in 3 cases only slightly virulent, and in 5 cases virulent. Aside from these experiments they examined the records of 213 autopsies, in 116 of which the patients died of tuberculosis; in 13 of these cases the morbid condition was primary in the intestines or the mesenteric lymph-nodes. Two of the 5 children presenting primary tuberculosis of the intestines, they firmly believe were infected by milk-supply. [J.F.]

Rhythm of the Heart.—James Mackenzie,¹ in an exhaustive article replete with sphygmographic illustrations, concludes that the ventricle can take on the inception of the rhythm, and that when it does so the heart beats regularly. Whenever there is continuous irregularity as distinct from occasional or rhythmic irregularity the ventricle is giving the rhythm; exceptions to this are rare. The cause of the continuous irregularity is to be sought for in the accelerated irritability of the heart muscles, and not in stimulation through the nervous system. Herring's experiments demonstrated that the raising of the ventricular pressure can produce directly the premature contraction of the ventricle. Dilatation and ineffective action of the heart is secondary to irregularity. When the irregularity begins there is uneasiness in the chest, shortness of breath on exertion, and signs of weakness, which increase with each attack; the pulse becomes larger, the veins become engorged, the face dusky, and the lips blue. Treatment should be directed to lessen the irritability of the heart muscles and to protect the heart from increased excitement. Rest in bed is more efficient than drugs. [A.B.C.]

The Portal of Entry of Tuberculosis in Children.—Westenhoeffer,² by inoculating guineapigs, rabbits, and calves subcutaneously in the lumbar region succeeded in producing tuberculosis of the lymph-nodes, in the flanks, in the inguinal region, about the promontory, near the hilum of kidney and liver, also in the mesentery and retroperitoneal lymph-nodes. He found involvement of the spleen, liver, and in some cases, the lungs. Westenhoeffer believes that beside the lymph-vessels which arise in definite regions and empty into regional lymph-nodes, there is another set of lymph-vessels which do not arise in definite regions, but empty into any set of lymph-nodes suitable to them. He says, during the first and second dentition is the only time in life when there exists a physiologic defect in the mucosa of the alimentary tract. This defect in the mucous membrane of the mouth affords an excellent portal of entry for *Bacillus tuberculosis* to reach the cervical, peribronchial, retrosternal, and also the mesenteric lymph-nodes. He believes, nevertheless, that the bronchial nodes may become infected from lung tuberculosis, and the mesenteric lymph-nodes may be affected from the intestines. He maintains that in order to eradicate tuberculosis, the hygienic condition of children must receive greater attention. [J.F.]

Case of Levulose Diabetes.—A new case of levulose diabetes is reported by Lepine and Boulud.³ The patient was a woman of 32 years, and developed the condition during the puerperium. She was unable to assimilate levulose, but utilized glucose well. The disease ran a benign course, and seemed to be cured by total abstinence from levulose. [D.R.]

Antistreptococcic Serum in the Treatment of Scarlet Fever and Diphtheria.—F. Percival Mackie,⁴ after a series of experiments, concludes as follows: (1) Antistreptococcic serum is of distinct value in a certain number of cases of scarlet fever, particularly in those having throat lesions in severe form and at the same time a toxemia; (2) bacteriologic examination will give no sure guide as to the cases in which serum will be beneficial, hence it is advisable to give the serum early and make the bacteriologic examination later; (3) the serum should be given early in the disease, the longer the disease has lasted before the serum is used the less likelihood is there that it will be beneficial; (4) if the first two or three administrations have no effect upon the temperature, its continuation will probably be of no value; (5) the serum is liable to produce a rash; (6) even in those cases in which it does not act there is no evidence that it does harm. In reference to the diphtheria cases he concludes that those cases of diphtheria which present septic symptoms and those in which tracheotomy may be required, may, with advantage, be treated with antistreptococcic serum, in addition to the diphtheria antitoxins. He believes that in all cases of diphtheria where there is evidence of septic infection, as in sloughing in the throat and a high temperature, antistreptococcic serum should be given with the hope that good may result. [A.B.C.]

¹ The Practitioner, February, 1904.

² Zeit. für Heilkunde, Bd. xiv, Heft 2, p. 23.

³ The Lancet, February 20, 1904.

⁴ Berliner klin. Wochenschrift, 1904, Bd. xli, Nos. 6 and 7.

¹ British Medical Journal, March 5, 1904.

² Berliner klinische Wochenschrift, 1904, Bd. xli, Nos. 7 and 8.

³ Rev. de Méd., March, 1904.

⁴ The Lancet, February 20, 1904.

Infectious Angina Pectoris.—J. Pawinski¹ describes a form of angina pectoris that is the result of infectious processes. It complicates influenza especially; but also occurs in connection with septic processes, for instance, cryptogenetic sepsis and inflammations of the pharynx, particularly follicular tonsillitis. The following are the characteristics of these forms of stenocardia: 1. Their seat is the anterior portion of the thorax; retrosternal, rather than pericardial pain, radiating in the direction of the cervical and brachial plexuses. 2. They occur in the form of paroxysms, in persons that have never previously had heart disease. 3. The intensity of the pain is as great as that in grave cases of coronary angina pectoris. 4. The pains come on while the patient is in bed. 5. The pain often occurs at the beginning of the disease, and even in the period of incubation. 6. When the infection localizes itself in a particular organ, the pains diminish or disappear. 7. The stenocardia commonly occurs in cases in which the temperature elevation is insignificant, and sometimes when there is complete apyrexia. 8. It is sometimes accompanied with symptoms of cardiac insufficiency. As predisposing causes may be mentioned the neuropathic state, excesses in alcohol and venery, the abuse of tobacco, emotions, strain (physical and intellectual), cold, etc. The prognosis is favorable. As to the pathogenesis, the author believes that it depends upon lesion of the nerves of the cardiac plexus produced by the septic toxins. It may be that at times there is a temporary spasm of the coronary arteries. When the angina persists, it is probable that the lining membrane of the coronary arteries has sustained permanent change. [D.R.]

Hemoglobin in Chronic Heart Disease.—Theodor Schott² treated a series of 120 patients by combined baths and gymnastics. He states that the combined treatment has a tonic action, not only on the heart but on the whole system. The treatment is capable of increasing the formerly depreciated hemoglobin in cases of heart affection be they weakness of the heart muscles, valvular disease, Graves' disease, or chronic myocarditis with or without kidney disease. In some cases the increase was only slight. It was far easier to raise the amount of hemoglobin in young and middle-aged persons than in the elderly. Even though the latter are much improved in a general way by the treatment, there is frequently no change seen in the amount of hemoglobin; in a few instances the amount of hemoglobin was actually diminished. Severe physical overexertion and violent emotional disturbances, especially in febrile disease, rapidly produce a diminution in hemoglobin. Instrument employed was the Dare hemoglobinometer. [A.B.C.]

The Flicker Diagnosticum.—J. Meyer³ instituted a series of investigations utilizing this method of diagnosis. He first tried it upon nine patients that were clearly suffering with typhoid fever, and in guineapigs infected with *Bacillus typhosus*; in a second series the diagnosis was not definite, and in a third the cases were clearly not typhoid fever. From his results he concludes that the method not only gives the same results as the Widal reaction, but also believes it to be more useful to the practising physician. [J.F.]

Some Clinical Aspects of Rheumatic Infections.—Carey Coombs⁴ reports in detail a series of 10 cases, and states that clinically there are certain characteristics of rheumatic infection and its results. Whether the infections be of joints, of heart, or of brain, these characteristics are of two extremes of severity, transient and malignant, and between these extremes a complete gradation of protracted cases in which an imperfect resistance on the part of the infected organ or tissue leads to connective-tissue increase of a prominent and crippling nature. These protracted forms are characterized by more or less frequent exacerbations. The suggestion is that in many cases of rheumatic infection the organism persists in the affected tissue after all obviously inflammatory signs and symptoms have disappeared in a comparatively but not absolutely harmless state, capable of reexaltation of virulence under unfavorable circumstances. To summarize: Clinical observation of rheumatic infection shows (1) a certain similarity of effect, whatever the tissue infected; (2) the capability of such infection to inflict

any degree of damage on the tissue attacked within certain limits; and (3) a tendency on the part of the infecting agent to persist in the affected tissues. [A.B.C.]

Paralysis of the Recurrent Laryngeal Nerve in Mitral Stenosis.—Alexander¹ reports a case of intermittent hoarseness. In a röntgen ray photograph of the thorax he finds the transverse diameter of the heart increased; the picture fails to show a tumor of the mediastinum, aneurysm or enlarged mediastinal glands. Alexander believes the paralysis is due to the pressure of the dilated left auricle, conus arteriosus and pulmonary artery upon the recurrent laryngeal nerve. [J.F.]

Observations on the Movability of the Apex of the Heart.—W. J. Pettus² says that American text-books on physical diagnosis give but scant attention to changes in the position of the apex beat of the heart caused by certain positions of the body. Careful examination of 60 patients by auscultation, percussion, inspection and palpation elicited the following facts: When patients were changed from an upright or prone position to one on the left side the average move in the apex beat was one and one-half inches to the left; with the patient on the right side the apex beat moved one-half inch to the right of the normal position. In eight of the 60 patients the apex moved two inches to the left when the position on that side was assumed. In only three of the series was the movement less than one inch. The conclusion reached from this series of cases is that in examining any patient suspected of having hypertrophy of the heart, the examiner should be careful to have him either sit perfectly erect or lie evenly on his back. [A.G.E.]

The After-effects of Head Injuries.—T. Crisp English,³ in his Hunterian Lectures, has collected the notes of 300 patients whose condition he investigated at some time after their head injury. Of these there were 100 cases of fracture of the skull, examined at an interval of one year or more after the injuries; 100 cases of concussion, cerebral contusion, and laceration without evidence of fracture examined also at intervals not shorter than one year after the injury; and 100 miscellaneous cases other than those included in the first two groups. He states that with our present knowledge of the symptomatology of cerebral injuries it is clear that many of the injuries described as concussion should be described as cerebral contusion or laceration. Some degree of mental impairment though rarely sufficient to be denominated traumatic insanity, occurred in about 10% of the patients. The chief lesson learned was that the great majority of the patients who suffered from head injuries became absolutely well, provided they submitted to the necessary period of mental rest after the injury. Those who suffered from remote consequences were the patients who returned to their business soon after the accident before they had completely recovered. Thus it happens that grave consequences are more liable to follow the slighter forms of concussion than the graver in which proper treatment is enforced. The average interval between the date of the accident and the return to work after simple concussion was 4½ weeks, after cerebral contusion 9½ weeks, after fracture of the skull or cerebral laceration, 13 weeks. [A.B.C.]

The Significance of Black Urine.—A. E. Garrod⁴ names the following conditions in which urine that is black, or becomes black on standing, may be excreted: (1) jaundice, especially when of long standing; (2) hematuria; (3) hemoglobinuria; (4) hematuria; (5) melanotic sarcoma; (6) alkaptonuria; (7) ochronosis; (8) when abundance of indican is present; (9) long-standing pulmonary tuberculosis; (10) after taking certain drugs and articles of diet; (11) certain rare cases of undetermined nature. These varieties are briefly considered in detail, partially as regards points of differentiation and partially from their diagnostic and prognostic significance. The prognosis varies greatly. Melanuria is of the gravest import as signifying the recurrence of melanotic growths in the viscera; an equal degree of blackness of the urine is reached in alkaptonuria, which, so far as known, is a quite harmless condition. [A.G.E.]

¹ Rev. de Méd., March, 1904, 192.

² British Medical Journal, March 5, 1904.

³ Berliner klin. Wochenschrift, 1904, Bd. xli, No. 7.

⁴ Lancet, February 27, 1904.

¹ Berliner klin. Wochenschrift, 1904, Bd. xli, No. 6.

² Old Dominion Journal of Medicine and Surgery, February, 1904.

³ The Lancet, February 20, 1904.

⁴ The Practitioner, March, 1904.

Microtia.—W. C. Brailsin¹ reports two cases of this condition, from the practice of Dr. Drury, which he believes to be unique in the fact that they occur in two members of the same family, simulate each other in shape and are on the same side in both instances. The parents are of Jewish descent. The first child was normal in every way. The second had a rudimentary right ear consisting of an oval, smooth growth one-half inch by one-quarter inch in size that contained cartilage and had a slight indentation in the skin. The mother was very much depressed over the condition and declared that she would never give birth to another child. She became pregnant four years later and during gestation worried constantly for fear that the child would be deformed as was the preceding one, although assured that this was hardly a possibility. When the child was born it was found to have a similar deformity of the right ear. Both children are females. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

The Uses and Value of Moist Dressings.—The dictum of Von Bergmann that absolute dryness is the best antiseptic has been accepted by most surgeons, and for ordinary operative wounds there can be little question that almost any form of dry dressing will prove satisfactory. The amount of secretion from such clean wounds, made with clean instruments and subject to little traumatism is always very slight and the absorbent qualities of the dressing are not severely taxed in disposing of it. Accidental wounds which are not as certainly clean; wounds necessarily subjected to considerable traumatism during operation, and wounds which are certainly infected at the time they come to the surgeon, offer quite different conditions and the amount of wound secretion is frequently very great. The dryness of the wound in such cases depends upon a highly absorbent property in the dressing used. Noetzel² an assistant in the clinic of Rehn of Frankfort, has recently carried out some interesting experiments to determine the comparative value of moist and dry dressings in cases in which there is a considerable amount of wound secretion. He found that in open muscle wounds of rabbits either dry or moist gauze took up the secretion and anthrax bacilli in an experimental wound so satisfactorily that no disease of the animal experimented upon resulted. The capillary drainage from the moist dressing was much more active than that of the entirely dry dressing of the same kind of gauze, however, so that with the moist gauze the germs which were taken up with the secretion were found in the outermost layers of the dressing as well as all the intermediate layers, while with the dry dressing the bacteria were found only in the lower layers immediately in contact with the wound. Moist bichlorid dressings also were used and the antiseptic was found so effective that neither anthrax bacilli nor ordinary bacteria of the skin showed any growth on cultures made from the gauze. With the more active absorbing property of moist gauze in mind, dressings moistened with mercuric chlorid solution at the time of application were used in the Frankfort City Hospital and were allowed to dry after application. This form of dressing was found most satisfactory in actual practice and the experimental evidence also seems quite convincing. For some time we have been accustomed to use moist dressings in the treatment of infected wounds and have not been dissatisfied with the results obtained in this way. Everyone recognizes the greater absorbent power of moist gauze. It can readily be seen by throwing a dry gauze surgical sponge, and one saturated and then wrung out, into water together: The moist sponge sinks

quite quickly while the dry one will float for some time. With most wounds in which considerable oozing is expected, drainage is only needed for a few hours after operation and if a moist dressing is applied it favors the drainage and by the time the dressing is dry the necessity for drainage probably will have ceased. Any danger from the moisture of the dressing is prevented by saturation with the antiseptic, which also ceases to have any effect when the gauze is thoroughly dry. We believe that this drying out dressing, "austrockenden Verband," as Noetzel has termed it, will be found useful and safe in the treatment of many wounds from which considerable secretion may be expected.

REVIEW OF LITERATURE

Treatment of Fractures and Dislocations.—F. F. Burgard¹ discusses at length fractures of the clavicle, Colles' fracture, Pott's fracture, dislocations of the humerus at the elbow, of the semilunar cartilages of the knee, and discusses fractures in general. He says coaptation should be effected under an anesthetic, and some form of retentive apparatus applied, so that it leaves the seat of fracture either exposed or accessible without disturbing the fractured ends. The apparatus should fix the joint above and the joint below the fracture. On the following day the parts should be gently massaged after the limb has been fixed in the splint. The rubbing is repeated on the day following the first dressing for 10 minutes or 15 minutes, and again on the second day. On the third day the rubbing is followed by passive movement of the small joints beyond the fracture. This combined massage and passive movement of the small joints is persisted in for the next two or three days, at the end of which time an addition is made to the treatment, in that the joint below the fracture is very cautiously moved. Passive motion of the joint above the seat of fracture is deferred till later. Thus, for the first two or three days simple rubbing over the area of fracture alone is done, then from the third to the sixth or seventh days massage is followed by passive movement of the toes or fingers, as the case may be, while to these are added, from the end of the first week, the passive movements of the wrist or ankle, and lastly, of the knee or elbow, by the end of the third week. He insists upon passive motion being made early in case of Colles' fracture. The pain and loss of function which often follow treatment of this fracture are, in many cases, due to deferred passive motion and massage. [A.B.C.]

Spina Bifida.—H. Reineking² reports three cases as a basis of remarks on the operative treatment of this condition. The first was in a child of 16 months who had double spina bifida, hydrocephalus and extremely limited motion in the lower extremities. Aspiration of the larger tumor was practised nine times when infection occurred. Three months later the larger tumor, a pure meningocele, was excised and the smaller one injected with Morton's fluid. Both procedures were entirely successful. The after-history of this case is very instructive. At the age of six the boy was able to walk alone. Now, at the age of 10, he is intellectually rather ahead of other children of his age. The size of his head has not increased in proportion to the rest of his body, although it is still somewhat larger than normal. Case II was one of meningocele in which aspiration was performed as a palliative until the child became strong enough to justify operation; infection, meningitis and death followed the twenty-seventh aspiration. In Case III operation has been refused. Reineking holds that hydrocephalus or paraplegia should not of themselves constitute a contraindication to operation. [A.G.E.]

Treatment of Incontinence of Feces by the Submucous Injection of Paraffin.—Arthur H. Burgess³ reports in detail two cases. The first was a man of 58, who three years previously had undergone two operations for fistula in ano; incontinence of feces resulting. Two subsequent plastic operations failed to relieve the condition. On examination no trace of a sphincter could be discovered. Under anesthesia Burgess

¹ Brooklyn Medical Journal, April, 1904.

² Archiv für klinische Chirurgie, 1903, Vol. lxxi, p. 165.

¹ The Lancet, December 17, 1903.

² Wisconsin Medical Journal, March, 1904.

³ The Lancet, March 12, 1904.

injected paraffin in several places into the submucous tissue of the rectum, commencing high up and working toward the anus. In all, at two sittings, a total amount of 52 cc. of paraffin with a melting-point of 111° F. was introduced. He last heard from the patient, nine weeks after the operation, at which time he stated he had had complete control over his motions. The second case was that of a boy of 7, who had suffered from prolapse since infancy. Several operations had failed to relieve the prolapse and the child suffered from fecal incontinence. Burgess first injected only 6 cc. of paraffin, subcutaneously, which prevented a recurrence of the prolapse, but did not control the motions. Subsequently 27 cc. of the paraffin was injected in three successive tiers and this improved the condition materially, but did not completely correct the ill condition. A plastic operation, subsequently, similar to a Tait flap-splitting operation for repair of an incomplete laceration resulted in complete relief to the child. [A.B.C.]

Treatment of Cancer of the Stomach.—G. Gayet¹ discusses at length the treatment of cancer of the stomach by gastroenterostomy with the button of Jaboulay-Lumiere, commonly known of the button of Jaboulay. This is a modification of the Murphy button and appears to do away with some of the objections to that instrument. The weight is diminished, the lumen is larger, it requires no sutures and can be inserted more rapidly. The after-results are claimed to be uniformly satisfactory. Gayet tabulates 100 cases, the great majority of which were done by Jaboulay himself. The mortality, including all cases of death within three weeks after the operation, was 18%. This rate is rapidly decreasing as shown by a mortality of only 7.6% in 1902, and of 6.66% in the first half of 1903. The average length of life of the patients after operation was seven months and the amelioration of symptoms was greater than in cases of anastomosis by suture. The time of operation is comparatively short when this button is employed, the average in the hands of Professor Jaboulay being from 7 to 10 minutes, including suture of the skin. [A.G.E.]

Cleft Palate and Harelip.—Edmund Owen² states that for 20 years it was his practice to operate upon harelip in early infancy, but to postpone the treatment of the cleft palate until the child was 2, 3 or 4 years of age. Following the suggestion of Brophy, he has abandoned this procedure and now operates on the cleft palate at an early age and before operation is performed upon the harelip. A case is reported in which he operated upon a cleft palate when the child was but 3 months old, with entire success. His conclusions are, that serious as the operation on the palate may be, the infant may be expected to survive it. He quotes, without entirely agreeing with Brophy, that the shock following the operation is not so great if performed within the first months as it would be later in childhood. Owen further states that, since the maxillas are closely approximated, the halves of the velum can be stitched together without tension and without the need of interfering with the attachment of the muscles of the soft palate; that, as the approximated halves of the soft bone can be sutured without interference with the muscles of the palate the prospects of securing a natural voice are greatly increased; that, as the maxillas have been brought together in front, the subsequent operation upon the harelip is rendered much easier of performance and a more artistic result is obtainable. [A.B.C.]

Traumatism of Circumflex Nerve in Shoulder-joint Injuries.—F. E. Bunts³ calls attention to this common and serious complication of shoulder-joint dislocations and the medicolegal importance of its recognition. The most frequent lesion appears to be that of contusion or compression of the nerve. The effects of either are frequently aggravated by resulting extravasations and inflammatory exudates. In general the prognosis is not good; a considerable number of patients lose the use of the deltoid muscle. Bunts tabulates 19 cases; in eight the injury followed dislocation; seven resulted from contusion; one from wound of neck; one from stretching; one from pressure of cancerous glands, one no history. In most cases the paralysis has been observed soon after the injury; in Bunts' experience it has been noted when the dressings or

splints were removed in from two to eight weeks. It is desirable to examine for this injury immediately after trauma or after a dislocation has been reduced in order if it is present to make a more serious prognosis. The treatment, in addition to usual means, should include training of the patient by proper gymnastics to develop the synergistic and vicarious actions of muscles other than those supplied by the circumflex in order to preserve function of the arm. [A.G.E.]

Cancer in Australia, with a Specific Treatment Suggested.—G. Clark Adams¹ concludes his article, which he summarizes as follows: 1. Cancer is not due to a bacterial or a parasitic origin. 2. It is a constitutional disease, due to specific or malignant virus originating in the blood, chiefly manifesting itself after 35, and at its greatest virulence between 50 and 60. 3. It may be congenital, and certain forms may be acquired by infection or contagion. 4. The principal factor in the cause is hereditary tendency. 5. The principal exciting factor is prolonged irritation acting on a constitution suffering from an inherited tendency, or which has been developed through want of treatment of one or other of the following diseases in their order of frequency—syphilis, alcoholism, obesity, rheumatism, gout, or tuberculous disease. 6. The principal etiologic factors in the cause are sugar, beer, and alcohol. 7. The principal hygienic factors in the cause are woods and forests, whose dropping foliage decays and causes stagnation of water, also badly formed streets, defective drainage in cities, and the overcrowded, badly housed and poorly fed population of cities. 8. Cancer is a preventable disease, and the absolute cure is only to be found in the means of preventing its exciting cause, and completely removing the same. 9. The sanitary indigenous foliage of the following orders: (a) myrtaceae, (b) laureaceae, and (c) conifers appears to exercise a specific influence in rendering the native born population of the countries where they occur almost immune from malignant diseases other than may be caused by prolonged irritation. 10. A eucalyptol oil obtained by means of a scientific process from various species grown in Australia possesses specific action in arresting the pathologic progress and process of malignant disease. 11. All internal and local treatments of irritative nature should be absolutely avoided, more particularly such local treatments as the röntgen rays and Finsen light, as they are likely to set up secondary conditions around the seat of lesion; far better is the early and prompt removal when the malignant growth is accessible. [A.B.C.]

Tumors of the Thyroid Body with Metastases.—M. Patel² gives a very instructive review of this subject, which in many of its aspects is yet very obscure. It appears to be definitely established, however, that tumors of the thyroid that are clinically benign may give rise to metastases that are malignant as well as to those that, like the parent tumor, are benign. Microscopic examination reveals the true nature of the tumor, if the clinical picture is not decisive. Metastases occur in bones or the lungs. The former involve principally the short and flat bones, as the cranium, maxilla, vertebral column, pelvis, but are also found in the long bones. The size of the goiter does not seem to influence the appearance of secondary growths; the cause lies in the tumor itself, the colloid variety most often undergoing metastasis. Of the 18 cases reported by Patel, 14 were in females, but this is probably due only to the more frequent occurrence of goiter in that sex. Treatment consists in general thyroid administration, removal of all or a part of the goiter, and removal of the metastatic growth. If the secondary tumor possesses malignant characteristics, a radical operation is required; if it be benign more conservative measures will suffice. Abstracts of the 18 personal and collected cases are given in concluding the paper. [A.G.E.]

Influence of Operations on the Course of Diabetes Mellitus.—O. Körner³ has collected and tabulated operations for acute mastoiditis in diabetic patients. He finds that in mild cases of diabetes, the operation may cause a temporary increase in the sugar excretion, but no permanent harm results. The occurrence of coma as a result of the operation is only to be feared when the diabetes is of a severe form, and the urine

¹ Revue de Chirurgie, January and March, 1901.

² The Lancet, December 17, 1904.

³ Cleveland Medical Journal, March, 1904.

¹ The Lancet, February 20, 1904.

² Revue de Chirurgie, March, 1904.

³ Mitth. a. d. Grenzgeb. d. Med. und Chir., Bd. xii, p. 682.

gives the diacetic acid reaction. If operation is necessary to save life, it may be performed even in cases of moderate or considerable severity. [B.K.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Tallow or Beef Suet.—R. Ortega¹ relates how, by misunderstanding, a tuberculous patient took a quantity daily. His cough and general health improved. The author believes that tallow has a peculiar value in internal medicine, for the reason that it is a fat which adheres to mucous membranes. If heroin or codein, etc., cannot be employed, and no one may be entrusted with chloroform, or other inhalants, at the bedside, tallow by the mouth is a safe and effectual remedy in cough. There are intestinal disorders which benefit by its administration, which may be in caché. [T.H.E.]

Aristochin in Bronchial Asthma.—K. Dresler² found that aristochin produced very quick relief for asthmatics. At first they invariably complained of being worse, but soon after the spasms lost their intensity, the attacks became fewer, the cough and dyspnea disappeared completely after a short time. One man who had been suffering unspeakably for three years, and who had not been relieved by any of the known drugs, was relieved after taking 0.4 gm. (6 gr.) of aristochin three times daily for six weeks. The drug quiets the irritated nervous system of these patients markedly and regulates the cardiac rhythm, also diminishing the heart-beats considerably. It may produce slight transient itching and buzzing in the ears, but otherwise nothing unpleasant has been complained of. [E.L.]

Thiocol in Tuberculosis.—While denying this remedy any specific antituberculous virtues, A. B. Katchkatcheff³ speaks favorably of its sedative and antiseptic effects. The cough is relieved, sleep procured, and the septic processes in the lungs arrested. He employs either thiocol itself in 8 gr. to 10 gr. doses, or sirolin, which is a 10% syrup of thiocol, in tablespoon doses. Thiocol can be combined with quinin, heroin, etc. [L.J.]

OPHTHALMOLOGY

WALTER L. PYLE

EDITORIAL COMMENT

Acute Infections as a Cause of Optic Neuritis.

—In a recent series of studies Antonelli⁴ maintains that practically all the acute infectious diseases may produce optic neuritis, either papillary or retrobulbar. These cases are not so exclusively the result of meningitis or nephritis, as is commonly stated. They may be due to direct actions of toxins on the optic nerve, as in true peripheral neuritis elsewhere. It is well known that they may be associated with intracranial disease and affections of the orbit and adjacent sinuses. Involvement of the optic nerve is generally at first unilateral, but within a week both eyes usually become involved. Unless profound amblyopia lasts more than two weeks, prognosis is good, and the amount of vision recovered is generally in proportion to the duration and degree of visual affection. The prognosis is decidedly bad if the patient has been almost blind for a month. A frequent cause of this form of optic neuritis is influenza, about sixty cases having been reported. Both the papillary and retrobulbar types have been observed, and in almost every instance the cases have been bilateral. Some twenty cases due to malaria have been recorded. Atrophy of the optic nerve frequently follows unless the papillitis occurs during the intense febrile stage. In typhoid fever, affection of the optic nerve generally appears as a subacute papillitis. It is usually a late symptom, but in a few

cases it has appeared early. It is important in these cases to exclude meningitis as the exciting cause. As a rule, complete recovery of vision does not occur on account of a partial secondary atrophy. Although many cases have been reported as occurring in the acute exanthems it is likely that in the majority of these the exciting cause was associate renal or cerebral disease or orbital cellulitis. Syphilis is one of the commonest causes of optic neuritis, and Antonelli distinguishes three distinct types. At least ten cases of optic neuritis following diphtheria have been reported. They resemble in every way the paralyzes of other cranial nerves which so often follow this infection. Serumtherapy has not shown any curative effect, but its value in prophylaxis is undoubted. Beside those cases due to direct extension of infection, there are recorded several cases in which double optic atrophy has followed unilateral facial erysipelas. Optic neuritis is a late complication of mumps and the prognosis in the cases reported has been good. Isolated cases of optic neuritis have been observed in acute rheumatism, typhus fever, pertussis, acute myelitis, and gonorrhea. Hutchinson and Jessop have called attention to the relation of herpes zoster and optic neuritis, and de Wicker states that this association is found in 7% of the cases of herpes zoster ophthalmicus. Antonelli believes that both affections are due to the same toxemia. In all cases of optic neuritis secondary to the acute infections, the treatment should be directed primarily to the causative disease.

Ocular Injuries During Labor.—Even in the course of natural labor, injuries to the eyes of the child are not uncommon. Traumatism of the eye-lids with resultant edema and ecchymosis and conjunctival hemorrhage and chemosis are often seen. According to Thomson and Buchanan there sometimes occur in what may be termed natural, normal, or unassisted labors retinal and choroidal hemorrhages. De Wecker cites a case of face presentation in which an orbit was mistaken for an anus in a breech presentation, and the eyeball gouged out by the obstetrician's finger. In cases of labor necessitating the use of forceps, injuries of the eyeball and adjacent parts frequently occur. Thomson and Buchanan¹ have recently reported the results of their observations in this class of cases in the wards of the Glasgow Maternity Hospital. The chief injuries from the pressure of the blades of the forceps are excoriations, edema, fracture of the orbit, corneal affections, hyphemia, paralysis of the ocular and lid muscles, retinal and retrobulbar hemorrhage, optic atrophy, cataract, dislocation of the lens, exophthalmus and avulsion of the eyeball. They are of the opinion that in cases of contracted pelvis requiring the use of forceps, the extraordinary effects which may follow pressure upon the eyeball lead them to believe that almost any injury to internal structures is possible. They call attention to a peculiar form of traumatic keratitis which, from microscopic examination, they believe to be due to vertical rupture of the posterior elastic corneal lamina. This affection varies in severity from a transient haziness to more or less permanent opacity. Bouchet has observed fracture of the frontal bone, and exophthalmus followed by recovery without paralysis or convulsions. In a case of exophthalmosis and hyphemia following the use of forceps in a primipara, reported by Schroeder, an autopsy revealed hemorrhage into the orbit (which explained the exophthalmus) and detachment of the dura mater from extravasation of blood. Stanheim has observed edema and cicatricial entropion following forceps delivery. In fact, almost every form of ocular injury has been mentioned as proceeding from forceps delivery; yet, the evil results are small in comparison with the enormous number of cases in which this instrument is applied. It is fair to assume that in a vast

¹ Cronica Medica Mexicana, March 1, 1904.

² Therapie der Gegenwart, 1903, December.

³ Russki Vrach, February 14, 1904.

⁴ Archives d Ophthalmologie, July-October, 1903.

¹ Transactions of the Ophthalmological Society of Great Britain 1903.

majority of cases if forceps are used with ordinary care and skill, permanent ocular injury is not likely to follow.

The Fallacies in Tenotomy for Heterophoria.—The vogue, now happily waning, of tenotomy of the ocular muscles for heterophoria, was based upon several errors of diagnosis and inference which, although now clearly exposed, have had great influence in the past. Thousands of such tenotomies have been performed worse than needlessly. To review the mistakes and their causes may now be of service in helping the mind to avoid similar blunders of observation and logic: 1. The first mistake was that of taking *post hoc* for *propter hoc*. The advocates of tenotomy looked upon the fault as one of mechanics, the muscles and tendons, their insertions, shape of the orbit, etc., being considered as the only factors at work. We now recognize that these peripheral structures had little or nothing to do with causing the conditions, and that the dominant factor was innervational. The nerve-centers, not the muscles and tendons were at fault. 2. The secondary and tertiary causes were taken for the primary cause. The crude mechanisms of the muscles, tendons, insertions, etc., should have been recognized as the mere instruments of ametropia. 3. The fallacy of "latent" heterophoria vitiated every test and argument. Prisms worn for a time were supposed to make the "latent" defect manifest. In fact they temporarily created a new defect. One can soon create any kind and almost any degree of heterophoria by ordering such prisms to be worn. 4. The advocates of tenotomy found esophoria tremendously prevalent, and called it heterophoria, whereas low-degrees of esophoria are normal, and are desirable for those who use their eyes for much near work. 5. Moderate degrees of hyperphoria are much more certainly, accurately, and easily corrected by prisms incorporated in the lenses required for correction of the ametropia, than by operation. 6. Exophoria is simply insufficient adduction power, and this may be soon and absolutely increased to any extent by prisms, bases out, used as temporary gymnastic exercises. 7. Heterophoria, being a result of ametropia, was not cured by tenotomy, which, indeed, rendered the final cure more difficult, and sometimes even impossible. 8. Crediting the good results which followed tenotomy *plus* proper glasses, to the tenotomy alone, showed incorrectness of observation and an unscientific logic. 9. The disappointment that followed the extended trial and exploitation of the theory involved in the eight preceding considerations has been the greatest source of scepticism and error in recognizing ametropia as the true cause of eyestrain, and of the many systemic reflexes produced by it.

REVIEW OF LITERATURE

The Argyll-Robertson Pupil.—In a recent summary of the literature regarding the clinical significance of pupillary phenomena and the origin of the various reactions, Marburg¹ reviews the various opinions concerning the well-known Argyll-Robertson pupil—loss of action to light stimulus but response to convergence. In regard to its origin he discards the theories of location in the spinal cord and ciliary ganglion and places the center for light reflex in the midbrain in the neighborhood of the nucleus of the iris sphincter. The principal cause of the phenomenon is syphilis and the chief diseases in which it is met are locomotor ataxia, general paralysis, and cerebral syphilis. It may result from injury, or it may be a temporary symptom in numerous diseases, the principal of which are the various neuroses, and the infections, particularly meningitis, influenza, and pneumonia. It may also follow poisoning by atropin, carbon disulfid, lead, the bromids, male fern, poisonous fungi, tobacco, and alcohol. Marburg calls especial attention to the fact that the light reflex is not lost in affections of the posterior column occurring in pernicious anemia. In patients with the Argyll-Robertson pupil in which a

history of syphilis is denied, close inspection will generally reveal aortic degeneration or other sign of preexisting lues. The Argyll-Robertson pupil is often at first unilateral, and in cases in which it is the only symptom present, cure may be affected by immediate antisyphilitic treatment. In case untreated both eyes are likely to be affected ultimately. Persistent reflex immobility indicates a severe cerebral lesion, usually of syphilitic origin. Temporary immobility may be functional, but except in the neuroses, there is usually an associate anatomic lesion, which should be considered in the prognosis. It should also be remembered that syphilis and hysteria may coexist in the same patient. The functional type may often be cured by suggestion and the administration of miotics.

Intracapsular Irrigation in Cataract Operations.—Reik¹ summarizes the results of all the recorded operations of this kind by various operators, cites his personal experiences, and offers the following conclusions: 1. That the introduction within the eye of the sterilized saline solution is harmless. 2. That the removal of cortex is a mechanical process and regulated by ordinary physical laws. 3. That, from the anatomic structure of the eye, and the conditions existing during the operation, irrigation is more efficient in removing cortex than any other method. 4. That just as irrigation removes cortex, so it removes blood and bubbles of air. It also shows the condition of the capsule, gives tone to and replaces the iris and is effectual in making the toilet of the wound. 5. That very free irrigation by the nozles may be practised without fear. 6. That irrigation does not tend to cause prolapse of the vitreous. 7. That the secondary operations form a small percentage.

The Operative Treatment of Trachoma.—J. A. Louria² describes an operation for trachoma, which consists in a thorough extirpation of the infiltrations located beneath the conjunctiva of the upper fold. This procedure has for its purpose the prevention of corneal complications or their removal when once developed. Eighty cases were thus treated with satisfactory results. The indications for operation were: Failure of usual methods, presence of pannus, severe corneal involvement. Certain conditions contraindicate the operation, as fresh corneal ulceration, fresh corneal infiltrations (in such cases we must wait until the acute stage has been passed), and great friability of the conjunctiva of the upper fold. The operation, according to the author himself, is painful and complicated, but is justified by the good results. [L.J.]

Radium Rays and their Influence on Vision.—E. S. London's³ numerous experiments demonstrate that the rays of radium by their action on the retina produce perception of light in the eye even at considerable distance; it matters not from which side the rays come and what substances they have to penetrate. The radium rays, differing from light rays physically, are also dissimilar from them by their physiologic action on the visual apparatus. In themselves they do not augment the visual power of the eye. The radium rays are neither refracted nor reflected by the media of the eyes, but are absorbed to a certain degree by them simultaneously. When acting upon the eye sufficiently long and strong they are capable of producing inflammatory conditions in its various parts (keratitis, retinitis, etc.). Persons with bandaged eyes are able after some practice to recognize the shape of moving radium rays and can name simple figures described with them. Portions of the retina not atrophied can easily perceive this light in the dark room. By the use of this light in various forms and figures, blind individuals, capable of perceiving light can be taught to recognize a large number of optical pictures. This is true of individuals in whom the causes of blindness lie in the nerve apparatus of the retina, or in the transparent media of the eye. London describes a method which he has employed, of teaching a number of apparently blind boys to read, and speaks of it as the "silhouette method." [E.L.]

Cerebral Centers of Divergence and Convergence.—W. M. Bechterew⁴ discusses the facts which render prob-

¹ Trans. Amer. Ophth. Soc., 1903.

² Russkii Vrach, October 18, 1903.

³ Archiv. für Ophth., 1903, livii, 342.

⁴ Obsenrele Psychiatril, July, 1903.

¹ Wiener Klinik, August, 1903.

able the existence of special centers governing ocular convergence and divergence. This illustrious author made a series of experiments on apes in order to obtain reliable data. He found by irritating a certain well-defined area of the cortex in the region of the gyrus angularis the eyes are made to diverge. The same result follows stimulation of an area in the frontal lobe just in front of the middle portion of the precentral fissure. Thus we must assume the existence of 2 cortical centers of divergence. Beside these cortical centers, the author's experiments demonstrate the existence of a subcortical reflex center of divergence located in the 2 anterior corpora quadrigemina, while the 2 posterior corpora contain the analogous subcortical centers of convergence. The cortical centers of convergence are located in the occipital lobe behind the union of the fissura sylvii with the first temporal fissure, and in the lower part of the gyrus angularis, respectively. [L.J.]

Acain-cocain in Local Anesthesia.—W. Krauss¹ recommends the use of acain and cocain as local anesthetic in operations in and about the eye. He employs the following formula:

Acain . . . . .	.025 gm. ($\frac{1}{2}$ gr.)
Cocain . . . . .	.05 gm. ($\frac{1}{2}$ gr.)
$\frac{1}{2}$ % solution of sodium chlorid . . . . .	.5 gm. (75 gr.)

The solution should be fresh for every operation. If much hemorrhage is expected a few drops of a 1 to 1,000 adrenalin solution may be added. He has employed it for enucleations, strabismus, chalazia, lid operations, etc. [E.L.]

The Diagnosis of Orbital Tumors.—F. Terrier and V. Morax² speak of the differential diagnosis of orbital tumors. After briefly mentioning inflammatory lesions, syphilis, osseous tuberculosis, actinomycosis, and vascular tumors, the diagnosis of which should not present great difficulties, 4 other classes of tumors are considered: 1. Tumors of the optic nerve. 2. Osseous tumors of the type of true sarcomas. 3. Tumors originating in the sinuses or nasal passage and extending to the orbit secondarily. 4. A group of tumors apparently originating in the periosteum or fibrous tissue of the orbit and variously described under the names of fibroma, fibrosarcoma, or fibromyxoma of the orbit. The latter type is considered at length, 2 cases being reported and a table containing 14 other similar cases appended. Both patients were males, one being 62, the other 36. The tumor in each instance was removed and there has been no recurrence, one after 4 months, the other 9 months. The slow growth of these tumors, the absence of recurrence (several of the reported cases showing none after 7 years), and the histology, place them among the benign growths. The structure is that of connective tissue containing many fusiform or polyhedral cells and in many instances the bloodvessels are numerous. The vessel walls are distinct, with muscular and fibrous layers, a point separating the tumors from true sarcomas with their thin-walled vessels or mere blood channels. [A.G.E.]

Latticed Corneal Opacities.—H. Freund³ describes 15 cases of this rare disease occurring in two families; it varied in intensity in each case depending upon the length of time it existed. He finds that the disease always begins after puberty and affects both eyes, but usually one eye more than the other. Among his cases the right eye was usually more diseased than the left. During the first stage there are no subjective symptoms. The first symptom is usually an irregular refraction of light due to the formation of nodules, which may be seen about the center of the cornea; they are made up of numerous fine lines arranged irregularly. Gradually vision diminishes as the corneal cloud and the nodule formation increases. The individual lines can only be recognized toward the periphery of the process. Usually an active keratitis arises toward the latter years of the affection and the corneal epithelium degenerates. The peripheral part of the cornea never becomes affected by the disease, therefore an iridectomy in the latter stages often improves vision considerably. The disease occurs in families and is hereditary. [E.L.]

Gummatous Tumors of the Sclera.—These growths are

an extreme rarity, and most textbooks ignore them entirely. According to A. W. Lotin¹ there are only 16 reported cases in literature. He adds an original observation of his own. A man of 43 presented himself with symptoms of an intraocular tumor. The eyeball was enucleated and a white growth found to surround the eye in the equatorial direction. Microscopic examination revealed the features of gumma. The diagnosis of gummatous growths of the sclera is naturally quite difficult. If recognized early, specific treatment offers an excellent outlook, the tumor often disappearing entirely. In later stages, however, but little can be expected from antisyphilitic remedies. The consequences of advanced gumma are very disastrous, often ending in total blindness, as in the author's case. [L.J.]

Aspirin in Ophthalmologic Practice.—O. Neustadter² has employed aspirin for its sudorific, antirheumatic, analgesic, and antipyretic action. It is superior to the salicylates in the two latter indications. He advises it in iritis, optic neuritis, scleritis, etc., in large doses, giving as much as 7 gm. (75 gr.) in the 24 hours. He has never seen ill results from it, but says it must never be given in simple aqueous solution, as the ordinary gastric juice cannot dissolve it. An acidulated solution is necessary, and he gives it preferably with hot lemonade. [E.L.]

Congenital Glaucoma.—E. Stevenson³ reports a case in a boy of 5. The eyes were larger than normal in every diameter, the anterior chamber very deep, the irides somewhat tremulous owing to the stretching of the zonule of Zinn, the lens clear. The tension was slightly increased, the optic nerves cupped. In the development of the eyes before the iris and ciliary body receive any definite formation the lens is pushed off from the posterior surface of the cornea by a mesoblastic structure called the anterior fibrovascular sheath, which eventually in its anterior portion goes to form part of the cornea, and in its posterior portion the pupillary membrane. At this time there is no anterior chamber. The latter forms by separation of the sheath from the cornea and the iris pushes its way in between the structures, incorporating with itself portions of the sheath, which strip themselves from the cornea and lens. If there is any failure on the part of the sheath to strip off from the periphery of the cornea it and the iris would effectually block the filtration angle. Owing to the site of the obstruction the aqueous begins to collect in the anterior chamber and distend it. Iridectomy generally results in dislocation of the lens. The tension may be kept down by miotics, but nothing stops the increasing nerve atrophy. In one or two cases stretching has opened the angle with partial recovery. [H.M.]

Treatment of Trachoma with Knapp's Roller Forceps.—I. Hoppe⁴ gives Knapp's roller forceps the preference over all other treatments for trachoma, because of its rapid results, easy technic, and absence of danger. Neither assistant nor ether is necessary, and the patient can come to the physician's office. The instrument is to be used only in case follicles are to be expressed. It may be necessary to repeat this, and, in fact, should be repeated so long as new follicles develop. [E.L.]

Retinal Hemorrhages in Severe Anemia Due to Bothriocephalus.—A. S. Tchermolossoff⁵ finds such hemorrhages to be a constant phenomenon in the severe forms of anemia produced by *Bothriocephalus latus*. The form of hemorrhages is round, striped, or semicircular. They are usually located near the vessels about the posterior pole. Their course has an important influence on the prognosis. The bleeding takes place by diapedesis, the blood is reabsorbed entirely, and inflammatory phenomena are absent. The keenness of vision, and the other ocular functions are unaffected. These hemorrhages, occurring in the anemia of bothriocephalus, are identical with those of essential pernicious anemia, and offer an additional argument in favor of the identity of both anemias. The diagnosis of tapeworm anemia is facilitated by the general appearance, the absence of skin complications, and the lack of inflammatory symptoms on the retina. [L.J.]

¹ Russki Vrach, September 6, 1903.

² Münchener medizinische Wochenschrift, 1903, I, No. 42.

³ Liverpool Medico-Chirurgical Journal, January, 1904.

⁴ Deutsche medizinische Wochenschrift, 1903, No. 38.

⁵ Russki Vrach, November 29, 1903.

¹ Münchener medizinische Wochenschrift, August 25, 1903, No. 34.

² Revue de Chirurgie, November 10, 1903.

³ Archiv für Ophthalmologie, 1903, lvi, 377.

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Contract Medical Practice.—Disapproval of the conduct of physicians who contract to furnish medical attention at less than minimum prices to members of clubs, societies or orders has been signified in no uncertain manner by the Stearns-Benton (Minn.) County Medical Society. Resolutions recently adopted by the society set forth that certain members have accepted such positions to the detriment of the practice of medicine and to the dignity of the profession; that the society has resolved to strike from its rolls the names of such members after due notice has been given them; and that the members of the society, individually and collectively, shall not consult with or call in consultation any physician who practises in such manner. This at first sight appears a rather summary and drastic procedure on the part of the society, but it was taken with a full knowledge of the local conditions and doubtless after a thorough discussion of ways and means for meeting them. Such action will relegate the rejected physicians, so far as professional recognition is concerned, to the rank and file of those who practise the quack "pathies" of various unctuous designations. Perhaps certain of them will have found their true place; others do not deserve such a fate. We congratulate the physicians of Stearns and Benton counties on possessing the courage of their convictions in thus dealing with a question that needs settling in many other localities. When well-to-do persons join societies for the sole purpose of reducing their expenses for medical attendance, there is somewhere a violation of the spirit, if not the law, of the code of ethics.

The Meaning of Certain Medical Terms.—The March and April numbers of the *American Journal of Pharmacy* contain a symposium on the meaning of the terms pharmacology, pharmacognosy, materia medica, and certain related words. This symposium is made up of the replies of physicians, many of them teachers in the above branches, to letters from the editor of the journal asking their interpretation of the aforesaid terms. The very laudable purpose in view was to have these terms defined according to their modern acceptation and uses, and thus clear the existing confusion in regard to their meaning and employment. A dozen answers have been received from such authorities as Wood, Hare, Sollmann, Potter, Shoemaker, Hallberg, Abel, and others. A few

discuss at some length the etymology of the words, but the majority of the writers furnish simply their personal preference and usage. To epitomize the views expressed is a difficult task; they must be read in full to be properly appreciated. Broadly speaking, there is a tendency to regard pharmacology and pharmacognosy as partially synonymous terms, either of which, in its wider sense, may be used as a substitute for the older one of *materia medica*; pharmacology has decidedly the preference, several of the writers looking upon pharmacognosy as superfluous. In the restricted sense, pharmacology represents the experimental, and pharmacognosy the descriptive side of *materia medica*. This commendable symposium should result in a better understanding of the terms under discussion; we wish that it might accomplish more, namely, a common usage. As stated by one of the writers, however, it is probable that nothing less than the *fiat* of an academy would suffice to bring order out of the present chaos.

The Achievements with the Ultra Microscope.—In our issue of August 22, 1903, we briefly referred to the interesting discovery, made by Siedentopf and Zsigmondi, of a microscope with wonderful resolving power. The principle involved is an intense illumination of the particles to be examined, while the background remains absolutely dark. The resulting image is analogous to that seen when the telescope is directed toward the Milky way. In the ordinary microscope, the conditions are reversed, the field being illuminated and the objects to be examined remaining dark or possessing whatever color may be given to them by staining. Particles with a linear diameter of .000001 mm. have been rendered visible by means of the new microscope. The original instrument has been somewhat simplified by two Frenchmen, Cotton and Mouton, and now conforms more nearly to the ordinary microscope. One of the first discoveries of practical value to be made with the instrument is that of Raehlmann,¹ who found, in the aqueous and vitreous humors of an eye enucleated on account of sympathetic ophthalmia, what appeared to be actively motile bacteria, chiefly rod-shaped. None were seen in the nerve-disk. The magnification employed in these studies was 2,400 diameters. Raehlmann expresses the belief that sympathetic ophthalmia is

¹ Deut. med. Woch., March 24, 1904.

a metastatic infection with microorganisms. The length of time intervening between the injury to the first eye and the appearance of symptoms in the second, usually not less than six weeks, is, he thinks, closely related to the growth of the bacteria and to the time when spore formation is reached. The reason that the infection, although carried to the other eye by the blood, is not demonstrable elsewhere, is that these bacteria will thrive only in the vitreous humor, which constitutes a medium peculiarly suited to them, and one that is found nowhere else in the body.

To Destroy Heroism.—From a reading of the conditions of Mr. Carnegie's endowment fund to encourage heroism by means of helping the dependents of heroes or themselves in case they are only injured in the effort to save the life of their fellows, it is intended that physicians and nurses should be specially rewarded. It may well be feared that the plan will defeat its own object in any case, but we doubt if the medical or nursing professions will welcome the proposal. In the first place, the fund should be a hundred instead of five millions, because every good physician and nurse would have to be included; they almost daily risk their lives for their patients' sake. It is really habitual with them—a part of their duty and function. Moreover, the plan of public rewards, and especially of money-giving, emphasizes the melodramatic kinds of heroism of the cheap novel and stageland varieties, at the expense of the more effective, useful, and needed types—which are secret, modest, and persistent in their actions and motives. Then there is the great danger, almost certainty, of stimulating the sham heroisms that boast of their own exploits, or that are brought to light by the hero's friends. The purest virtue and the most genuine heroic quality not only do not ask for reward or praise, but shrink from it with spontaneous shame. The "Hero Fund" appears to be a device for discouraging the fundamental conditions which produce heroism and of replacing it by the spurious varieties altogether too prevalent already.

The sentence, death, burial, and requiescat of eyestrain were all carried out in one evening at a recent meeting of some members of the New York Academy of Medicine. There was a commendable expedition in the proceedings consonant with the worthiness, or unworthiness, of the cause; a hearty unanimity of the judges and jury; the chorus was in excellent voice; the ceremonies were solemn, although strangely amusing, both to the officiating persons and to the spectators. There was but one that had a good word for the dead dog, a noteworthy exception to the old rule *nil nisi bonum*. Dr. Dana had not been able to find in 20 years any case, even of any minor psychosis, due to eyestrain—at least, "hardly any." "Success was generally attained without treating the eyes."¹ "Glassing had become a real psychosis, etc." Dr. Cutler said that if sick headache was cured by the correction of astigmatism

the fault was not with the eyes but with the unstable nervous organism which migraine finally resolved itself into. Dr. Sachs said that those who contended that epilepsy, chorea, and other motor disturbances of the nervous system were due to eyestrain had "axes to grind." Dr. Holden spoke of anesthesia, hyperesthesia, contraction of the visual fields, color perception, etc. Dr. deSchweinitz was glad of the firm stand taken on the conservative side. Dr. Collins said no case of migraine had been cured, remedied, or benefited by glasses. Dr. Knapp said eyestrain was due to overexertion of the eye. But hundreds of articles have been written and thousands of cases reported by reputable physicians absolutely contradicting the assertions of these gentlemen—"all honorable men"—and there are thousands of physicians who are convinced that their assertions are errors. And why the great special meeting of the Academy to lay such a poor, squeaking and gibbering ghost?

"The Nervous Woman, and What to Do With Her," is the title of an article in a recent number of a medical journal. "The Lord deliver me from her," is the text, and a devout sermon is preached. The subject is apropos, for the nervous woman occupies more and more of the attention of the medical profession, and the intolerable torment of her is already an old story. Such women occupy almost the exclusive attention of very many specialists. And yet the author of the article says: "There has been less time given to her by the leaders of medicine than to any other subject that is so important and pertinent to both patient and physician." There is no literature about her, he says, and no help as to treatment is to be gained from the literature. This seems somewhat severe on the rest-cure and "forced sleep" treatments so glaringly in vogue everywhere. For whom, pray, are these private sanatoriums, forced feedings, forced sleeps, and three-months-in-bed, if not for the "nervous women"? Several illustrative cases are described of these most bothersome patients, and there is the greatest fun derived from the details. When the author got the first "apocalyptic creature puking," he did "the smartest thing in his life." The second patient was an anemic woman, who from girlhood had had attacks of "severe cephalgia," so severe that her sight had been affected after an attack. After three or four years "excruciating [pains]" began "from the occiput down to the dorsal vertebrae," with mild paresis of the lower extremities. From hospital to hospital she was taken, and all sorts of treatment tried for her spinal irritation. Finally, after everything else had been tried, "Flint's Tablets" seemed to "control the cephalgia better than anything that had been tried." But it is added that "nothing will cure these patients quickly, or in every case permanently."

"Case III and Case IV" of the series noted above are noteworthy. When first seen there was in Case III pain in the head, with facial erysipelas, great neuralgia in the abdomen, and soon uncontrollable vomiting. This persisted until extreme weakness followed, and rectal feeding was necessary. The medical treatment

¹"It is these patients [neurasthenics] who sometimes have long-standing and inscurable headaches and local pains. They 'never remember being without a headache' or pain in the back. No form of treatment has ever helped this."—[Dr. Charles L. Dana, in the *Boston Medical and Surgical Journal*, March 31, 1904.]

was a "total failure," although every drug that "by any ingenuity could be thought of any value" was tried. Tonic spasm of the arms followed, and "hysterical aphonia." Chloroform was used; the spasms relaxed, "only to return." Splints were required "to keep the arms and legs extended." The mental condition was perfectly normal, and there were absolutely no hysterical manifestations. Plain starvation was ordered for the vomiting. A long disquisition on the drug treatment follows. Of Case IV, the woman worked hard in her business from 2 o'clock a.m. until 4 p.m. "Migrating neuralgias," poor appetite, insomnia, etc., followed. No organic trouble whatever was to be found, although, "as in all such cases," there was "obstinate constipation." "The voyage to recovery was very tedious," "all sorts of drugs were tried," and a removal to a sanatorium was planned, when *avena sativa* brought about apparent recovery. "The therapeutic nihilist will be a therapeutic failure," it is said, and the advice is given to try one drug after another "until somewhere and somehow" will be found the patent remedy. There is one capital recommendation—the dependence of these diseases upon affections of the sexual organs is disallowed. But the writer seems to have made several slight errors. He appears unaware that innumerable cases of the kind, with the facial erysipelas, paresis, and the rest, have been described; that by the older writers they were called cases of migraine; that in nine out of ten such cases the migraine or "nervousness" is due to eyestrain.

The Medical Secret and Marriage.—The tendency of modern medicine is toward the prevention of disease, and the individual physician as well as the medical profession in general should be instrumental in accomplishing this end. While the scope of the physician's activity in disseminating the knowledge he has gleaned through study and experience is practically unlimited, he is, by virtue of his oath to secrecy, prohibited from disclosing, even for the most laudable purposes, any information derived from an individual case. The physician may give advice to his patient, warn him of the inevitable outcome of his marital union, depict in glowing colors the subsequent physical and spiritual misery of his spouse, but here he must rest and leave it to the patient's unselfishness and sense of honor to follow his counsel. Truly, Wordsworth's definition of honor applies forcibly to such instances:

"Say, what is honor? 'Tis the finest sense
Of justice which the human mind can frame,
Intent each lurking frailty to disclaim,
And guard the way of life from all offence
Suffered or done."

The Interest of the Community Versus that of the Individual.—Since the strength of the State depends upon the health of the citizens, the law has decreed that all infectious diseases should be reported to the proper authorities. Venereal diseases are most certainly "infectious," but as regards them there is practically no legislation in any State of this country. Among European nations, however, laws intended to check their dissemination are enforced. In France, the

physician is compelled to warn the nurse of an infant afflicted with congenital syphilis of the dire consequences which may await her, and if he fails to do so he can be held responsible for untoward results. In Norway and Sweden the declaration of venereal diseases is made obligatory, and, although the information is kept secret by the sanitary commissions, it has proved a potent measure of prophylaxis. However, the interest of the individual is often at variance with that of the community and causes the patient to shirk the disagreeable ordeal of confessing his malady. Syphilis and other venereal diseases are considered, with more or less propriety, "shameful" affections, and place the thus afflicted in a most humiliating and reprehensible position. Public cognizance of this fact will undoubtedly make him a social pariah. Members of the most exclusive society, women and men enjoying the admiration and respect of the public, as well as those of the lowliest station would be alike affected by laws instituted for the purpose of curtailing the reach of this dreadful scourge. Every practitioner knows what manifold interests are often at stake when syphilitics contemplate marriage and apply to him for advice. Here the pity for the young woman should deter the man from entering wedlock, and yet, a host of obligations and ulterior motives from the material standpoint and also from the viewpoint of society would seem to make the alliance obligatory. Only too often the candidates for marriage are swayed from the straight and honorable course by the thought of "what will the world say?" and such consideration may outweigh all others. The doctor finding his benignant efforts entirely ignored and being bound by professional secrecy must feel like an accomplice when he beholds the havoc he might have averted. Small wonder that he entertains doubts occasionally as to the wisdom of the Father of medicine. Here Goethe's immortal words are again verified: "Es erben sich Gesetz und Rechte wie eine ew'ge Krankheit fort." Is it not incongruous in the face of present needs to bind oneself by an oath, based, it is true, upon ethical conceptions, yet one the originator of which in all likelihood would never have made unconditional, had he been aware of the dilemma in which it places the modern medical profession?

The "Drug-store" Competition with the Doctor while "Soliciting His Patronage."—In a recent issue of a "reputable" newspaper in an eastern city there are 91 advertisements of 91 druggists of the city, each lauding the secret and proprietary preparation manufactured by the druggist as cure-alls for all the diseases which professional men are called upon to treat. A few of these 91 infallible remedies are as follows: For any case of kidney disease, Dyspepsia, All diseases of the blood, Sore throat, Bronchitis, Any case of cough, Cholera, Asthma, Any troubles from disordered system, All headaches and neuralgias, Influenza, Rheumatism, Whoopingcough, Tapeworm, Croup, All lung affections, Malaria, Tuberculosis, All diseases of the nervous system, etc. In every village and city of the United States the same principles of business are being pushed. In the same newspapers, and even in the same advertise-

ment, the druggist asks for the physician's patronage, and guarantees that "prescriptions will be compounded with care." It would seem as if there is a strange confusion of mind on the part either of the enterprising nostrum maker, dealer, and advertiser, or of the patronizing physician. Does the physician really patronize? Should not the local medical societies warn their members, and blacklist the druggists who dishonor two professions and humbug the public at one business stroke?

The Sale of Narcotics, Poisons, etc., by the Country Store Grocers.—Dr. Charles E. Abbott of Buffalo sends us the following letter. The matter seems of such importance that special attention should be called to it. It has of course far more than a local significance:

I enclose herewith a copy of the act amending the Public Health Law recently introduced in the New York State Legislature. Superficially this amendment would seem entirely harmless, yet upon close scrutiny will be found lurking within its substance that which is not only harmful but an absolute menace to the welfare of the community in general. Those responsible for the introduction of this measure are a few petty drug jobbing houses whose principal income is obtained by selling what are called U. S. P. laudanum, paregoric, tincture of iodine, gum opium, morphin and various other drugs to the general merchants doing business in rural communities; and whose income from this source has been largely curtailed through the operation of the present Public Health Law, and By-laws of the State Board of Pharmacy which prohibit absolutely the sale of opium, morphin, chloral and cocain, and limit the sale of such articles as laudanum, paregoric, tinctures of iodine, arnica, spirit of niter and quinine to one person in any community three miles or more from the nearest regularly licensed drug store; provided, however, that the necessity for the sale of such articles is shown to exist, and the person offering such articles for sale is, in the judgment of the State Board of Pharmacy, qualified to do so. He must also keep a record of all sales of laudanum in a book provided for that purpose, giving the name of purchaser, date and purpose for which it is to be used. In event of the proposed amendment becoming a law, any person, be he grocer, milk dealer, confectioner or blacksmith, no matter whether he is located next door to a regularly licensed pharmacy or drug store or 50 miles distant he may sell any or all of the 997 official drugs and preparations of the United States Pharmacopeia, or in fact anything, provided the package bears the label of a licensed pharmacist. (How easy to procure this!) Prior to the enactment of the present law, over which these petty drug jobbing houses have become so disgruntled, a most alarming condition of affairs existed regarding the sale of poisonous drugs. I shall mention a few instances that are known to me as positive facts. A grocery dealer in a certain village kept in his store room a sugar barrel filled with empty one-eighth ounce morphin bottles; when asked how he came to have such a number he stated that they represented the morphin he had sold; his customers had returned the empty bottles because he allowed one cent each for them. In another instance a grocer sold a two ounce bottle of laudanum which was taken from a large stock container. Having no laudanum label he placed a paregoric label upon the package, drew a pencil mark through the word "paregoric" and filled in the word "laudanum" in pencil, leaving printed directions for paregoric dosage, in this case the adult was from one to four teaspoonfuls. In still another instance a small boy employed by a general store keeper doing business in a rural community sold an ounce of gum opium without question to a person known to me. He weighed it upon a bare scale pan and delivered it in a plain paper bag. Another instance which happened in a village with a population of 500 containing a well-appointed pharmacy conducted by a man who is a graduate

in pharmacy and a Doctor of Medicine, a person known to me, bought laudanum without question in a candy shop, grocery store, and blacksmith shop. Is it any wonder the drug habit is on the increase under such conditions!

Another absurdity of this amendment is that it says nothing of the registration of poison sales. The present Public Health Law under section No. 198 of Chapter 667 requires the registration of arsenic, potassium cyanide, hydrocyanic acid, cocain, morphin and strychnin, and other poisonous vegetable alkaloids and their salts, oil of bitter almond containing hydrocyanic acid, opium and its preparations, except paregoric, and such others as contained less than two grains to the ounce. A strong effort was made to pass this amendment last year, but fortunately owing to the unflagging energy and zeal put forth in the effort against it by Mr. Warren L. Bradt of Albany, Secretary of the State Board of Pharmacy, it was blocked in the Senate. Great credit was also due to Dr. Willis G. Gregory of Buffalo, Dr. Muir of Brooklyn, Mr. Judson B. Todd of Ithaca, Mr. Bryon M. Hyde of Rochester, and Mr. Charles B. Sears of Auburn who rendered Mr. Bradt able assistance. It is to be hoped these same gentlemen may be able to defeat this measure again. I believe it the duty of every physician in the State to unite in protesting against it.

The wording of the act is as follows:

SECTION 1. Section one hundred and ninety-nine of chapter six hundred and sixty-one of the laws of eighteen hundred and ninety-three entitled "An act in relation to the public health, constituting chapter twenty-five of the general laws," as added by chapter six hundred and sixty-seven of the laws of nineteen hundred, as amended by chapter six hundred and forty-eight of the laws of nineteen hundred and one is hereby amended to read as follows:

§ 199. Application of article limited.—This article shall not apply to the practice of a practitioner of medicine who is not the proprietor of a store for the dispensing or retailing of drugs, medicines and poisons, or who is not in the employ of such a proprietor, and shall not prevent practitioners of medicine from supplying their patients with such articles as they may deem proper, and except as to the labeling of poisons it shall not apply to the sale of medicines or poisons at wholesale when not for the use or consumption of the purchaser, or to the sale of paris green, white hellebore and other poisons for destroying insects, or any substance for use in the arts, or to the manufacture and sale of proprietary medicines, or to the sale by merchants of domestic remedies when sold in the original packages bearing thereon the label of a licensed pharmacist, of ammonia, bicarbonate of soda, borax, camphor, castor oil, cream of tartar, dye stuffs, essence of ginger, essence of peppermint, essence of wintergreen, nonpoisonous flavoring essence or extracts, glycerine, licorice, olive oil, sal ammoniac, saltpetre, sal soda, epsom salts, rochelle salts, and sulphur, except as herein provided. Provided, however, that in the several places in this state, outside of incorporated cities and villages, and in incorporated villages of the fourth class, said places and villages not having therein a regularly licensed pharmacy or drug store, physicians may compound medicines, fill prescriptions, and sell poisons, duly labeling the same as required by this act, and merchants and retail dealers may sell the ordinary [nonpoisonous] domestic remedies, provided, however, that all poisonous domestic remedies so sold shall be sold in the original packages bearing thereon the label of a licensed pharmacist.

EXPLANATION—Matter underscored ————— is new.

London Housing Problem.—According to a recent census compiled in London it is observed that over 36 000 single rooms are occupied by three or more persons, and the deathrate among this section of the population is nearly double that for the rest of the community. As an example of the perils confronting us, the correspondent cites the case of Finsbury, where the population of one-room tenements totals 14,516. The deathrate per 1,000 in 1903, was 38.9, yet the rate among occupants of four or more rooms was only 5.6, and for the whole borough 19.6. Of these rather more than one-half were deaths from infectious and respiratory diseases, while deaths from these causes among the "four-roomers" were only 6.7. The authorities state that "something will have to be done soon, but it is one of the most difficult problems to solve. They cannot abolish the one-room system; that is obviously impossible, and were it not so, it would be a gigantic task to provide for this wretchedly poor class of tenants." "To suggest regular inspection seems tampering with the 'poor man's castle,' and yet that appears to me to be the only practical solution. There should also be a limit to the number of occupants, not more than two persons being allowed to live in a one-room tenement."—[*London St. James' Gazette*.]

AMERICAN NEWS AND NOTES

GENERAL.

Bequests to Charity.—By the will of the late Mrs. Henry Farnham, of New Haven, Conn., Yale Medical School receives a legacy of \$54,500.

Miscellaneous.—On April 7, the bacteriologic department of the Stearns Laboratories, at Detroit, Mich., celebrated the wooden anniversary, the laboratory having been founded April 7, 1899. A number of physicians participated in the celebration, being the invited guests of the firm.

Even They Die!—Carol Norton, a wellknown eddyite, propagandist, lecturer, and formerly a "first reader" in that sect, died recently in Chicago. Death occurred at the untimely age of 34. He was a favorite pupil of Mrs. Eddy, and had conducted an institute for training "faith healers."

The Anglo-American Medical Association of Vienna was organized February 6, 1904, with 56 members and it now has a membership of 80. The object of the Association is to promote social fellowship among the English-speaking physicians studying in Vienna, to advance the scientific interest of its members and to aid in quickly orienting the newcomer in the medical and scientific courses given in Vienna. Professors Ortner, Finger, and others, have thus far addressed the Association. The president of the Association is Dr. A. N. Ravold, of St. Louis; the executive committee is composed of Drs. J. H. McHenry, Cleveland; F. W. Van Kirk, Zanesville, Wis.; and J. L. Jacques, Chicago.

Does Walking Prevent Appendicitis.—A New Jersey physician brings forth the idea that one reason for the increased prevalence of appendicitis is decrease in the habit of walking. Says he, "the trolley car has made us lazy, we now ride where we should walk, and I think that appendicitis is due almost wholly to that fact." He asserts that appendicitis in rural districts is comparatively rare, while the cities and suburban towns are scourged with it; that the constant motion of the body, the contraction and relaxation of the abdominal muscles, the increased peristalsis, etc., induced by the ambulatory effort altogether materially assist in reducing the tendency to inflammation of the vestigial remnant. Moral: Get rid of the germ of laziness and walk.

The Many-sided Doctor of Ancient Times.—An exchange says: Sir Arthur Conan Doyle practised medicine before he began to write, and in one of his scrap books he has a newspaper advertisement that he cherishes because it shows well the low standing of many doctors in the eighteenth century. Sir Arthur clipped the advertisement from a newspaper of the year 1787. It reads: "Wanted, for a family not blessed with good health, a sober, discreet and steady person to act in the capacity of doctor and apothecary. He must often act also as a steward and butler, and occasionally dress hair and wigs. He will be required to read prayers and sometimes, on wet Sundays, to preach a sermon or two. A good salary will be paid and a preference will be given to such an one as, beside the above qualifications, can mend clothes."

Drugs Vilely Adulterated.—A United States Senator from Idaho recently made an address in the U. S. Senate on the pure food question, advocating the McCumber Bill instead of the Hepburn Bill. He is quoted as saying, "The physicians of the country want the legislation because under existing conditions they cannot have their prescriptions filled as they wish. Out of 14 samples of drugs advertised, 13 were found to be rank frauds. More than 50% of the patent medicines are deleterious to health, while a large percent are absolutely poisonous. There is a determined opposition to the bill on the part of newspapers which advertise the nostrums." The speaker stated that he had been approached by men representing influential papers asking him to strike out the provision relating to patent medicines; one had stated that it would injure his business to the extent of \$40,000 a year.

A Fruitful Cause of Pneumonia.—A New York physician asserted, at a meeting of a medical society recently, that steam heat is the underlying cause of the pneumonia epidemic which has scourged the metropolis this winter. Steam heat is superheat of excessive dryness. It is heat unaccompanied with a renewal of the air in the apartment heated. It produces an irritation of the respiratory tract, induces perspiration and otherwise places the individual in an absolutely receptive condition for the lodgment of pneumonia germs. It is to be noted that pneumonia claims few victims among women. Most women pass the day in houses heated by furnaces, or, if they do live in steam-heated flats, they are not "in and out" like business men, encountering severe changes of temperature a dozen times a day. The average steam-heated room is merely a superheated box in which the occupants breathe the same air over and over again. So long as this is true the indictment of steam heat as a pneumonia breeder will continue in force and effect.

Child-saving Laws Sustained.—According to *Charities*, the recently enacted child-labor law in New York City has been sustained by a decision rendered by Judge Roesch. The case in action was brought by the city of New York against the Chelsea Jute Mills, a Brooklyn corporation employing many women and children, to recover a penalty of \$50 for violation of the compulsory education law. This law, which was substantially amended as a part of the child labor committee's work of last year, provides that an employer who employs a child under 14 years of age, during any part of the term in which schools of the district in which the child resides are in session, shall be subject to a penalty of \$50, recoverable by the city. The Chelsea Jute Mills employed an Italian girl of 11 years, who had produced an affidavit from her father stating that she was 16 years of age. The city brought suit against the firm and the latter's defense was that the firm acted in good faith, having relied upon the affidavit of the parent that the child was 16, therefore they could not be punished for employing her. Judge Roesch overrules this contention, holding that an employer who employs a child under 14 years of age does so at his peril and cannot successfully plead that he does not know the child to be under the legal age.

Infant Mortality in the Philippines.—The Board of Health for the Philippine Islands reports for November last the deaths of 404 children under one year of age, from causes variously reported as convulsions, eclampsia, and tetanus, and adds: Of these, 153 occurred within 30 days after birth. The more prominent symptoms presented by these three causes largely resemble each other, and it is believed that the latter are often confounded with each other, particularly since deaths of this class largely occur in the absence of medical attendance and the death certificates in such cases must be made out on the basis of the symptoms given by members of the family. There is strong reason for the belief that the deaths occurring in the first month after birth and attended by convulsions chiefly depend upon tetanus infection at the umbilicus, due to the handling of the unhealed stump of the cord with unclean fingers and the common local practice of massaging the abdomen of the newborn. For their prevention the Board of Health has prepared a popular circular on the treatment of the new born and the care and feeding of infants, and has also authorized for the future gratuitous issue of a yard of flannel to each infant whose parents are financially unable to procure suitable clothing for its proper protection against exposure during the first few months of life.—[*Chicago Chronicle*.]

EASTERN STATES.

Spotted Fever in Hartford, Conn.—Information April 13 says: An epidemic of spotted fever, or spinal meningitis, is reported in Hartford, and the Board of Health has quarantined all houses where the disease is prevalent and ordered the strictest regulations of contagious and infectious diseases observed, although spotted fever has never been on either list. Seventeen cases of the disease were reported last week, as against one or two cases a month, the former record. Eleven deaths have occurred. Physicians admit that they are practically powerless to fight the epidemic, as very little is known of the cause and of the malady. This is the most serious epidemic that has ever visited Hartford since the spotted fever plague, which swept through there in 1874.

NEW YORK.

Objection to Increased Tuition.—It is stated that objections to an increase in tuition fees from \$200 to \$250 is making itself felt at the College of Physicians and Surgeons, especially among the students of the first, second, and third classes. The resistance to the increase has culminated in the submission to the university authorities of a petition, signed by the medical students, protesting against the increase, and setting forth their reasons.

New York's Loss by Preventable Disease.—A New York exchange says: Millions upon millions of dollars annually lost to the people of the State of New York through preventable diseases, is the keynote of the annual report of State Health Commissioner Lewis to the Governor. "If the monetary value of a human life is assumed to be \$5,000," says Dr. Lewis, "the deaths from but five of the preventable diseases during 1903 in this State represent a loss of \$94,960,000. These figures seem appalling, and yet millions upon millions can properly be added to this sum, in loss of wages, expense of the care of the sick, and many other expenses incidental to the management of these epidemic and infectious diseases."

Longevity of New Yorkers.—An exchange says: The actual figures show that old people in New York constitute each year a larger proportion of the total population. In the city last year, of 65,000 deaths, 9,354 were those of persons of more than 65—a remarkably large percentage and a higher percentage than was recorded in the vital statistics of any other city in the world. The year before, 1902, out of 66,000 deaths, only 8,880 were of persons over the age of 65, and each year the number of those who pass the 65 year limit is not only a larger proportion of the total number, but a larger number of deaths in New York being now less each year than in the year preceding, though the whole population is, of course, increasing. It is a

somewhat curious fact that the extremes of age are reflected in the seasons. Thus the largest mortality of those over the age of 65 is in the three months of December, January, and February, when the infant mortality is least, and the number of deaths among children is largest in the three months of June, July, and August, when the number of deaths of those over the age of 65 is smallest.

PHILADELPHIA, PENNSYLVANIA, ETC.

The New Jersey Training School for Feeble-minded Boys and Girls, in its fifteenth annual report, contains a detailed report of the work which has been accomplished in training feeble-minded children, the expenses incident thereto, and their hopes for the future. The sentiment of the school is expressed in a few general remarks at the end of the report, which are as follows: The keynote to our training is encouragement. There is no corporal punishment in this institution. Discipline is simple because everything is a special privilege, and therefore a pleasure to do. Within our means no expense or pains are spared to secure the comfort and welfare of our children. Our school belongs neither to the State nor to a private individual, but is a public benevolent institution controlled by an association of philanthropic people. We aim to secure the chief advantages of both State and private institutions, with the fewest possible disadvantages of either.

The Proposed Diphtheria Hospital.—Plans for the diphtheria building at the new Municipal Hospital have been approved by Director Martin. In a short time this hospital will be begun, and contracts will also be let for the other buildings. Each building will be equipped with special disinfecting rooms, and no one will be permitted to leave until he or she has taken an antiseptic bath and has made a change to sterilized, clean clothing. The diphtheria hospital building, which is the type for the two other main buildings of the hospital, will be a semicircular two-story structure, with the outer wall as the circumference of a circle 800 feet in diameter. Inside this building will be merely an eight-foot wide corridor, and at intervals there will be entrances to two-story ward buildings, built inside the circle, and 50 feet apart. Midway between the total of eight hospital buildings proper, which will accommodate 40 patients each, there will be the doctors' quarters, kitchens, laundry, etc.

SOUTHERN STATES.

Sanitary Barber Shops in Maryland.—The hygienic bill providing for certain sanitary rules to be applied to barber shops in Maryland has passed both houses of the Legislature. It is a bill entitled an act to regulate the practice of barbering in the State of Maryland, to establish a State board of barber examiners, to provide for the sanitary inspection of barber shops and to provide penalties for violation thereof. The bill appears to be modeled after the New York law pertaining to this same subject and makes specific requirements concerning the sanitary measures to be observed in all barber shops; providing also that barbers shall be licensed by a State board of examiners.

WESTERN STATES.

Chicago Board of Education.—The Chicago Board of Education has voted to establish medical inspection in all schools. Teachers are to report diseases and unsanitary conditions where the general health is menaced.

A Memorial Hospital to be Built.—It is stated that Harold F. McCormick has acquired, by purchase, a suitable tract in the city of Chicago, and will erect a new hospital to be known as the Memorial Hospital; \$500,000 will be expended on the construction of buildings in the near future.

Lectures on Problems of Scientific Medicine.—The Medical department of Western Reserve University, Cleveland, contemplates a series of advanced lectures on current problems of medical science. The object will be to take up a circumscribed topic, "Treating rather exhaustively and critically the special literature, the experimental and clinical data, the theories, current opinions, unsolved problems, and the general outlook of the subject." Each course will consist of eight monthly lectures, from October to May. The fee for each course is \$5; students of the department will be admitted free. Three courses will be offered during the coming session.

Good Work by Milk Inspectors in Chicago.—The Bulletin of the Chicago Health Department for the week ended April 9, says: During the week the laboratory analyzed 508 samples of milk and cream. Of these only 3.3% were found below grade. During this month the milk usually shows a larger percent below grade. The milk inspectors are directing their attention especially to the taking of shippers' samples and the examination of depots and dairies throughout the city. A complete list of all milk dealers and the condition of their dairies and wagons is being prepared. Those whose premises are found to be in an unsanitary condition will be given 15 days' notice to comply with the requirements of the department. At the end of that time, if the requirements have not been fulfilled, they will be denied a license when they apply on May 1.

Mortality of Michigan During March, 1904.—The total number of deaths returned to the Department of State for the month of March was 3,406, which was only 19 more than the number returned for the preceding month. The death rate for March was 16.0 per 1,000 population, as compared with 17.1 for the preceding month. Important causes of death were as follows: Tuberculosis of lungs, 227; other forms of tuberculosis, 43; typhoid fever, 57; diphtheria and croup, 38; scarlet fever, 31; measles, 27; whoopingcough, 21; pneumonia, 384; influenza, 156; cancer, 149; accidents and violence, 199. Deaths from pulmonary tuberculosis and typhoid fever showed some increase, while diphtheria and croup, pneumonia and influenza caused considerably fewer deaths in March than in February. By ages there were 527 deaths of infants under 1 year of age; 185 deaths of children aged 1 to 4 years, inclusive; and 1,159 deaths of elderly persons, 65 years and over. There were 3 deaths from smallpox—1 in Casnovia village, Muskegon county, 1 in Leonidas township, St. Joseph county, and 1 in Evert township, Osceola county.

CANADA.

Novel Method of Discouraging Drunkenness.—Habitual drunkards after conviction in Montreal, Quebec, are now given the option of paying a fine, undergoing imprisonment, or taking a certain cure. At present there are 22 under treatment, 10 at their homes and 12 at the jail. Each patient is expected to take 16 doses of the prescribed medicine each day, and is warned not to drink any intoxicating liquors during the time of trial.

FOREIGN NEWS AND NOTES

GENERAL.

Little Alcoholism in Italian Army.—Alcoholism is extremely rare in the Italian army. In the year 1901, the latest for which figures are available, only 25 cases were admitted into the hospitals.

Plague in South America.—Information April 13 says: The bubonic plague is spreading to an alarming extent along the west coast of South America. The State Department today received a cablegram from United States Minister Wilson at Santiago de Chili, saying that an extensive epidemic is raging at Antofagasta. This is one of the most important shipping ports on the west coast north of Valparaiso. The Public Health and Marine-Hospital Service will be advised so that suitable precautions may be taken at quarantine.

Control of Medicines.—Germany has passed strict laws to protect her people from the impositions of patent medicine manufacturers, but these have not effectively accomplished the object. Sweden, on the other hand, regulates the number of druggists, of which there are only 350 in the entire kingdom. In Stockholm there is only one druggist to each 15,000 inhabitants. The Swedish apothecary is a highly respected member of the community, being classed as professional men and acting in conjunction with local municipalities as public health officers. No medicine can be imported into Sweden except upon requisition of a druggist, and as it is considered unprofessional and improper to handle patent medicines their sale is practically, if not absolutely, debarred.

Disease in the West Indies.—Recent information from London states: At a meeting in London of the West India Committee, held recently, a paper on "The Disease Problem in the West Indies" was read by Sir Patrick Manson, who said that the list of West Indian diseases included all the diseases of Europe, with some two or three dozen tropical diseases. A hopeful feature about many of the diseases lay in the fact that they knew the cause of most of them, especially of those composing the tropical section; or, if they did not know their causes, they recognized the conditions under which those causes were applied. With regard to malaria, he said its parasite was passed from the sick to the sound by a special kind of mosquito, and said that if that mosquito were prevented from biting the sick, or if it did chance to bite the sick, from subsequently biting the sound, there would be no spread of the infection.

Children Suffocated in Bed.—Within the past 10 years over 15,000 infants in England have died from suffocation in bed from negligence on the part of the nurse or mother. In discussing this fact, *Il Politecnico*, of Rome, notes the comparative rarity of such occurrences in Italy, France, and the Teutonic lands. For a time, in Germany, the law prohibited mothers from sleeping with children of less than 2 years. Though this is no longer in effect there is a clause with penalty for contributory negligence. An English jurist has said: "Without doubt, there is an intimate relation between infant mortality and the frequency of drunkenness among women." The proof of suffocation can not as readily be adduced if the child be a weak one, or quite young. Evidence of a struggle, or of the results of convulsions, is possible in certain cases; nevertheless, the seriousness of the charge, with the uncertainty of facts, more often prevents legal interference.

Treatment of Sewage.—In a paper read before the Royal Institute of British Architects, Professor Clowes discusses the application of the biologic method of sewage treatment to the sewage of Christ's Hospital, at Horsham. The plant consists of closed septic tanks, into which the sewage flows by gravitation, from whence the effluent is distributed over the surface of coke beds, the liquid remaining in the bed for two hours and then passing away as the purified effluent through drainage channels in the bottom of the beds. No hitch whatever has occurred in the working of the plant, and on one occasion only has the smell been detected, the cause being stagnation during a lengthy vacation. Attention is called specially to this occurrence and to its cause, as it probably explains why similar installations for the treatment of sewage from isolated buildings have become offensive. The solid matter is absolutely disposed of in the septic tank; the number of bacteria in the effluent is 32% less than in the crude sewage, and the effluent will support fish life.

To Photograph Background of the Human Eye.—According to a German exchange, the assistant of the University Clinic of the Royal Charity Hospital, Dr. Walther Thorner, has succeeded in solving a problem which had received much attention from many others before him, but with little or no success. He has managed to photograph the background of the eye and obtain good pictures of it, too. His invention represents a material improvement on the ophthalmoscope invented by Helmholtz, in 1850. The latter, however, only admitted of viewing the background of the eye. The fact that all attempts to photograph the interior of the background of the eye had remained fruitless so far, was due to the peculiar construction of the eye. It is difficult to light up the interior to such an extent as to enable one to take a photograph of it, and even in the use of strong sources of light the exposure would require so much time that the eye would have to be fixed, which would mean great inconvenience to the patient. Now Dr. Thorner has constructed an apparatus with which he first succeeded in photographing the eyes of animals, especially cats.

Health of the British Navy.—The statistical report on the health of the British navy for 1902 has been issued, and is considered, on the whole, satisfactory. The total number of deaths was 590, as compared with 526 in 1901. The highest death-rate was on the Pacific Station, where it was as high as 67.42 per 1,000; not, however, from sickness, but owing to the loss with all hands of the Condor. The station, indeed, showed the lowest sick-rate of any. The highest sick-rate was on the East Indies Station, where it was 44.27 per 1,000. The irregular force with 43.03 ran it very close, however. The total number of cases of disease and injury entered on the sick list was 85,769, and the average number of men sick daily 3,523.39. Of the deaths, 350 were from disease and 240 from injury. Wounds and injuries were responsible for 16,383 cases, resulting in 225 deaths, and diseases of the digestive system were responsible for 13,614, resulting in 27 deaths. Only 2 wounds in action are recorded, with 1 death; only 1 case of plague, which terminated fatally; and 5 cases, 4 fatal, of cholera on the China Station. The total force serving afloat was 99,600, and the average loss of service from disease and injury represented 12 days for each person.

New Mosquito Disease.—According to Dr. Graham, of Beirut, another disease is to be set down against the mosquito, namely, dengue fever, variously called African fever, break-bone fever, giraffe fever, dandy fever, etc. The disease is an acute eruptive fever, rarely fatal, but leaving various disagreeable sequels—paralysis, insomnia, marked mental and physical prostration, etc. It occurs in hot climates and in the Southern States; during the last 50 years several serious epidemics have occurred. Dr. Graham found that he could regularly produce an attack of dengue in a nonimmune by submitting the latter to the attack of mosquitos which had fed on sufferers from the disease. In one experiment he carried dengue-infected mosquitos to a mountain town 3,000 feet in altitude, where there were no mosquitos and no dengue. One of the natives was shut up in the room with the mosquitos, and on the fourth day came down with a sharp attack of dengue, and a second presented the typical symptoms on the fifth day. The mosquitos were immediately destroyed, and no further cases occurred. Dr. Graham also claims to have discovered the germ which causes dengue in both human blood and the stomach of the mosquito. It resembles some forms of the malarial parasite.

Hygiene of the Japanese.—The *British Medical Journal* says that the Japanese themselves attribute their high average of physical strength to a plain and frugal diet, and the system of gymnastics called jiu-jitsu, which includes a knowledge of anatomy and of the external and internal uses of water. Although during the period of their ascendancy the Samurai kept the secret that their great physical superiority was due in a great measure to the internal and external use of water, the belief that if used liberally and intelligently water is an infallible weapon against disease is now generally held. By those who go in for jiu-jitsu an average of one gallon a day is drunk. It is noteworthy that rheumatism is almost unknown in Japan; it is probable that the absence of meat from the diet, combined with the use of plenty of water, accounts for this immunity.

Bathing is indulged in frequently, even by the poorest. In the matter of diet they are frugal to a degree, rice being the staple food in every Japanese house, and appearing at every meal. Japanese troops have often made record marches on a diet consisting solely of a little rice. The Japanese appreciate above all things the value of fresh air; night and day they keep their windows open and their rooms ventilated, and they do not fear draughts or damp air. Breathing exercises are an important part of their physical training—deep, careful breathing, which is only acquired by practice.

OBITUARIES.

Sir Henry Thompson, in London, April 19, aged 84. He was 79 years old when a baronetcy was conferred upon him by Queen Victoria. He was a surgeon and physician of fame, an artist who had 15 pictures in the Academy and the French salon, a novelist, the author of a most remarkable book on cooking, and in addition made more or less stir in several scientific branches of effort. He performed the operation upon Emperor Napoleon III, which resulted in the latter's death, and caused a bitter controversy. Sir Henry, however, boldly placed the blame for the death upon Sir William Gull, the Emperor's physician, who prescribed a fatal dose of chloral for the patient. The operation had been a success and results were all favorable. Napoleon objected to taking the chloral, but yielded to the persuasion of the Empress.

Lorenzo J. Kohnstamm, in New York City, April 12. Two years ago he had noticed symptoms of paresis, and without informing anyone he began a study of his case. When he had confirmed his suspicions he relinquished his practice, sold his art collection, and then, as the fight became hopeless, settled his affairs, and went to Bellevue Hospital, where he died of a general paralysis, ending in insanity. Dr. Kohnstamm was educated in this country and Europe, and was a member of the Medical Societies of Paris, Vienna, Brussels, and Berlin.

Samuel Smiles, surgeon, journalist, and man of affairs, in London, April 15. He was born at Haddington, Scotland, in 1812; was graduated from Edinburgh University, practised medicine for six years and then became a journalist and author. His writings have been extensive and popular. His "Self-Help," "Lives of Engineers," "Life of John Murray," "Character," "Duty," "Thrift," "Industrial Biography" and many others are well known and served to make the eminent Scotchman famous.

Clinton Joseph Schaaadt, of gastritis and nephritis, at the home of his parents in Egypt, Pa., April 4, aged 40; a graduate in the arts at Muhlenburg College in 1887, and of the University of Pennsylvania in 1890. For 11 years he was ship surgeon for a transatlantic steamship company, serving on the St. Paul, New York, and Paris.

Charles Gilbert Chaddock, at his winter home in Berkeley, Cal., April 1, aged 76; a graduate of the University of Michigan in 1885; member of the American Medical Association, of the St. Louis Medical Society; and professor of nervous and mental diseases in the Marion-Sims-Beaumont Medical College, St. Louis.

Narcissus Hereu Matas, at the home of his son Dr. Rudolph Matas, in New Orleans, April 13, 1904. Dr. Matas, the elder, was a native of Gerona, Catalonia, Spain, but came to the United States in 1856, after winning honors at several European universities. He resided for a number of years at Tucson, Ariz.

John Higgins, at his home in Crown Point, Ind., April 8; a graduate of the Indiana Medical College, at La Porte, Ind., in 1846. He served through the Civil war as surgeon in the Twelfth Illinois Cavalry and was afterward chief of the Army Hospital at Washington.

Dennis D. Loop, at his home in North East, Erie Co., Pa., April 2, from apoplexy, aged 76; a graduate of the University of Buffalo in 1884; one time president of the Erie County Medical Society and a member of the Medical Society of the State of Pennsylvania.

Louis A. Crist, at his home in Scranton, April 3, of pneumonia, aged 33; a graduate of the University of Pennsylvania in 1896; member of the Medical Society of the State of Pennsylvania and of the Lackawanna County Medical Society.

Philip Bissell, late house physician to the New York Hospital, in that institution, April 10, of pneumonia, aged 28; a graduate of Columbia University and of the College of Physicians and Surgeons.

Josiah C. Campbell, at his home in Attleboro, Mass., from pneumonia, March 24, aged 60; a graduate of Howard University, Washington, D. C., in 1877, and one time member of the Vermont Legislature.

George G. Griffin, at his home in Covington, Ga., April 4, aged 60; a graduate of Jefferson Medical College in 1859, and surgeon in the Confederate Army during the Civil war.

John Albert Gray, of Scottville, Mich., in Dallas, Texas, from pulmonary tuberculosis, April 3, aged 28; a graduate of the University of Michigan in 1902.

Floyd F. Hollister, of Weedsport, N. Y., at the home of his father in Mexico, N. Y., March 28; a graduate of Syracuse University Medical College in 1900.

Azariah Judson, of influenza and heart disease, at his home in Athens, Pa., March 3, aged 82; a graduate of the Berkshire Medical College in 1848.

Atticus G. Whitehead, at his home in Waynesboro, Ga., March 24, aged 63. He was twice president of the Medical Association of Georgia.

Henry G. Souder, at his home in Woodstown, N. J., April 1, aged 58; a graduate of Hahnemann Medical College, Philadelphia, in 1875.

Charles M. Garrison, at his home in St. Louis, March 26, aged 45; a graduate of the College of Physicians and Surgeons, N. Y., in 1884.

Francis Rush Skinner, at his home in Eau Claire, Wis., March 28, aged 72; a graduate of Castleton Medical College, Vermont, in 1854.

Edson S. Munger, at his home in Windsor, Vt., from pneumonia, March 29, aged 47; a graduate of the University of Vermont in 1882.

Franklin S. Douglass, at his home in Scranton, Pa., March 5, aged 50; a graduate of the Medical College of Georgia, Augusta, in 1883.

Watters Burrows, at his home in Elizabeth, N. J., April 2, aged 75; a graduate of the College of Physicians and Surgeons, N. Y.

William J. Gillespie, at his home in Philadelphia, Pa., March 14, aged 35; a graduate of the Jefferson Medical College in 1890.

William A. E. McKee, at his home in New York City, March 23; a graduate of the University of Maryland, Baltimore, in 1883.

John L. Gleason, Hannibal, Mo., in a hospital in St. Louis, March 30, aged 66; a graduate of Harvard Medical School in 1866.

Charles R. Sexton, at his home in Birmingham, Ala., April 2, aged 53; a graduate of Tulane University in 1875.

Rufus K. Hinton, at his home in Philadelphia, Pa., April 4, aged 74; a graduate of the Jefferson Medical College in 1852.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended April 15, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	Los Angeles.....Mar. 28-Apr. 2	2	
	San Francisco.....Mar. 28-Apr. 3	1	
Illinois:	Chicago.....Apr. 2-9	8	1
	Danville.....Apr. 2-9	4	
Iowa:	Des Moines.....Apr. 2-9	1	
Louisiana:	New Orleans.....Apr. 2-9	2	
One imported.			
Maryland:	Baltimore.....Apr. 2-9	1	
Michigan:	Grand Rapids.....Apr. 2-9	2	
Missouri:	St. Louis.....Apr. 2-9	11	
New Hampshire:	Manchester.....Apr. 2-9	1	
New Jersey:	Camden.....Apr. 2-9	2	
	Trenton.....Apr. 2-9	2	
New York:	Buffalo.....Apr. 2-9	2	
Ohio:	Cincinnati.....Apr. 1-8	3	
	Cleveland.....Apr. 1-8	3	
	Dayton.....Apr. 2-9	4	1
Pennsylvania:	Johnstown.....Apr. 2-9	1	
	Philadelphia.....Apr. 2-9	20	5
	Pittsburg.....Apr. 2-9	5	1
One imported.			
South Carolina:	Charleston.....Apr. 2-9	4	
Tennessee:	Nashville.....Apr. 2-9	2	
Wisconsin:	Milwaukee.....Apr. 2-9	2	

SMALLPOX—INSULAR.		Cases	Deaths
Philippine Islands:	Manila.....Feb. 13-20	1	

SMALLPOX—FOREIGN.		Cases	Deaths
Africa:	Cape Town.....Feb. 6-13	3	
Argentina:	Buenos Ayres.....Feb. 1-29	1	58
Austria:	Prague.....Mar. 12-19	1	
Brazil:	Rio de Janeiro.....Mar. 6-13	45	30
Canada:	Winnipeg.....Mar. 26-Apr. 2	4	
China:	Hongkong.....Feb. 21-28	2	
	Shanghai.....Feb. 27-Mar. 5	6	
Colombia:	Barranquilla.....Mar. 21-27	1	
France:	Paris.....Mar. 19-26	16	1
Great Britain:	Dundee.....Mar. 12-19	4	
	Edinburgh.....Mar. 19-26	5	2
	Glasgow.....Mar. 25-Apr. 1	18	2
	Leith.....Mar. 19-26	10	1
	London.....Mar. 19-26	54*	
	Manchester.....Mar. 19-26	12	
	Newcastle-on-Tyne.....Mar. 19-26	3	
	Nottingham.....Mar. 19-26	11	1
	South Shields.....Mar. 19-26	1	
India:	Karachi.....Mar. 6-13	14	3
Japan:	Nagasaki Ken.....To Mar. 8	27	
Mexico:	Vera Cruz.....Apr. 2-9	1	
Russia:	St. Petersburg.....Mar. 12-19	9	5

YELLOW FEVER.		Cases	Deaths
Brazil:	Rio de Janeiro.....Mar. 6-13	6	1
Ecuador:	Guayaquil.....Mar. 12-19	1	4
Mexico:	Vera Cruz.....Apr. 2-9	1	

CHOLERA.		Cases	Deaths
India:	Madras.....Mar. 5-11	2	
Turkey in Asia:	Basra.....Mar. 26-31	5	7

* Erroneously reported April 9, as 84.

PLAGUE.

Africa:	Cape Colony.....Mar. 5-12	6	3
	Transvaal, Johannesburg.....Mar. 20		8
Australia:	Sydney.....Mar. 10	1	
Brazil:	Rio de Janeiro.....Mar. 6-13	4	1
Egypt:	Port Said.....Mar. 18	1	
Formosa:	.....Feb. 29-Mar. 6	96	49
Mauritius:	.....Mar. 3-10	3	

Changes in the Medical Corps of the U. S. Army for the week ended April 16, 1904:

WALL, F. M., contract surgeon, is granted leave for one month, from about April 1.

BARRY, EDMUND, contract surgeon, is granted leave for one month.

SLATER, ERNEST F., contract surgeon, is granted leave for twenty days, from April 10.

MOSELEY, Lieutenant-Colonel EDWARD B., deputy surgeon-general, leave granted February 23, is extended three months and he is granted permission to go beyond sea.

POWELL, First Lieutenant WILLIAM A., assistant surgeon, is relieved from duty as surgeon on the transport *Thomas*, to take effect upon the next arrival of that transport at Manila, P. I., and will then report to the commanding general, Philippine division, for assignment to duty.

KINCAID, KENNETH G., sergeant first class, as soon as his services on transport *Summer*, New York Harbor, are no longer required aboard that vessel he will proceed to the Presidio for duty.

FORD, First Lieutenant CLYDE S., assistant surgeon, is granted leave for twenty days.

KUCH, HERMAN, sergeant first class, is relieved from duty in the office of the chief surgeon and assigned to duty in the office of the attending surgeon at headquarters department of California.

HOFF, Lieutenant-Colonel JOHN VAN R., deputy surgeon-general, the seven days' leave granted is extended twenty-three days.

Changes in the Medical Corps of the U. S. Navy for the week ended April 16, 1904:

PARKER, E. G., passed assistant surgeon detached from the *Adams* and ordered to the *Wheeling*—April 11.

ODELL, H. E., passed assistant surgeon, detached from the *Wheeling* and ordered to the *Adams*—April 11.

DEVRIES, J. C., acting assistant surgeon, resignation, accepted to take effect April 11, 1904—April 11.

GREEN, E. H., medical inspector, detached from duty as fleet surgeon of the Asiatic fleet and ordered home to await orders—April 12.

DRAKE, N. H., surgeon, detached from the *Maine* and ordered to the *Lancaster*—April 12.

KITE, I. W., surgeon, detached from the *Navy Yard*, Norfolk, and ordered to the *Maine*, April 24—April 12.

WOODWARD, J. S., assistant surgeon, detached from the *Naval Proving Grounds*, Indian Head, Md., and ordered to the *Brooklyn*—April 12.

GILL, J. E., assistant surgeon, detached from the *Naval Museum of Hygiene and Medical School*, Washington, D. C., and ordered to the *Kearsarge*—April 12.

LUMSDEN, G. P., surgeon, detached from the *Naval Recruiting Station*, Chicago, Ill., and ordered to the *Navy Yard*, Norfolk, Va.—April 13.

BIDDLE, C., surgeon, detached from the *Lancaster* and ordered to the *Asiatic Station*, via *Solace* for fleet surgeon on board the *flagship*—April 13.

KENNEDY, J. T., passed assistant surgeon, detached from the *Naval Academy* April 26, and ordered to Washington, D. C., April 28, for duty to accompany Marine detachment to the *Louisiana Purchase Exposition*, St. Louis, Mo.—April 13.

WISE, A. H., acting assistant surgeon, detached from the *Naval Hospital Naval Home*, Philadelphia, Pa., and ordered to the *Naval and Marine Rendezvous*, Chicago, Ill.—April 13.

MCCULLOUGH, F. E., passed assistant surgeon, ordered to the *Wisconsin*—April 13.

SMITH, C. G., assistant surgeon, detached from the *Newport* and ordered home to wait orders—April 14.

CAMPBELL, F. E., assistant surgeon, detached from the *Naval Museum of Hygiene and Medical School*, Washington, D. C., and ordered to the *Newport*—April 14.

Changes in the Public Health and Marine-Hospital Service for the week ended April 14, 1904:

GREENE, J. B., passed assistant surgeon, granted extension of leave of absence, on account of sickness, for sixty days from February 25—April 2, 1904.

WARREN, B. S., assistant surgeon, granted extension of leave of absence for one day—April 11, 1904.

WARD, W. K., assistant surgeon, granted extension of leave of absence for four days from April 7—April 8, 1904.

STILES, C. W., chief of division of zoology, detailed to attend meeting of Medical Association of Mississippi at Jackson, Miss., April 20-22—April 12, 1904.

GREGORY, G. A., acting assistant surgeon, granted leave of absence for three days from April 12—April 12, 1904.

JACKSON, J. M., acting assistant surgeon, granted leave of absence for five days from April 20—April 12, 1904.

RODMAN, J. C., acting assistant surgeon, granted six days' leave of absence from April 12—April 9, 1904.

Board Convened.

Board convened to meet at Stapleton, N. Y., April 18, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon Preston H. Balhache, chairman; Passed Assistant Surgeon A. C. Smith, Recorder.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

A NEW GRAPHIC TEMPERATURE CHART.¹

BY
ROGER S. MORRIS, A.B., M.D.,
of Ann Arbor, Mich.

Instructor in Medicine at the University of Michigan, Ann Arbor.

There are many cases, in private practice as well as in hospital work, in which it is necessary to make frequent observations of the temperature, and of the various ways of recording it, the graphic method is by far the most convenient and time-saving for the physician.

Numerous charts for the graphic representation of the temperature have been brought forward, and it may seem superfluous to make additions to the long list. Still, there are few things which cannot be improved, and I was struck by certain advantages in a chart, used in the Baracken für Infektionskrankheiten at the Charité, Berlin, which served as the basis upon which the present chart was modeled. As may be seen from the accompanying figure, the chart may be used to represent not only the temperature curve, but also those of the respiration and the pulse, a thing which can be readily accomplished by the use of different colored inks or by various lines,

is also made at the top of the chart for tabulating the quantity of urine and the number of stools passed during each 12-hour period, while immediately above these spaces the date and the day of the disease are to be placed. Each chart is good for 10 days. Ample space has been reserved for the name of the patient, diagnosis, treatment, etc., while beneath the pulse and respiration record a considerable margin has been left for notes. The latter feature may appear unnecessary for hospital cases, but in private practice in which it is not possible to keep such complete records, any important clinical data may here be conveniently noted by the nurse in charge. The chart measures 11x17 inches.

CAUSE OF INCREASE IN PNEUMONIA.

BY
J. N. HURTY, M.D.,
of Indianapolis, Ind.

To the Editor of American Medicine:—A study of the Indiana mortality statistics and the morbidity and weather reports, furnishes data which seem to give some light upon the cause of the recent marked increase in the pneumonia deathrate.

Comparing the periods made up of November and December 1900 and January and February 1901 as the first period, and November and December 1903 and January and February 1904 as the second period, I find that in the first there were 1,720 deaths ;

Admission No. _____ Name _____ Age _____			Diagnosis:		Treatment:		Termination of Disease:	
Admitted _____ 10 _____ Address _____								
Date _____ Day of Dis. _____								
Urine _____								
Stools _____								
Pulse _____ Resp. _____ Temp. _____								
210 _____ 107 _____								
195 _____ 70 _____ 106 _____								
180 _____ 10 _____								
165 _____ 80 _____ 104 _____								
150 _____ 103 _____								
135 _____ 50 _____ 102 _____								
120 _____ 101 _____								
105 _____ 40 _____ 100 _____								
90 _____ 99 _____								
75 _____ 30 _____ 98 _____								
60 _____ 97 _____								
45 _____ 20 _____ 96 _____								
20 _____ 95 _____								
Pulse _____								
Respiration _____								

such as broken, continuous, light, heavy, etc. Spaces are provided for recording 12 observations in the 24 hours, though it matters not whether more or fewer observations are made. The day hours (from 6 a.m. to 6 p.m.) are in white, the night hours in color (pale pink or light green). This fact possesses the great advantage that it permits the physician to see at a glance the exact relations of the fever curve to the time of day. In a remittent fever, for example, one sees at once whether the maximal temperature occurs during the day hours or during the night, and further, whether early or late in the day or night hours, as the case may be. In those cases in which it is not desired to make a graphic representation of pulse and respiration—and this, probably, is the rule, spaces are left at the bottom of the chart where the figures may be filled in. Provision

the weather was not severe, measles, influenza and "colds" were very prevalent and natural gas with no smoke was the almost universal fuel. The mild weather, and the use of soft coal, as suggested by Dr. Lindsley of Connecticut, were not the cause of the increase in pneumonia which appeared in the period named. In the second period, there were 1,784 pneumonia deaths, only 64 more than in the first, and the weather was very severe, soft coal was the universal fuel, and measles, influenza and colds very prevalent. It appears, therefore, that in the two periods separated by three years, they were closely alike in number of pneumonia deaths, also in the fact of prevalence of measles, influenza and "colds," but unlike in regard to weather and soft coal smoke. Further, it appears from an examination of the death certificates of the two named periods, that an unusual proportion of pneumonia deaths among children

¹ The chart is published by George Wahr, Ann Arbor, Mich.

occurred. For instance, in February 1904, of the 711 pneumonia deaths, 268 or 36.2% were under five years, and in February 1901 there were 608 pneumonia deaths, with 237 or 39% under five years. Such a coincidence under the circumstances is certainly noteworthy. In the two intervening Februaries, namely, of 1902 and 1903, we note fewer pneumonia deaths with blustering cold weather, plenty of coal smoke, but not a remarkable presence of measles, influenza and "colds" and a lower pneumonia deathrate among the children. So far as Indiana is concerned it would seem that the increase in pneumonia was due to the greater susceptibility caused by measles, influenza and "colds."

SOME ABNORMAL POSITIONS OF THE APPENDIX.

BY
ANDREW B. GLONINGER, M.D.,
of Lebanon, Pa.
Surgeon-in-Charge, Lebanon Sanatorium.

In February, 1904, I operated in two cases of appendicitis, in which I found the appendix in the hypochondrium. Both cases seemed to be unusual enough to report.

CASE I.—P. U., aged 6, was brought to the sanatorium by Dr. Strohm, of Fredericksburg, during an acute attack of appendicitis. We could obtain no history of a previous attack, but he had the appearance of chronic ill health. He was operated on a few hours after admission. After making the usual two-inch McBurney incision I found a walled-off cavity under my fingers, where I expected, of course, to find the appendix, but careful search failed to find it within reach. So I lengthened the incision upward, and following the cecum to its head, which was drawn up under the liver, I found the appendix imbedded in the posterior wall of the hypochondrium. I managed to free it intact, and amputate it in the usual manner, inverting the stump after the method of Dawbarn. The bed of the appendix was now a deep, ragged wound in the wall; I cauterized it thoroughly with carbolic acid, sutured the edges of peritoneum over it with fine catgut. I flushed the cavity with hot salt solution, and closed the incision with tier sutures of catgut, following the practice of Thierry in using metal clamps for the skin suture. The patient made an uneventful recovery and left the sanatorium in two weeks.

CASE II.—Miss S., aged 18, had her first attack two years before, when she was taken to the hospital for operation. The surgeon who made the section failed to locate the appendix and concluded that it had been absorbed, and left the family under the impression that he had removed it. For two years the patient suffered repeated attacks, growing more frequent and severe; these were considered by the family physician, Dr. John Light, of Cornwall, Pa., to be largely hysteric, until he learned the true history of the first operation and brought her to the sanatorium for an exploratory section. When admitted she was in a weakened nervous condition following an attack, and was operated on two days later. I made the incision in the median line to avoid the extensive cicatrix left by the first section in the right iliac. I found the conditions the same as in Case I, only the adhesions were more dense, and general, owing to the repeated attacks of inflammation. I had to lengthen my incision in order to reach the appendix easily, as it was adherent to the lateral wall on a level with the border of the liver. The patient is now convalescing rapidly.

CASE III.—An engineer, aged 40, inguinal hernia, strangulated while stepping from the car of locomotive; was admitted to the sanatorium at midnight and operated on at once, as he was suffering intense pain, even under the influence of mor-

phin. The hernial sac contained the appendix. The head of the cecum and 10 in. or 12 in. of small intestine were all highly inflamed. I amputated the appendix and opened the ring and returned the bowel, then closed the ring with mattress sutures of catgut reinforced with a figure of eight silkwormgut suture through the center of the ring, and all the walls, then leaving the sac intact, I sutured what muscle I could find and the internal fascia over it and after tying the one deep suture I closed the remainder of the skin incision with metal clamps.

I would like the opinion of the profession as to the cause of the condition in the first two cases. The patients were both the children of Pennsylvania farmers and as the custom is, were put to work at an incredibly early age, and at tasks far beyond their strength, and fed on fried ham, snitz pies, coffee, etc.; the 6-year old boy had been doing almost a man's work in taking care of stock. My idea that the constant straining of heavy lifting on undeveloped muscles falling chiefly on the muscles of the right side of the trunk, would gradually draw the head of the cecum upward and the intestinal irritability due to the diet would predispose to adhesive inflammation. These cases should also teach a few lessons to the young operator. For instance, after carefully finding his bearings and making the approved incision after the manner of McBurney he must not be discouraged if he does not find the appendix ready at hand as it should be. Also that less traumatism is done by the surgeon who, when he finds he has a difficult case opens the abdomen freely and gives himself plenty of room to work. Also Case II shows that we can not always bury our mistakes, or even our insincerities.

ORIGINAL METHOD FOR OBTAINING METRIC QUANTITIES.

BY
MATTHEW NEIL, M.D.,
of Honolulu, H. T.

Sergeant, Hospital Corps, United States Army.

To the Editor of American Medicine:—Perhaps the following will be of interest to some of your readers. It represents my original method for finding metric quantities when any number of liters or fractional parts of a liter be given in proportion of 1-? thousands.

Rule.—Divide the number of liters or decimal parts of the liter by the number representing the thousands.

EXAMPLES.

I.—3	liters of a 1-16,000	solution.	
3	÷ 16	=	.1875
II.—1½	liters of a 1-15,000	solution.	
1.5	÷ 15	=	.1
III.—360 cc. of	a 1-4,000	solution.	
.36	÷ 4	=	.09
IV.—750 cc. of	a 1-6,000	solution.	
.75	÷ 6	=	.125

If the work be done decimally the quotient will show the exact quantities expressed in grams or decimal parts, deci, centi or milli.

Should any other number of parts per thousands be required, multiply the quotient by that number.

PARTURITION DATES FOR THE LEAP YEAR, 1904.

BY
HENRY RICHTER,
of New York City.

First day of last menstruation.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
January																															
June																															
August																															
October																															
November																															
February																															
September																															
March																															
April																															
July																															
December																															
May																															

EXAMPLES:—First day of last menstruation, January 1; medium parturition (280 days), October 7 (not November 7).
First day of last menstruation, May 31; medium parturition (280 days), March 6 (not February 6).

ORIGINAL ARTICLES

THE RATIONAL TREATMENT OF MALIGNANT TUMORS.

BY

HOMER WAKEFIELD, M.D.,
of New York City.

The medical profession is at present confronted by a peculiar predicament. Great discoveries of science of astounding therapeutic value have been unfolded with such bewildering rapidity during the last decade, that we have failed to keep abreast with them in analyzing the nature of their true therapeutic actions, or in grasping the fundamental laws upon which must be founded a sound basis for their successful application. Results have been obtained in individual cases and in a group of diseases, largely taken from the supposedly incurable list, that proclaim remarkable therapeutic potency for physical agents of which we have heretofore been largely in ignorance. Able men have done much to elucidate the value of the several forms of radial activities, the technic of their administrations, and many other points of value tending to a general development of the subject.

Much research, also, has been devoted to the exposition of certain theories of pathogenesis, and I feel convinced that many have been led astray by misconceptions of the relation of microorganisms to disease, and of the effects of these therapeutic agents upon such organisms. Others again, have been misled by theories of disease, accepted more out of respect to their distinguished progenitors than to the intrinsic merit of the theory, *per se*. Thus we have for our consideration an enormous literature of clinical and experimental reports, presenting a multitude of diverse and conflicting theories of every phase of the subject.

The medical press is fairly teeming with articles and reports of the administration of röntgen ray, radium, and Finsen light treatment of malignant growths, together with results varying from the most humiliating failures to the most gratifying successes: Such uncertain results as would suggest the "shot-gun" prescriptions of primitive medicine. Malignant cases differ to some extent in their etiologic factors, vary somewhat in their pathology, and demand an intelligently adapted treatment, based upon a sound etiology and pathology. This is where the present treatments are weak and uncertain. They are almost entirely empiric, *i. e.*, they are applied too blindly, with too little regard to any definite idea of their causation or of the nature of the conditions presented. It is too much of a "catch as catch can" conflict, and the diverse results are not creditable to our profession, in this enlightened era. The treatments are as imperfect as they are new; and in empiricism they are unsurpassed by any other known to us. I believe the imperfections of those therapeutic agents are not due to their impotency or inconstancy, but entirely to the lack of proper adaptation and to general irrational therapeutics.

If physicians will examine their patients thoroughly for evidences of *katabolic stasis* and its causative factors in cases of malignant growth, as I have enumerated them in *American Medicine* a year ago,^{12b} and adapt the treatment to the eradication of these expressions of subkatabolism, I am convinced that they will reduce the therapy to a definite scientific basis. These etiologic factors may be always observed in the case history. The morphologic and other evidences of subkatabolism will always be found present, when an effort is made to bring them to light, and moreover the skilful administration of the therapeutic agents already at our disposal will be found entirely adequate to meet the indications.

It is not to be inferred that the extra deep neoplasms which cannot be reached by radiointensifying agents, can be treated as successfully as the more superficial ones, but the ununiform results now obtained in similar

types, may be made uniform and to bear relation to the general medical knowledge, resources and skill of the therapist.

Another "short-coming" of cancer therapeutists, is that unlike the up-to-date practitioner of general medicine, too many of them are *faddists*. One man's fad is the röntgen rays; another's, radium; another's, cataphoresis; another's, high-frequency currents; another's, the knife; and so on; but few of them base their treatments on any definite idea of what cancer is, or what they are accomplishing by their "pet measures," and but few attempt to do anything for their patients, outside of the particular treatment upon which they specialize.

In my efforts to institute a reform in the plan of treatment among the New York profession, my greatest "bugbear" has been the difficulty in impressing the importance of breaking away from the empiric plan, and in treating cancer on the general plan usual in other diseases.

One trouble, and a cause of the present difficulties, is the fact that men interested in cancer are now specialized in diverse lines as gynecologists, surgeons, electrotherapeutists, dermatologists, and perhaps occasionally general practitioners who have procured tubes of radium, static machines, or coil apparatuses. Many have rushed headlong into these lines upon the strength of evidence of occasional success in the hands of others—many of these men are optimistic one day and pessimistic the next.

Symposiums and discussions on the subject given before our medical societies, are remarkable for their diversity of theory, practice, and results obtained.

With a view of facilitating the analysis of the etiology of neoplastic diseases and of simultaneously illustrating the essential subkatabolic elements underlying the divers modes of origin and of developmental stages of the case histories, I beg to direct attention to correlations of the several recognized antecedent diseases, their nature and relations to katabolic stasis and the resultant malignant states. Neoplasms not infrequently occur as sequels of anemia, chlorosis, leukemia, pseudo-leukemia, rheumatism, gout, scrofula, syphilis, leprosy, malaria, tuberculosis, diabetes, gastrointestinal, cardiac, renal, and other organic, and so-called diathetic diseases, which as precursors, produce or result from suboxidation, as it may be induced in individual cases by suboxygenation or by hyperacidity or oxidase deficiency. Suboxygenation produced by the incidental destruction of red cells and hemoglobin during the progress of any of these diathetic diseases, is identical with that caused by hemorrhages, which by diminished volume of the whole blood, acts the same. For example, respiratory diseases of long duration, as chronic bronchitis, emphysema, pulmonary tuberculosis, bronchiectasis, asthma, pneumothorax, etc., are thus singly and in combination causative factors of suboxygenation. Various occlusions of the nasal, postnasal and pharyngeal spaces, by chronic swellings, tumefactions, etc., are not unimportant. Suboxygenation from any one or more of the foregoing factors should be significant etiologically, and moreover their identification suggests *per se* the nature of the therapy demanded. Vitiating atmospheres also must be remedied as they occur.

There are, however, other compromisers of oxygenation, both as primary causes and as secondary complications. Among the former may be mentioned the hypercombustion of food, beverage and drug products, in the liver, which by consumption of an excess of available oxygen deprives the tissues. The ingestion of various alcoholic liquors as beverages, highly concentrated and oxidizable carbohydrates as foods; and lead, arsenic, antimony, mercury, copper and phosphorus (in sufficient doses) as drugs, may be easily demonstrated by any practitioner, as suboxidizers, by their actions as counter-oxidants of high degree. Another instance of perverted oxidation is that of intestinal putrefactions, fatty, acid

and other suboxidated products, which by their super-oxidation, cause tissue suboxidation. These conditions are amply exemplified by the high temperature on the one hand and the tissue suboxidation on the other. Such vicious cycles, in prolonged high fevers, are actually demonstrated by the fatty degeneration of suboxidated tissues, the circulating products of which are carried to glandular structures where they supply the fuel for the continuation of the perverted hyperoxidation.

Another important source of suboxygenation, which must not be neglected in the search for etiologic factors, is in the circulation of the blood. The insufficiencies of the heart first attract attention. Orificial stenoses, valvular deficiencies and muscular incompetencies, from all causes, owing to a diminished blood output, are important factors of suboxygenation. Next in order should be considered the vascular system, for diminished arterial caliber (congenital and from arteritis), arterial and capillary occlusions from tetanic contractions of their muscular coats from autotoxemias, from thrombi and emboli (solid and colloid) and arteriocapillary fibrosis and arteriosclerosis. Atheroma, gelatiniform vascular dilation, pressure by various bodies and the congestions of traumatisms, abnormal distribution of the blood, as in the splanchnic engorgements of venous stases, and as caused by fright, shock, cold, etc., which may become chronic conditions when not treated or when improperly treated. The examination of the vascular system, of course, must include a careful inspection of the several blood glands of the body, as the liver, kidneys, spleen, adrenals, pancreas, thyroid, thymus, pituitary body, lymphatics, etc., by means of physical signs and of the several manifestations, by which their pathology is identified. When all of these possible factors of suboxygenation are thoroughly covered, the physician may proceed to examine into the causative factors of *suboxidation*. After the exclusion of the foregoing factors, a most careful examination must be made for those that are to follow. And even if one or more of these are convicted of complicity we are not justified in excluding the following of coexisting; so a successful therapy demands that the rigid examination proceed.

During the critical periods in the life of woman, namely, puberty, menstruation, pregnancy, parturition, the puerperium, lactation and the climacteric, she will manifest an exacerbation of any existing subkatabolic diseases, and this will be especially pronounced when due largely to *oxidase* defects. In this relation, the diseases of the large glands and lymphatics, the time relation of the occurrence of malignant growths in women, especially when of the uterus, vagina, ovaries or breasts, to sexual obsolescence, and particularly in women who have undergone many pregnancies in more or less rapid succession, and have suffered impaired general health as a direct result, are foremost. Anyone who may question the intimate relation of these periods with subkatabolism in general, will do well to observe and consider their other suboxidative manifestations, for they all may be identified as identical with those of recognized hyperacidity, suboxygenation or suboxidation, occurring otherwise. The subkatabolism of puberty and adolescence is occasionally also manifested by adiposity, obesity, joint pains, insanity, etc.; that of pregnancy by anemia, leukemia, chlorosis, chorea, epilepsy, insanity, malaria, albuminuria, goiter, eclampsia, rheumatism, pulmonary tuberculosis, multiple neuritis, neuralgia, osteomalacia, uremia, gingivitis, icterus, varices, cardiac diseases, hemorrhages, paralysis, cutaneous disease, leukorrhea, etc.; the puerperal period by malaria, insanity, albuminuria, eclampsia, multiple neuritis, etc.; that of lactation by progressive pernicious anemia, leukemia, osteomalacia, etc.; that of the menopause by arthritis deformans, insanity, anemia, menorrhagia, visceral congestion, hemorrhoids, scrofulosis, cancer, chlorosis, gout, chronic rheumatism, neuralgias, nervous

debility, obesity, paraplegia, hysteric or epileptoid manifestations, etc.

Many diseases and conditions which are *secondary* to others mentioned, may be present, though not herein enumerated; for example the typical features of anemia, etc. The observed relations noted, occur in various relations as both resulting and complicating. In the latter cases exacerbations are observed to occur during these critical periods. A condition that is common to both of these states, though of varying intensity, is a general gelatiniform depravity of the tissues, not infrequently resulting in an individual or general organoptosis, affecting one or more of the abdominal or thoracic organs, as individually influenced by local causes, as strain, fatigue, etc.

Local causes of malignant tumors, however important and essential to the determination to a particular site, must be dependent upon a general subkatabolism (the constitutional condition) to perpetuate and insure the characters of malignancy.

There are several causes of general subkatabolism, other than those of the critical periods of life, for instance, those enumerated, which produce both suboxygenation and suboxidation, and which operate and cooperate with each other in both sexes; they are sexual excesses and vices which by oxidase exhaustions diminish oxidation. Worry and anxiety cause indigestion, insomnia, "nervous debility" and secondarily arteriosclerosis, arthritis deformans, cardiac lesions and degenerations, insanity, diabetes, exophthalmic goiter, gout and degenerative (subkatabolic) changes of the blood elements. Great and sudden grief, intense emotion, distressing disappointments, sudden chill and fright, like trauma, often partake of the elements of shock, which amounts to the addition of another factor of suboxidation. Fatigue is a factor of subkatabolism, hence also of cancer; its effects are especially prominent when observed in complication with other factors as in chorea, hysteria, neurasthenia, mountain sickness, cold, etc. The effect of strain is exemplified in the relaxation of the abdominal walls, in the etiology of hernia, the determination of gouty and neoplastic processes to places of strain, as the articulations of the great toe, etc.

Mental and physical overwork and loss of sleep exhibit an accumulation of fatigue products (sarcolactic acid) in excess of the oxidative processes of recuperation, thus producing suboxidation by hyperacidity.

Traumatism bears an intimate etiologic relation to a great number of diseases involving subkatabolism, including appendicitis, arthritis deformans, diabetes, epistaxis, gout, hematuria, nephritis, hysteria, leukemia, scleroderma, shock, tuberculosis, susceptibility to infection, lymphangitis, insanity, cancer and sarcoma. Pressure will readily be recognized as an inhibitor of oxidation, by its occlusion by collapse of the vascular canals. All surgical pathologists recognize pressure as a cause of degeneration of the involved tissues. Irritation has long been recognized as one of the most prolific local causes of malignant tumors as well as of many lesser subkatabolisms. It may be broadly stated that all rudimentary protoplasm and cell life, in general, attains adulthood in direct ratio to its immunity or protection from irritation; and conversely, by irritation, adult tissues of however high organization may be reduced to a homogeneous colloid mass.

Let us take as an illustrative analogy, such naked unicellular organisms as the ameba and the marine rhizopods. These are the closest analogs of the leukocytes, and being unprotected by an investing membrane, they are continually in the gelatiniform state. When normally oxygenated they are relaxed and exhibit extended pseudopods. While in this state they present the normal attribute of nutritive phagocytosis, exhibiting selective faculties for food. When a pseudopod comes in contact with a food particle, the contact stimulus causes an increase in the protoplasm of the pseudopod to occur,

until the food particle is, if possible, surrounded or englobed by the jelly-like protoplasm.

Conversely, instead of that of a food particle, the contact may be an irritative one, or the contact effect may be a shock in place of a stimulus, and instead of a "streaming" of the protoplasm, as described, we observe a contraction or withdrawing of the pseudopod and the attainment of a spheric formation. Precisely the same effect may be attained by an environment free from oxygen, and moreover the restoration of relaxation and the reextension of the pseudopod may be obtained simply by the readmission of oxygen to the environmental atmosphere. The irritation effects mentioned may be produced by either mechanical or chemie irritants, by changing the medium from an alkaline, or neutral, to an acid reaction, by pressure, by contusion, shock or concussion, or a series of concussions, by stimulation to the point of fatigue, excessive light, heat and cold, electric shocks, poisons, etc.; anesthesia and narcosis cause irritation, secondarily, by suboxidation and the accumulated hyperacidity. According to the amount of any of these agencies affecting such cells, the protoplasm, as stated, undergoes contraction, and then, by water absorption, it becomes of a continually more fluid character; the protoplasm first delivers up its cell inclusions and finally the cytoplasm flows away from the nucleus. First disorganization, then disintegration intervenes. The nucleus lastly undergoes disintegration as a final step in the destruction of the cell.

Now to revert to the animal tissue cell, we find all the foregoing actions are produced by the same agencies. Moreover, we are permitted to study the effects upon a larger scale, for instead of unicellular organisms we observe the effects upon large areas of cellular tissues. The phagocytic functions of leukocytes are strikingly similar to the life habits of such unicellular organisms as I have alluded to.

Let us now consider the effects of these several cellular retarders and destroyers upon the economy as a whole. It matters little, except in time relation, which of these several agencies we use in our experiments; though duration, intensity and quantity are important factors, the manner of their production is not important, except in so far as they involve complicating factors, which vary or modify the results obtained. Whichever of these methods we adopt, we observe either locally or generally the same process of cellular liquefaction (gelatification) and finally disintegration, which characterizes the effect upon the unicellular organism; with the exception of the putrefaction of the liquefied protoplasm after necrosis in the unicellular organisms, which has not to my knowledge been studied. Next, to arrive at the essential nature of the common causative action, we are enlightened by the observation that analogous to the effect on the unicellular organism, namely the contraction of the protoplasm and withdrawal of the pseudopods, the first stage noted in vertebrate animals is a diminution of the C_2O output, diminution of urea, of phosphates, etc., and more or less leukocytosis, generally, and a hyperplasia or hypertrophy (locally) in spite of a more or less imperfect new cell formation (mitosis). The second stage (varying with the several elements) exhibits the retrograde process as the cells disintegrate by either liquefaction or putrefaction, which are so closely allied, the latter a partial or general necrotic change. With the attainment of this stage we observe an increase of urea, uric acid, phosphates, etc., and lastly a fall in the leukocyte index below normal, thus indicating their destruction in contrast to their earlier superannuation.

It is significant that all these factors are equally active and produce the same results on both unicellular organisms, and on the complex vertebrate, and all are the typical results of suboxidation in both instances. Thirdly, we may trace the pathologic effect of the several diseases of known origin, of any of these named agen-

cies, and the characteristic effects will be noted, conforming to the foregoing observations. Fourthly, it is observed that the restoration to the normal in all of these pathologic conditions is accomplished by, and only by, their logical counteraction as suboxidative processes. Lastly, now let us trace a curve of a true case of a developing subkatabolism and its "cure:"

A young married woman suffered a prolonged local irritation from a sharp fragment of a lower tooth, which produced a local ulcer, without tumefaction. Finally, she became pregnant, and as the pregnancy progressed, the ulcer became painful; then followed a tingling sensation, numbness, and finally anesthesia, which extended over the whole inferior maxilla. The local tumefaction extended it into a hard sarcoma, which doubled the size of the entire lower jaw. During this period the tumefied parts felt cold and lifeless, and the balance of the face almost feverish in contrast. After the parturition, the lactation was aborted, and the tumor was put under röntgen ray treatment. After the second treatment, the cold anesthetic parts changed to supernormal warmth, and sensation was restored. This was continued until the tumefaction gradually became reduced to nil, and the tissues resumed the normal appearance and action.

Other cases require other restorations of defective factors of oxygenation and oxidation, as alluded to elsewhere in this paper. Yet they all bear relation to the same etiologic processes.

All observers recognize diminution of body heat as an invariable indication of a failure of metabolic oxidation. Moreover, all recognize the main factors of sub-oxygenation, namely, deficient respiration, cardiac and vascular deficiencies, and impoverishment of the blood as causative factors; in fact, from such deductions there is no escape or alternative. From this point forward, however, there is an unfortunate diversity of conclusion between chemie physiologists and clinical pathologists, in the interpretation of experimental findings, many of which are absolutely incompatible with those of other men, in the same and in other lines of investigation.

It is observed that in my own researches I have taken as a basis fundamental facts that are generally accepted, enumerated before, and have drawn deductions from subsequent observations that are entirely compatible with all accredited facts, chemie, physiologic and pathologic, and moreover, also, biologic. In the same manner that the chemie analyst uses chemie reactions, the physiologist uses physiologic signs, and the bacteriologists use staining, toxic, and other reactions as indicators. I have based my conclusions largely upon comparative pathologic tissue changes, safeguarding them by building my hypothetic fabric according to the accepted laws of chemistry, physiology, pathology, and biology. I have, for example, found strong pathologic evidence to prove in some instances in which chemists are, by analysis of carbonic acid and other eliminations, unable to demonstrate tissue suboxidation, that normal and supernormal oxidations take place within the glandular system, the latter depriving the tissues of available oxygen, even though the average body combustion with its typical products is not diminished. I have found just as typical and constant pathologic results from the effects of acidity, subalkalinity, suboxidation, and from hyperoxidation, as are otherwise exhibited by chemie, biologic, or physiologic experiments. Moreover, my deductions also harmonize with the most approved of our conceptions of disease and their most successful therapy.

It may be mentioned that, for example, there are many adequate parasitocides that are not oxidants, which are impotent as cancer cures, yet oxidants are potent in ratio to their oxidation capacity. Thus, from our therapy, we find additional evidence regarding the nature of the malignant process.

Notwithstanding that pathologists quite universally identify disease processes by tissue changes, they quite as commonly look to physiologists for the study and interpretation of the nature of the processes, both from the chemie and physiologic-pathologic standpoint, and it is

a fact that physiologists quite universally perform their experiments upon, and compute their calculations from, observations of the lower animals, quite independent of the clinical pathology of the human subject. Thus diversities in deductions occur which are quite incompatible one with another. It is not my purpose to deprecate the great work that has been done and is now in progress, by research specialists, but to point out and emphasize the value of a more perfect amalgamation of these several lines of investigation, and to make a plea for the more general recognition of the value of clinical pathology in connection with the chemic physiology, chemic biology, and chemic pathology. Strictly speaking, clinical pathology should always include the foregoing branches, practically applied and adapted to the etiology, symptomatology, pathology, pathologic anatomy, and therapy of pathogenic processes.

It is my endeavor to direct the attention of the profession to the value of recognizing the significance of certain changes and unvarying indicators of definite metabolic states, as caused by certain definite chemic agencies.

In order to have a clear understanding of katabolism, it is essential that we have an equally good grasp of the physics and chemistry of oxidation; and to this end I will submit a few pertinent facts:

The metamorphosis which we term oxidation is characterized by different chemic changes, as it occurs with different substances and combinations, but in all instances one action is a common factor, namely, the combination with oxygen.

Now oxygen does not have a stable existence in the same form in which it combines, hence we say it has 2 allotropic forms, one the form in which it has existence in the free state, or ordinary oxygen, and the other, that in which it undergoes combination, active oxygen, or ozone, from which it always deteriorates into ordinary oxygen.

Ozone is much more radioactive than ordinary oxygen, and possesses a correspondingly greater density, which is half again as much as that of oxygen, and a molecular weight which is 3 times that of ordinary oxygen. Thus 3 atoms of ozone occupy the space of two of oxygen.

As oxygen combines only in the form of ozone, oxidation resolves itself as dependent upon measures which render oxygen active, or into ozone. Different substances oxidize at different degrees of heat, or at the point at which they are able to impart to oxygen the necessary radioactivity. Thus we may say that heat will bring about the oxidation of almost anything, if sufficient in quantity.

In the human and other warm-blooded animal bodies, we observe oxidation of substances at temperatures far below the points at which these substances ordinarily oxidize, hence we must conclude that other agencies beside heat must have to do with the transition of oxygen into ozone. Now if we search outside of the animal kingdom, we observe the same thing taking place, and the solution of its causation is simple enough. We observe that certain substances, as turpentine, and other essential oils; phosphorus (when prevented from burning), etc., will slowly oxidize and emit phosphorescence, and moreover, contiguous oxygen not combined, will be rendered active or transformed into ozone. Also, it is observed that certain chemicals (halogens), which by a great affinity for substances combined with oxygen, as hydrogen, set oxygen free which is then, as it was when combined—active; hence we identify nascent and active oxygen or ozone as indicating the same substance. All oxygen is active when first liberated.

Other activities cause oxidation to take place, and hence produce the necessary activity of oxygen, such as the so-called chemic rays of light, of the spectrum, from the blue to the ultraviolet, and including the post-refrangible rays, electric arcs, sparks and lightning, high-frequency currents, and the radioactive metals.

In the muscles of vertebrate animals is observed a most interesting application of this phase of the subject, in which oxidation is definitely connected with muscular cell activity and is correspondingly lowered by sedentation, etc. We have long made use of this knowledge in medicine, by enhancing oxidation by means of exercises and topical stimulation, as by massage, faradic and ordinary galvanic electricity.

We, however, have another means of augmenting oxidation, at normal body heat, and that is by the thickly studded nuclei of the cells of the several glandular structures, especially the essentially blood-glands, the acting nucleins, and the function being known by the name of oxidasis. In the activity of this function, phosphorus plays a part as an essential constituent of the nucleins, yet that does not prove that there is in this case an allotropic change incident to it, as occurs in pure yellow phosphorus, but rather the requisite radioactivity.

It is observed that oxidation, independent of the body, is dependent upon the presence of several factors, namely, the substance to be oxidized, the oxygen to oxidize it, and the oxidase, *i. e.*, the source of the radiointensification, which must be supplied by the combining substance or by a contiguous substance.

In the therapy of suboxidation in the human subject, my plea is for an intelligent administration of a supply of one or other of the factors of oxidation, as indicated, be they the necessary oxygen, the essential alkaline medium for oxidation, the restored normal oxidase elements (phosphorus) or an artificial radiointensifier, as may be imparted by ultraviolet light, röntgen rays, becquerel rays (radium, etc.), and high-frequency currents of electricity.

In shock and allied conditions there is a good illustration of suboxidation as caused by a sudden and extreme determination of the blood to the splanchnic vessels, thus largely vacating the peripheral vessels, especially of the muscles. And in sedentation and enforced immobility, types of a more graded, but possibly just as pronounced or even greater degrees of peripheral anemia with all its subkatabolic effects displayed on the whole body, or any part rendered immobile, that of shock being characterized by a more acute effect and greater general circulatory depression; while that of sedentation and enforced immobility exhibits a more pronounced and exclusive subkatabolism of affected muscles.

In a previous paper^{12a} I directed attention to the fact that approximately 36% only of the total blood volume of the body is contained in the various organs of locomotion during rest, the other 64% residing in the roomy reservoirs of the abdominal and thoracic cavities; conversely during activity as much as 64% of the total blood is deflected to the muscular system. When we fully grasp the significance of these facts, and with it the parallel increase of oxidation, associated with the augmented radioactivity of the tissue cells, we have some conception of the etiology of the several diseases of sedentation, the atrophy of immobility and of the suboxidative effect of the elements of shock, of muscular inactivity in general, and of chill and similar factors which serve to determine the blood from the periphery to the internal vessels.

We have seen that if any of the essential elements of oxygenation are absent or seriously interfered with, we have subkatabolism in spite of the fact that the other elements are entirely physiologic, the same with the elements of oxidation. Conversely we observe in the present instance as in the oxidase deficiencies, so commonly connected with the sexual life, that regardless of the oxygen capacity of the respiratory and circulatory systems, suboxidation and hence subkatabolism will result. The study of these factors also graphically pictures the reason why we fail to restore by oxygenation when oxidation is at fault, and conversely why we fail in certain cases to cure by supplying the immediate ele-

ments of oxidation, *per se*, when one or more of the factors of the supply of oxygen is at fault.

How often have we read the reports of observers who have condemned oxygen inhalations for their incompetency as "cure alls" of suboxidation, and it is notorious that neither experimental nor chemic observers have paid the slightest attention to any other factors, of either oxygenation or oxidation, *per se*, as individually subjected to experiment. This is equaled only by the still more universal custom of treating subkatabolic conditions by augmentation of radioactivity, independent of all the other possible causes of suboxidation, including acid conditions and oxygenation.

Another point of not insignificant importance is the perpetuation of the effect produced. It appeals to reason that the simple oxidation of the seat of tumefaction accomplishes practically nothing toward the restoration of normal oxidation of the general economy, and that to eliminate entirely the general elements of suboxidation, we must not only intensify the radioactivity of the whole body, but we must restore the natural oxidase elements, namely, phosphates and iodine, by internal administration. It is evident that the detritus laden vascular system must be cleared* and all of the essentials of active general oxidation must be restored in order to provide against the failure to oxidize the thrombi segregated from the original tumor, and against secondary "growth" in general.

At present it appears that the radiointensification of the whole body is best accomplished by the high-frequency currents of electricity, and administered with the use of the cage for "autoinduction."

In cases of general subkatabolism, is observed, in addition to local hyperplasias, a general gelatiniform condition of the tissues, as characterized by a general atony, and extension of the equilibrium length of muscular fiber, with consequent debility and weakness, softness and flabbiness of the muscles, more or less ptosis of the larger internal organs (especially in women), and often fibrosis and sclerosis of the vascular walls and of tissue stroma. The protoplasm, as superannuated in the tissues, and also stagnating in the vessels, as detritus, having thus acquired an increased affinity for oxygen, is largely consumed when the general oxidation is restored, and the body-weight is accordingly lowered. The reattainment of cell adulthood must be accomplished by the return to the normal protoplasmic proportions, and to its normal content of water, which was increased.

I have assumed without comment that the profession is already familiar with the mechanism of the production of subkatabolism by such agencies as fatigue, traumatism, pressure, irritation, etc., for it will be found described in most physiologies that fatigue, traumatism, and irritation are attended with the production of an excess of sarcolactic acid. Traumatism and pressure also will be recognized as factors of bruised and collapsed bloodvessels, thus retarding or arresting circulation in the part, and producing cell asphyxiation. In all these suboxidations so caused gelatiniform tissue changes are observed, however benign in character.

I have already¹²⁰ set forth the essential characteristics of malignancy of neoplasms, namely, the coexistence of living and growing cells with superannuated necrotic cells, in the growing edge. This condition may be due to prolonged continuance of the process and to the implication of cells of different katabolic digestibilities, interspersing each other, as occurs in the lips and other parts, where different tissues blend.

There is rapidly accumulating evidence that many apparently diverse states in the manifestation of disease are differences of degree only, and I know of no better illustration of it than the case of pain and anesthesia, as representing different degrees of tissue oxidation. For

example, suppose an Esmarch bandage is applied to the thigh, or a string to the finger. If we allow for some collateral but a greatly diminished blood-supply, we obtain more or less severe pain. Then if the circulation be entirely cut off complete anesthesia* is produced.

In malignant "growths" we observe tingling sensations, and in certain types of neoplasms great pain during the early period of their development, commonly followed by more or less anesthesia with the progress of the degeneration. I have directed attention¹²² to the fact that leprosy is characterized by anesthesia only in the advanced stage of its most degenerative form, and is not so associated with the tuberculous form. Many more illustrations of this could be given if space permitted. Pain is associated with hyperemia and inflammation, *i. e.*, reactive stages.

I am convinced, in those cases in which malignant tumors are cured by ligation of supplying vessels,⁶ by caustics, by liquid air, and similar treatments, that it is accomplished by virtue of their effect in producing universal sloughing, thus destroying the elements of malignancy, as described, namely, the living growing cells interspersing those already necrotic, of the "growing edge."

I assume that "pus" expresses the necrotic condition of liquefied tissue, or to express it differently, the liquefaction of necrosed tissue. Independent of putrefaction and sloughing processes, we observe that the ordinary emanations from our bodies, when liquefied by perspiration, especially in obese persons, quickly develop the characteristics of putridity. The microorganisms, which are the greatest producers of liquefaction, and at the same time cell necrosis, are also the greatest producers of putrefaction.

I have heretofore pointed out that no evidence is lacking to prove that the hyperplasia and degeneration of malignant states is due to cell necrosis from asphyxiation, followed by the superannuation of dead cells in the presence of the attendant stasis or arrest of oxidation, thereby producing so-called hyperplasia, in spite of more or less reduction of cell nutrition, which is directly with the circulatory stasis caused by the occlusion of the vessels, by tissue detritus. I have also accounted¹²³ for the liquefaction and final dissolution of involved cells, as parallel with the laboratory method of Kolliker, for the differentiation of the cell nuclei from the cell membrane. By this process we observe practically the same type of liquefaction and dissolution occurring as in subkatabolic states.

There are but two possible explanations of the so-called burns of excessive radioactivity, the effect of which is practically the same as caused by röntgen rays and radium, and of these, one involves the other: (1) Excessive fatigue of the cells, and degeneration from the sarcolactic acid, so-called; and (2) direct effects analogous to those of heat, which may primarily involve a transitory stage of cell fatigue. Both cause fibrosis, necrosis, and dissolution.

Ever since medicine evolved from the realms of occultism, and began to assume the dignity of a scientific pursuit, it has been observed that there exists a common factor pervading quite an extensive group of diseases, which by common consent have been recognized as diathetic diseases, and that by virtue of the influences of the several recognized etiologic factors of these diseases, singly and in combination, certain manifestations occur as definite effects thereof. Moreover, certain modifications occur in original processes, upon the interaction of new factors of this group, usually intensifying the same. The common factor of this group is subkatabolism, and its etiologic factors I affirm are those cooperating as before described.

An analysis of the nature of these suboxidation factors, their common pathogenic effects, their relations to

* See 120.

* See 174.

the so-called diathetic diseases, together with their pathology, is the ultimate object of my present labors. And it is my investigations to date that have led me to an appreciation of the value of the combined utilization of chemic biology, physiology and pathology, together with clinical pathology, as potent aids to the solution of these great problems.

Though space will not permit a thorough and extensive review of my method of analysis of disease processes, I may briefly state that I originally identify pathogenic findings by their fixed relations to certain etiologic factors of known nature. Following this I proceed to identify the same findings with other etiologic factors, and finally critically examine all the factors, so related, for common properties, which will individually or in combination, produce the tissue changes first studied. All this being accomplished, the study of the systemic distribution of disease becomes a much simpler matter.

It must not be inferred that I am representing this method as absolutely simple or free from possible errors. I have labored with it since 1894, yet I published my first paper on it only a year ago^{12b}, and already I find many instances in which statements should be modified or qualified, or both. My present progress is tediously slow, much slower than it would be if others were simultaneously working out a fair share of the problems involved.

The particular purpose of this paper is to plead for a rational therapeutics founded upon the idea of disease already set forth, thus negatively demonstrating the soundness of the hypothesis upon which the therapy is founded.

Some medical men have expressed themselves regarding my hypothesis of subkatabolic etiology of "diathetic" diseases as follows:

Your theory sounds well and plausible in the individual instances in which you have applied it, but to be a sound theory it must be compatible with all the diverse manifestations of what you assert are of subkatabolic origin, and moreover it must be capable of application in the explanation of the origin and manifestation of each and all of this group of diseases.

It has been further remarked:

I do not see how you can make it account for the origin of such diverse states as are expressed by pain on the one hand and anesthesia on the other, how one organ or group of organs is affected in one case, and at other times another, how in one case mental and nervous phenomena result, and are absent in the next, how inflammation and hyperpyrexia are in one case predominant and absent in another, how atrophy and hypertrophy can be due to the same cause, how so many and diverse primary etiologic factors can all be producers of the single result, namely, subkatabolism, etc.

On first thought an attempt to account for all of these problems by a single theory seems a paradox, if not an absurdity.

It is not surprising that as I have not as yet attempted to make a public exposition of this phase of the subject, and as this has been the stumbling block of all previous students of the subject, that many readers have been unable to grasp it in all its divers aspects. I regret that space will not permit a proper exposition of all the applications of the basic hypothesis, and as only an epitome can be here made, its fuller elaboration must await the completion of volumes now in preparation.

I do not wish to be misunderstood in regard to the precursor diseases of malignant tumors. I regard the present custom of attributing one disease as the cause of another, without qualification, to be one of the most misleading practices of our art. Even when etiologic relations are enumerated, they should always be duly qualified. The essential significance of the foregoing detailed diseases and conditions, is the recognition of the preexisting factors of subkatabolism and the exact nature of the direct cause, that it may be remedied, when possible. It is assumed that the professional reader is, for example, already aware that the suboxygenation element of hemorrhage is oligemia, that of anemia is oligocythemia,

that of chlorosis is hemoglobinemia, that of hyperacidities and oxidase deficiencies are stases or retardations of oxidation, etc., yet their order of occurrences, interrelations and interactivities, forming vicious cycles do not appear to be so well understood, and one object of this paper is the elucidation of these phases.

To facilitate my plan of presentation of this subject I would propose the division of subkatabolic etiology into no less than 4 stages:

1. The primary factors which produce the original effects upon previously or otherwise healthy persons, such as congenital deformities and defects, burns and other injuries, shock, fright, worry, anxiety, mental and physical overwork, strain, fatigue, and exhaustion (including sexual), chemic and mechanical irritation, vices of eating, drinking, smoking, and other vicious habits, cold, influences of sex, and the critical periods of life, poisons, bad air, sedentation, age, humidity, dampness of environment, lack of light and warmth, concussion, inequalities of otherwise normal influences, etc.

2. The immediate results of the primary factors, as suboxygenation, suboxidation, subalkalascence hyperacidities, poor blood (oligemia, oligocythemia, hemoglobinemia, etc.), poor circulation (cardiac and vascular) poor respiration (nasal, laryngeal, bronchial and pulmonary, etc.).

3. Diseases of the katabolic stases, susceptibility to infection, leukocytosis, tumefaction, degenerations, etc.

4. The vicious cycles of infections and the interaction of effect upon effect—progressive diseases.

The proofs that malignant growths are of subkatabolic origin and that they are subkatabolic conditions, are so abundant and apparent that, to me, it is absolutely astounding that so manifest a condition should have awaited the present day for the attainment of recognition. The fact that they are degenerative conditions has been fully understood for centuries, but the fact that cellular and tissue increase was also observed, seems to have caused all else to be forgotten, and thus abnormally augmented anabolism has been universally accepted as the pathognomonic factor, and a stasis of katabolism apparently has not been seriously considered.

After the attainment of growth and during health, a continuous mitotic division of the various tissue cells is compensating for others that are destroyed and eliminated, for, notwithstanding that every cell undergoing division is superseded by two cells, there is no quantitative increase of cells or tissues. In other words, we have a state of metabolic equilibrium. The destruction and elimination of the cast off cells is *katabolism*, and it is demonstrated by urea, uric acid, xanthins, ammonia, and other products in the urine. Only by the destruction of cells keeping pace with the rate of increase, by the mitosis, is the balance between anabolism and katabolism maintained. Should katabolism lag behind anabolism, tissue overgrowth would be the consequence.

I occasionally illustrate the mechanical theory of the process by assuming a hypothetical water-tank with an inlet and outlet capacity which are equal. This represents an equilibrium of metabolism. Then I have no trouble in convincing my hearer that the effect would be the same, namely, a rise of the water level in the tank, whether the incoming water is increased or the outgoing water diminished. The analogy is applicable to the increase of tissue volume as caused by a decrease of its destruction.

"But," says one, "how do we know, in the case of cancer, which it is? How do we know that it is a stasis of katabolism that causes the hyperplasia of neoplasms?" My reply is, that everything points to it. It is evident from every standpoint from which it may be viewed. Let us, for example, consider the irritation phase of it. It is well known that Virchow found this so common a cause of cancer that he made it the basis of his theory of its etiology. Any one, with almost any kind of scientific training, can easily satisfy himself from the abundant

literature of the subject: (1) That irritation produces the characteristic effects of subkatabolism, identically as produced by other causes known to produce such effects; and (2) conversely, without this element, namely, subkatabolism, in some form and from some of its known sources, tumefaction never occurs.

Now I assume that the profession is united on the universal physiologic doctrine that anabolism is largely a process of cellular nutrition, growth and division, while katabolism is one of digestion, which according to Croftan⁴, is a ferment digestion, typical of protoplasm, and of oxidation, both of which are dependent upon alkaline media. Moreover, I assume that it is universally established that alkalinity and oxidation are interdependent, for acidity we know will always increase with suboxidation, and oxidation will always diminish with the rise of acidity.

The investigator will invariably find that naked cells, wherever found, whether among the fundamental forms of animal life, which are unprotected from the vicissitudes of environmental irritations, as independent organisms, or as uncapsulated blood cells, as the leukocytes, are in a gelatiniform state; while the protected cells are able to and do attain the so-called adulthood, a condition which is as typical of protected cells as the gelatiniform state is typical of the unprotected cells.

We have seen that the several disease processes leading to the constitutional state of cancer, namely, suboxygenation (respiratory and cardiac deficiencies, circulatory obstruction, oligemia, oligocythemia and hemoglobinemia) and suboxidation (acidity and deficient and defective oxidases and incidentally a depression of the radioactivity of the cells) are without exception conditions also producing subkatabolism.

What physician has not observed that all exposed tissues, having suffered an abrasion, become gelatinified, and that the previously adult cells thus promptly revert to the rudimentary type? That it is not exclusively related to bacterial action is proved by the fact that the irritant may be a chemic one, which is essentially bactericidal in its nature.¹¹ Accordingly as the irritation is severe or long continued, the tissue degradation may be continued through the gelatiniform, colloid and fatty or putrid stages.

A significant fact which must not be ignored is that neoplasms are never examples of active anabolism, but conversely they are perfect exhibitions of stagnation and decay, just what would be the logical consequence of a superannuation of those asphyxiated cells which had failed of oxidation and digestive dissolution, after they had become disorganized, functionally impotent, and finally necrotic. Moreover, owing to infiltration of the vascular channels, supplying neoplastic areas, by cellular detritus, colloidal protoplasm, etc., thus occluding them completely against the supply of both nutrition and oxygen, we observe not only an arrest of further enlargement of the tumefaction, but a still more pronounced sluggishness and decay. In the so-called starvation treatment of malignant tumors, by ligation of supplying vessels,⁶ the chief difficulty experienced is the increasing proneness to sloughing, parallel with the decreasing anabolism so caused, the former effect owing to the incidental suboxidation. Except for more or less oxygenation supplied through anastomosing vessels, the method would be a complete failure, owing to the domination of dry gangrene and putrefaction, which ordinarily are somewhat in abeyance.

Not only are all of the etiologic processes of malignant growths those of subkatabolism, but all of those agents which have been found of any therapeutic value are manifestly supporters and intensifiers of katabolism, and it is as a plea for the intelligent adaptation of these several agents, as such, that I have been prompted to offer a contribution to this particular phase of the subject. The fundamental katabolic basis of the pathology of neoplasms also must be understood and recognized to

facilitate an adaptation of the necessary combination of therapeutic agents to each individual case; without it, chaos, empiricism, and inconstant results must be expected.

Individuals of both sexes not infrequently experience exacerbations of existing subkatabolic diseases as a direct result of sexual excesses, and if they are considerably lowered in katabolism, a single indulgence is often followed by more or less severe aggravation of the symptoms. Decline and obsolescence of sexual vitality of advancing years, is invariably connected with a parallel subkatabolism. Malignant neoplasms are invariably associated with a subkatabolism, developed prior to the nutritional decline, for after this we find the other evidences of subkatabolism, minus the elements of hyperplasia.

Hyperacidity, of gastrointestinal origin, by the neutralization of the alkaline mediums, necessary to both oxidation and tryptic digestion, constitutes another great retarding agent to katabolism, by thus directly antagonizing the process of oxidation, *per se*, and even in the presence of an abundance of oxygen and all of the other necessary elements of oxidation.

Failure of elimination of acids and other excretions, by the bowels, kidneys, and skin, may be responsible for hyperacidity and toxemia, by accumulation. As etiologic factors of progressive subkatabolic processes and vicious cycles, we must recognize accumulated acidity as a possible consequence of deficiencies of both oxidation and elimination.

Microorganisms, parasitic to the human subject, often do, by virtue of their irritations as foreign bodies, by the acid products evolved, or by the poison of their toxins, produce local or general subkatabolism, which may become a factor in the etiology of malignant growths; and yet no single or particular parasitic organism has been proved to be generally pathognomonic of the disease. We have good reason for believing that the so-called nonpathogenic fermentation organisms are much more largely responsible for subkatabolism than any other, though all resulting gelatinous and putrid tissues are extremely prone to secondary pathogenic bacterial infection.

Parasites unquestionably bear an etiologic relation to disease, yet I emphatically deny that the aggression occurs in the order and manner in which it is at present commonly described, namely, that the mere presence of any particular bacterium is sufficient to produce typical pathogenic effects in sound healthy tissue.

It is seldom, if ever, that a parasite which successfully invades an animal body, generates the necessary preliminary tissue conditions which render it a suitable medium for their life and multiplication, but conversely it may be stated, that such preinduced states are quite universally the result of so-called nonpathogenic bacteria (fermentation products) and other factors, mentioned elsewhere, of subkatabolism.

A fact of great interest and importance is that many find succor only in certain stages of subkatabolic degeneration, and after that particular stage is past they gradually decline and die out. This is especially well illustrated in the tubercle bacilli, and *B. lepræ*, which require for their sustenance and active propagation an intermediate grade of tissue degeneration, during which they thrive, and incidentally their activity is productive of local inflammatory reaction or general hyperpyrexia. After the passing of this stage, when a pronounced degenerative degradation is attained, during which the oxidation is nearly or entirely *nil*, even the parasite no longer survives.

The Fenwicks⁷, who are very acute observers, have found evidences of former tuberculous processes in 15.8% and Lebert in 14.7% of autopsies, after death from malignant tumors of the stomach, the bacilli having disappeared as well as the tuberculous processes. It is well known also, in the tuberculous form of leprosy,^{12d}

B. leprae diminish in inverse ratio to the development of the degenerative depravity, the logical operation and cooperation of the four stages of the subkatabolic etiologic factors. Living and active tubercle bacilli are never found in large abscess cavities any more than in healthy tissue.

During the height of the inflammatory stage of acute rheumatism, several observers have found joints infected with various parasitic organisms, yet conversely, Michaels and others have found them sterile. Probably the latter observations were made during a preinfection stage, or a later and a more putrid stage than the former.

In certain pulmonary diseases, bacteria are found which are more or less pathognomonic, yet when the tissues "break down" into abscess formation, the former parasites disappear and new ones take their places, or none may be found.

It is well known that in many infectious diseases an inflammatory course of approximately definite length is usual, the parasites dying at the wind-up, often poisoned by their own toxins, but probably often exterminated also by destruction of their media, or soil requirements.

It is of interest, in this relation, that chemic agents which combine to prevent the formation of water, as alcohol and the halogens, the latter by their affinity for hydrogen, and particularly bromin, not only intercept and prevent putrefaction, but also simultaneously act thus as antiseptics.

In condemning the universally exclusive use of radio-intensifying measures, let it be understood that I do recognize, however, that there occur, occasionally, cases in which at the time of treatment, the predisposing or acting causes of the subkatabolism have somehow been removed and the local malignant state of stagnant retrograde metamorphosis is the extent of the existing disease. It appeals to reason, in these cases, that radial intensifications, singly, are sufficient for the accomplishment of the necessary resumption of katabolic oxidation for the consumption of all the retrograde tissues and thus disposing of the essential conditions of the malignant state. But seldom, if ever, can that be done when the patient is markedly cachectic. Deficiencies of any of the vital factors of oxygenation and oxidation, other than of the radial activities of the tissue cells, which I admit are also essentially vital factors of oxidation, are not *per se* materially restored by radial intensification, used singly; and hence they must individually and collectively be remedied by separate measures. Oxygen or ozone inhalations, corrections of all respiratory defects, cardiac tonics, remedies for perverted distributions of the blood (cold saline baths, etc.) circulatory obstructions, poverty of the blood (iron, potassium iodid, etc.) administration of internal oxidants (cod-liver oil, etc.) and oxidase elements (phosphorus, potassium iodid) and tissue contracting and inspissating agents as ergot and adrenal extracts, may be indicated. The value of the recently advocated use of quinin as an aid to the tissue response to imparted radioactivity, by virtue of its property of fluorescence, future demonstration must determine. It is very significant in this respect that some of the older writers were loud in their praise of Peruvian or cinchona bark, of which quinin is a derivative. This is especially mentioned by Cooke³ (Co. tinct. Bark, B. P.).

It is exceedingly interesting to review the literature of cancer therapy and to observe the empiric employment of phosphates, phosphorus, iodine, potassium iodid, alkalies, iron, cod-liver oil, hydrochloric acid, "tincture of bark," etc., and the diverse reports of success and failure obtained by different observers, and by the same observer in different cases. Cod-liver oil, however, has always been the universal favorite, as they blindly used all these remedies as a routine treatment.

Gastric and intestinal fermentation, as a cause of sub-oxidation by virtue of its resulting hyperacidity, is a factor of importance. This class of cases evidently was

benefited by the old-time practitioners, by hydrochloric acid and alkalies. It is of interest in this connection that Osler and McCrae,⁹ confirming the observation of Golding Bird, made as early as 1842, of v. den Velden, in 1879, and a host of later observers, including Riegel, Ewald, Huebner, Honigmann, Thiersch, Jaworski, Gluczynski, Kahn, v. Mering, and Rosenbach, found this element quite universally absent in gastric cancer, thus predisposing to fermentation and putrefaction.

As may be inferred, I am not an advocate of the extensive operative measures proposed by Paget, and, moreover, I do not favor any procedure which involves an incision into the "growing edge" of neoplasms. I do, however, favor the evacuation of pus and the cleansing and oxidative purification (hydrogen dioxide, etc.), of purulent foci in all cases, and in the complete extirpation of such neoplastic internal organs not essential to life, as are not amenable to radiotherapy. I object to surgical operations as preliminaries to radiotherapy, except as mentioned. I am convinced that recurrence is often due to excising slices or curetting from the growing edge for microscopic purposes, thus setting free thrombi, which grow even after the removal of the original neoplasm. As much as I value the statistics of cancer, derived from such microscopic examinations, I would seriously object to the disruption of the growing edge in the tumor of anyone dear to me, even for such purposes. I prefer the better chances of a cure, than the satisfaction of the knowledge thus gained.

The inconsistent results obtained, the too frequent admixture of failures combined with the successes, and the frequency of recurrences, coupled with the extravagant claims of many writers in the medical journals, and more especially of that class that seeks notoriety through the lay newspapers, have so disgusted the conservative members of the profession that already an unfortunate reaction is taking place against radiotherapy. I not infrequently hear it denounced as a commercial project, devoid of intrinsic merit. I have just learned that one very eminent dermatologist of this city who has been for some time administering the several types of radial therapy, has recently abandoned them for the actual cautery and other of the older remedial measures. It is needless to say that he, of course, administered his radiation measures singly in the same way that he applies the cautery, namely, independently.

It is evident that the profession is confronted with the choice of either placing the radial therapeutics of malignant neoplasms upon a more stable scientific basis, or allowing it to suffer a more universal lowering in the estimation of the good men of the profession, and finally to be abandoned to the quacks and charlatans, who will thus inherit a more potent therapeutic weapon than would be then possessed by the ethical profession or could possibly be replaced from any other source.

It is a logical sequence that instead of independent radial therapy, to insure successful issues, we must combat with equally effective measures all factors of suboxidation, and not infrequently two or more as coincidentally involved. For example, in some senile cases it is necessary to rehabilitate the cardiac function, give iron for anemia, and oxidases (phosphates) and alkalies as antacids, in a single case. It is well enough to use agents singly for experimental purposes, but for therapeutic achievements it is often a fatal error. Moreover, in probably the majority of cases, the best results may be obtained by a general intensification of the tissue activities of the body, which are frequently more or less stagnating in subkatabolic depravity.

Another point of importance in the treatment of hyperplastic and other subkatabolic conditions, is the necessity of a word of caution to radiographers carefully to avoid a too intense radiation of circumscribed areas of tissue, because of the fibrosis or sclerosis which is inevitably the consequence of a too active oxidation, whether

produced by radioactivities, Coley's toxins,² or certain microorganisms. I have pointed out in a previous paper^{12b} that the unfortunate defect in the treatment by the organisms and toxins of erysipelas and prodigiousus, so brilliantly worked out and introduced in this country by Dr. Coley,² and which at one time seemed to promise so much, was the cicatricial formation, often occurring before the retrograde tissues were oxidated away, with the result that they would inversely become less susceptible to radiation or stimulative oxidizable influences, until finally they entirely failed to respond to further attempts in this direction, the neoplastic process thus becoming an incurable one. It is a chemiophysiology fact that all tissues, as they undergo gelatification, liquefaction and putrid or fatty degeneration, become correspondingly more and more oxidizable; in fact, as they are deprived of oxygen for an increasingly greater length of time, they acquire a correspondingly greater affinity for oxygen, and when suddenly measures are taken which supply previously absent factors of oxidation, it may become excessive, and be expressed by inflammatory cicatricial formation. In another paper,^{12d} I advanced this analysis as the explanation of Chapin's results with those toxins in leprosy;¹ the same may be applied to the defects obtained in the cases in which arsenic and other oxidants are intrajected in neoplastic tissues. It is desirable to promote oxidation, a degree short of active inflammation, and maintain it as constantly as possible until the oxidizable (superannuated) cells which are responsible for the hyperplasia, are oxidated away.

A cause of failure, of no mean importance, is the defect which arises from the incompatibility of the therapeutic demands in many cases, with those of a remunerative office treatment. As is well known, röntgen ray and high-frequency current equipments are both expensive and cumbersome; those of greatest efficiency being most so. Thus to make such treatments pay, the physician must contrive to administer on alternate days a very intense radioactivity of short duration, to the involved tissues, in order to accommodate the patient's pocket book and permit of the treatment of quite a number of patients during the day. Such a procedure will be effective in a certain reduced percentage of cases, but there is also a large number which does not do well under such a regime. The fact of the matter is that metabolism is a constant, not a periodic process, and a logical plan of augmentation or intensification of the cellular radial activity would be one more prolonged, less intense, and of more frequent administration. As I have pointed out, in the use of Coley's toxins, often inflammatory fibrosis is developed before the patient is cured, and that so invariably interferes with the further augmentation of the necessary active hyperemia, that as a result, the therapeutic progress comes to a permanent standstill. That being exactly what happens when such intense radiations of short duration are periodically applied as produce hyperemias of 2 or 3 days' duration, progress ceases with the attainment of a certain degree of circumscribed fibrosis, and to this occurrence often the efficiency of the method is discredited. It is *prima facie* evident that to perfect this treatment a more evenly balanced administration must be resorted to, even if it must be abandoned to the hospitals and sanatoriums, where facilities may be adequate for its proper and successful application.

The limitations of my present space oblige me to refer the reader to my monograph of a year ago,^{12b} which, though in need of revision and elaboration now, still will be found of great value as a treatment basis and as a collaboration of the present paper.

We have seen that oxygenation and oxidation may be compromised by many factors and that there are many conditions and manifestations to search for, both in the case history and in the condition presented. The treatment of anemia, chlorosis, etc., I will not include, but simply urge the importance of it, when indicated.

The same of syphilis and other antecedent diseases mentioned. Success in therapy will not attend their neglect.

In conclusion, it is incumbent upon me to acknowledge the general therapy of malignant growths of some medical men of New York, who have come to my notice. Dr. H. G. Piffard informs me that long before the publication of my writings on malignant tumors, he has been convinced of their subkatabolic origin, and has treated such patients along these lines. Dr. Charles W. Allen has also long recognized the multiple sources of origin of hyperplastic processes and has always advocated the combined as distinguished from the single (radiation) therapy. Dr. G. Lenox Curtis,⁵ also, has certainly met the subject of subkatabolism quite squarely in his advocated treatment by what he styles "electric ozonation," under which he includes the "combined influence of electricity, light, heat and ozone." With this, he states, he combines iron and other remedies, as indicated in different cases. There are, undoubtedly, other men who are conducting a general rational therapy of subkatabolic conditions as indicated by the nature of the process and the antecedent and complicating diseases, who have not come to my notice or perhaps have not been reported in medical literature.

As far as my observations go, those therapeutists who have compassed and treated the several diathetic relations together, with the radiotherapy, have obtained results that for constancy have not been attained by those treating exclusively with the latter.

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PERSONAL OBSERVATIONS ON THE ADVANTAGES OF CERTAIN ARCTIC LOCALITIES IN THE TREATMENT OF TUBERCULOSIS.

BY

FREDERICK SOHON, M.D.,
of Washington, D. C.

In any plan of treatment of tuberculosis we must consider the causes which induce the disease, and the factors which prevent infection and which so often lead to a cure by nature alone. These factors must be the foundation of treatment.

We cannot class as one of these factors the hope that the body has a developed special material to repel or cure attacks of tuberculosis, as is the case in many of the contagious diseases. No one exposed to tuberculosis without contracting it is definitely immune—given a protracted state of lowered vitality, local conditions for infection, the presence of the infective agent, and the results are sure. There has been little chance to develop a special immunity or effective antitoxin, as the toxin

produced by the tubercle bacillus is slight and the mortality has been high. Consequently a tendency to a protective or curative antitoxin has, at best, but hardly begun in the whole race, and we cannot expect such to be perfected in the individual.

We must look for the cause of immunity and recovery to the fact that each tissue cell, like every other unit of life, has an inherent tendency toward stability and a capacity for self-protection when properly innervated and nourished. That the vital resistance of the cells is so often successful against the lodgment or growth of the tubercle bacillus is favored by the fact that the germ does not generally possess virulent attacking and conquering powers. Like all germs, it has varying degrees of activity, from its attenuation in scrofula to its malignancy in acute tuberculosis; but in general it cannot be considered aggressive, for, though it claims its 1 death in 7, it has its victims offered to it. The vigorous will not contract pulmonary tuberculosis, while those of low vitality can hardly avoid it. The vital resistance of the cells is the safeguard both against primary tuberculous infection or the extension of such infection, and good general health insures this resistance, preserves it, and restores it when damaged.

When the stability of the cells is undermined and the bacilli gain lodgment, the body still has protection against the germ and the damage it does, through conservative pathological changes. The inflammatory zone, the throwing off of cells, the phagocytosis, the formation of the fibroid tubercle, etc., are conservative efforts of the economy to protect itself by ridding itself of, or isolating, the weaker units which have succumbed; and this defense would be successful if the disease were limited to the tuberculous infection. This is illustrated in patients with extensive uncomplicated tuberculosis who live to old age with a "fibroid" lung, and retain considerable bodily vigor.

But tuberculosis, in most cases, is not limited to the inroads of one kind of bacilli; it is a mixed disease, the chief symptoms of which, and danger to life, are caused less by the tuberculous than by the pyogenic infection. When the disease has obtained a hold, the catarrhal condition, the direct irritation from dust, the pus germs, and every variety of air-borne life which settles and develops, are powerful reinforcements to the tubercle bacillus, which alone, both by its presence and its slight systemic poisoning, would be comparatively harmless. As a result of the multiple infection the whole economy becomes disorganized. It is poisoned by the various ptomaines and the attendant formation of products of inflammation and cell deterioration, and directly irritated day and night by impulses from the infected area which involve the whole sympathetic system and thereby waste vital strength. No organ can do its work properly, the body is enervated and poorly nourished, and the consequent further impairment of health reacts on the tissues exposed to the infecting agents and encourages further development of the disease. Therefore it is not enough to fortify the body by building up the health under adverse conditions, but we must have such environments that the body will be relieved of the handicap of concomitant infection.

The good obtained through better hygienic conditions has encouraged in turn the sending of patients to high altitudes, the climatic treatment, the cottage sanatorium idea, etc., and the constantly growing appreciation of hygiene, as holding the most important aids to a cure, has lately served to bring prominently forward what is called the open-air treatment. That an out-door life is beneficial to the tuberculous is proved by the results in sanatoriums which report about 50% as cured, and 25% as improved. These results are so far beyond what it was thought possible to obtain not many years ago that enthusiasm is perhaps swinging the pendulum of hope too far, and bitter disappointment will follow. This method of treatment has been much exploited of

late by the press as something entirely new, and unfortunately in such a manner as to convey the idea that only "fresh air" is needed. Fresh air, in its popular signification of more or better oxygen, is by no means the main item in the open-air treatment, and a random search for air alone will do no positive good. The tuberculous will not get well just because they go out of doors, but they must live that life as a treatment which uses certain conditions in a proper way to encompass a definite object. They must seek these conditions and live in a manner to profit in full by them. Give nature a fighting chance against the tubercle bacillus *alone* and she will win; this is the proper fundamental idea of the open-air treatment.

Among factors for a cure which may be obtained by sending patients out of doors, I place first, the direct influence of the sun's rays, and mark, I do not say sunlight. In the full stream of vibrations that flow from the sun the light-rays are but one item. Though light itself has a direct influence on metabolism recent research shows that rays with which we do not become acquainted through sensations of light or heat have an even greater effect. Many of these rays are deterred by glass and are not reflected by walls. Therefore the tuberculous should seek not only light, which can be had within as well as without doors, but should take the sun's rays direct in their entirety.

The second advantage, perhaps coequal with the first, is that one may, by a proper out-door life, lessen the liability to pus infection and irritation by dust in the diseased area. The house air contains, in addition to the inorganic particles, much organic matter that will decay and become poisonous when inhaled, and also dangerous microbial life that finds conditions for development within walls. These are the agents that change many simple and mild cases of tuberculosis into the dangerous type. Out-door conditions are better as sunlight is a germicide. Undoubtedly much of the benefit obtained in winter at open-air sanatoriums, when the earth is covered with snow, can be ascribed to the fact that the snow lessens the amount of dust and harmful bacteria in the air. Third, a proper out-door life instills into the tuberculous patient a feeling of freshness instead of languor, and the favorable reaction of his feelings on his own physical condition is not unimportant.

In attempting to secure these advantages time is important; not only should treatment begin early, but results should be gained in the shortest possible time by the patient being at a place where the best conditions are obtainable. This disease will continue its local inroads until that condition of health is regained in which no further germ encroachment is possible. It is evident that the more time consumed by half-way measures the more there is to cure, and it is also evident that the good obtained under only fair conditions will have to work against a constant drawback of new infection.

For the ideal open-air treatment, we should place the patient in surroundings where the inroads of the tubercle bacilli are not assisted by their allies, if at the same time such surroundings are conducive to rapid increase of bodily vigor, the cure will be won if there is any chance left for nature to effect a cure. Such surroundings can be obtained almost in perfection during the summer months in some of the northern fjords of Greenland.

As most are only acquainted with these regions through tales of adventure and suffering allow me to introduce the subject by comparison with what tuberculous sufferers often endure in our country for an open-air cure. There, one need not bear in summer a zero temperature, the privations of the backwoods, the dust of an alkali desert, the enervating influences of arid regions, or scorch by day and shiver by night as in the mountains. One need not violate a single rule for the preservation of, or obtaining good health. Privations

and suffering have ever been in the far North, because a certain thing was to be done, and done at a certain time, and under such conditions that food, comfort, health and everything else had to be subservient to the main end of exploration. However, these regions are now known, and if the main business is the regaining of health everything can be nicely adapted to that end.

The fogs, cold winds, rain, and snow which may occur even in summer in Arctic regions are confined to the sea and coast. In the protected fjords some miles from the coast the conditions are entirely different, and in what follows I refer to the protected inland bays.

The general appearance of the Greenland fjords is a stretch of rocks and cliffs from which the snow has melted, mountains from which the icecaps never melt, glaciers coming down to the sea from the inland ice, open water and icebergs. It seems at first a dreary, desolate waste; but it is not cheerless. Nature there shows a primitive grandeur, and life in summer is not monotonous. There is a combination of the scenery of canyons and alpine peaks. A wealth of color is over all in the strata of rock, in the varied hues of lichen and moss, in the blue and pink tints of the icebergs, and, during the usual night hours when the sun is in the North, sunset and dawn effects of glittering gold and silver and flaming crimson that reflect the color on water and ice. Those interested in the sciences can find there virgin ground for investigation. Those who take pleasure in hunting can find walrus, deer and duck. The keen zest of life in the Arctic and its fascination is best condensed in the familiar expression, "arctic fever," this inoculates everyone who once beholds the beauties of the North and from their charms no one ever fully recovers.

Sunshine, the most beneficial factor in the cure of tuberculosis, is there as it is nowhere else. The sun never sets, and though its declination is low, its rays are intense from the clearness of the atmosphere and the repeated reflection in all directions from water and ice. Tanning of the skin always occurs, and sunburn is not uncommon. Sunburn is not caused by visual light rays, but by rays beyond the violet. It seems that some of the ultraviolet rays are stronger in the North, and that the actinic rays at least are stronger is shown by every photographic exposure. As some of these ultraviolet rays have the most influence on the vital processes there is there a light not only constant, but also more potent. Perhaps such an increase of energy-imparting waves is a compensation to life in a region otherwise ill-favored. There, plants spring from seed to flower in a few weeks, animals are large and vigorous under unfavorable conditions of food, and there is a feeling of buoyancy and vigor given to man in an Arctic summer as can be duplicated nowhere else. Perhaps the increase of energy may be due to other unknown factors—the different terrestrial and atmospheric electric conditions, ozone, etc.—but whatever the cause, the prompt increase in health and energy is apparent.

The following data are compiled from the diaries of my two voyages with Commander Peary, and the logs of 3 of his other expeditions, and includes days between July 28 and September 6, spent between 69° and 78° N. In all the days taken together, the sky was clear in 67% and the remaining 33% included all other conditions, such as overcast, slightly hazy, rain or snow. Selecting from the foregoing the days spent in fjords some miles from the sea there was clear bright sunshine in 88%; that is, the sun showed each hour of the 24 in practically 9 days out of 10.

General weather conditions in fjords: Days entered as splendid or perfect 43, good 2, disagreeable 3, bad 1. That is, in 49 days there were only 4 in which one would not desire to be out and about. From August 18 to 27, 1892, the Windward was at anchor in the same place and the following temperatures were recorded on the deck of the ship. Average minimum 37.9°; average maximum 48.9°; least variation in 24

hours 5°; greatest 20°; average 10.9°. At this time the sun had begun to set, but in July and the first half of August the temperature often fluctuates only 1° or 2° in a day. In connection with these figures it is noteworthy that though the air is cool, the rocks under foot are warm from the constant sunshine, and that the cold is not at all uncomfortable except when the wind blows. As figures cannot convey a proper idea of weather conditions I may illustrate further by saying that if we took one of the few bright, bracing days of the past winter here and imagined it protracted practically unchanged hour after hour for a month we would get a fair idea of the weather in some of the Greenland fjords.

The atmosphere is so absolutely clear that one is unable to judge correctly the distance of even nearby objects. I may emphasize this by illustrations which are not deceptive even if the eyesight was. One may walk toward a point apparently but a mile away, and walk for an hour without seeming to get nearer to it or even very far from the starting point. One may try to throw at a mark apparently within easy range, only to find that the strongest throw will cover but half the distance. *There is no dust or other harmful atmospheric contamination.* There is no dirt; the rocks are clean and every bit of dead lichen or moss that is not carried away by the melting snow in spring is greedily held fast by the living roots.

On the Peary expedition of 1902 I exposed dishes of agar and introduced into culture tubes pebbles, bits of vegetation and water. Only this culture medium could be used and the tests were limited to out-door conditions but included the air, ground and pool water at Commander Peary's winter quarters. Of 6 dishes exposed from ½ to 2 hours 2 were sterile and 4 gathered only a common white mould (*P. glaucum*). Only the hay bacillus was obtained from pebbles. Water yielded the hay bacillus, *Bacillus liquefaciens fluorescens* and an unclassified nonpathogenic saprophytic rod organism. The tests of the cultures were kindly made for me by the officers connected with the Marine-Hospital Service Laboratory. Many of the tubes had dried and perhaps other organisms may have been present and died. The absence of pus or other pathogenic germs is what would be expected as these cannot live in direct sunlight or develop in an unceasing low temperature.

Disease is never endemic among the North Greenland Esquimos. In winter their environments are changed from the natural, for then they hibernate in the heat and filth of their igloos, and as a result in some years they are visited by epidemics of contagious diseases which reach them air borne, or by ships, or through the migrations of game or birds. These diseases are not native, for they never reappear the following winter. When summer comes the Esquimo leaves the warmth and accumulated filth of his igloo and lives a primitive open-air life in tents, the summer sun disinfects the region and he is always well.

Though these regions are practically germless, one going there would carry a varied assortment of pathogenic germs along. The virulency of a contagion depends on its constant transmission from host to host, and though one's mouth may be (bacteriologically) a culture ground for pneumococci, staphylococci, and streptococci, they are attenuated and will do no harm, even if he is exposed to depressing conditions that at home would make him liable to illness. Every Arctic explorer has remarked on the absence of ill health. Pneumonia is unknown and one does not "take cold" from the worst kind of exposure. The importance of this is readily seen when we reflect that the susceptibility of the tuberculous to a succession of colds at home often of itself prevents a cure.

To illustrate the general conditions favorable to health (and the regaining of it) I cite the following: Meat never spoils when exposed to the air; if kept away from the direct sunlight it may become coated with

mold, but it will not rot. Nothing decays there; the dejections lose their offensiveness, and even dead bodies do not seem to putrefy—apparently they simply disintegrate and disappear under the influences of the elements. I was astonished, when at Cape Sabine with Commander Peary, to see the condition of the clothing, skins and furs in the former camp of General Greely. Organic matter had lain exposed here for 13 years and was still in an almost incredible state of preservation.

Good wholesome food is possible in the Arctic, as elsewhere in these days of cold storage, and as great a variety as can be had on an ocean liner can be had in the North. Fresh meat from caribou, seal and hares is obtainable, and ducks and auks are there in thousands.

The Arctic induces a prodigious appetite, and the taste runs naturally to the kind of food the sufferer from tuberculosis needs, which we wish to give him at home but which he has no appetite for and cannot assimilate. In the North man craves meat, and particularly fat meat. The Esquimos are so full-blooded, from their exclusively flesh and blubber food, that violent exertion always makes them bleed from the nose, and they also bleed from excitement, grief, or laughter. The invariable and extraordinary increase in weight of a crew in the north, subsisting on salt pork, corned beef, potatoes, and bread, shows what can be done for tuberculous patients if the climatic incentive to food is combined with a proper regimen. On both occasions in which I have been to Greenland I have exceeded my usual maximum weight, gaining the first time 30 pounds in 2 months, and the second time 19 pounds in 6 weeks.

These regions of perpetual sunshine can be reached within 10 days from Nova Scotia, or less than 3 weeks from New York, and the trip can be made in safety and comfort in a suitable vessel converted and appointed for the purpose. Fogs along Newfoundland and Labrador will be inevitable, and bad weather as luck brings it; these are the usual chances of an ocean trip. As a safeguard against possible severe storms, unusual there in summer, the vessel is never beyond reach of a sheltered harbor that can be made on a falling barometer. The sea is usually smooth, and is always so when there is any drifting ice.

To anyone who has ever indulged in athletic sports or enjoyed a simple fishing trip the fjords of Greenland will give a most enjoyable summer vacation. Those who are "run down" from business cares can there find a complete change amid environments that compel a rapid restoration of nerve tone. Parties of the tuberculous can live there in summer in all comfort, either in tents, in quarters, or aboard ship. They would forego luxuries but none of the necessities of a simple hygienic life, and though they would miss as many familiar conveniences of a home life as they would anywhere else away from home, they would be repaid in the better health acquired. The cost would not be excessive, or higher in the end than at many popular health resorts.

The time is short in which it would be advisable for tuberculous patients to be in the Arctic, and the question naturally arises as to whether 3 months of even such ideal conditions as are found there can be effective toward a cure. The contention is that nature has a means of curing, and does cure, tuberculosis, if she is not handicapped by the mixed infection. How long it will take to reach the necessary standard of vital resistance depends on how the patient can be forced along the upward path.

In the Arctic this forcing takes place naturally. The step is radical; the patient is removed entirely from all foreign influences which favor a further development of the disease or which militate against an improvement, and is placed at once under influences conducive to vigorous health. Three months under such conditions may be time enough for a cure in patients not greatly run down, and the time is at least ample to give the patient a good start on the upward path. In this con-

nection we may reflect on what is accomplished in a half year, or less, in places not so favored.

To recapitulate: Constant sunshine, which brings health and energy. A germless and dustless air that gives neither irritation nor extra infection. An unvarying and bracing temperature that invites out-door life and exercise. A climate that creates an appetite and a life that brings the ability to digest and assimilate. A life of new recreations that banish loneliness, and of enticing interests so different from the ordinary that absolute nerve rest is secured. A country in which colds and catarrhal conditions are not found, and even the healthy invariably improve in well-being. All of these advantages, except the perpetual sunshine and the germless air, can be obtained elsewhere, but here they are furnished altogether and each in perfection. They are also furnished at that time of the year when conditions are most unfavorable elsewhere.

The world in general, which wonders at the utility of Polar exploration, will some day be indebted to those who have endured hardships and given life to work in the Arctic. Much credit is due Commander Peary for his continuous and persevering efforts not only to extend geographical knowledge, but to make these northern regions accessible and known to all branches of science. Many institutions of learning and scientific bodies are richer through his expeditions, and he has opened up a territory that is now easily reached and has unequalled conditions for the cure of tuberculosis. I was impressed by this fact on my first voyage with him in 1896, and in 1902 I went North again to reconsider it on the spot. This investigation but served to strengthen my opinion that in summer these regions are entirely suitable for, and beneficial to, the tuberculous, and that the unequalled natural advantages for a cure can be practically utilized.

AN INVESTIGATION OF CERTAIN OF THE REFLEXES AND SENSORY PHENOMENA AND THE CONDITION OF THE EYE-GROUNDS, BASED ON A STUDY OF 103 HEALTHY YOUNG MEN. KNEE-JERKS, ACHILLES-JERKS, CONJUNCTIVAL AND PHARYNGEAL REFLEXES, PUPILLARY REFLEXES, STEREOGNOSTIC APPRECIATION, MUSCULAR AND SPACING SENSES.*

BY

THEODORE DILLER, M.D.,

of Pittsburg, Pa.

Neurologist to the Allegheny General Hospital; Visiting Physician to the Insane Department, St. Francis Hospital.

The 103 persons, the study of whom forms the basis of this communication, were male students, whose ages ranged from 18 to 33 years, the average being 22½. For various reasons, into which I need not enter, every single one of the subjects of inquiry was examined into a less number of times than would correspond with the total number of persons examined—103.

In the briefest tabular form the results of the investigation are here noted. The phenomena investigated are among those commonly inquired into by the neurologist.

AGES.

Youngest	18 years
Oldest	33 "
Average age	22½ "

KNEE JERKS.

Quick and prompt excursion	36
Slow and long excursion	11
Slow and short excursion	31
Difficult to elicit	21
Absent	0

Total number of tests 99

* A paper read before the Pennsylvania State Medical Society at its meeting held in York, September 22 to 24, 1903.

ACHILLES-JERKS.

Prompt	28
Slow	7
Absent	0
Number of tests made	35

Conjunctival Reflex.

Present	6
Absent or faint	6
Sluggish	1

Number of tests 13

Pharyngeal Reflex.—This reflex was tested in quite a number of cases, but no exact results were set down, partly because of the difficulty of so doing. But I can say, in brief, that the reflex was sluggish or absent in about half the subjects tested.

Reflexes of the Irides.

Tests made on dark days	70
Tests made on bright days	29

Total of tests 99

Average size of pupils in the light, with subjects near to and directly facing the window 2.76 mm.

Average range of excursion of the pupil in the light reflex 1.39 mm.

The range of excursion of the pupil was 0.5 to 1 mm. in 43	Cases.
The range of excursion of the pupil was 1 to 1.5 mm. in 30	
The range of excursion of the pupil was 1.5 to 2 mm. in 18	
The range of excursion of the pupil was 2 to 2.5 mm. in 4	
The range of excursion of the pupil was 2.5 to 3 mm. in 3	
The range of excursion of the pupil was over 3 mm. in 0	

Total number of tests 98

Pupillary Reflex in Accommodation.—Excursion of pupillary contraction in accommodation.

Number of tests made	31
Average excursion	0.967 mm.

The pupillary excursion in accommodation was in all tested in 94 subjects. It was found recorded as:

Absent	3 times
Sluggish or slight in range	24 times
Prompt	67 times
Total	94

Pupillary Equality.—No marked differences in size of the pupils were noted.

Convergence.

Normal	17
Defective	18
Absent	1

Total 36

The convergence test was made roughly by directing the subject to look at a distant object and then at the finger held a few inches from his eyes.

Eye-grounds.

Number of cases in which cupping of the optic nerve appeared more or less marked, and in which distant gray stippling could be seen at bottom of the cup	13
General optic atrophy	0

Number of examinations 99

The stereognostic appreciation, muscular and spacing senses were tested in a considerable number of subjects. Here but slight individual variations were noted.

So much for the exact figures so far as I have been able to give them. Let me now discuss briefly the different subjects of inquiry chiefly as revealed by the figures given.

Knee-jerk.—While in no case was this phenomenon absent, yet in 21, or over a fifth of the subjects tested, it was more or less difficult to elicit. In several of these cases repeated blows were required to bring out the jerk, and without the aid of the percussion hammer the jerk would have been recorded as absent. In a few of the "difficult" cases the jerk was, when finally elicited, quite prompt. The conformation about the knee-joint, the size and position of the patella tendon all varied greatly. The knee-jerk varied greatly both in length and rapidity of its excursion. It would be desirable to measure definitely, and record both these elements.

Achilles-jerk.—Here in a fifth of the 35 subjects examined, the jerk was more or less sluggish, but in no instance absent; whereas in over half the subjects the knee-jerks were more or less sluggish or else difficult to elicit. The position of the achilles tendon was much more constant than the patella tendon. In brief, the achilles-jerk is more constant than the knee-jerk, and is elicited with less difficulty.

This observation is quite in accord with those of other recent investigators who have written on the subject. Bramwell,¹ after very extensive observations, says that the achilles-jerk is constantly present in persons in health under 50 years of age.

In diseased conditions he found it absent when the knee-jerk was absent (tabes, multiple neuritis, etc.), and he further states that in tabes it is usually lost before the knee-jerk. Babinski² had recently pointed out that the achilles-jerk is usually lost in the affected side in sciatica and constitutes a differential diagnostic criterion when the question of hysteria arises. Sarbo³ found the achilles-jerk constantly present in 300 healthy persons he examined. He examined 92 tabetics, and found both knee-jerks absent in 79% of the cases, while both achilles-jerks failed in 88% of the cases. He, too, found that the achilles-jerk disappears before the knee-jerk in tabes. Walton and Paul⁴ tested the achilles-jerk in 500 healthy persons, whose ages ranged from 5 to 82 years, and failed to elicit it in only one instance. In 13 of these persons the knee-jerk was feeble, and only elicited with the aid of reinforcement and after repeated blows; while in all of their subjects the achilles-jerk was elicited with ease.

Thus it will be seen that the results of my own investigation of the achilles-jerk in health are quite in accord with those of the more extensive investigations I have just cited. Moreover, the investigators quoted unite in considering the presence or absence of the achilles-jerk in disease as of greater significance than the presence or absence of the knee-jerk. The achilles-jerk must, therefore, be considered of great importance, and should always be tested along with the knee-jerk. It is probably best elicited by striking the tendon with a rubber hammer about 2 inches above the os calcis, while the subject is kneeling on a chair with his face to and while his hands are grasping the back of the chair.

In view of the evident constancy and importance of the achilles-jerk, it seems strange that it should have been neglected until within the last few years. For example, such an acute observer as Oppenheim, in his "Lehrbuch," published in 1898, speaks of it as an inconsistent phenomenon, while in the "Traité des Malades de la Moelle Épinrière," by Déjerine and Thomas, published only last year, no mention is made of it. Starr, in his work on organic nervous diseases, just from the press, places little emphasis on it.

Conjunctival and Pharyngeal Reflexes.—Since their absence has been considered by some as stigmata of hysteria, the fact that in fully half of the healthy men tested, they were sluggish, faint, or absent, carries with it its own commentary. The number of tests made by me, however, was small.

The Irides.—Here the great difference in the size of the pupils and of their range of dilation and contraction to shade and light, is of interest. In tabetics we often note instead of the complete Argyll-Robertson pupil, an incomplete one when, *e. g.*, there is a slight reaction to light of 0.1 mm., 0.2 mm., or 0.3 mm. In several of the subjects investigated, the range of pupillary contraction was a scant 0.5 mm. Thus it will be seen that in the 99 persons examined, the range of pupillary contraction to light was very great, approaching the incomplete Argyll-Robertson pupil on the one hand, and being so extensive as 3 mm. on the other hand, the average range being 1.39 mm.

Pupillary Excursion in Accommodation (0.967 mm.), was, roughly speaking, about two-thirds as extensive as

that for the light reflex, and failed entirely in 3 cases, while in 24 others it was comparatively slight in range.

The range of the pupillary excursion was measured by holding aside the eyes a small strip of card-board, having on it black circular marks ranging from 1.5 mm. to 8 mm., as recommended by Haab. This plan of recording pupillary excursions is one which I believe may be commended as tending to greater accuracy in records. It is extremely simple, and requires but little time.

Besides the great variation in the range of pupillary contraction to light and accommodation, great differences in the rapidity of the iridic movement was also noticed. This, unfortunately, cannot be expressed in figures.

Convergence, it is to be noted, was defective in slightly more than half the cases tested, and entirely absent in one instance.

The eye-grounds were especially examined with reference to one point, viz., the presence of gray atrophy or appearances suggestive of an approach to this condition. While in no instance was the diagnosis of gray atrophy made, yet in 13 eye-grounds more or less deep and extensive cupping with gray stippling at the bottom was discovered (slight degrees of cupping are not included). In 2 or 3 instances these appearances were so pronounced as to resemble strongly those seen in parietic dementia, where unmistakable gray atrophy subsequently develops. In short, these fundi phenomena would have been by me considered as very significant, had they been associated with symptoms pointing to tabes, parietic dementia, or disseminated sclerosis.

Equality of the Pupils.—In a few instances slight inequalities of the pupils were noted, but in no case was this inequality conspicuous.

Thus it will be seen that the ocular phenomena investigated vary greatly; and the lesson their study very forcibly teaches is that we ought to be very cautious in drawing conclusions from the variation of these phenomena, especially when unsupported by other signs or symptoms of disease. Anatomic and physiologic phenomena touch closely, and indeed at times overlap the pathologic.

CONCLUSIONS.

Of young men in health it may be said:—

1. The knee-jerks vary greatly in their range and rapidity, being often difficult to elicit.
2. The achilles-jerk is constantly present, varies much less than does the knee-jerk, and is seldom difficult to elicit.
3. The conjunctival reflex is extremely variable, being absent or faintly present in half of the cases.
4. The same may be said of the pharyngeal reflex.
5. The pupils are equal.
6. The pupils vary greatly in size, ranging from 2 mm. to 4.5 mm. and averaging 2.76 mm. in the light. The pupillary light reflex varies greatly, the range of the excursion being from scant 0.5 mm. to 3 mm. and the average 1.39 mm.
7. In the accommodation reflex the range of the pupillary excursion also varies greatly and is occasionally absent, the average range being 0.967 mm.
8. Convergence is more or less defective in fully half the cases.
9. The eye-grounds exhibit more or less deep or extensive cupping of the optic nerve with gray stippling in about an eighth of the cases; and in a few of these the appearance is suggestive of beginning gray atrophy.
10. The stereognostic appreciation is uniformly keen.
11. The same may be said of the muscular and spacing senses.

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THE SURGICAL TREATMENT OF HALLUX VALGUS AND BUNIONS.¹

BY

JAMES NEWELL, PH.D., M.D., CH.M.,
of Watford, Ont.

Late Professor Therapeutics in the Michigan College of Medicine and Surgery, Detroit; Member of the Michigan Surgical and Pathological Society; Corresponding Member of the Wayne County Medical Society, Detroit; Late Physician to Detroit Emergency Hospital, etc.

The term hallux valgus implies abduction of the great toe. The extent of this abduction is variable, but it is usually to a marked degree. By bunion is meant the swelling and hypertrophy of the tissues over the internal aspect of the metatarsophalangeal articulation of the great toe, and is extended so as to include the hypertrophied head of the metatarsal bone and the overgrown base of the first phalanx. Hallux valgus precedes bunion and is often caused by ill-fitting boots, which are too narrow, causing crowding of the toes. In the natural condition of the great toe, a line drawn through its center and extended backward will be found to run through the middle of the heel, but it is very rare to find in the adult a foot which is normal.

This outward deflection of the great toe uncovers the head of the first metatarsal bone, and with this there is also a slight outward dislocation of the base of the phalanx. Owing to this there ensues an inflammatory condition of the tissues, followed by swelling, hypertrophy, and frequently a false bursa. As the dislocation proceeds, the tendon of the extensor proprius pollicis becomes displaced outward, and when this displacement becomes well marked a distinct exostosis is very frequently formed. These are the causes briefly outlined which lead up to this deformity.

Treatment.—So far as my experience goes, the conclusion has been forced upon me that the palliative or usual treatment resorted to has not been followed by permanent benefit. Of course properly fitting shoes with a straight internal border, roomy at the toes, but with no dead space must be advised. Sometimes also there may be a gouty or rheumatoid arthritis which should receive proper medical treatment.

If seen in the early stage of the disease, which is rare, an appliance to keep the big toe in its proper place may be tried, or a sock having a separate compartment for the great toe. Sometimes placing a roll or wad of cotton between the toes, or the wearing of a boot having a separation or division rising up from the insole, is found of service. Various splints, springs, plasters, traction by elastic, etc., are in use, and will afford relief in the early stage of the disease. When, however, the deformity is well marked, and the uneasiness and pain are severe, it is necessary to proceed to operative measures.

Various operations have been employed in which the relief and benefit which followed was an uncertain quantity. Thus, in such cases, treatment has consisted of a straight incision, removal of the false bursa, and excision of the exostosis by the chisel or bone-forceps, but the result was not what was expected. There are also several other methods which have their advocates.

The operation which I have done and will proceed to outline, has been followed by complete and permanent relief, both of the hallux and bunion. As the operation is radical and a rather extensive one, involving the laying open of the joint and amputation of the head of the first metatarsal bone, it demands thorough and complete asepsis in the field of operation, instruments, hands, dressings, and everything which may come in contact with the wound.

The foot should be thoroughly scrubbed and washed with hot water and soap, and I have found brown soap such as is to be found in every house, to be as good as any. This is followed

¹ Read before the Canadian Medical Association at London, Ont., August 25, 1903.

by bathing with gasolin or oil of turpentine. Wash off with soap and water again, and then apply a 1-500 solution of mercuric chlorid, or a cream of the chlorinated lime and sal soda. Then finally wash off with sterile hot water. Do not forget to give special cleansing and disinfection to the skin between the toes. The hands of operator and assistants must also be thoroughly washed, scrubbed, and sterilized, as may be preferred, not forgetting the interdigital skin and nails. Personally I have a predilection in favor of chlorinated lime and sal soda to sterilize the hands. I find it does not roughen them like mercuric chlorid.

The operation which I do is the "Tubby Operation," and the technic is as follows:

An incision of from 2 to 3 inches long is made on the inner side of the big toe, with its center over the bunion. This incision may be straight or curved, or it may be made to include the skin over the false bursa, if there is one. This false bursa must be excised, before the incision is carried down to the joint, and its contents not allowed to escape and infect the wound.

The incision is now made down to the bone and the tissues are dissected and separated from the bones. This having been done, an assistant thoroughly retracts the tissues, when the joint is freely opened and the ligaments completely divided. It will now be found that the great toe can be easily turned outward, completely exposing the head of the metatarsal bone. As one of the objects is the removal of the head of this bone no difficulty will be experienced in inserting a small metacarpal saw and dividing the bone just behind the articular cartilage. The bone should be sawed through obliquely from above downward and backward. It is of importance to keep this in mind, as it leaves a much better joint. After the removal of the head of the bone, the sharp edges must be cut off with a pair of bone forceps, especially on the outer surface so as to remove any pressure from the branch of the internal plantar nerve. The under surface also requires careful trimming, so as not to be irritated by the sesamoid bones. Any exostosis that may be found on the metatarsal bone should now be removed by bone nippers. The wound should now be sponged out with sterile gauze. I have generally operated by the bloodless method, and have never had to ligate an artery. When bleeding has ceased the wound is closed by silkwormgut sutures. A pad of cotton is then placed between the great and second toes, so as to straighten the big toe, and if it is adducted a little, no harm will result. A light dressing of sterile gauze is now applied and a sheet iron splint placed on the sole of the foot and big toe with a piece turned up between the great and second toes to prevent outward deflection. The part of the splint under the toe is curved upward so as to cause the great toe to point slightly upward. Next a generous quantity of sterile gauze is applied over the foot to absorb any serous or bloody discharge, a bandage is applied to the foot and half way up the leg and the patient placed in bed, with the foot elevated. Should the dressing become soiled it must be removed to prevent wound infection. It is important this should not take place for the results would be bad in more ways than one.

The stitches may be removed in 10 days, the splint and pad reapplied, and the foot dressed as after the operation. When the wound is completely healed, passive movements in the joint are instituted in from 2 to 3 weeks.

The patient may now be allowed to go out, but the splint should not be removed till the end of the month. The pad of cotton between the toes may be kept much longer so as to prevent a return of the hallux valgus.

Bunions are looked upon as among the lesser evils, but their common prevalence, and the trouble and pain of which they are the cause, induce us to seek out a means whereby we may obtain an adequate and permanent cure.

The final result of this operation leaves nothing to be desired. The foot is restored to its normal appearance, the toe is returned to a straight line, but slightly shortened, and the lameness and pain have vanished.

MALIGNANT GROWTH IN THE ABDOMINAL WALL FOLLOWING ABDOMINAL OVARIOTOMY.

BY

GEO. W. KAAH, M.D.,

of Boston, Mass.

Cases of recurrent malignant growth in the abdominal wall following abdominal ovariectomy are not uncommon, yet they are sufficiently rare to merit attention. Halban¹ reports the following case:

A woman, aged 48, had two ovarian cysts removed; the one on the left side was about the size of the fist, that on the right was larger than a man's head. The latter cyst contained a brown serous fluid, and was punctured with a trocar. Both

cysts were unilocular and exhibited numerous excrescences, both upon the outer and inner walls. The peritoneal coat of the uterus, bladder, and intestines was studded with millet seed sized excrescences. The histologic examination showed a papillary cystadenoma of the ovary without any malignant degeneration. The patient was in apparent good health until about 18 months after the operation, when she began to have stabbing pains in the abdomen. Six months later she noticed a growth the size of a hazel nut in the line of the abdominal incision, which gradually increased in size, and she began to lose weight. In October, 1901, more than seven years after the operation, she again appeared at the clinic. The abdomen was enlarged to an even level with the thorax. At the upper part of the line of incision there was a tumor about the size of the palm of the hand, irregular in outline and of uneven surface. Examination showed the uterus atrophied with no abnormal resistance anywhere nor any tenderness; no enlargement of inguinal glands; no ascites. Diagnosis was made of inoculation metastases of abdominal incision following ovariectomy. The tumor was extirpated and histologic examination proved it a typical adenocarcinoma with numerous calcareous deposits.

Halban mentions other cases as occurring in the clinics of Pfannenstiel, Schauta, and others. He divides these cases into three groups:

1. Extirpation of a malignant cyst followed by malignant growth in the abdominal wall.
2. Benign cyst followed by benign growth.
3. Benign cyst followed by malignant growth.

To explain the last group is a difficult matter. Olshausen considers that in the primary, apparently benign cyst, there yet may have been a mixed growth; while Pfannenstiel, upon the basis of an exact histologic examination of a cyst which was benign throughout, considers there may be at first an inoculation of benign cyst particles which secondarily become malignant at the point of inoculation. Halban places his case in the third group, although he recognizes the fact that it is especially in cases of ovarian cystomas that the histologic examination may indicate a benign growth, while the clinical course of growth shows it to be malignant.

In discussing the subject, Chrobak mentions having seen a few cases of metastases in the abdominal wall, but in only one had he seen the patient from beginning to end.

The woman was in labor, and the cyst preventing progress, he punctured it; delivery followed promptly upon the emptying of the cyst. Two or three months later, Billroth operated upon the cyst, which had become as large as a man's head. The examination of the tumor made by Rokitsky proved it sarcoma. At that time stumps were treated extraperitoneally, and this stump was fastened in the lower angle of the incision. A few months later there was a hard, irregular immovable tumor in the upper angle of the incision above the umbilicus. Billroth advised against any further operation. In a few weeks Chrobak again saw the woman and diagnosed diseased mediastinal glands, which the autopsy a short time later proved to be correct.

The case I wish to report in connection with the foregoing cases differs from them in that the recurrence, or rather the inoculation of the abdominal wall, did not occur in the line of incision.

The woman, aged 63, was a widow, and had two children. A cyst of the right ovary as large as a coconut was removed through a median abdominal incision. In its removal not more than half an ounce of its thin brown fluid contents was lost in the abdominal cavity; other than this the cyst was taken out intact, and none of its contents touched the abdominal incision. The uterus and left ovary were atrophied. The pathologist reported the cyst as nonmalignant. Upon her discharge from the hospital she wore an abdominal belt, and after a time noticed a small bunch not larger than a pea above the umbilicus, which she considered due to the irritation from the belt. The bunch grew larger, began to ulcerate and became painful. One year after the first operation she entered the Free Hospital for Women. The bunch now was as large as a lemon, red in color, and with offensive odor. It was not situated in the line of incision, but a little above it, at the umbilicus.

This new growth was excised, including a margin of healthy tissue all around it. It was found to extend through the abdominal wall, and to include a small portion of the omentum, which was also removed.

Pathologic Report.—Large round-cell sarcoma. Six months after this last operation the inguinal glands of both sides were enlarged, and a firm immovable mass discovered in the pelvic cavity. Seven months later the pelvic cavity was practically filled with this firm mass, and the patient suffered from pres-

sure upon the pelvic organs. She died soon afterward. No autopsy.

The fluid contents of the cyst in this case were of the same appearance as in the one reported by Halban, and similar also in apparent benignity. In his case the abdominal wound was inoculated and recurrence occurred there. In this case the wound was not infected, but a very small portion of the cyst contents was left in the abdominal cavity. It is not likely that this small amount of fluid found its way to the peritoneum at the umbilicus, and set up a sarcomatous growth there. It is more probable that it was the focus of the growth in the pelvis which finally proved fatal, the growth at the umbilicus being in fact due to the irritation of the stiff abdominal belt in a woman with a system impregnated with malignant disease.

Sinclair,² in an address upon the subject of cancer, claims that cancer is infectious to the individual already infected with cancer, but to no other. The phenomenon of rapid recurrence in the cicatrice after operation, owing to the contact of the fresh wound with cancerous matter, points to an early cancerous condition of the system; an entirely different matter from the late cancerous cachexia. This fact, established clinically, he feels, has received too little notice.

I believe this case of mine supports Sinclair's claim. Viewing the subject of malignant disease in this light, it is conceivable that the known better ultimate results of high amputation of the cervix as compared with complete hysterectomy for cancer of the uterus may in part be due to less of a strain being put upon the malignantly affected system by the former operation. This leads up to the question as to whether after an operation for malignant disease we give sufficient attention to improving the general system of the patient.

In respect to ovarian cysts there is no doubt of the wisdom of Schauta's statement in discussing Halban's case, that they should be removed intact. A second case which has come under my observation is the following:

A woman aged 39, married and nullipara. At the time of operation eight quarts of ascitic fluid was removed from the abdomen. The peritoneum was studded with papular excrescences and the ovaries were masses each the size of a fist, of polypoid friable tissue. In the removal of these masses some of the fluid contents escaped into the abdominal cavity. The pathologic report was malignant adenoma. The abdominal incision was closed without drainage and healed by first intention; within four months the incision showed evidence of malignant disease and the patient died shortly afterward.

A third case is now under röntgen ray treatment by a colleague at the Free Hospital for Women, with doubtful improvement:

The patient, a woman of 44, noticed, last May, a pain in the lower abdomen when walking. In June the uterus and two ovarian cysts were removed; in one of the cysts there was a nodule of endothelioma. She has now a red elevated hard nodule in the right upper groin with a general hard brawny infiltration extending to the median line.

Here again the recurrence was not in the line of incision but at some distance from it. In a discussion upon the subject of sarcoma, Douglas Graham, of Boston, stated that in his experience it seemed that patients with sarcoma had a smoother and more silky feel to the skin and more subcutaneous elasticity of tissue than normally. If this is so it further confirms Dr. Sinclair's hypothesis of a malignant condition of the system, which is prior to and distinct from its local manifestation. It would mean also that a diagnosis to be early must be based upon something else than localized conditions and symptoms. This systemic condition might explain why all local treatment, surgical or otherwise, is so barren of good results.

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SUMMARY OF AN EXPERIMENTAL RESEARCH INTO DIGITALIS IN SHOCK AND COLLAPSE, WITH ILLUSTRATIVE PROTOCOLS.

BY

G. W. CRILE, M.D.,
of Cleveland, Ohio.

In these experiments the fluid extract, the tincture, and digitalin were used. In the normal animal therapeutic doses of digitalis, intravenously administered, caused a rise in the blood-pressure. The rise began after a latent period of half a minute to several minutes and gradually increased until the maximum was reached. The maximum was well sustained for a considerable time. The pressure finally assumed about its previous level. During the ascent, the continuation, and the descent the curve was usually even; the length of the pulse wave was usually increased; the heart's action was considerably increased in force and appreciably diminished in frequency. When given in larger doses or when smaller doses were repeated beyond therapeutic limits, the blood-pressure rose higher and more abruptly. The heart at first beat with greatly increased force and diminished frequency. The intermissions which were sometimes noted were usually the first symptoms of a cardiac breakdown. The latter was manifested by slow, powerful beats, followed by a varying number of rapid weaker contractions, making an irregular blood-pressure curve. If the overstimulation fell short of a fatal breakdown, the intervals of alternation between the slow, powerful contractions and the rapid, weaker ones, increased, later only intermissions appearing; finally the normal rhythm was reestablished. In the experiments in which the overstimulation reached the fatal breakdown, the alternations became more marked and the heart suddenly stopped. The force of the contractions in some instances was so much increased as to raise the thoracic wall and even shake the entire animal. In the experiments in which both vagi and accelerantes had been previously severed, the effects were not so marked. In careful measurements of twenty-eight experiments on single doses, the mean rise in the blood-pressure was 8 mm. In animals reduced to varying degrees of surgical shock, digitalis usually caused a rise in the blood-pressure. When the animal was reduced to such a degree of shock that burning the paw or stimulating the sciatic nerve caused no rise in the blood-pressure, digitalis caused a slight, if any, rise. The highest rise was 10 mm.

When overstimulation was obtained by administering too large a single dose, or by repeating smaller doses, the heart became extremely irregular or the animal died suddenly from cardiac failure. In some instances convulsions occurred.

The respiration, when at all affected, was either impaired or arrested. Death in the digitalis experiments, even in those in which the dosage was only therapeutic, was usually more sudden than in the controls. Although the data do not permit positive statements, it seemed, on the average, that in cases of shock the animal treated by digitalis did not live so long as the controls. It may certainly be stated that they did not live longer than the controls. In the experiments in which the medulla was cocainized and those in which the cord was severed just below the medulla, digitalis caused a distinct rise in the blood-pressure. When the heart had ceased to beat, digitalis introduced by intravenous infusion or by direct injection into the chambers or the walls of the heart did not produce any appreciable effect. The animals showed considerable idiosyncrasy in their reaction to digitalis.

EXPERIMENT 29.—Mongrel dog; weight, 8½ kilos; good condition. Ether anesthesia.

At 10.40, the initial blood-pressure was 140 mm.; pulse, 180; stroke, 11.

At 10.45, 1.3 cc. of tincture of digitalis was injected into the femoral vein.

At 10.46, pulse, 160; stroke, 12 mm.

At 10.48, the foregoing injection was repeated. The blood-pressure remained unchanged. The length of the stroke increased 2 mm.; pulse, 170.

At 10.51, 1.3 cc. (20 m.) of tincture of digitalis was injected.

At 10.54, 1.3 cc. (20 m.) of tincture of digitalis was injected.

At 10.56, blood-pressure, 155 mm.; stroke, 20; pulse, 160. The animal was killed.

EXPERIMENT 30.—Mongrel dog; weight, 11 kilos. Morphine and ether anesthesia. The spinal cord was severed in the lower dorsal region.

At 4.10, blood-pressure, 60 mm.; pulse, 210.

At 4.11, an injection of 1.3 cc. (20 m.) of tincture of digitalis was administered.

At 4.14, blood-pressure, 85 mm.; pulse, 180; respiration, 72.

At 4.17, blood-pressure, 100 mm.; pulse, 160; respiration, 148.

Fig. 5 shows the steady rise in the blood-pressure.

EXPERIMENT 41, 42. Dog 1: Male mongrel; poor condition; weight, 6 kilos. Dog 2: Female mongrel; fair condition; weight, 5 kilos. Ether anesthesia.

At 9.45, the tracheal and carotid canulas were adjusted.

At 10.27, preliminary observations were as follows: Dog 1: Blood-pressure, 134 mm.; stroke, 6 mm.; pulse, 164; respiration, 68. Dog 2: Blood-pressure, 125 mm.; stroke, 6 mm.; pulse, 168; respiration, 52. The animals were reduced to shock by exposing and manipulating the intestines. The femoral vein and the sciatic nerve of each dog were exposed.

At 10.28, dog 1: Blood-pressure, 94 mm.; stroke, 2 mm.; pulse, 152; respiration, 48. Dog 2: Blood-pressure, 75 mm.; stroke, 6 mm.; pulse, 128; respiration, 65.

At 10.30, the sciatic nerves were stimulated, with results as follows: Dog 1: An abrupt rise in the blood-pressure of 2 mm. followed by a slow decline. Dog 2: Slow rise in the blood-pressure of 2.5 mm.

At 10.31, dog 2: .3 cc. (5 m.) of tincture of digitalis was injected.

At 10.32, dog 1: An equal amount of normal saline was injected. Dog 1: Blood-pressure, 100 mm.; stroke, 4 mm.; pulse, 160; respiration, 52. Dog 2: Blood-pressure, 98 mm.; stroke, 5 mm.; pulse, 120; respiration, 64.

At 10.35, the sciatics were stimulated. Dog 1: A rise in the blood-pressure of 8 mm. was noted. Dog 2: A rise in the blood-pressure of 5 mm. was noted. The rise was more abrupt in dog 1.

At 10.47, dog 1: 1.3 cc. (20 m.) of normal saline was injected. Dog 2: .3 cc. (5 m.) of tincture of digitalis was injected. In both animals a gradual rise followed. Dog 1: The blood-pressure rose 8 mm. Dog 2: The blood-pressure rose 22 mm.

At 10.51, the sciatics were stimulated. Dog 1: The blood-pressure rose 6 mm. Dog 2: The blood-pressure rose 5 mm.

At 10.55, dog 2: .3 cc. (5 m.) of tincture of digitalis was injected. Dog 1: 1.3 cc. (20 m.) of saline was injected. Dog 1: The blood-pressure rose 8 mm. Dog 2: The blood-pressure rose 5 mm.

At 11.31, the sciatics were stimulated. Dog 1: A rise in the blood-pressure of 4 mm. followed. Dog 2: A rise in the blood-pressure of 13 mm. followed.

At 11.55, dog 2: .6 cc. (10 m.) of tincture of digitalis was injected. Dog 1: 1.3 cc. (20 m.) of saline was injected.

At 11.55-30, dog 1: Blood-pressure, 96 mm.; stroke, 10 mm.; pulse, 156; respiration, 52. Dog 2: Blood-pressure, 92 mm.; stroke, 4 mm.; pulse, 52; respiration, 144.

At 11.59, dog 1: The sciatic was stimulated.

At 11.55-30, dog 2: The sciatic was stimulated.

At 12.02, dog 1: A rise in the blood-pressure of 8 mm. followed. Dog 2: A rise in the blood-pressure of 5 mm. followed. Dog 1: Repeated clots occurred.

At 1.10, dog 1 died of an excessive dose of $MgSO_4$.

At 1.53-30, dog 2: .6 cc. (10 m.) of tincture of digitalis was injected. Blood-pressure, 96 mm.; stroke, 4 mm.; pulse, 144; respiration, 36.

At 1.55, dog 2, the sciatics were stimulated. An abrupt rise in the blood-pressure of 17 mm. occurred.

At 3.00, dog 2: .6 cc. (10 m.) of tincture of digitalis was injected. Blood-pressure, 94 mm.; stroke, 4 mm.; pulse, 144; respiration, 40.

At 3.03, the sciatics were stimulated. A rise in the blood-pressure of 9 mm. followed.

At 3.03-30, the sciatics were electrically stimulated. A rise in the blood-pressure of 14 mm. followed.

At 4.39, dog 2: .6 cc. (10 m.) of tincture of digitalis was injected. Blood-pressure, 70 mm.; stroke, 6 mm.; pulse, 104; respiration, 20.

At 4.44, the sciatics were stimulated. A rise in the blood-pressure of 2 mm. occurred.

At 5.00, dog 2 died of respiratory failure.

Johns Hopkins Hospital and Mr. Rockefeller.—John D. Rockefeller has given to the Johns Hopkins Hospital the sum of \$500,000, and the amount has been accepted by the board of trustees of that institution. The income of the hospital was seriously affected by the destruction of many houses belonging to it in the recent fire, upon which there was inadequate insurance. The expressed purpose of Mr. Rockefeller's gift is to restore that income to its original proportions and enable the hospital to keep up the charitable treatment which it has maintained in the past.

THE IMPORTANCE OF CONSIDERING THE ELEMENT OF VASOMOTOR INSTABILITY IN ESTIMATING THE SIGNIFICANCE OF IRREGULARITY OF CARDIAC RHYTHM.

BY

LOUIS FAUGERES BISHOP, A. M., M. D.,

of New York City.

Physician to the Lincoln Hospital, New York.

The frequent discrepancies between the heart-sounds as heard by the stethoscope and the pulse as determined by palpation must have impressed all observers. It has been a matter of surprise that hearts, which, by their sounds, seemed to be doing good work, were often accompanied by a pulse giving a poor impression, and, on the other hand, cases showing irregularities of the heart-sounds have been associated with a pulse showing a fair degree of regularity.

When it is remembered that, in the light of evolution, the heart is constructed of the same elements as the bloodvessels and is only a differentiation of the circulatory tube, and when it is appreciated that not only the blood of the heart but the blood of the whole circulation is surrounded by a muscular envelope that maintains its pressure, it can easily be seen that in palpating any portion of this blood-containing system, the variations in pressure will be a complex of the whole envelope and not merely of its strongest portion.

The vasomotor system is much more liable to disorder than the heart and the heart is able to compensate for a good deal of misbehavior on the part of the vessels, but in compensating, it often appears to be misbehaving itself. Thus, one may fall into the error of predicating disease of the heart-muscle when the trouble really is a functional derangement of the bloodvessels. In many of the cases that are strikingly benefited by the Nauheim treatment the results are undoubtedly obtained by a restoration of the peripheral circulation and the relief of the heart from a struggle to compensate for it.

Not only clinical but pathologic study confirms the fact that diseases of this class, including myocarditis and nephritis, have their origin most often in degeneration of the bloodvessels, at first functional and then organic. The coronary arteries of the heart become involved and then the heart-muscle suffers. The vasomotor of the bloodvessels suffer and then the larger vessels, so even in the early stages of circulatory symptoms, the relationships should be appreciated and the hygiene of the peripheral circulation becomes a matter of serious supervision.

Floating Hospitals for Pulmonary Diseases.—Recent news from Vienna states that the Austrian-Hungarian Floating Sanitarium Company, of London and Vienna, is meeting with considerable financial encouragement owing to the prominence of its chief director, Dr. Semon, physician to King Edward. The company intends to build big hospital steamers to travel about the Austrian, Italian, and French coasts—anywhere where it is warm and sunny. The accommodations will be principally reserved for people with lung trouble, and elaborate plans for their relief and cure are being worked out by eminent physicians here and in England. The company expects to start with a capital of \$5,000,000. It has procured favorable opinions from many medical authorities. M. Murali is the chief promoter.

N-Rays Exist in Sunlight.—Information from Paris, under date of April 3, says: Further experiments with N-rays, made here by MM. Blondelot and Charpentier, prove the rays to be a part of the invisible spectrum of sunlight, a little more ultra than the ultraviolet rays. They are between the heat and electric rays, slower than rays of radiant heat and faster than Hertzian waves. The N-rays can pass through aluminum as sunlight does through glass, and can be focused by an aluminum lens. They can be spontaneously produced from wood or glass, when twisted or subjected to pressure. Tempered steel limits them continuously. Professor Charpentier discovered that the human body emits the rays in quantities proportionate to the activity of that part of the body whence they come. He also proved that they are emitted from the speech center of the brain whenever a person speaks. When the speaker emits rays they vary according to the pitch of the note.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

April 16, 1904. [Vol. XLII, No. 16.]

1. Surgical Treatment of Nephritis (Bright's Disease.) ALEXANDER HUGH FERGUSON.
2. The Correction of Retrodisplacements of the Uterus. CHARLES W. OVIATT.
3. The Surgical Relation of the Vermiform Appendix to Perforation in Typhoid Fever. LEVI JAY HAMMOND.
4. The Action of Mineral Acid on the Cellular Substance of Typhoid Fever. MAY WHEELER.
5. The Chemistry of Bacillus Coli Communis. MARY F. LEACH.
6. Insufficiencia Pylori. MARK I. KNAPP.
7. Therapeutics of Insanity. ORPHEUS EVERTS.
8. The Ultimate Results of the Bloodless Replacements of Congenitally Dislocated Hips. JOHN RIDLON.
9. The Composition of Some So-called Synthetics and "Ethical" Nourishments. WILLIAM J. ROBINSON.

2.—Retrodisplacements of the Uterus.—C. W. Oviatt agrees with the experienced gynecologists that uncomplicated retrodisplacements rarely cause disturbing symptoms. In the exceptional cases a pessary with possibly pelvic massage and postural treatment may be all that is required. Complications should be carefully sought for and the method selected that will best enable the surgeon to deal with them. The writer prefers the operation devised by G. H. Noble for suturing the round ligaments in the abdominal wall. Through the skin, fat, and aponeurosis an incision is made transversely $1\frac{1}{2}$ inches above the pubis to the outer border of the recti. The recti and peritoneum are separated vertically, the round ligament grasped and made taut, and at the outer edge of the recti the point of artery forceps is forced through the sheath of the muscles, but not into the abdomen, and opened to make an aperture to admit the finger which is hooked under the taut extraperitoneal portion of the round ligaments. The sheath of the ligaments is split open by blunt dissection and it and the peritoneum stripped back in the direction of the uterus. After closing the vertical incision the two ligaments are drawn out of the openings approximated in front of the recti and tied. The cut edges of the aponeurosis are then stitched together, the continuous suture including the ligament and a little of the muscle on each side as well. [H.M.]

3.—Relation of the Appendix to Perforation in Typhoid.—L. J. Hammond thinks our greatest possibilities in lowering the mortality from perforation lie in removal of predisposing conditions. Beside the 5% arising from the appendix alone, there is a large number occurring in the ileum and ascending colon that can be directly traced to preexisting disease of the appendix. He reports cases demonstrating this, the tension from adhesions causing rents in the ulcerated patches. Typhoid is sure to light up the old inflammation. Therefore, when the earliest symptoms in typhoid are pain to the right of the hypogastric region, with tenderness, nausea or vomiting, aching in the loin, anorexia, and rigidity of the right rectus muscle, this should be suspected, knowing that the right iliac fossa is not tender until the seventh or eighth day in uncomplicated typhoid. Immediate laparotomy seems the only wise course, removing the appendix, and freeing agglutinated coils of intestine. [H.M.]

4, 5.—See *American Medicine*, Vol. V, No. 20, p. 781.

6.—Insufficiencia Pylori.—M. I. Knapp believes the recognition of this as a cause of chronic dyspepsia of paramount importance. One hour after Ewald's test-breakfast there should be from 30 cc. to 50 cc. of chyme. Insufficiencia pylori is the condition in which nothing or possibly but 1 cc. or 2 cc. of chyme is aspirated. The larger the quantity and the finer the pulverization the longer did the pylorus offer resistance, the longer was it closed. And since protracted closure could not exist without active peristalsis a large quantity of chyme in which a "floury layer" is present signifies an active hypertonic stomach. This is contrary to the general view which attributes such chyme to atony. The stenosis indicated is due to irritation. Coarse chyme indicates insufficient closure preventing the ingesta being acted on dynamically. In the last stage the food rushes immediately past the pylorus, the patient practically having no stomach. The predominant symptoms are due to gas in the bowel. The appetite is variable. Vomiting may be present. Several test-meals with aspiration at varying

periods are necessary for exact diagnosis. Inflation may be of some avail. In the last stages the stomach cannot be inflated. Loss of teeth must be supplanted by artificial ones. When this is impossible, cereals and vegetables should be eaten in the form of puree. Meat should be ground up in a machine. Food that develops gas should be avoided. Alkalies should be given at the time the stomach is emptied. Pancreatin and papain must be fresh. Strychnin in large doses is the most important drug. [H.M.]

7.—Therapeutics of Insanity.—O. Everts thinks our medication not in advance of that of Hippocrates. Patients are narcotized to a perilous degree. Loss of blood can be more easily recovered from than repeated intoxication. Hygienic therapeutics are in accord with common sense, of which the most important relate to air and water. Massage and electricity fail as suggestive therapeutics among the insane. Occupation and manual labor are beneficial to the chronically insane. Disciplinary therapeutics are second only to hygiene. The question is as to the method of restraint, whether by mechanical appliances, paralyzing drugs, or moral influences. Some are incapable of recognizing the latter. Restraint by an attendant is more exasperating than by an appliance. Prohibition instead of regulation of the use of the latter was an error. The use of narcotics has diminished the ratio of recoveries. [H.M.]

9.—See *American Medicine*, Vol. V, No. 21, p. 821.

Boston Medical and Surgical Journal.

April 7, 1904. [Vol. CL, No. 14.]

1. Infectious Arthritis. JOEL E. GOLDTHWAIT.
2. Some Points on Diagnosis and Treatment of Certain Neglected Minor Surgical Lesions. E. A. CODMAN.
3. Radical Cure of Inguinal Hernia. JOHN O'CONNOR.

1.—Infectious Arthritis.—Joel E. Goldthwait holds that infectious arthritis is rarely primary, but is usually a sequel of some other disease, representing probably an extension of the affection, in this respect similar to the present opinion with reference to the cause of mastoid and middle-ear disease. Infectious arthritis may result from any of the pus-producing organisms, and the type of lesion will depend upon the tissue and organism involved. The disease may be mild and short, with complete recovery, or severe, with even a fatal termination; one or many of the joints may be affected, and there may be destruction of articulation. Skiagraphic and photographic plates accompany the article, illustrating the deformity and destruction in various joints. The pneumococcus, streptococcus, and typhoid germs may cause marked destructive changes in the bones as well as the soft parts. The gonococcus rarely causes bone changes, but is associated with much thickening of the capsule and interference with joint function. In the difficult diagnosis of infectious arthritis from the other types of rheumatoid disease, in case the history, the general appearance of the patient, and the local lesion are not distinct, the röntgen rays are of importance. In infectious arthritis without suppuration the bones are of normal density, the cartilage is present and of normal thickness, and though the joints may be ankylosed, the ankylosis is due to the adhesions which have resulted as part of the inflammation. Detailed histories of 18 cases are reported by the author. [A.B.C.]

2.—Neglected Minor Surgical Lesions.—E. A. Codman says among the frequently unrecognized lesions seen in the outpatient surgical department are certain unrecognized fractures which he has learned to distinguish from sprains. The old statement, that a sprain is worse than a break, has arisen from the fact that in many of these instances an unrecognized fracture exists instead of a sprain. Among the most common of the unrecognized fractures is that of the scaphoid bone of the wrist. A typical case is reported. Diagnosis is made sure by the röntgen rays. Bony union does not take place and the bony callus is so large as to interfere with the function of the wrist and destroy the normal contour; dislocation of the semilunar bone of the wrist sometimes occurs, especially in case the scaphoid is fractured. Early tuberculosis of the wrist-joint is often not recognized, as are also rheumatoid, and osteoid arthritis at this joint. At the shoulder-joint various lesions may occur which are obscure and difficult to diagnose; unrecognized

ognized fractures in this vicinity are not uncommon, especially of the greater and lesser tuberosities of the humerus. Another region of interest is the ankle-joint. Codman has learned lately to detect fractures in this region, in which the old signs failed and which used to be called sprains. One of these is impacted fracture of the os calcis. Points in diagnosis are: (1) The history of fall on the foot or heel; (2) tenderness over the os calcis; (3) ecchymosis above the heel on both sides of the foot; (4) shortening of distance between the malleoli and the floor as compared with the other foot. [A.B.C.]

3.—Radical Cure of Inguinal Hernia.—John O'Connor, of Buenos Ayres, reports satisfactory results in a method of operation practised on 50 patients. The incision, isolation, and removal of the sac is after the usual manner; the remainder of the operation, briefly described, is as follows: The conjoined tendon and Gimbernat's ligament are exposed, and with left index finger in canal as a guide, four "strong" fishing-gut sutures are passed from within outward, one-third inch apart, through the projecting ledge of Gimbernat and external oblique, the ends of sutures are retained outside external oblique. The free ends are threaded on a hernia needle with an opposite curve and are carried upward from within outward through conjoined tendon. The ends of these sutures are similarly retained outside sheath of tendon. A straight Reverdin needle is entered through each suture hole in tendon, passed across beneath aponeurosis and emerges at corresponding suture hole in external oblique, the end of this part of suture is caught in needle or forceps, drawn across and out through suture hole in conjoined tendon; thus both ends of each suture emerge from the same aperture in tendon, excepting the fourth or lowest suture, which is only partially submuscular in that it crosses in front of external ring. These sutures are tied with sufficient force so as to approximate the tendon and Gimbernat. The ends of sutures are snipped off and the knots retreat into substance of tendon and each little stitch aperture in sheath of latter is closed by a fine catgut suture. [A.B.C.]

Medical Record.

April 16, 1904. [Vol. 65, No. 16.]

1. The Tuberculosis Hospitals of the New York State Hospitals for the Insane. FREDERICK PETERSON.
2. The Deficient Urea Excretion in Gout and Lithemia. RICHARD K. MACALESTER.
3. Operation for Congenital Saddle-nose by Introduction of a Celluloid Plate. JOSEPH WIENER, JR.
4. The Bladder in Health and Disease, as Demonstrated by the Cystoscope. HENRY G. SPOONER.

2.—Deficient Urea Excretion in Gout and Lithemia.—R. K. Macalester finds as the result of his investigations that persistent deficient urea excretion is always present in chronic gouty conditions. The total urea output is considerably lower than in chronic Bright's disease, about two-thirds of the amount in other miscellaneous chronic disorders, and only about three-fifths of the quantity excreted in health. Deficient urea excretion is important in differentiating between gouty and chronic rheumatic troubles, and between lithemia and certain nervous conditions dependent on other causes. It is not present in chronic rheumatic conditions, urinary analyses not deviating materially from normal. It points to perverted hepatic metabolism and lends color to the Murchison theory of gout, there being in the cases discussed no evidence of kidney trouble. A diminished uric acid excretion is to a certain degree commensurate with that of urea. Gout, goutiness, and lithemia are of the same origin, and but modifications of the same disorder. Chronic gouty conditions are in general more amenable to treatment, especially to balneotherapy, than chronic rheumatic affections. [H.M.]

3.—Celluloid Plate for Saddle-nose.—J. Wiener states that subcutaneous injection of paraffin to correct nasal deformity are not altogether satisfactory. Several cases of embolism have been reported occasionally followed by serious lesion. The introduction of a celluloid plate is simple, safe and efficacious. A case in point is reported. It is now three years since the introduction of the celluloid plate and the results have been entirely satisfactory. The patient was a man of 35; saddle-nose was congenital. An incision was made a quarter

inch long, in the median line on the under surface of the nose. Through this small incision, with iridectomy scissors, a subcutaneous flap was made over the depressed bridge of the nose. A piece of celluloid about half an inch wide, an inch long, and a thirtieth of an inch thick, was sterilized by boiling in soda solution. Taking it out of the hot solution, the celluloid was readily molded to the shape of the bridge of the nose. The plate was then introduced through the incision, and pushed upward until it occupied the space corresponding to the subcutaneous flap. The patient stated he had had no annoyance from the plate subsequent to the operation. [A.B.C.]

4.—The Bladder as Demonstrated by the Cystoscope.—Henry G. Spooner devotes a considerable portion of his article to a discussion of the mechanism of the cystoscope and instructions as to how it should be used. This instrument has shown that cystitis of gonorrheal origin is a localized process encompassing the neck of the bladder and the trigonum, but never spreading further. Miliary tubercles are formed by the deposition and growth of the tubercle bacilli. These tubercles can be seen in the form of small round gray elevations, surrounded by hyperemic areas. Later by the process of cheesy degeneration these tubercles ulcerate, and as their walls coalesce, extensive ulcerations of the mucosa and submucosa are formed. After inflammation of the bladder, particularly the gonorrheal form, the region of the trigonum shows a remarkable tendency to papillary proliferation. Fenwick's statistics, based upon an examination of all the bladders contained in the museums of England, Scotland and Ireland show that single growths of the bladder occur in 86% of the cases in the inferior zone. They are found at the right ureteral orifice in 43%; at the left ureteral orifice in 26%, and on the interureteral line in 10% of the cases; 90% of the fibroma papillare or villous growths occur at the ureteral orifice. These small villous growths are the starting points of most of the tumors of the bladder. [A.B.C.]

New York Medical Journal.

April 9, 1904. [Vol. LXXIX, No. 15.]

1. The Wiring of Bone for Recent and Ununited Fracture, with Report of Cases. STEWART LEROY MCCURDY.
2. Skiagraphic Errors: Their Causes, Dangers, and Prevention. (Concluded.) LEWIS GREGORY COLE.
3. Guides to the Prognosis in Epilepsy, with Remarks on the Curability of the Disease: Including Reports of Thirty-four Cases. WILLIAM P. SPATLING.
4. The Epidemic of So-called Trachoma. ELLICE M. ALGER.
5. The Physiology and Pathology of Biliary Secretion. HUBERT RICHARDSON.
6. Right Pulsating Exophthalmos: Ligation of Both the Right Common Carotid Artery and the Left Internal Carotid Artery: Accidental Traumatism: Cure. CHARLES A. OLIVER.
7. On Laboratory Diagnosis. (Continued.) M. P. OVERHOLSER.

1.—See *American Medicine*, Vol. V, p. 981.

4.—Epidemic Trachoma.—In discussing the subject of trachoma, E. M. Alger says the present epidemic among school children is nothing more than that of follicular conjunctivitis. They have none of the symptoms of trachoma, subjective or objective, except the soft granulations. He says there is absolutely no evidence of contagion that would not apply equally well to heat prostration or to enteritis. Alger believes that atmospheric dirt must play a very large part in its etiology. In most cases the glands in the neck are enlarged, and it is notorious that this class of children have a disproportionate number of adenoid growths in the pharynx. The granulations usually disappear completely in a few weeks' time under the simplest kind of treatment. [C.A.O.]

5.—Physiology and Pathology of Biliary Secretion.—Hubert Richardson states the physiologic action of the bile salts as follows: 1. Injected in small doses into the blood-stream, they produce a widespread disintegration of the red corpuscles with a liberation of hemoglobin; brought into contact with cells of the body, they cause their disintegration. 2. Blood in which there is a certain amount of bile, agglutinates the typhoid bacillus, and to a certain extent *Bacillus coli communis*. 3. Administered by the mouth they have a cholagogue action, and are, in fact, the only drugs which have the power to produce an increased flow of bile, both solid and liquid constituents being increased. 4. The presence of the bile salts in the blood acts as a stimulus to the liver cells. 5. In small doses

they aid coagulation. 6. In large doses they arrest coagulation. 7. In very small doses they act as vasodilators. 8. In large doses they act as vasoconstrictors. 9. They reduce motor and sensory irritability. 10. They slow the heart-beat by direct action on the heart muscle and the cardiac ganglia. 11. They act on the higher cerebral centers, causing coma and death. Under physiologic conditions, Numbers 1, 3, 4, 5 and 7 may be considered their normal action, while 6, 8, 9, 10 and 11 are pathologic and due to excess in the blood. [C.A.O.]

Medical News.

April 16, 1904. [Vol. 84, No. 16.]

1. Ulcer and Cancer of the Stomach, from a Surgical Standpoint. WILLIAM J. MAYO.
2. Otitis Media in Croupous Pneumonia: With the Report of a Case of Acute Suppurative Otitis Media Preceding the Pneumonia. NATHAN G. WARD.
3. Hepatectomy for Tuberculoma of the Liver. JOSEPH RANSOHOFF.
4. The Relationship Existing between Ophthalmology and Otology and Dentistry. FRANK ALLPORT.
5. A Historic Sketch of Some of the So-called Cures for Pulmonary Tuberculosis, with a Few Notes on Latter-day Treatment. J. EDWARD STUBBERT.
6. Hysteria and Organic Disease. WILLIAM B. NOYES and RICHARD C. NEWTON.
7. Varieties of Pulmonary Tuberculosis. JAY PERKINS.
8. Poisoning by the White of an Egg. J. R. CLEMENS.

1.—Ulcer and Cancer of the Stomach from a Surgical Standpoint.—William J. Mayo says chronic ulcer of the duodenum should be classed with gastric ulcer. In 39 cases which have come under his care at the operating table, 32 were in males. Of the combined series of gastric and duodenal ulcers occurring in his experience, 12% were duodenal and 88% gastric. Welch found in 793 autopsies that chronic gastric ulcer occurred in women in 60% of cases and in men in 40%, which is similar to Mayo's experience in over 300 cases. Can cancer of the stomach be cured by operation? Murphy collected 189 cases operated upon by seven different surgeons, and the deaths as result of operation were 26, or 15%; and the patients surviving the three-year limit were 17, or about 8%. Can the diagnosis be made in time by medical means? No; in the vast majority of cases exploratory incision is the only means by which a definite diagnosis can be made. The presence of a tumor in the pyloric region does not contraindicate operation; it may, in fact, be a beneficent check producing timely stenosis at the pylorus. The laboratory diagnosis of cancer of the stomach has little importance during the operable period, because the disease is so slight as to interfere little with the secretions. Mikulicz has shown that with cancer at the pylorus the entire lesser curvature must be removed, whereas Cuneo has demonstrated that the glands which drain the greater curvature are near the pylorus and that the lymph current is from left to right, showing that excision of the pylorus with the lesser curvature may be done without sacrificing the greater curvature and the fundus. His conclusions are that cancer of the stomach can be cured without excessive mortality only when exploratory operation is undertaken early; palliative treatment is but a prolongation of a hopeless existence. [A.B.C.]

2.—Otitis Media in Croupous Pneumonia.—Nathan G. Ward says the relationship of a complicating otitis media to the systemic condition may be as follows: 1. One who has otorrhea develops the systemic infection. 2. One who has otitis previously but has been apparently well for a long while suffers a recurrence. 3. Otitis as a primary manifestation, the systemic disease following. 4. Otitis as a complication or sequel to the systemic infection. 5. The otitic infection as a cause of the systemic infection or general pyemia. These he takes up separately and considers at some length. Otitis media complicates pneumonia more frequently than is suspected. In Netter's 20 cases of otitis, 14 had pneumonia; in Hartman's 36 cases of otitis, 10 had pneumonia. Rasch's 43 cases of pneumonia, 42 had otitis. Teichman's 73 cases of pneumonia, 34 had otitis, and Wilson's 71 cases of pneumonia, 8% had otitis. Ponfick's 11 autopsies on pneumonia cases, 10 had otitis. It is interesting to note that otitis media, complicating pneumonia, practically always precedes this affection. He reports in detail the history of a case illustrative of his points in the discussion. [A.B.C.]

3.—Hepatectomy for Tuberculoma of the Liver.—

Joseph Ransohoff discusses at length hepatectomy for tumors of the liver, mainly, of course, for malignant disease of that organ. According to Keen's table, the mortality of all liver resections is 15%; according to other authors, the mortality is higher. Ransohoff reports having performed hepatectomy for a tumor of the liver. The patient was a man of 36 who, 10 years previously, had the left testicle removed for tuberculosis; since then he had enjoyed good health until the past four months. During the latter period he experienced a sense of weight and pain in the region of the stomach, which he attributed to dyspepsia. During the past two months he had noticed a tumor growing under the tip of the scrotum. Physical examination showed a tumor in the epigastric region, which was movable, irregular in outline, and of considerable size. Laparotomy showed that the tumor was embedded in the left lobe of the liver; there was no extension to surrounding organs and no enlarged lymph-nodes. The left lobe of the liver was brought into the abdominal wound and anchored by two large bullet-pointed probes transfixing it, and the application of an elastic tube to form a pedicle. The day following, the left lobe was cut away with a thermocautery without the loss of blood, though the patient grew worse and died on the sixth day after the operation. A microscopic examination of the tumor showed it to be tuberculous in origin. [A.B.C.]

4.—Ophthalmology, Otology and Dentistry.—F. Allport reviews in a general way the reported instances of relation between the teeth, eyes and ears by direct continuity of tissue and by reflex irritation, including toothache cured by lenses and prisms, phlyctenular keratitis, conjunctivitis and otitis due to teething, toothache, as a prodrome of glaucoma, strabismus and especially diminished or suspended accommodation, etc., from dental irritation. The prolonged interstitial keratitis of congenital syphilis may be due more to the sensitive teeth than the underlying taint. It is improbable a diseased mouth will cause reflex disturbances without the morbid oral condition being manifested both subjectively and objectively. It is the relationship that is apt to be overlooked. The range of ear diseases so produced is more limited probably because there are fewer ear than eye diseases. The affections are principally myringitis, earaches, sensitiveness of the canal, hyperesthesia of hearing, deafness, furuncles and eczema of the canals. In lancing gums for otalgia the incision should completely liberate the tooth. The writer is sceptical of so-called reflexes in which intense inflammatory conditions are present, these being due to migration of infection. He urges eye and ear surgeons to carefully examine the mouth as a matter of routine. Boards of Health and school boards should appoint dentists who may quickly, yet efficiently, examine public school children once yearly. [H.M.]

5.—Cures for Tuberculosis.—J. E. Stubbert describes the treatment of 150 years ago and the various present-day methods including drugs, light, electricity, water, serum, intravenous and subcutaneous injections, inhalations, etc. With our present knowledge diet, hygiene, and fresh air are universally accepted as the foundation of all scientific treatment, although by themselves they are not sufficient but must be supplemented by symptomatic treatment in the way of antiseptics, tonics and surgical interference when necessary. The probability is that within three years we will see notable advances in immunization and the stimulating effect of light. [H.M.]

6.—Hysteria and Organic Disease.—W. B. Noyes and R. C. Newton note that earlier writers sought for and not infrequently found causes and symptoms that were distinctly organic. More recently chemic and cytologic changes in the tissues have been looked for. The trend of the French school has been to psychologic interpretation explaining its etiology in terms of suggestion, and its primary symptomatology in the line of fixed ideas. In their extreme, these hysterical psychoses resemble paranoia, or other definite insanities may develop. A diathesis of hysterical contracture is apt to be present. Vasomotor phenomena, such as flushes, morbid blushing, sensations of heat or cold occur. If these take place in the sympathetic system, serious trouble from some internal organ may occur, such as flatulence, palpitation, etc. Death may be caused without lesion. Edema of the extremities or gangrene may develop.

Dermatoses are frequent, especially urticaria. When anorexia becomes a symptom, the symptoms of starvation, especially anemia, result. In old people hysteria is associated with arteriosclerosis, etc. The latter does not cause the hysteria, but the hysteric diathesis is revealed by it. Menstrual depression is especially liable to develop definite hysteria. It is difficult to state which is the primary and which the secondary factor in hysteric "female complaints." A painful area similar to the sensitive ovary is frequently seen in male hysterics. Chorea and epilepsy often breed hysteria. Tabes, hemiplegia, definite muscular dystrophies, alcoholism may all have distinctly hysteric symptoms grafted on them. [H.M.]

7.—Varieties of Pulmonary Tuberculosis.—J. Perkins finds that most textbooks give no divisions which are of practical value in prognosis and treatment. Treatment which will cure some is a positive injury to others. The writer makes the following classification: 1. Localized fibrous form. These are favorable. There is little or no necrosis and little mixed infection. These can endure the most vigorous treatment. Cavities and hemorrhages may occur and caseous matter be expelled and yet the disease remain localized. 2. Fibrocaseous form. A considerable portion of lung may be affected followed by a cavity and contraction. The patient may live a long time in fair comfort, but with shortmindedness and debility. Dust, smoke, and all excesses must be avoided. 3. Fibroid phthisis—generalized fibrous form. These run a chronic course and are found chiefly among those exposed to irritating dust. 4. Phthisis florida. This is without formation of fibrous tissue, infection is profound and active, and absorption is marked. The patient dies of toxemia without the disease spreading to other organs. 5. Chronic parenchymatous tuberculosis. The onset is insidious, being generally diagnosed as anemia, debility or bronchitis. Although there is thickening of the alveolar walls there is no shutting off by fibrous formation. The general symptoms are marked compared with the physical signs. It is less rapid, though little less fatal than phthisis florida and patients should not be sent from home. 6. Acute miliary form. This does not advance to dulness and mucous rales before the system is overwhelmed by the toxins. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

The value of radiodiagnosis has recently been discussed by Dr. Laignel-Lavastine¹ who enumerates five methods of utilization of the phenomena of "radiology:" Radioscopy, radiography, stereoscopic radiography, stereoscopic radioscopy, and endodioscopy. As the last term is not self-explanatory, it may be well to inform those less familiar with such mysteries, that it is the invention of M. Bouchacourt, and applied by him to denote a new method of excitation of a Crookes' tube by means of an electric current of which the negative pole only is in a state of tension, and so applied as "unipolar excitation of röntgen tubes in the natural cavities." After discussion of results obtained in detection of foreign bodies which are fairly familiar to all our readers, Dr. Laignel-Lavastine discusses the results obtained in lesions of the limbs. His conclusions are as follows:

Fractures are revealed by the appearances now familiar to every surgeon; but, where overriding of the fragments exists, radiography may fail to display its existence, except the limb is examined in various planes. The presence of another bone in the line of transmission of the rays has a similar deceptive effect. Subperiosteal fractures may be completely invisible. If it is exceptional that radiography does not display a fracture diagnosed by the usual methods, the inverse error is extremely frequent. The presence of callus is revealed by the röntgen rays about the twelfth day, when a light shadow begins to appear. Alterations in the osseous tissues are nearly always revealed; rarefying osteitis by an abnormal transparency; osteomalacia by an almost complete disappearance of the usual shadow; condensing osteitis by an accentuation of the same. Luxations—both partial and complete—are necessarily portrayed with vivid distinctness. The existence of

osteomyelitis in the early stages displays nothing abnormal; but the formation of a transparent area about the tenth day indicates the destruction of bone tissue which accompanies the formation of pus. Tuberculous deposits are indicated by clear spots surrounded by a more or less deeply shaded zone due to osteitis—condensing or rarefying. Syphilitic changes are indicated by clear spots; but, being nearly always accompanied by a rarefying osteitis, such patches are masked by a fusiform margin of dark shading—of ill-defined structure; either completely homogeneous or enclosing some clear spots. The most frequent of the osseous changes of leprosy is indicated by the extreme transparency of the phalanges of the fingers. In Paget's disease, the deformed bones display a considerable amount of thickening of the compact tissue. In cases of akromegaly, M. Bécère has obtained some beautiful skiagrams of the head in the sagittal position, showing the pituitary fossa very much widened, the frontal sinuses abnormally dilated, and the cranial wall in the neighborhood of the anteroposterior median plane greatly—and unequally—thickened. Specimens of rickets display the tardy ossification of the epiphyses, with thickening, and slow union of the epiphysary cartilages. There are frequently observed in the adjacent parts of the diaphysis some irregular dark lines produced by stratification of the osseous tissue. In cases of cretinism, the striking feature is the great distances which separate the bones at the articulations; the epiphyses remain completely cartilaginous for a long period. Osteosarcoma is characterized by a well-defined clear patch. In cases of acute arthritis, pus appears less opaque than a simple serous effusion. In a radiographic study of subjects of chronic rheumatism, made by Barjon, in 1897, the interarticular line of clearness gradually diminished, and at last disappeared. In the advanced stages, the osseous tissue appears to become more dense. The nodosities of Heberden and of Bouchard are well shown in typical cases. The tophi of gout are transparent; and, accordingly, there is a startling contrast between the outer appearance of a gouty hand or foot and its radiographic image. The tabetic arthropathies display a rarefaction of the articular extremities of the bones, coexisting with an exuberant osseous vegetation, and ossification of the capsule, ligaments, and tendons. Cases of syringomyelia show disseminated clear patches in the metacarpal bones and phalanges, especially in the neighborhood of the epiphyses. Radiographic examination of specimens of tuberculous arthritis show nothing definitely abnormal; the whole articular cavity appears darker, and the adjacent portions of the bones cast a lighter shade.

Radiodiagnosis in Lesions of the Head, Neck, and Body-cavities.—With regard to the radiology of the head, neck and trunk, the utility of its application varies greatly with the region. That of the head is obviously almost limited to modifications of the brain case itself. As M. Bécère has well put it, if the röntgen rays show a ball of lead in a flask of wood, they do not reveal the presence of a ball of wood within a leaden flask. A portion of the nasopharyngeal cavity and pharynx can be distinguished. The accessory nasal cavities are clearly visible, and above all, the frontal sinuses. In otology, the röntgen rays are not applicable. In the domain of odontology, the teeth can be easily studied by placing the radiographic plate within the mouth. The dental germs can be seen, the enamel throws a darker shadow than does the dentine. The orbital cavity can be well examined by lateral application of the rays; and, accordingly, their employment for the detection of foreign bodies is very useful in ophthalmic practice. The fact of the approximately equal transparency of the abdominal organs to the röntgen rays, combines, with the great mobility of most, to render their radiographic tracing so very unsatisfactory. Radioscopic examination, on the other hand, displays very instructively their displacements during the movements of respiration, and under the influence of pressure applied by the muscular walls of the abdomen, or from without. The ingestion of opaque substances, too, such as the salts of bismuth, enables the observer to study the intestinal movements with great advantage. The exploration of the thorax forms a specially rich domain of observation with the aid of the röntgen rays. As Professor Landouzy has well put it, this mode of examining the thoracic walls and their contents would have specially merited the name of *stethoscopy* had not Laennec previously fixed the sense of that appellation for all time. It adds the more reliable testimony of the eyes to that of the ears, while it displays the existence of deep-seated lesions of which the existence could never

¹ Gazette des Hôpitaux, January 16, 1904.

have been ascertained by any of the previously known methods of examination. In exploration of the thorax, more than in any other region of the body, the first place must be given to radioscopy. In such investigations the use of a diaphragm of lead is indispensable. It is also of great importance to be able to vary the penetrating power of the rays. This can be effected by means of the "osmo-regulateur," of Villard. The movements of the thoracic segment of the skeleton, of the diaphragm, and of the enclosed heart and lungs can thus be studied with vivid clearness. Radiography of the thorax gives a precision to the diagnosis of early, deep-seated tuberculous deposits, which had previously been altogether unattainable. A diminution of transparency is noticeable before any signs are discoverable by inspection, palpation, or percussion, and when auscultation shows but a slight roughening of the respiratory sounds. In this connection it should be remembered that Williams has pointed out that in the normal state the apex of the right lung is less transparent than that of the left. The same observer has stated that diminished excursion of the diaphragm on the affected side is sometimes the very earliest observable sign in cases of incipient tuberculous deposit. The various other forms of solidification of the lung tissue, of pleural thickening, etc., give, of course, still more definite local signs. Pleural effusion offers a well-marked shadow. Pneumothorax gives increased transparency. Hydrothorax or pyopneumothorax displays a field which has been aptly compared by Williams to the shadow of a half-filled ink-bottle. And a specially interesting see-saw movement is also seen, from the fact that with each inspiration the diaphragm descends on the sound side, while the upper surface of the liquid rises on the affected one. The evidence of localized effusions is, of course, less satisfactory. Diaphragmatic pleurisy gives a thickening of the shadow of the diaphragm, more clearly defined, of course, on the left side. Mediastinal pleurisy offers a deepening of the median shadow. The shadow of interlobular pleural thickening is visible only when its plane is placed in the plane of the rays normal to the screen. This fact has been very skilfully demonstrated by M. Bécèle.

Orthodiagraphy is a term devised to denote the mode of determining by the aid of the röntgen rays, the exact dimensions of one of the internal organs by the shadow which it throws upon the fluorescent screen. It is especially applicable to examination of the heart. Exaggerated aortic pulsations are, of course, observable in various conditions: Syndrome of Basedow, chronic saturnism, ventricular hypertrophy, etc. The right oblique anterior position must be resorted to in cases of suspected aortic aneurysm. Tracheobronchial adenopathy is already demonstrable. An esophageal shadow can only be obtained by getting the individual to swallow some opaque substance, such as salts of bismuth, lead, or mercury. Subnitrate of bismuth is oftenest used. Many other minor are discussed by Dr. Laignel-Lavastine in this communication, which is one of the most valuable that we have yet perused on this very important and interesting subject.

Tobacco in Recent Therapeutics.—The unique influence which tobacco has for so long a period exercised on the domestic and commercial history of the human race often causes us to lose sight of the hygienic and therapeutic properties, which have been in various ages attributed to "the weed." That tobacco smoke enjoyed a massive reputation as a deodorizer and disinfectant long before the invention of bacteriologic pathology is well known to all those who have been curious enough to investigate the history of the subject. The establishment of its reputation as a preventive of the dissemination of the virus of plague was effectively rooted in the English literature of the latter half of the seventeenth century. During the terrible epidemic of the plague

which visited and wasted London in 1665–66, the Angel of Death passed over the doors of the tobaccoconists' shops. And the visitation of Hamburg by cholera, a few years ago, left a corresponding record of the immunity of those privileged establishments against the entrance of that dire enemy to human life. Accordingly, tobacco smoke has, within recent date, been made the subject of crucial bacteriologic experiment; but the results of the strictly "scientific" investigations do not appear to have been at all so convincingly demonstrative as those which nature had carried out on so vast a scale by the much cruder methods to which we have referred. The depressing effect of the introduction of even minute portions of tobacco into the rectum was extensively utilized before the discovery of general anesthetics for the production of the muscular relaxation necessary to reduction of the major dislocations. An infusion was used as an enema for this purpose; and sometimes, too, with good effect in lowering vascular tension in cases of very acute inflammations. And the same striking effect in producing general muscular relaxation suggested the researches which led to the establishment of its alkaloid active principle, nicotine, as an antidote of unique value in cases of poisoning by strychnin. This discovery is due to the late Dr. Samuel Houghton, a distinguished Irish scientist.

Aboriginal Therapeutics of Tobacco.—The present general (and widely diffused) employment of tobacco as a social solace, and its particular (and comparatively limited) use as a therapeutic agent, receive a somewhat weird illumination from a perusal of a booklet bearing the title "A Counterblast to Tobacco," published under the name and seal of the famous English monarch, James I. The opening paragraphs of this forcible document contain the following sentences:

That the manifold abuses of this vile custome of tobacco taking may be the better espied, it is fit that first you enter into consideration both of the first originall therof, and likewise of the reasons of the first entry thereof into this country. . . . For tobacco being a common herbe, which (though vnder diuerse names) growes almost euerywhere, was first found out by some of the barbarous Indians to be a preservative or antidote against the pocks, a filthy disease, whereunto these barbarous people are (as all men know) very much subject, what through the vncleanly and adust constitution of their bodies, and what through the intemperate heate of their climate: so that as from them was first brought into Christendome that most detestable disease; so from them likewise was brought this vse of tobacco as a stinking and vnsauourie antidote for so corrupted and execrable a maladie, the stinking suffumigation whereof they yet vse against that disease, making so one canker or venime to eate oute another. And now, good countrymen, let vs (I pray you) consider, what honour or policy can moue vs to imitate the barbarous and beastly manners of the wilde, godlesse, and slauish Indians, especially in so vile and stinking a custome? . . . Why doe we not as well imitate them in walking naked as they doe, in preferring glasses, feathers, and such toys, to gold and precious stones as they doe? Yea, why doe we not denie God and adore the diuel, as they doe? . . . It was neither brought in by king, great conquerour, nor learned doctour of phisicke. . . . For if they that first put it in practise here had remembered for what respect it was vsed by them from whence it came, I am sure they would haue bene loath to haue taken so farre the imputation of that disease vpon them as they did, by vsing the cure thereof: For *Sanis non est opus medico* and counterpoisons are neuer used but where poison is thought to preceede.

A Physiologic Indictment against Tobacco.—The latest report that we have received from the Old World of special importance in relation to the influence of the use of tobacco on the human economy is decidedly against its reputation. It represents the promiscuous employment of "the weed" as antagonistic to the survival of the human race. The cigarette has been brought up in scientific custody, charged by Dr. Le Tuge de Segrais, of Luchon, with the infliction upon its too confiding devotees, of the physiologic mutilation of impotence. The prosecution was opened in the pages of the *Archives Générales de Médecine*, and the charge has been further maintained by the corroborative testimony of Dr. Georges Petit, who conducted experiments on a number of conspicuously philoprogenitive animals—dogs, cocks,

rabbits, and guineapigs—by the various methods of inhalation (of smoke) of gastric injections, and of rectal enemas. Sclerotic changes were induced by such procedures, in the testes and ovaries, respectively, of the animals subjected to experiment. Coming from the chosen land of dwindling population and decreasing families, such information deserves special attention. And in this connection, it is interesting to note that in the quaint and rare volume published by the French explorer, André Thevet, who went (in 1555) to America with the object of taking part in the foundation of a French colony near the mouth of the Rio Janeiro, there is special mention made of the anti-aphrodisiac properties of tobacco. In "*Les Singularités de la France Antartique, autrement nommé Amérique, et de plusieurs Terres et Isles découvertes de nostre temps*," a quarto dear to the heart of the bibliomaniac, and bearing the date 1558, this observant traveler tells us that "the women in America forbore the taking of tobacco, because that they have been taught that it will hinder conception and bodily lust" (Parkinson's paraphrase). What physiologist, even in the twentieth century, can be absolutely confident that he has made an undeniably original discovery!

REVIEW OF LITERATURE

Marmorek's Antituberculous Serum.—Klein and Jacobson¹ report the case of a man of 31 with tuberculosis of the left apex. He had several hemorrhages and tubercle bacilli were found in his sputum. The left lung presented in front impaired resonance to third rib, diminution of the respiratory murmur and rales above and below the clavicle; behind, the same signs and prolonged expiration. Over the right lung in front and behind, impaired resonance and deficiency of the respiratory murmur were noted, but no rales. During the next two and a half months he was given 13 subcutaneous injections of Marmorek's antituberculous serum; in all 120 cc. were absorbed. A second examination showed the condition of the lungs to be: Left lung, impaired resonance in subclavicular fossa, normal respiratory rhythm, slightly diminished vesicular murmur with a very few rales below the clavicle; right lung normal. The patient had increased 25 pounds in weight; the cough, etc., had disappeared; the general health seemed good. No tubercle bacilli in expectoration. The patient's condition continued very good. A patient of Neele's with phthisis florida was treated with antituberculous and antistreptococcic serum, receiving 720 cc. of the former in 45 injections and 200 cc. of the latter in 13 injections, with the result of apparent complete recovery. All the symptoms disappeared, as did the tubercle bacilli, and the lungs cleared up almost entirely. [E.L.]

Congenital Narrowness of the Pylorus a Cause of Chronic Gastric Disease in the Adult.—A. Ernest Maylard² says there exists a class of patients in young adult life who owe their chronic gastric trouble to a congenital narrowness of the pylorus, and that the proper treatment under such circumstances is gastrojejunostomy. He reports seven cases in which he successfully performed this operation with splendid results. In regard to symptoms, he states there is nothing pathognomonic, but the usual ones are obstinate gastric symptoms not to be accounted for and any of the usually recognized causes. The patients are mostly women in young adult life and rather below the normal stature and build. A feature of importance is that these patients are nearly always greatly improved by dieting, but with a certain return of the abnormal condition when the diet ceases. In some instances the diet offers such relief that operation is not indicated, but in most of these cases the condition is one of semiinvalidism at best, and operation would, in the long run, be much more satisfactory to the patient. Relief may be more or less immediate, but it often takes months to effect a cure. The stomach having been deranged for years it can not be expected to be completely relieved in a short time. Posterior gastrojejunostomy is the operation of choice. [A.B.C.]

Immunization against Tuberculosis.—From a turtle which had perished from spontaneous pulmonary tuberculo-

sis, F. F. Friedmann¹ succeeded in cultivating a variety of tubercle bacilli which when injected into guineapigs made them immune against large doses of human tubercle bacilli. Any of the animals treated with these turtle bacilli reacted with a local infiltration which resolved itself within a short time and upon killing them a short time later, no trace of tuberculosis was found. Control animals treated with human bacilli develop the disease typically and upon autopsy are found to have the disease in every organ and tubercle bacilli abound in large numbers. Immunized animals develop a soft tumor at the point of inoculation which ruptures after a few days, discharges some purulent matter and then heals up. The animals continue to thrive until killed; autopsy reveals no disease whatsoever, excepting isolated very minute gray nodules, which are, however, not tubercles but accumulations of round cells; they do not contain tubercle bacilli. Similar nodules were described by Koch, Neufeld and Behring in immunized animals. He has also succeeded in immunizing turtles against the turtle tubercle bacilli by first injecting them with tubercle bacilli of warm-blooded animals. The author is now working with the immunization of other animals and as guineapigs are the most susceptible of all to the tubercle bacilli of other species, he is certain that he has discovered a means by which he is able to protect all species against tuberculosis. [E.L.]

Late Effects of Typhoid Fever on the Heart and Vessels.—W. S. Thayer² gives the results of a study of the cardiac and vascular complications and sequels in 183 cases of typhoid fever treated in the clinic of Dr. Osler during the past 14 years. He found that the average systolic blood-pressure in these old typhoids was appreciably higher than in control observations upon healthy individuals, this being constant in every decade. The radial arteries were palpable in a proportion nearly three times as great as in supposedly healthy individuals who never had the disease. The average size of the heart was greater than in the same cases at the time of admission to the hospital. Nearly a fourth of the cases in which during the attack, systolic apical murmurs were detected, showed, on later examination, evidences of organic heart disease. Thayer states that the number of cases is too small to justify final conclusions, but the results tend to support the view of those who regard typhoid fever as an active element in the etiology of a considerable number of cases of cardiac hypertrophy and dilation coming on sometimes in early life, as well as an important factor in the production of certain vascular changes. [A.G.E.]

Functional Kidney Diagnosis without Catheterizing the Ureters.—To determine the functional ability of the kidneys without having to catheterize the ureters, F. Voelcker and E. Joseph³ have injected indigo-carmin into animals, and have watched the work of the individual kidneys through the cystoscope. They chose indigo-carmin because it is excreted exclusively by the urine, is nontoxic even in large doses, and passes unchanged through the body, differing in these respects from methylene-blue. Their method consisted in dissolving 0.4 gm. of the stain in 10 cc. normal salt solution, warming it and injecting 4 cc. of this solution into the gluteal muscle. Within 20 minutes it begins to be excreted, reaching its maximum very shortly, and continuing for a matter of 10 hours. The urine is deeply colored throughout the elimination of the staining substance and the working power of each kidney can be watched through the cystoscope with ease. Unilateral disturbances can be recognized by the variations from the normal rhythm of discharge. Several cases are related in which the superiority of this test over all others is shown. [E.L.]

Acute Copper Poisoning.—E. Schaeffer⁴ reports the case of a baby of three days, which was murdered by means of a copper salt. The postmortem findings were: Tongue and gums bluish in color, icterus, numerous hemorrhages in the muscles, heart, lungs, thymus gland, gastric and intestinal mucosa, kidneys and liver; fatty and albuminous degeneration of liver, kidney, heart and temporal muscle; inflammation of stomach and intestines; a large ulcer above the iliocecal valve;

¹ Deutsche medizinische Wochenschrift, xlix, No. 50.

² American Journal of the Medical Sciences, March, 1904.

³ Münchener medizinische Wochenschrift, Vol. I, No. 48.

⁴ Wiener klinische-therapeutische Wochenschrift, x, p. 1408.

¹ Bulletin Général de Thérapeutique, February 29, 1904, cxlvii, No. 8.
² British Medical Journal, February 20, 1904.

the blood and blood clots contained a finely granular precipitate (copperhemol). Chemic examination of a small piece of liver revealed the presence of 5 mgr. of copper. The violent intestinal inflammation indicated excretions of a large portion of the copper; the liver seemed to act as storage house for the copper. [E.L.]

Congenital Hypertrophic Stenosis of the Pylorus.—Edmund Cantley¹ says, that this affection is not uncommon is proved by the number of cases recorded. In a paper read in 1898 he reported 20 cases as having been collected from the literature, including his own. In 1902 the total number had exceeded 50. The recognition of the condition is most important, since operative treatment has proved curative, while in the absence of such recognition and treatment prognosis is practically hopeless. In the present paper he reports an additional case, in which, however, the symptoms did not point to this condition, but the postmortem examination showed the pylorus stenosed by benign enlargement. In the last five cases, exclusive of the one mentioned, which have come under his observation, he has been able to palpate a small tumor in the region of the pylorus, and in four of these life was saved by pyloroplasty. He is of opinion that marasmus seen in infancy is caused by benign stenosis of the pylorus, which can easily be remedied by operation, if the patient's vitality is not too far reduced. [A.B.C.]

Dilation of the Esophagus without Stenosis of the Cardiac Orifice.—A patient of Kelling's² had diphtheria with paralysis of the soft palate five years before her death. Ever since this time she experienced difficulty in swallowing. She often vomited without nausea. Four years later at the age of 68, she began to vomit food eaten one to two days previously. She died one year later of inanition and cardiac weakness. Examination of the esophagus showed a spindle-shaped dilation immediately above the diaphragm. The cardiac orifice was not contracted. A histologic examination of the esophageal structures showed the cause of the dilation to be an atrophy of the longitudinal bundles of muscle fibers which in this case evidently depended upon degeneration of pneumogastric fibers the result of the diphtheric paralysis, but any infectious or metabolic disease leading to a degeneration of nerves may produce a similar condition. Such a condition leads to a disappearance of hydrochloric acid from the stomach, which therefore is of symptomatic importance. The condition is incurable and is best treated through the introduction of an apparatus. Other interesting cases similar in etiology and effect are cited. [E.L.]

Acute Septic Colitis Due to Milk Poisoning.—G. F. Vincent³ reports the case. A man of 32 complained of cutting pains in his neck, the left shoulder, of swollen cervical glands, furred tongue, occasional attacks of slight jaundice, and persistent diarrhea; there was abdominal pain without any constant definite location, a practically normal temperature but with a pulse running well above 100. The patient gradually grew worse, becoming emaciated, the diarrhea failed to yield to treatment and the vomiting constant. The patient died. A necropsy showed the cecum, ascending colon and proximal half of the transverse colon enormously distended and of purplish color. The intestine macroscopically was edematous, soft and spongy while the internal surface was covered with minute gas bubbles. The pathologic examination established the septic nature of the disease and Vincent concludes that it was clearly due to a contaminated milk-supply, which the medical health officer found to be the cause of a then prevailing epidemic of sore throat. The patient was supplied with milk from one of two dairies contaminated and to within a few days of his death he drank freely of this milk. [A.B.C.]

Investigations Concerning Human Actinomycosis.—From extensive investigations with actinomycosis hominis, K. Doepstein⁴ formulates the following conclusions among others: The ray fungus grows on all nutrient media, but especially well in glycerin agar at body temperature; slower and scantier growth at room temperature; whether aerobic or anaerobic does not matter. It forms superficial, yellowish colonies with slightly depressed center, from which radiations pass out.

Gelatin liquefies slowly; bouillon becomes clouded. The development of the fungus from the spore is described as follows: The granules become longer and divide; the paired structure grows at its points, the threads becoming longer and longer; they become connected by branches after several days and ultimately break up into little rods through segmentation. The fungus stains by Gram's method before and after it divides, but not while it breaks up. The rods are sometimes club-shaped, due to granules within them; after their expulsion they were again rod-shaped. The actinomyces from fresh pus is stiff and longer, its threads fit over the end like a cap and it does not stain with Gram. The fungus was discovered by the author in the contents of decayed teeth; this adds to the plausibility of dental instruments being the carriers of the disease, and makes their sterilization after use an absolute necessity. [E.L.]

Congenital Bronchiectasis Associated with Situs Inversus.—Siewert¹ reports a case having a history of a cough since birth. Until the patient was 10 years old the cough was accompanied by vomiting, after that time vomiting ceased. The cough is productive, the sputum is free from elastic fibers and tubercle bacilli; upon standing it separates into 3 layers. Just above and below the left clavicle a tympanitic note, cracked-pot sound, and amphoric breathing are obtained. The heart-beat is on the right side in the fifth intercostal space; liver dulness absent on the right, but present on the left side; stomach and spleen are on the right side. [J.F.]

Absorption of Nutrient Enemas Containing Peptone and Peptone-alcohol.—To determine the relative value of the varieties of nutrient enemas mentioned above, A. Bial² experimented upon himself. For two days he dieted himself in such a manner as to produce well-formed soft stools. On the third day, after thorough cleansing of the bowel, three portions of a 10% watery peptone solution were injected at intervals of seven hours. Two weeks later a similar experiment was made with enemas containing 10% peptone and 10% alcohol. Chemic examination of the stools evacuated after each of the experiments revealed that of the pure peptone enema, 50.5% of the peptone was absorbed, while of the peptone-alcohol enema, 66.01% of the peptone was taken up. The nutritive value of the latter is 475 calories greater than of the former, an amount which must be considered of great value in an individual suffering from inanition. [E.L.]

Dietetics of Diabetics.—Sir James Sawyer³ recounts that the researches of Mossé have radically changed his views with reference to the dietetics of this class of patients. Mossé proved that potatoes, instead of being harmful as was commonly supposed, form a useful and beneficial food in glycosuria; that they are capable of being substituted for ordinary wheaten bread in daily proportions sufficient to maintain the elementary ratio, that is, in the proportion of 2 lbs. to 3 lbs. of potatoes for 1 lb. of bread. He found that a daily ingestion of from 1,000 gm. to 1,500 gm. (2 lbs. or 3 lbs.) brought about, in 19 cases out of 20 cases of diabetics, speedy diminution of the glycosuria, quick relief of thirst, general improvement of the patient; this holding true in all forms of diabetes. The salts contained in the potato are chiefly potassium and to the increased amount of this salt in potatoes is attributed the superiority of this vegetable in diabetic dietary. Sawyer, after investigation, agrees entirely with Mossé, but advises strictly that the potatoes be cooked by steaming with the skin on, that the potassium salts shall be retained. He goes even farther and advises that a meal may be made of the ground-up potato and skin and a bread be made from this for diabetics. He reports excellent results from the use of such bread. [A.B.C.]

Tuberculosis of the Peritoneum.—C. Thoenes⁴ has collected 244 cases of tuberculous peritonitis, which were operated upon by different surgeons; of 186 cases with a serous exudate 114 (61.3%) were cured; of 55 cases with adhesions 18 (30.6%) recovered completely. Comparing the surgical results with those of the clinician, it is noted at once that the surgeon gets only the worst cases to treat, the medical man keeping all the lighter ones for himself. In spite of this the actual figures of

¹ The Lancet, March 5, 1904.

² Archiv für Verdauungskrankheiten, ix, 474.

³ British Medical Journal, February 6, 1904.

⁴ Münchener medizinische Wochenschrift, I, No. 51.

¹ Berliner klin. Woch., 1904, Bd. xli, No. 6.

² Archiv für Verdauungskrankheiten, ix, 433.

³ British Medical Journal, March 5, 1904.

⁴ Münchener medizinische Wochenschrift, Vol. I, No. 50.

the surgically treated cases are better than those of the medical cases; the surgeon cured 54.7% of his 244, the medical man only 48.2% of his 82. [E.L.]

Experimental Syphilis.—E. Metchnikoff and E. Roux¹ inoculated a young female chimpanzee with syphilitic virus; 25 days later a typical hard chancre appeared; the inguinal lymph-glands of the same side enlarged. A month later papules developed on different parts of the body which remained until the death of the animal 14 weeks after the primary inoculation. Death was due to a generalized pneumococcal infection. They inoculated a 5-year-old male chimpanzee with fluid from the chancre and one of the papules of the first animal. Chancres appeared in both places and the corresponding gland enlarged within 35 days; no secondary lesions appeared, nor were syphilitic changes found at the autopsy. [E.L.]

Distribution of *Bacillus Coli Communis*.—J. H. W. Eyre,² carrying out a research along the lines followed in the Fourth Report of the Royal Commission on Sewage Disposal, has found that *Bacillus coli* may be isolated from the intestinal canal of the small rodents, such as the mouse, rat, guinea pig, the rabbit, and also the cat and dog. Likewise from the sheep, the goat, horse, and the cow. Specimens of the common fowl, such as the duck, the pigeon, sparrow, killed and examined immediately, all yield abundant evidence of *Bacillus coli* in the alimentary canal. Kern has demonstrated the presence of this bacillus in the intestinal tracts of birds of prey. The author has made special investigation in reference to fish and finds that fish taken from off the Lincolnshire coast, such as the sprat, the smelt, mullet, etc., all carefully examined, showed *Bacillus coli* in the intestinal tract. The contention is not warranted that these results point to the presence of this bacillus as a normal inhabitant of the intestinal canal of fish in general, but at least opens the subject to further investigation, and we may find that this bacillus is synonymous with sewage contamination. [A.B.C.]

The Influence of Röntgen Rays on Animals.—H. Heineke³ exposed a number of white mice to the action of Röntgen rays for intervals varying between 5 hours and 19 hours. All of the animals died in from 6 days to 10 days. Symptoms of disease appeared 1 day to 2 days before death; they consisted of rapid emaciation, refusal of food, tremor, conjunctivitis, diarrhea and coma. The greater number of guinea pigs thus treated died also, the interval varying between 7 days to 15 days. Death occurred no matter whether the whole body was treated, only the head or only the body; in the latter instance the brain was protected by thick layers of lead foil. Postmortem examinations showed all the organs to be normal with the exception of the spleen which was dark brown in color, small and shrunken; this shows death to have been due to destruction of red blood cells. [E.L.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Cirrhosis of the Stomach.—John G. Sheldon⁴ reports that a male patient of 52 had suffered for years from a series of symptoms which, except for the time element, resembled closely the indication of malignant disease. Laparotomy was performed, the stomach was found normal in shape, but very small. It measured 15 cm. (6 in.) in its greatest length, and 5 cm. (2 in.) in its greatest diameter, the external surface was smooth, and there were no adhesions. Gastroenterostomy was performed with a Murphy button, the stomach wall was at least 1 cm. in thickness, and fibrous; the gastric mucosa was smooth and atrophic. The button was passed on the thirteenth day; the patient has made a complete recovery. Though vomiting was persistent and frequently threatened the patient's life before operation there has been no recurrence of this trouble since the operation. All annoying symptoms have subsided, and the patient at the time of writing had gained 36 pounds.

The author then reports a series of cases collected from literature, which he reports in some detail. The treatment of the condition is surgical. Patients will not die until the pylorus is nearly closed, and they literally starve to death. The operation drains the chronic inflamed stomach and thus permits rehabilitation. [A.B.C.]

Abduction Position in the Treatment of Affections of the Shoulder-joint.—M. Schueller¹ pleads in all cases of injury about the shoulder-joint, whether fractures, dislocations, sprains or operations, for abduction of this joint and the arm during after-treatment, instead of the time-honored fixation to chest by means of plaster-of-paris, Desault, and Velpeau bandage. With the arm tied to the chest, the future functioning power of the arm will be very much interfered with. With the position recommended by him, fixation and immobilization are as easily brought about and future use of the joint is not endangered, as the adhesions formed in this position can be stretched readily during passive movements. He shows illustrations of an apparatus which is comfortable for the patient, as well as efficient for the purpose, and reports the details of several cases in which it was used. The result was especially brilliant in a case of old dislocation of the shoulder-joint, in which the arm was absolutely immobile. He discusses rules governing the length of time in which the arm is kept in this position. It differs with each type of lesion and the result which is desired. When passive movements are commenced, external motions should precede anterior and posterior abduction, and abduction movements should be the last. [E.L.]

The Treatment of Penetrating Wounds of the Abdomen.—M. L. Harris² reports a series of 16 cases, and concludes as follows: (1) In penetrating wounds of the abdomen there are absolutely no known symptoms which indicate injury to any of the viscera, except those of the urinary tract, stomach, and occasionally the lower bowel; (2) except those relating to shock, all symptoms following such wounds indicate either internal hemorrhage or peritonitis; (3) to wait for symptoms of perforation of the intestines means to wait until peritonitis has developed; (4) every bullet or stab wound which penetrates the abdominal cavity should be operated upon at the earliest possible moment in order to anticipate peritonitis; (5) no time should be wasted in attempting to demonstrate the presence or absence of intestinal perforation by rectal insufflation of gases or the analysis of recollected intraperitoneally injected air or liquids; (6) it is essential to systematically examine the entire gastrointestinal canal regardless of the point of entrance of the wounding body; (7) when the alimentary canal has been perforated suitable drains should be placed either through the operative incision or counter incision as may appear best suited to the particular case. [A.B.C.]

Successful Treatment of an Inoperable Sarcoma with Röntgen Rays.—J. G. Chrysopathos³ operated on a woman who had a large, rapidly growing tumor of the right ovarian region; finding it to be a sarcoma, a diagnosis which was confirmed by microscopic examination, he began to treat it with Röntgen rays. She was treated two to three times weekly, and after about eight months was discharged cured to all intents and purposes. Neither abdominal nor vaginal examination offered the slightest abnormality. She is now treated about once every two to three weeks, and has been well for some months. [E.L.]

Enormous Prostatic Calculus.—G. Frank Lydston⁴ reports that a farmer of 34 was fallen upon by a horse and the perineum sustained a severe blow. Hematuria followed, with out obstruction of the urethra, and he was apparently well within 10 days. Six months later there was difficulty of micturition, he passed several small calculi, and has done so at intervals since. Examination revealed a calculous structure at the bulbo membranous junction, and enlargement of the prostate. Operation was advised, and through a perineal incision a calculus weighing 720 grains was removed from the prostate. Lydston believes that as a consequence of the traumatic stricture a certain quantity of residual urine continually remained

¹ Deutsche medizinische Wochenschrift, Vol. xxix, No. 50.

² The Lancet, March 5, 1904.

³ Münchener medizinische Wochenschrift, Vol. 1, No. 48.

⁴ Annals of Surgery, March, 1904.

¹ Archiv für Orthopädie, Mechanotherapie, u. Unfallchirurgie, 1904, II, 58.

² Annals of Surgery, March, 1904.

³ Münchener medizinische Wochenschrift, I, 50.

in the canal, decomposition followed, with the formation of secondary calculi. The obstruction caused dilation of the prostatic ducts, small secondary calculi were forced into the latter, and one of these became enlarged, forming a nucleus about which was deposited the material which resulted in the formation of the large stone. [A.B.C.]

Fibromas of the Tunica Vaginalis.—Edward A. Balloch¹ reports that a colored male of 16 presented himself with a much elongated scrotum. There were found three separate masses on the right side of the scrotum. A diagnosis of fibrous growth of the tunica vaginalis was made, operation was performed and all the growths were enucleated without difficulty and the redundant skin of the scrotum was removed. Healing was without unusual event. His conclusions are that irritation is an important factor in the production of the fibroma of the tunica vaginalis; that they spring originally from the subserous connective tissue, but may become detached and let loose in the cavity; that they are mostly of the variety known as soft fibroma; that they are prone to myxomatous and fatty degeneration; that the testicle may be affected by the same form of degeneration; that the growths are generally minute; that excision is the only effectual remedy; and that since the testicle on the affected side is liable to become involved the propriety of removing it should be considered. [A.B.C.]

Talma's Operation and its Results.—B. S. Koslowski² considers this operation perfectly rational in hepatic cirrhosis, where it assists nature in establishing a collateral circulation. Experience has shown, however, that in order to be successful the operation must be performed in the earlier stages of cirrhosis, before the liver-cells have lost their functions beyond restoration. Hence we must operate during the hypertrophic stage of cirrhosis. Advanced hepatic atrophy is a contraindication. So is general debility, cardiac disease, renal involvement, and icterus. The various methods of attacking the omentum do not seem to influence the outcome. The operation is not more difficult or dangerous than exploratory laparotomy. From a series of 168 cases the author finds the percentage of favorable results (cures and improvements) to be 46, that of unfavorable results, 49 (4% unknown). The most encouraging outcome was seen in early operations, when we can expect 50% of successful cases. The operation removes the ascites, while its effect on the process in the liver is not as yet definitely known. [L.J.]

Treatment of Fracture of the Base of the Skull.—Capt. Robert E. Bell³ reports in some detail the histories and treatment of four patients suffering from fracture of the base of the skull. That which he makes emphatic is his conviction that operation should be performed more frequently in these cases than is commonly practised. He believes that fractures of the middle fossa, with escape of the brain tissue from external auditory meatus with cerebrospinal fluid, or the latter alone, should not be treated symptomatically, but rather that they should be operated upon. The day of ice-bags and rest in bed only for fractures of the base have passed. In all cases of fracture of the base, unless we have some positive indication that we will hasten death by interference, we should resort to artificial respiration, if necessary, and open the skull, determining by the symptoms and the findings the seat of lesion, stop the hemorrhage, remove clots, establish drainage, and irrigate with plenty of hot salt solution. Only with such treatment can the best results be hoped for. [A.B.C.]

Radical Operation for the Cure of Cancer of the Pylorus.—William J. Mayo¹ believes that cancer frequently develops upon an old ulcer scar. In about 60% of cases the pylorus is the seat of origin, and in 70% of cases it is involved. Cuneo demonstrated that the fundus and two-thirds of the greater curvature are free from lymphatic involvement in cancer of the pylorus. Acting on this suggestion, Mayo's operative procedure involves the ligation of the four principal arteries supplying the pyloric portion of the stomach. He then ligates the gastrohepatic omentum in sections along the lesser curvature to near the cardia; then proceeding along the greater curvature, he ligates along the pylorus as far toward the cardia

as it is designed to go with the operation. The duodenum is doubly clamped and divided with the actual cautery to prevent inoculation of the cut surfaces with cancer. The duodenal stump is closed; a long Kocher clamp is placed at the left extremity of the ligated gastrohepatic omentum in oblique direction so as to save as much as possible of the greater curvature; the clamping plates are covered with rubber tubing and only sufficient force to retain the tissue in the grasp is used. A second clamp is applied to the tumor side to prevent leakage between the two; the tissues are severed with the cautery a quarter inch from the Kocher clamp and the pyloric end is thus removed; the cauterized stump is sutured with a catgut button-hole continuous suture from above to the lower extremity and retraced and tied. The whole is reinforced with a Cushing right-angled suture and a separate gastroenterostomy is performed at the most dependent portion of the stomach. In this procedure not nearly so much of the stomach is sacrificed as in a previous method advocated by Mayo. [A.B.C.]

Surgical Treatment of Gastropexy.—After reviewing a considerable portion of the literature of the subject, Hammer,¹ concludes that gastroenterostomy is the best operation for the greater number of cases. The greater number of the symptoms of gastropexy appear at the time when the stomach is full—that is, at the height of the digestion act, and the chief indication therefore is a rapid evacuation of the stomach, and the removal of the food from the stomach into the intestines; a gastroenterostomy will do this quicker than other operations. Gastropexy not only does not aid the emptying of the stomach materially, but as it produces adhesions to the surrounding organs, also leads to the production of new symptoms and complications. The permanent results from gastropexy have, if anything, been poorer than those of nephropexy. Stomach operations should be performed oftener however, especially in cases where medical treatment relieves the patient only so long as it is followed out and where the patient is too poor to give himself the care which such a condition requires. [E.L.]

Early Radical Treatment of Inguinal Adenitis.—Richard L. Sutton,² Surgeon, U. S. A., recommends operative treatment for obstinate painful enlargements due to infection by the gonococcus or occurring as sequels of chancroidal lesions; treatment is not directed to bubo in its entirety. He recommends the radical removal of the enlarged glands, under aseptic precautions, claiming that by so doing the period of convalescence and inability is rendered much less in extent, and the patient thereby being relieved of a long period of tentative treatment. He has operated recently on 10 patients after the manner suggested and as a rule, in 7 days or 8 days, the patients were all discharged and ready to be placed on duty. A general anesthetic is given, the operation is slight, and the disability trivial. The dressings employed when pus was present were of plain sterile gauze, the first layer applied loosely over the wound and securely covered in with aseptic pads, cotton and a spica bandage of the groin. Daily irrigations of hot, saturated solution of boracic acid were used, and gauze packing and drainage instituted from the first. [A.B.C.]

The Surgery of Perforating Gastric Ulcer.—Archibald MacLaren³ believes that many of those cases can be diagnosed promptly if the cardinal symptoms are remembered and recognized. The secret of success in the treatment is in operation at the earliest possible moment followed by suture of the opening with silk or linen. The peritoneum should be sponged, if little soiled, and the wound closed without drainage. But if considerable fluid has escaped into the peritoneal cavity a large-sized drain should be put into the pelvis through a stab wound over the symphysis and the patient placed in the reversed Trendelenburg position. He reports in detail three cases under the following captions: Perforating latent gastric ulcer on the anterior wall, operation 11 hours after perforation, recovery; probable perforating gastric ulcer, death in 29 hours without operation or postmortem; subacute perforating gastric ulcer, operation nine hours after perforation, recovery. He believes perforating gastric ulcer occurs more frequently than is commonly supposed. [A.B.C.]

¹ Annals of Surgery, March, 1904.

² Russki Vrach, February 21, 1904.

³ Journal of the Association of Military Surgeons, April, 1904.

¹ Münchener medizinische Wochenschrift, I, No. 48.

² Journal of the Association of Military Surgeons, April, 1904.

³ Annals of Surgery, March, 1904.

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

A New Method of Uterine Suspension for Retrodeviation.—N. Bardescu¹ describes a new procedure for the relief of retrodeviation which he has employed in a number of cases with entirely satisfactory results. The operation consists of 2 parts: 1. Treatment of the lesion and reduction of the malposition. 2. Suspension of the uterus by a displacement of the round ligaments. After curetment, which is important, an abdominal incision is made in the median line, the intestines are protected by sterilized gauze compress; the condition of adnexa is examined, adhesions broken up, the deviation reduced and the organ attached to the anterior abdominal wall. Then a button-hole like opening is made in the abdominal wall on either side of the incision about 2 cm. to 3 cm. from the edge of the wound. Through the openings, with small forceps, the round ligaments are drawn and fastened in this position by means of catgut sutures, 2 on each side, which serve not only to hold in position this exterior loop of the round ligament, but also to reduce the size of the buttonhole opening. After suturing the peritoneum, then the rectus muscle with the aponeurosis, the exterior loops of the round ligaments are brought into contact and fastened together with 3 sutures. The operation is then completed by suturing the skin so that the lower half will be attached to the aponeurosis. [W.K.]

Angioma of the Breast.—P. Malapert and R. Morichau-Beauchant² report in detail a case of this affection, and present notes on 13 from the literature. Their patient was a girl of 12; her parents had noticed a swelling in the right breast 15 days after birth. This growth began to extend when the girl was 5 or 6 years old. When operated upon the tumor was the size of a small orange. One large and two small cysts, containing a serosanguineous fluid, were within the mass. Histologic study showed the tumor to be an angioma. It had developed in the fibroadipose stroma of the breast; the acini and ducts of the breast; in the regions not invaded by the growth, still persisted. The tumor was not encapsulated. The cysts were apparently due to regressive changes. In addition to their own case, the writers find 9 undoubted cases in the literature, 4 of those reported being considered as doubtful or as belonging to a different type of tumor. They divide angiomas into cutaneous, subcutaneous, or glandular. Of the 5 cases of the last type, 2 were in males, 2 in females, and 1 the sex not given. The other types are more frequent in males. The tumors exist either from birth or the first few months of life. The diagnosis is ordinarily very easy. The treatment of the cutaneous nevi is that of those growths anywhere; that of the subcutaneous angiomas is excision if the breast is not involved. If the gland is involved, the treatment should be that of the glandular type, which is entire removal of the breast; in this way only can recurrence be prevented. [A.G.E.]

A Double Vagina with Single Uterus.—F. Marchand³ thinks that of all forms of malformation which result from defective union of Müller's ducts, the double vagina with single uterus is the rarest. These ducts uniting throughout into one, form the normal uterus and vagina. According to Nagel's investigations, the upper or proximal ends of the ducts are formed of cylindric cells, and the lower or distal ends of large cells rich in protoplasm. The union of the proximal ends and the persistent separation of the distal ones, form a single uterus with double vagina as in the case reported by Marchand. A virgin of 22, dying of brain tumor, it was found at the subsequent section that a normally formed uterus was connected with a twofold vagina into each division of which a finger could be introduced. The external orifice of the uterus opened toward the left of the septum which here deviated somewhat toward the right. The vulva showed two distinct vaginal openings, at each of which appeared a hymen. [W.K.]

Complication of Pregnancy with Appendicitis.—A. Labhardt⁴ reports two cases of complication of pregnancy with

appendicitis, but of entirely different type. In the first case there was an abortion in the early months of pregnancy and immediately following appendicitis, with formation of an abscess. Since the patient had been suffering for some time with pain in the right ileocecal region he believes the appendicitis was the cause of the abortion. As the temperature continued rising after emptying the uterus, an abscess was opened on both sides of the abdomen, but in the bad condition of the patient no direct search was made for the appendix. Her condition now improved somewhat, but as the temperature continued abnormal, a vaginal examination showed an abscess in the Douglas sac, which was also opened, and the patient ultimately recovered. In the second case, the appendicitis followed a normal delivery and there was recovery without operation. Labhardt concludes from his experience and study of the subject that there is no reason to think that pregnancy has given rise to appendicitis but that, when of a severe type, the latter may induce abortion; and that in general the influence of appendicitis upon pregnancy is most unfavorable. But pregnancy may have this influence: Through the hyperemia of the pelvic organs an absorption of the inflammatory processes takes place and thus a natural condition acts as a therapeutic measure. [W.K.]

Dermoid Cyst of both Ovaries.—C. F. Adams¹ reports this case which occurred in a young woman of 26. Menstruation began at 14 and was regular, the flow being scanty and accompanied by pain the first day. The principal complaint of the patient was extreme nervousness and at times some pain referable to the right iliac region, more marked at the menstrual period. Operation showed the left ovary to be large as a horse chestnut, the right considerably larger. The left contained sebaceous material and teeth, some of them almost perfectly formed; the right contained sebaceous material and hair. The patient made an uneventful recovery. Dermoid cyst of both ovaries is considered by the writer to be of sufficient rarity to be worthy of note. [A.G.E.]

Five Successful Hysterectomies in One Family.—J. McPherson Lawrie² reports a remarkable example of fibroid disease occurring in one family, for a family of 9 sisters furnished 5 examples of fibroid disease with 5 successful hysterectomies. In this connection he discusses the question of heredity but fails to reach any definite conclusion. Some authors compute that 4 women in every 10 have fibroids. If this proportion is correct, 5 cases out of 9 does not seem remarkable enough to be considered as evidence of heredity. [W.K.]

Foreign Bodies in the Abdominal Cavity.—F. v. Neugebauer³ reports 87 cases of foreign bodies left in the abdomen by operators, including forceps, scissors, and sponges. He quotes the remark of R. E. Weir that he considers it almost impossible to guard against this contingency absolutely. We can only by great care reduce them to a minimum. Neugebauer is convinced that one chief cause of such accidents is imperfect or bad anesthesia, leading to interruption or hasty conclusion of operation. Hence the necessity for an experienced anesthetizer. Another safeguard is such a position of the patient as gives the best command of the operative field by eye and hand. Another important matter is a sufficient illumination of the field of operation, and a careful personal assistant. Then a multiplicity of instruments should be avoided, and forceps, scissors, sponges, etc., so arranged that the loss of any would be instantly noticed. Have the hemostatic forceps in a hand glass, and needles and ligatures in a special plate. [W.K.]

Chronic Metritis and Endometritis.—W. E. Fothergill⁴ reviews some of the recent writings on these so-called conditions, with special reference to their relation to the life-history of the uterine muscle. The works of several writers, who have endeavored to elucidate the pathology of numerous conditions that are still named "endometritis" and "metritis," though noninfective in origin, are considered at some length. The investigations of Theilhaber, Meier, and Donald are interpreted as certainly proving the existence of a noninflammatory condition, in which the main symptoms are discomfort, menorrhagia,

¹ Zentralblatt für Gynäkologie, January 23, 1901.² Revue de Chirurgie, February 10, 1901.³ Zentralblatt für Gynäkologie, February 13, 1901.⁴ Münchener medizinische Wochenschrift, February 9, 1904.¹ The Postgraduate, January, 1904.² Brit. Med. Jour., February 13, 1904.³ Zentralblatt für Gynäkologie, January 23, 1901.⁴ The Practitioner, March, 1904.

and leukorrhea, and the most obvious pathologic feature is hypertrophy of the uterine mucosa. Fothergill says it must be allowed, even if the conclusions of these observers are not accepted as final, that the uterine muscle plays a greater part in the causation of common pelvic disorders than has hitherto been recognized. The application of names ending in "itis" to conditions of noninflammatory origin is not in accordance with the spirit of modern pathology. The terms endometritis and metritis should be reserved for infective cases. [A.G.E.]

A Detached Head in the Parametrium.—C. Weber¹ reports the case of a woman, aged 25, who had an abortion in the fourth month. The fetus was born without the head, which had been torn off and could not be found in the uterus. Although no laceration could be felt in the uterus, which was empty, a laparotomy was decided upon, and there was found between the folds of the broad ligament a small sized tumor, the detached head. [W.K.]

Influence of Narrow Pelvis on Weight of the Child.—S. S. Kholmogoroff² has compared two series of cases, 1,000 each, in order to find the influence of the pelvis on the infant's weight and length. He makes the following generalizations: 1. Children born of mothers with narrow pelvis weigh less than those born of normal women. 2. The length of the first group is also less than the length of the second. 3. With successive pregnancies the infant's weight in cases of narrow pelvis tends toward increase. 4. The number of boys is comparatively larger in cases with narrow pelvis than in normal ones. [L.J.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Red Light Treatment of Smallpox.—J. T. C. Nash³ reports red light treatment in some 30 cases of smallpox. Though none of the cases were necessarily fatal by ordinary treatment, the author believes that the suppurative stage was considerably modified and rendered less severe and dangerous by the beneficial influence of the red rays, or rather by the exclusion of the other elements of light. Insufficient experience with this means of treatment, he believes, has led a number to condemn and abandon it, when a more extensive experience might have led to different views. The results obtained must of necessity depend very much on the malignancy of the disease and the type of the epidemic. Prior vaccination, of course, plays the principal role in lessening the virulence of the disease, but the author is of opinion that his experience fully justifies him in the belief that the red light is of distinct benefit. One disadvantage of the red light ward is that the physical appearance of the smallpox eruption can not be appreciated or demonstrated as by ordinary light. [A.B.C.]

Treatment of Gastritis.—Achilles Rose⁴ makes several postulates regarding conditions of the stomach; among the more important are the following: Erosions of the stomach, in most instances, are of no clinical importance; washing out of the stomach has been overdone; olive oil introduced into the stomach has proved of great value in pyloric stenosis; chronic gastritis is often associated with atonia gastrica, and symptoms which are in reality due to gastropnoia are sometimes attributed to gastritis; when gastropnoia and nervous symptoms exist, the gastropnoia should first be relieved; atonic gastritis merits more attention than it has thus far received. The best means to relieve this condition is strapping the abdomen with adhesive plaster; strapping is well tolerated by most persons and answers much better than bandages, the latter being absolutely useless in lean persons. For the medical treatment of gastritis proper, Rose knows only one remedy—a powder composed of equal parts of bismuth subnitrate and calcined magnesina. The dose is one even teaspoonful in water, a half hour before each meal. [A.G.E.]

Treatment of the Tuberculous at Fort Stanton, N. M.—Paul N. Carrington,¹ Surgeon United States Public Health and Marine-Hospital Service, gives a summary of the work accomplished during the year ended April 30, 1903. The altitude of Stanton is 6,150 feet, the average mean temperature was 53.6° and the precipitation varies from 14 in. to 17 in. annually. During the year in question there were treated 282 patients, of whom only 39, or 15%, were in the first stage, which latter is defined as one in which the disease has not progressed to consolidation, but which may be detected by physical signs. The second and third stages are those in which the physical signs reveal consolidation, with or without excavation. Of those patients in the first stage, 50% have recovered and 37.5% discharged improved; of the second and third stages, only 5.6% recovered and 51% were discharged improved; 7.3% were discharged unimproved. Of the entire number treated during the year, 24.9% died; 2.8% remained unimproved; 54.2% improved, and 18.1% apparently recovered. The essentials of the treatment are abundance of fresh air, liberal diet and rest. The author emphasizes that rest is very important. The observations of Carrington are all the more interesting since he himself has been cured of pulmonary tuberculosis by his residence at Stanton. [A.B.C.]

Tetanus Treated by Injections of Antitoxin into the Spinal Theca.—Wallace and Sargent² report four cases in some detail. The antitoxin in each instance was injected into the spinal theca, there being little doubt, they assert, that the lumbar injection is preferable to the intracranial. Of the four patients they saw the incubation periods were respectively three, six, nine, and eleven days; two may be considered acute and two subacute or chronic; three of the patients recovered; the fatal case being subacute in character. The amount of the antitetanic serum used at each injection was 10 cc., and the total amount varied in the different cases according to its apparent effect upon the symptoms. Combined with the antitoxin, chloral and the bromids were used in some instances. While the effects of the treatment are not conclusive, the authors are of the opinion that the intrathecal injections are fully warranted. [A.B.C.]

The Medical Treatment of Neuralgia and Myalgia.—In two patients, Ernst Meyer³ was able by the administration of hydrochinon, to relieve pain that yielded to nothing else, even morphin giving transitory relief only. He began with 1 gm. and gradually increased to 4 gm. daily. The drug was taken just before going to bed. Meyer often observed profuse perspiration upon the neuralgic extremity after ingestion of the drug, and once he noted increased frequency of the pulse and vertigo. [J.F.]

Treatment of Hemoglobinuric Fever.—H. Hearsey,⁴ medical officer in British Central Africa, reports that it was the custom, until recently, to treat the numerous cases of hemoglobinuric fever in his district with large doses of quinin, as much as 60 grains daily being given in many instances. During three years of this treatment the mortality was estimated at 33½%; death from suppression of urine was the termination in the great majority of fatal cases. This unsatisfactory result led Hearsey to adopt a different method, and he reports 18 consecutive cases of hemoglobinuric fever treated with sodium bicarbonate and solution of mercuric chlorid (mercuric chlorid and ammonium chlorid, ten grains each to one pint of distilled water) in doses of 10 gr. of the former to 30 m. of the latter. There was not a single death in the series. The combined action of the two drugs being antacid, diuretic and disinfectant to the gastrointestinal tract, vomiting is allayed and diuresis freely established. No case of suppression of urine occurred. The mixture is given every two hours for the first 24 hours, and subsequently every three hours until the urine is free from hemoglobin. No ill effect was noted in any case, notwithstanding that in four instances there were relapses and the treatment had to be repeated. The diet consisted of milk and barley water given frequently in addition to the ordinary liquid and semisolid diets. [A.B.C.]

¹ Zentralblatt für Gynäkologie, February 13.

² Russk. Vrach, February 21, 1904.

³ The Lancet, March 5, 1904.

⁴ The Postgraduate, February, 1904.

¹ Journal of the Association of Military Surgeons, April, 1904.

² The Lancet, March 5, 1904.

³ Berliner klin. Wochschr. 1904, Bd. 41, No. 6.

⁴ British Medical Journal, March 5, 1904.

American Medicine ⁶⁸⁷

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Schools in vice and crime would be a proper designation of many of our jails, almshouses, and prisons. One reporter concerning the conditions found says, that in nearly every jail groups of men gathered around benches or tables were engaged in card playing. They spend their days in this manner; they gamble for everything they possess, except the clothing that covers them. Fully a third of the men seen were under 25 years of age; about a fifth were under 21 years of age. Bedding goes unwashed, walls and cells unpainted, and an army of idle men spend their days in vice. Place the most innocent young man in the world in the average county jail, his cell so dark that he cannot see to read in it; give him a dirty bed, a germ-infested blanket, and force him to pass months without exercise or employment, in the company of gamblers, felons, and vagrants, and if he does not become one of them it will be the greatest miracle ever wrought. It is certainly inconsistent with all reason to permit the means of punishment for one vice or crime to become the means of education in all the others. Almost unanimously, the jail officials protested against such conditions. Why has the legal profession permitted such a disgusting and expensive system of criminal breeding to grow up under its protection, and without a word of protest? Its function should have been to prevent, not multiply crimes.

Women in Jails.—"The conditions found in many jails," says Miss Alice L. Woodbridge, a New York prison visitor, "might have existed in the dark ages." A report of the State of New York inspection says that in the majority of the jails, women come directly and solely under the care of men. In jails where there are no toilet accommodations the women inmates, under the eye of the jailer, march daily to the cesspool with their night buckets. No one can expect a woman to retain any sense of decency or modesty under such circumstances; no one can expect a jailer to perform such duties and retain any respect for his prisoner or himself. The wife of one sheriff stated that she had known a woman to be five months in jail and never see the face of another woman. These women are searched by men and cared for by men. When I asked one sheriff, who searched the women prisoners, his face grew crimson as he replied: 'I do; I am ashamed to acknowledge it, but I assure you it is very little searching they get.' Several sheriffs

stated that they never searched women prisoners. When asked how they ascertained if these women had drugs or liquor in their possession, the reply was that they could tell after a few days by the appearance of the women. Fully one-third of the women seen were awaiting trial and had been in jail for months. Only four jails have provisions for the separation of those held for trial, or as witnesses, from those serving sentence; and women of all classes, innocent and guilty, young and old, are in constant association. Where is the legal profession, and where is its conscience?

The medieval torture-chamber still exists, if we may judge from the reports as to the "sweat-box" and the "third degree." What the concealed infamy of the last may be is difficult to learn. The "sweat-box" is a method of confining suspects in heated air until the torture becomes so irritating as to elicit almost any confession desired, especially when coupled with cunning questions and probings of the prosecutors. But where is the boasted trial by jury and by his fellows of the Anglo-Saxon love of justice? It has been supposed, wrongly it seems, that a man is held to be innocent until his crime has been proved by orderly and just trial. Punishment should not therefore begin until after conviction. The poor degenerates at best are poor matches for the subtle and astute questioners without the added perplexity resulting from torture. Why not revive the rack and screw and be done with them quicker and without trial? Will some one tell the simple truth about the abuses of the so-called examinations of prisoners before trial? What exactly is the proceeding in the "third-degree" torture business? By what law are such things allowed and what have the judges and lawyers been about to permit such barbaric anachronisms in the twentieth century?

The enforced idleness of prisoners is a cruelty, both to the tax-payer and to the prisoner. In the last report of Allegheny, Pa., County workhouse, for instance, there is a daily average of more than 300 men in the prison who have nothing to do. An hour of exercise in the court-yard in the morning, another in the afternoon, constitute their only employment. These are able-bodied men, able and willing to work, who ought to be earning their living instead of being compulsory wards living at public expense. Ill health, mental depression,

morbid brooding over troubles, habits of idleness acquired, irritable chafing over real or imagined wrongs, occupy the solitary hours of the narrow cells. In such a condition there is no response to either mental or moral teaching, and retrograde rather than progressive results follow a term of imprisonment under these conditions. Under the present restricted law, it is impossible to devise any employment which will give work to all the prisoners. The Prison Association of New York says the fact that the tax-payers of the counties are compelled to support in idleness several thousand able-bodied prisoners is a frightful anomaly of our government; yet even this is of slight moment compared with the moral and physical evils which arise from keeping prisoners in enforced idleness. Referring to the thousands in penitentiaries and county jails, the report adds:

Here is an inert mass of humanity forcibly removed from society and maintained like a stagnant pool in a corrupting miasma of inactivity, as if the only object of such an institution were to breed the scum civilization and to propagate it in the community. For it must not be forgotten that the most of these men in the course of six or nine months are going out of prison worse than when they came in.

The immediate amendment of the law as to competitive industries in prisons, almshouses, etc., is demanded. And the State control of prisons and jails is almost as important.

Reforms in prisons and jails, reforms of almost all kinds, and almost everywhere, judging from the reports, is the demand of the hour. It is the shame of the legal profession, which must have long known and winked at the horrors now exhibited. The county jails are often in a most disgusting condition, filthy, cold, the prisoners provided or not provided with food and clothing, herded together worse than animals, the old criminals contaminating the young with the worst moral and physical diseases, and every abuse tolerated which greed could devise and indifference permit. The sheriffs are allowed a profit on the provisions, etc., furnished, and of course they frequently cheat the prisoners of the legal allowances and commands. Enforced idleness is common—the result of the stupid and criminal socialism of the labor voter. Of the conditions, *e. g.*, in Illinois, the Secretary of the Board of State Commissioners of Public Charities, says:

Gloomy, unsanitary, dingy, unhealthful, and cheerless, they strike not at the criminal instinct and mental disorder, but at the physical well-being of their victims. Many of the county jails of Illinois are positively bad, unfit even for temporary occupancy. They are built with the sole view to confine prisoners and prevent their escape. No thought of comfort, cleanliness, sanitation, exercise, encouragement, or education was taken into account. Very few of them afford any relief from constant and enforced idleness. There is no opportunity either for mental or physical development. Rarely do we find here any separate provision or facilities for the care of sick or insane prisoners. Oftentimes the buildings are extremely cold in winter and suffocating in summer. Little or no fire protection is afforded.

The Herter Lectures.—An event of unusual importance took place in Baltimore April 12, 13, and 14, when Professor Paul Ehrlich, of Frankford-on-the-Main, upon invitation of the medical faculty of the Johns

Hopkins University, delivered the first series of Herter lectures, founded by Dr. and Mrs. Christian A. Herter, of New York. It was a source of extreme satisfaction to Professor Ehrlich, as well as to the faculty of the Johns Hopkins University, that, despite the intricacies of the subject and the fact that the lectures were to be delivered in the German language, over 800 persons assembled to hear the first lecture. The three lectures were devoted to a discussion of (1) The mutual relations between toxin and antitoxin; (2) physical chemistry versus biology in the doctrines of immunity; and (3) cytotoxins and cytotoxic immunity. Professor Ehrlich discussed at length his now wellknown side-chain theory, and, pointing out the complexity of apparently simple functions, devoted considerable time to an elucidation of his conception of the duplex action of toxins, of the haptophore and the toxophore groups of bodies. His second lecture was devoted largely to his polemic with Arrhenius (and others) who, on physicochemic grounds, have criticised adversely his side-chain theory and his conception of the duality of toxic constituents. It was quite natural that his third lecture, in which he discussed bacteriolysins, agglutinins, and cystolysins, should in some respects attract the most attention, since these subjects are at present so extensively the object of scientific inquiry. It is impossible here to discuss adequately a subject of which the newness and intricacies are so great that a veritable new language has had to be invented with which to clothe the thoughts of the masters, but it is significant of the probable developments of the future that Professor Ehrlich believes that antitoxins of higher potentiality will yet be discovered. He directed especial attention to the important fact that the immunity reaction is reduced by too highly toxic treatment of the experimental animals, and that progress in the production of curative serums is to be expected only when it becomes possible to obtain antitoxins of greater avidity than those now produced. He believes that the selection of particularly favorable animal species and the use of toxins of least avidity or ultratoxones will, most probably, bring this problem much nearer its final solution. Aside from the value of the lectures as contributions to medical literature, they assume especial importance as a strong link in the scientific chain that binds kindred spirits across the seas, and there is much cause for congratulation that an event so happily inspired by Dr. Herter should have been brought to a successful issue by those to whom it was entrusted.

The conditions and occupations of the blind, especially of the State of New York, is the subject of a valuable report of a committee to the Legislature which has just been issued. From it one learns of the spirit and practical measures at work to better the condition of these unfortunates, and particularly to make them self-supporting. The committee has done a great and useful work with rare unselfishness, its chief aim being to encourage the acquirement of an industrial trade on the part of the adult blind. There are about 6,000 blind persons in New York State, 9.72% under 21 years of age, 53.14% over 60, and 22.88% between 21 and 50; 960 cases were personally investigated. The blind, of

course, are generally poor, and as financially speaking their self-support is generally a failure, charity in some form or other supplies the means of their living. The city of New York, the city of Cleveland, and the State of Illinois give a certain sum in pensions to the blind and needy citizens. Beside this there are four private homes in New York City, supporting about 150 inmates. Connecticut has an excellent industrial training school, California and Iowa industrial homes, Indiana a workshop, and other States, numbering in all eleven, have undertaken some movement toward the same end. We notice among the interesting occupations pursued by the blind is that of massage, long ago recommended by Dr. Bennett. One blind man runs a buzz-saw.

The conclusions and recommendations as to the blind by the committee of New York are as follows:

Conclusions.

At least 65% of the blind are too old to acquire and to follow any industrial occupation, while another and unknown proportion of them are physically or mentally unsound.

In the case of many who are sound, long enforced idleness has destroyed the desire to work, so that it would require time to overcome the indolence to which they have become habituated.

Most of the blind, especially among the women, do not travel far alone, and hence they must reside near their work or it must be carried to them.

The adult blind of the Greater New York are apparently better situated than those of the rest of the State, and they do not therefore evince any particular desire for State assistance.

Many of the blind, especially of the women, are for the most part comfortably cared for in the homes either of relatives or of friends. It would seem unwise under such conditions to cultivate the "institutional habit" by segregating those thus situated, in homes especially provided for the blind.

Extended experience in Great Britain and the United States seems to indicate that "workshops," for adult blind men at least who are of working age, are generally far more successful than are "industrial homes."

A few of the adult blind, even under existing conditions, become wholly or partially self-supporting.

While the product of their labor would probably be of sufficient value to afford the blind a comfortable support, the time consumed in selling this product prevents them in reality from gaining such support.

Adults and children should not be trained in the same institution or under the same management. Some form of manual training for boys should take the place of the industrial training now conducted in schools for the young blind.

All attempts to combine industry and charity in the same establishment and under the same management have proved in every instance to be at best financial failures, and such must continue to be the case since by this combination a premium is put upon idleness by giving the most charity to the least industrious person.

While the giving of pensions is the simplest method of aiding those who seem to require financial assistance, it is in a very large number of instances not only an unwise method but is demoralizing in its effect upon the recipients.

With all the deductions that have been previously made there are still very many adult blind men and women who are capable of being taught and of following some industrial trade for whom suitable provisions should be made.

Recommendations.

1. We recommend that the work of personal visitation begun by this Commission shall be carried on and completed.

2. That provision be made for the industrial training of the blind over 21 years of age—and to that end that in the city of Buffalo there be established tentatively, in a rented building, one industrial training school or "school-shop," and that as

soon as possible manual training replace the industries now followed in the State School for the Blind.

3. Such modification of existing laws as will enable the blind to sell their products to State and municipal institutions.

4. Measures should be taken to determine the causes of existing blindness, and that such preventive measures be employed as will tend to lessen future blindness in the State.

5. To carry out the foregoing recommendations we finally recommend that there shall be established a permanent Commission.

Camphor: Mostly a Japanese Product.—One of the inevitable results of the present Russo-Japanese conflict will be to lower the supply (and raise the price) of the familiar drug, camphor, throughout the rest of the world. The special nursery of camphor is the group of islands which form the Japanese Empire, and some of the neighboring ones. The source of the camphor of Japan is a majestic tree, *Laurus* or *Cinnamomum camphora*. It is obtained from the root and branches, which are heated in iron vessels surmounted by hemispheric domes, in which it condenses after sublimation. The chemic formula of camphor is $C_{10}H_{16}O$; it is chemically classed with the aldehydes; and forms one of the group of stearoptenes. The physical characteristics of this substance are too familiar to require detailed description. It is met with in masses of apparently crystalline form; of pronounced odor, and of hot and bitter taste; it is moderately friable; volatilizes readily at ordinary temperatures; is but slightly soluble in water (1 to 870); but is readily soluble in alcohol, ether, and oils. There is also a "camphor of Borneo," which is chemically an alcohol, and is obtained from the *Dryobalanops camphora*.

The physiologic and therapeutic effects attributed to camphor are numerous, and are worthy of special study. It has long been regarded as an antiseptic. It destroys the microorganisms of disease and also the leukocytes, but its effects are very transitory. Its action on the cutaneous surface is that of a stimulant; it may even produce inflammation, if the skin is delicate; and, of course, produces this effect more readily on a mucous or an ulcerated surface—or that of a wound. It is rapidly absorbed by the gastrointestinal mucous membrane; and to some extent even by the skin. The introduction of camphor into the circulation causes a temporary increase of the proportion of leukocytes. This has been attributed to vasodilation in the abdominal viscera. At the same time, by its paralyzing effects on the white corpuscles, it diminishes leukocytic diapedesis; hence its antiphlogistic action. It also exercises a pronounced antipyretic influence; it was specially recommended in fevers by Huncher, more than a century ago (*De igne per ignem extinguendo, sen de præstantissimo camphoræ usu in febribus acutis*, Wittenberg, 1792.) Taken by the mouth it produces acceleration of the pulse, a generalized sensation of heat, and a general stimulation of the vascular and nervous systems. It also produces increased energy of the contractions of the cardiac walls, and increased velocity of the current of blood. In large doses, it causes psychic exaltation, and an immediate desire for movement; this is followed by a feeling of lassitude and prostration. There is a corresponding

effect on the heart; excessive activity, followed by tendency to paralysis. When excessive doses are taken, convulsions of clonic type have been known to result followed by paralysis. Camphor appears to be eliminated, as such, by the skin; and of the urine in form of camphoglycuronic acid ($C_{26}H_{54}O_8 + H_2O$) of which there have been recognized 2 varieties, α and β . In this respect its course is allied to that of benzol, phenol, thymol, chloral, resorcin, hydroquinon, etc. In the department of urinalysis it is important to bear in mind that it is a potent reducer of cupric oxid.

The therapeutic uses of camphor are of considerable number and variety. Its antiseptic properties are seldom referred to now, but in the days before Lister it was found of great benefit in the local and constitutional treatment of hospital gangrene and erysipelas. It has also been administered with the same view in cases of intestinal disease. Camphor has an old-time reputation for relieving toothache, when a morsel is introduced into the external auditory canal. It is taken in the mouth for the same purpose—in the solid form or in solution. Its antipyretic action—although well defined—is seldom heard of now. Its chief reputation in Europe has for a considerable time been that of a diffusible stimulant. The German physicians employed it very extensively for some time in way of hypodermic injection (solution in oil). Camphorated lavements were employed in cases of adynamic typhoid fever. Like many other diffusible stimulants, it acts, in sufficient doses, as an antispasmodic; and the combined or alternate exercise of these qualities will best explain its reputation in bronchitis and asthma. Its action on the skin is well known to be stimulating, an effect to which its volatility probably contributes. All such applications necessarily render latent a large quantity of the surface heat, and thereby stimulate the coats of the bloodvessels. Its known power of arresting diapedesis also aids in forming a scientific foundation for its reputation as an antiphlogistic and an antilactic. Its oftmentioned aphrodisiac and anaphrodisiac effects, in small and large doses respectively, have probably no better foundation than the stimulating and antispasmodic properties above referred to. Its modern fame in this department seems to be largely a traditional expansion of the celebrated Salernitan verse:

Camphora per nares castrat odore nares.

Medieval Knowledge of Camphor.—Its remote origin would appear to have thrown a kind of glamor around the reputation of camphor. To this its prompt, spontaneous volatilization, or rather sublimation, would add a considerable factor. It appears to have been introduced into European medicine in the sixth century, and the notice of it by *Ætius* made it famous at once. Its oriental circulation was that of a costly perfume, of which presents were conveyed to monarchs by the hands of ambassadors and heralds, as of "gold, frankincense, and myrrh." The total knowledge of the drug available in England in 1640 was collected by the famous herbalist, John Parkinson, and may be read with profit in the twentieth century—as affording a gratifying example of the expansion of knowledge in this interval:

Camphora: Camfire.—Camfire, called *caphura* from the Arabians' *cafar*, is such a subtle thing, both in substance and nature, that although it is the gum or liquor of a great vast tree (like to a walnut tree, whose wood is somewhat solid and firme, and of an ash colour like unto beech, or somewhat blacker, the leaves are whitish like unto willow leaves, but neither flower or fruite have been observed, yet is likely to beare both), partly distilling forth of its owne accord, but chiefly by incision, which commeth forth cleare and white, and hath no spot therein but what it acquireth from their foule hands that touch it, yet what we have and use seemeth plainly to be so made by art, being cast as it were, or sublimed, into broad round pannes or dishes, and little about the thickness of one's thumbe, cleere, white, and transparent, but not to be made into powther of itselfe (although it is somewhat brittle, and will breake into many small peeces) without the helpe of a blanched Allmond, or some other such like unctuous thing, which hereby will reduce it into fine powther: neither will it be easily dissolved in cold water, but by warmth will be resolved like unto fat, being easily set on fire, and will burne in the water, serving for wild fire with the other things, and is of a very strong, fiercesent, both sent and substance vanishing away, if it be exposed for a while to the open aire; yet the wood being made into severall workes, will smell thereof a long time: Some take it to be hot, because it is of such tenacity of parts. *Rhasis* saith it is cold and moist, but *Avicena* saith it is cold and dry, and that it causeth watchings and wakefulness, and quieteth the senses of those that are hot, which are contrary one to the other, as *Garcias*, and *Scaliger* upon *Garcias* noteth it. Camfire doth coole the heate of the liver and backe, and all hot inflammations and distempers of heate in any place of the body, easing the paines in the head, and restraining fluxes, either of blood out of the head and nostrils, being applied to the forehead with the juyce of Houseleake or with Plantaine water, and some Nettle seed, for the fluxe of sperme in man or woman, using it to the veines or privy parts, and extinguisheth Venery, or the lust of the body: It is a preserver from putrefaction, and therefore is put into divers compositions and antidotes to resist venome, poysons, and infection of the plague or other diseases: it is good in wounds and ulcers to restraints the heate, and is of much use with women that desire to preserve their beauty, by adding a luster to the skinne.—[*Theatrum Botanicum*, p. 1575.]

Disease Reported among the Japanese.—According to the reports of spies, the Japanese troops in Korea have been ravished by various diseases. One of these diseases, called "imbion," is a kind of intermittent typhus. Another, called "souda," which has not yet been studied by European doctors, produces premature senility. The patients lose their teeth, become extremely weak, and the nails are twisted back on the fingers.

Pure Food and Alcohol.—Information from Washington states that the friends of the pure food bill have abandoned all hope of having it passed at this session. Most of them think that there is small likelihood of the measure getting through next year. The general opinion seems to be that the whisky interests have killed it, because provision is made in the bill prohibiting the sale of certain kinds of adulterated liquors. The bill to prohibit the sale of adulterated foods was passed a few weeks ago in the house, and in due time was reported by the Senate committee. It is now on the calendar, but everything is against getting further along the legislative route.

Leprosy Cured?—In a lecture recently delivered in New Orleans, Dr. Dyer, physician of the Lepers' Home of Louisiana, after saying that there were 3,000,000 lepers in existence, or one to every 500 living persons, announced it is reported that in the last two years the problem of curing this dread disease had been solved. In 10 years, Dr. Dyer is reported as having said that he and his assistants had succeeded in removing every trace of the disease in 12 lepers. In the past two years, since the latter part of 1902, every case at the Louisiana Leper Home, except those in the very last stages of the disease, had been improved materially, and in three cases the lepers are almost well, and it will be possible to discharge them within a comparatively short time. Treatment means a perseverance for years, not for weeks or months. Dr. Dyer expressed confidence that if the treatment of leprosy was begun early enough and maintained long enough, that the disease could be cured as easily as any other. In another decade, he said, it will be universally recognized that leprosy is as curable as typhoid or yellow fever.

AMERICAN NEWS AND NOTES

GENERAL.

Bequests to Charity.—By the will of the late George Huster Gardner, of Philadelphia, the sum of \$15,000 was left to various Roman Catholic charities in the city of Philadelphia. The following hospitals were remembered: St. Mary's Hospital, St. Joseph's Hospital, St. Agnes' Hospital, each the sum of \$1,000.

Would Mail Microbes to Farmers.—At the Patent Office recently a patent was issued and dedicated to the people of the United States. It covers a process discovered by Dr. George T. Moore, of the Department of Agriculture, for the production of bacterial cultures employed in inoculating soils for the successful cultivation of clovers of all kinds, alfalfa, soy beans, cow peas, and many other similar members of the legume family. The patent is given to the people of the United States forever in effect, the object being to forestall any effort to patent such a process and by that means circumscribe the efforts of farmers to improve their soils by raising leguminous crops. The department has for several months been sending out in small packages through the mails the necessary bacteria dried on cotton and accompanied by nutrient salts, with which the farmers may inoculate either the soil or the seed which is to be sown in the soil.

Increase of Suicide in the United States.—According to statistics presented in an article by George P. Upton, of Chicago, the number of cases of suicide is rapidly increasing in the United States. This shows that in the past 13 years 77,617 people have committed suicide in this country, an average of nearly 6,000 per annum. In 1902, 50 cities furnished 2,500 cases out of a total of 8,132 occurring throughout the country: in 1891 the number of suicides was 3,531; in 1895, 5,759; and in 1903, 8,597. Of the 77,617 suicides, 57,217 were males and 20,400 were females. The greatest ratio of increase is noticed among women under 25 years of age. It is noted also that the suicides among children have increased to a considerable extent. It is further noted that during the 13 years there were 41 suicides among physicians, which is more than the number of suicides of those belonging to any other profession. Previous to 1894 most of the suicides were committed by the use of firearms, usually the revolver; since that time most of the deaths have resulted from various poisons, carbolic acid being most frequently used.

A Scientist's Declaration that We Eat too Much.—A paper read before the National Academy of Sciences recently, described a series of experiments recently conducted by the Sheffield Scientific School of Yale to determine if the average human being is not eating too much. Prof. Russell H. Chittenden, the director of the school, who conducted the experiments, declared that the average healthy man eats from two to three times as much as he needs to keep him in perfect physical and mental health and vigor. The subjects of the experiment were professors, students and United States soldiers. There was a gradual reduction of meat and other proteid foods, with little, if any, increase in starch and other foods, but in only one case was meat entirely eliminated from the diet. At the end of the experiments, covering periods of from six months to nearly a year, all the men were in the best of health. Their weight in some cases was almost exactly the same as when they began, and in some slightly lower. Their bodily vigor was greater and their strength was much greater, partially owing to their regular physical exercise during the experiments and partially owing, Professor Chittenden believes, to the less amount of food eaten.

Adulterated Foods.—In a recent address, Dr. Harvey W. Wiley, Chief of the Bureau of Chemistry, at Washington, D. C., is quoted with the following statement: In Washington nearly every one thinks he uses Java or Mocha, or a mixture of those coffees. The fact, as shown by the figures of the Treasury Department, is that there are only about 3,000,000 pounds of those coffees imported into the country. Nearly all of this is on private orders, and hardly a pound ever gets into the market. Eighty percent of the 800,000,000 pounds of coffee sold under those names come from Brazil. It costs from 4 cents to 11 cents a pound, and is sold under the false name at from 35 to 40 cents. He showed the coloring used in giving food products, what the manufacturers call natural colors. These articles are all coal-tar dyes. Yellow butter contains such coloring matter, and sauces—especially catsups, invariably contain them. The cherries used in making cocktails are a purely artificial product. The natural cherry is first bleached, soaked in brine until all the substance, except the skin and the cells of the tissue, is destroyed. They are then filled with glucose, made with sulfuric acid, containing some arsenic, and coloring matter made from coal-tar. In many cases, dyes contain arsenic. Arsenic is a cumulative poison, and long-continued use of it in exceedingly small doses results in arsenical poisoning. This happened in England 2 years ago, when there was an epidemic of arsenical poisoning from drinking beer. Pure

wine vinegar, according to the label, was found to be made from the poorest kind of spirits. Jams, jellies, and preserves are made from apple parings and cores, with chemic flavoring and coloring.

Statement by Professor August Forel.—The following communication is forwarded us for publication: "From August, 1879, until March, 1898, I was the director of the Burghölzli Insane Asylum and professor of psychiatry at the University of Zurich, and desire to make the following statement: Dr. Carl Bertuhringer, who has designated me as a representative of the so-called König Medicine Company, of Chicago, and who incidentally represents himself as a former assistant of Professor Forel at the Burghölzli Asylum, was never my assistant and never an assistant at the Burghölzli Asylum. He did, indeed study medicine in Zurich, and, like other students, study psychiatry with me, and practised in the clinic as a so-called 'practikant,' as did other students. Under these circumstances I once permitted him to hypnotize one patient. But he was never either my asylum nor my private assistant, and hence has no right to publish himself as such. Another Dr. Bertuhringer (not Dr. Hans Bertuhringer) was actually assistant physician in Burghölzli, and is now second physician at the Rheinan Asylum, Canton, Zurich. But this is quite another person. (Signed) Dr. August Forel (former professor at the University of Zurich.) Chiguy, Switzerland, April 6, 1904."

Commend the Faithful Physician.—The *Public Ledger* recently announced that two New York physicians attached to the staff of Bellevue Hospital had contracted tuberculosis as a result of their faithful attention to the unfortunate patients entrusted to their care, and referred to the fact that some 18 more Bellevue internes are known to have become victims through labors among the tuberculous applicants for aid at that hospital. The previous announcement, however, did not record, nor will any future number be called upon to notice, any resignations from the Bellevue staff of physicians, nor any lack of young medical men willing to take up the work of those who fall its victims. It is only one fact of many illustrative of the heroism of the medical profession. The doctor's devotion to duty, his willingness to sacrifice himself to others and his habitual disregard of personal comfort and safety are not so picturesque as the loyalty, the unselfishness, the bravery, of the soldier in the field, but they are of infinitely more human advantage, and of heroic quality no less to be admired. The physician does not march into the presence of danger enthused by the sound of martial music, allured by the advance of his country's flag, comforted by the touch of his comrades' shoulders, certain of the applause of the world. His adventure is prosaic and lonely. Only in the appreciation of the thoughtfulness is its heroism considered.—[*Public Ledger*, Philadelphia.]

Miscellaneous.—**New York:** Dr. Simon Flexner, director of the Rockefeller Institute, has been elected president of the American Association of Pathologists and Bacteriologists. Dr. Addison W. Baird is the author of a leaflet on tuberculosis, addressed to the public, which has been accepted by the A. I. C. P., which will distribute 10,000 copies to the public. The senior class of the New York College of Physicians and Surgeons has given a loving cup to Professor George M. Lefferts, who has been made professor emeritus by the trustees of Columbia University, after a long career as professor of laryngology at the Vanderbilt clinic. Another loving cup was presented to Dr. Lefferts by his clinical assistants on the occasion of his recent farewell address. Dr. Lefferts has been teaching laryngology for 30 years.—**Porto Rico:** The Legislature of Porto Rico has appropriated the sum of \$5,000 to defray the expenses of an investigation into the prevalence of ankylostomiasis in the island. The investigation is to be conducted by Captain Ashford, of the Military Hospital.—**Washington:** Dr. J. C. Simpson, second assistant physician at the Government Hospital for the Insane, Washington, D. C., has sent in his resignation, to take effect May 16. Accepting Dr. Simpson's resignation, Secretary Hitchcock paid a high tribute to the retiring physician, and extended the thanks of the Department of the Interior for his long and efficient services.—**Boston:** "Dr. Nichols, of Boston, alleges," says *The American Inventor*, "that cocaine is used to stimulate football players. 'Besides enormous doses of strychnin, cocaine is known to be employed by professionals in athletic games. I have unquestioned evidence that in the last Harvard game one of the eleven was drugged to force his supreme effort.'"
—**Chicago:** At a recent meeting of the stockholders of the Chicago Eye, Ear, Nose, and Throat College, the following directors for the ensuing year were elected: Drs. W. A. Fisher, A. G. Wipperfurth, H. W. Woodruff, J. R. Hoffman, and Thomas Faith.—**Baltimore:** Professor H. C. Jones, of the Johns Hopkins University, has received a grant of \$1,000 from the Carnegie Institution for research in physical chemistry during the year 1904-1905.—**Archives of Electrology and Radiology.**—The number for March, 1904, appears under the new editorial management, the editor being Dr. Clarence Howard Skinner, of New Haven, Conn. It is promised that an endeavor will be made to develop the journal so as to cover its proper field as comprehensively as possible. The issue in question contains valuable reading matter and is thoroughly up to date.

NEW YORK.

For the Relief of Bellevue Physicians.—It has been announced that steps were being taken to ameliorate the condition of the Bellevue physicians as soon as possible. The top floor of the old Bellevue College Building, has been renovated, and will be partitioned off into dormitories for the doctors. When that is done there will be only two or three doctors in a room instead of four or five as at present.

The Sale of Cocain in New York State.—Pharmacists of New York state, that since the State law prohibiting the sale of cocain except on prescription went into effect, the drug has dropped just about \$1 per ounce in price. The general demand for it has ceased altogether, and the pharmacists sell only to physicians. Of course, it does not follow that the doctors do not dole it out to patients. Cocain used to cost druggists \$6 an ounce; then it dropped to \$5.50. Now it is selling at \$4.25.

Would Exterminate Germs by Fumigating all Public Buildings.—In the opinion of Health Commissioner Thomas Darlington, every home in New York where there has been a case of grip should be fumigated by the formaldehyde process, just as it would be for a case of scarlet fever or diphtheria. The Commissioner believes it would be a wise thing if, under the present extraordinary conditions of the public health, churches should be thoroughly and scientifically disinfected between each Sunday service, schools after each day's session, theaters every day before the matinee or evening performance, and cars used on the overcrowded surface and elevated lines at least once in every 24 hours.

The Optometry and Osteopathy Bills Defeated.—Much credit is due from the profession in general, and from its members in New York State in particular, to Dr. Frank Van Fleet, chairman of the committee on legislation of the Medical Society of the State of New York and his coworkers, in their successful fight against the optometry bill and the osteopathy bill, whose advocates strenuously sought to have them enacted into law. It is stated that no such persistent and concentrated effort has ever been made in the State of New York for legislation detrimental to the profession, and those who succeeded in defeating the measure had to labor strenuously and persistently. To the credit of many legislators be it said, however, that they were anxious to learn the opinion of the profession in general in the State with reference to the measures advocated, and once having the matter clearly before them there was little hesitancy in their placing their influence on the proper side.

The Proposed New Bellevue Hospital.—Details about the new Bellevue Hospital that is to be built were made public a few days ago, and they show that for the next 10 years, if the plans of the architects are approved, the city of New York will be building in instalments the finest hospital in the world. The cost of the enormous structure, containing 12 pavilions and embodying all the appropriate improvements of modern science, will be \$11,000,000. The new hospital, in which nearly 3,000 patients may be treated, will cover almost all the available space from Twenty-sixth to Twenty-ninth streets. Over the entire building will be a roof garden, to which many elevators will run. No ward will be without its elevator. At certain points on the roof will be glass inclosed sections, where weaker patients may be sheltered, and yet out of doors. Fresh air, plenty of it all the time, is the main thing in a modern hospital. In no other institution anywhere has this idea been carried out as it will be in Bellevue.

Would Have Malarial Cases Reported.—According to a New York exchange, the Board of Health, having started its spring war on mosquitos, issued a statement requesting doctors to notify the department of all cases of malarial fever which come under their observation. This is the explanation. In most instances the occurrence of a case of malarial fever in a certain locality means the existence close by of a breeding place of the anopheles, and if all cases of malarial fever are reported, it will be an easy thing to investigate the surrounding locality for breeding places and stamp them out. This will not only greatly reduce the number of cases of malaria, but the spread of the disease from one part of the community to another. It is now a part of the routine work of the Department of Health to make free microscopic examinations of the blood for the malaria parasites, and any physician can have such an investigation made on request. As a safeguard against malarial fever it is interesting to know that the anopheles, unlike the culex (the ordinary nonmalarial mosquito), flies and bites only after sunset, or in extremely shady spots. For this reason, if houses are carefully screened, there is little danger of being bitten by the pests, even in a malarial community.

PHILADELPHIA, PENNSYLVANIA, ETC.

Nurses Declare in Favor of Registration.—The Graduate Nurses' Association of Pennsylvania, at its quarterly meeting recently at Wilkesbarre, devoted much time to a discussion of a proposed law for the registration of all nurses. One hundred nurses were present. Every voice was raised in favor of the law, and plans were discussed for bringing weight to bear upon the next Legislature in the effort to have it passed.

Typhoid in Philadelphia.—For the week ended April 23, a very slight decrease in typhoid, as compared with the previous week, was reported by the Bureau of Health. The aggregate for these seven days was 352. As on many previous occasions, the filtered water wards, the Twenty-first and Twenty-second, showed but few cases, seven and four respectively.

American Nurses Reach Japan.—Information from Yokohama, under date of April 22, states that the party of American volunteer nurses whose services have been accepted by the Japanese Government have arrived from Seattle. They received a hearty welcome. The party will visit Tokio for a short time, after which they will be appointed to a hospital ship.

Crusade against Unlicensed Doctors.—The County Medical Society decided recently to immediately establish a special fund to be used in the prosecution of illegal practitioners. The President of the State Board of Medical Examiners announced that there are more than 100 men practising medicine in Philadelphia without a license. The city, he said, should be purged of these fellows. He offered to donate \$25 toward a fund for obtaining evidence against them and aiding in the work of bringing them to justice. Attention was called to the fact that the County Medical Society had more than 950 members, and that \$1,000 could be raised by \$1 subscriptions. It was decided to adopt this means of obtaining the proposed fund. On motion, it was decided to appoint a committee of three physicians to aid the Coroner, District Attorney, and Director of Public Safety in obtaining evidence against and prosecuting malpractitioners in this city.

SOUTHERN STATES.

The Medical and Chirurgical Faculty of Maryland held its annual meeting, beginning Tuesday, April 26. Important addresses were delivered by Drs. Eugene F. Cordell, John B. Deaver, J. N. McCormack, Harry T. Marshall, W. T. Watson, B. W. Goldsborough, Thomas B. Fletcher, W. F. Lockwood, R. W. Wood, F. H. Baetger, T. C. Gilchrist, H. F. Cassidy, and others.

Texas Health Law Defied.—The health authorities of Mexico will pay no heed to the rules and regulations recently promulgated by Dr. George R. Tabor, Health Officer of Texas, regarding travelers entering Texas from Mexico, the Superior Board of Health in the latter country denying the right of the State of Texas to make such rules when no epidemic of yellow fever exists in Mexico. The Mexicans will take up the matter with the State Department in Washington.

Government Hospital in the South.—It is announced at the Navy Department that it is the intention of Surgeon-General Rixey to provide a large hospital for the naval station at Charleston, there being no modern hospital of the service south of Norfolk. The Surgeon-General, who has returned from his visit of inspection at Port Royal, has made some important recommendations in regard to the establishment at the place of an outdoor hospital for the treatment of tuberculous patients of the service.

Germ Distribution Checked.—From Louisville, under date of April 23, comes the following information: Prompt action by the city Health Department has prevented the installation of a carpet cleaning arrangement, which, it is claimed, would have spread many forms of disease over that portion of the city near the plant. The health officer found that a company intended to put in a huge fan which would blow the dirt, dust, and germs from the dirty carpets up to the chimney and into the outer air. The fan had not been put in, but preparations were being made for its installation. The officer notified the manager that he would not be allowed to scatter the dirt and disease germs over the city, and that some other arrangement to care for the carpets must be made.

An Epidemic Probably Prevented.—An exchange states that by a series of experiments which proved how readily deep wells and springs could experience pollution, the town of Quitman, Ga., has doubtless been saved from the danger of an epidemic of disease. In this place, the water-supply of the town is derived from wells, and in planning a sewerage system it was proposed to dispose of the public sewage by discharging through a bore hole into an underground stream. The possibility that contamination might result, however, was early suggested, and led to practical experiments being undertaken by the United States Geological Survey, and the Geological Survey of Georgia, in order to determine the matter definitely. Two tons of salt were placed in the well where it was planned to empty the sewage, and the water from the various wells which had been previously examined, especially as to their chlorin contents, was again analyzed, samples being taken at intervals during and some time after the experiment. It was found that the salt had permeated all of the wells in the town, demonstrating conclusively that disease germs could be readily communicated to the drinking water. These experiments are in line with some carried on in Europe several years ago, where it was found that bacteria, placed in certain wells, could be detected at other sources of water in the vicinity, and emphasized the importance of carefully examining and safeguarding water-supplies under all conditions.

WESTERN STATES.

Ohio Medical Law Declared Void.—In the Common Pleas Court at Sandusky, Ohio, Judge Reed has ruled that the Ohio State medical law is unconstitutional, because it limits the right to practise without the use of drugs or medicines to osteopaths, and by the rule of exclusion Eddyites are prohibited.

For 50 Years an Active Member of a Medical Society.—Physicians of Dubuque, Iowa, at a recent meeting of the Dubuque Medical Society, gave a celebration in honor of Dr. William Watson, who for 50 years has been an active member of this society. This venerable physician is a member of the American Medical Association. He is loved and revered by his colleagues of Dubuque and vicinity, and is well known throughout the Mississippi valley.

Chicago Policemen to Attend Lectures in Medicine and Law.—Five hundred policemen, a fifth of the entire number in that city, have presented themselves at the Dearborn Medical College to receive instruction in applied anatomy and surgery, as well as criminal law. After a five days' course of two hours a day, the students will be succeeded by other police in batches of 500. The instruction will be given in lectures by the college faculty, the attending staff of Samaritan Hospital, and by Assistant State's Attorneys.

Would Require Health Certificate to Wed.—"No marriage license without a physician's certificate of health attached," is the slogan of the Progressive Health Club, of Chicago, which has prepared a petition to President Roosevelt, asking his cooperation in the club's endeavor to secure the establishment of a federal bureau "to teach citizens the ideal possibilities of marriage." Federal legislation that will prevent the marriage of any person who cannot show a clean bill of health and prove that he has no chronic disease and never has been convicted of any crime also is asked.

Efficient Work by Chicago's Health Department.—The Bulletin of the Health Department for the week ended April 16, says: During the week the laboratory analyzed 851 samples of milk and cream—a record week's work. Of these, 4.7% were found to be below grade. The below-grade samples were mostly from shippers, many being found to be watered. These were condemned at the railroad platforms and either returned to the shipper or emptied into the sewer. During the week 35 restaurants were notified to comply with the sanitary regulations concerning the handling and keeping of their milk and cream. Suit was entered against 14 of these for unsanitary conditions, against six for selling milk and cream below grade and against two for mixing milk or cream with condensed milk.

Tuberculosis in San Francisco.—The deputy health officer says that the Board of Health intends passing an ordinance enforcing the attachment of bacteria-proof mouthpieces to all telephones in San Francisco. The object of this is to prevent the spread of contagious diseases. Tuberculosis is quite virulent here at the present time, and the Board intends taking all measures possible to prevent further ravages. The proprietors of the penny arcades will be asked to remove all blowing and lung-testing machines for the same reason. Janitors of the different schools throughout San Francisco will be ordered to sweep all rooms after school hours. Cleaning halls or yards during the time the buildings are occupied is bad for the lungs on account of the clouds of dust generated. The walls of all schoolrooms are to be washed down at least three times a month with an antiseptic solution.—*San Francisco Bulletin.*

Danger of Rabies.—The Bulletin of Chicago's Health Department for the week ended March 26, says: A number of rabid dogs having been killed within the last few weeks, the Department advises that the public should appreciate the importance of securing a dog that has bitten anyone and keeping him alive until it is positively known whether or not he is suffering from rabies. Postmortem examinations or animal inoculations do not always demonstrate the presence of rabies, especially in its early stages. It is best to secure the dog and watch him for a few days. If he has rabies he will usually die within a week or so. It is easy then to state positively that the disease is rabies or not. In New York a law passed in 1902 requires all dogs that appear to be suffering from rabies, or that have bitten anyone, to be kept under observation for 10 days. If one is bitten by a dog, whether the animal is known to be rabid or not, the Pasteur treatment should be begun immediately, because although symptoms may develop in 3 or 4 days, 6 weeks is the usual time. If the dog does not die of rabies within 10 days, it will not be necessary to continue and no harm will have been done, because this treatment is absolutely harmless. The present law requiring the muzzling of all dogs, during the entire year, is one that should be strictly enforced, as shown by the English success in exterminating rabies and by the Berlin experience. No case of rabies has been known in the German capital since 1873, when a law was passed requiring the compulsory muzzling of all dogs during the entire year.

FOREIGN NEWS AND NOTES

GENERAL.

Miscellaneous.—Dr. J. N. Langley, F.R.S., professor of physiology at Cambridge University, has been given the degree of doctor of laws by St. Andrew's University. —Professor J. H. van't Hoff has placed at the disposal of *Zeitschrift für Physikalische Chemie* the sum of \$300 for prizes for papers on the literature of the phenomena of catalysis. The papers may be published in the journal and must be received before June 30, 1905.

Chinese and the Plague.—The susceptibility of the Chinaman to the plague is proved by the fact that China and Mesopotamia were the two great world centers of the disease before India became infected. For the past 40 years plague has been endemic in the mountains of Yunnan, and there was a virulent outbreak there in 1871-1873. In 1894 there was a severe epidemic in Canton, which is said to have caused 100,000 deaths, and spread in the same year to Hongkong. It is from Hongkong that the infection is said to have spread to Bombay, which was just catching Calcutta at the time in the race to be premier port in India. Since then Calcutta has gone ahead, and Bombay has hopelessly receded, owing to seven years of plague.—[*London Chronicle.*]

Disease an Ally of Firearms in War.—An exchange, commenting on the excessive deathrate among soldiers from various forms of illness rather than from gunshot wounds in various wars of recent years, makes the following significant statement: In the Crimea, the French lost 236 men from sickness to 64 from wounds in each thousand. The deathrate of the English was 179 from sickness and 47 from wounds. In Mexico the French lost, per 1,000, 140 from sickness and 49 from wounds. In the Russo-Turkish war, the Russians lost, per 1,000, 113 from sickness and 49 from wounds. The losses in the American Civil war during 2 years, June, 1861, to June, 1863, were 53.2 per 1,000, of which 8.6 were from wounds and 44.6 from sickness. In the Boer war, while the figures are not at hand in complete form, it is well known that sickness was vastly more fatal than Boer marksmanship, deadly as that was admitted to be. And yet any official status whatsoever is but grudgingly granted to the medical men in the army.

Successful Fight against Malaria in Egypt.—The *London Times* quotes Sir Alfred Jones in reference to his report of the work accomplished by Major Ross and others in Ismailia, Egypt. It appears that when Major Ross first began his work in Ismailia in September, 1902, there were 2,000 cases of malaria annually in a population of 9,000 people, of whom 2,000 were Europeans. The authorities at Ismailia carried out Major Ross's suggestions as to filling up marsh land close to the town, cleaning out small irrigating channels and stagnant waters. That involved an expense of £4,400, and at the same time they organized a drains brigade and petroleum brigade, as a result of whose work people can now sleep in any of the houses in the European quarter without mosquito nets. From 2,000 cases of malaria a year the number had been reduced to 200. According to Sir Alfred, tropical medicine was bringing us to think that after all this little country of ours had been for centuries teaching medicine applicable to our own country and domestic life without thinking of our great empire all over the world. The time had come when they must teach students a medicine applicable to the whole world. Major Ross holds that the success of the antimalarial campaign at Ismailia had taught two things—that it is possible to rid a large town entirely of mosquitos, and that it is equally possible to eradicate malaria.

Rio de Janeiro's Change in Quarantine Regulation.—An exchange states that Rio de Janeiro has abolished its old fashioned quarantine regulations, and vessels with cases of yellow fever on board will hereafter be simply disinfected and supervised. The change means a victory for that city's new Health Board, the head of which, after a great deal of hard work, succeeded in convincing the Brazilian Congress of the correctness of the Cuban theory regarding the propagation of yellow fever by mosquitos. Notwithstanding the success of the United States officials in completely ousting that disease from Havana, there was much opposition to the plan, but at last Congress voted the sum of \$1,250,000 for a war on mosquitos. Last October 1,200 men were engaged in destroying the larvae of those insects. The natives were at first inclined to laugh at this brigade, with its brooms, ladders, kettles, and cans of coal oil; but they became serious when they learned the result—only nine cases of yellow fever in the midsummer months of January and February, as against 275 cases in the same months last year. In the period from 1850 to 1896 the number of deaths from this disease in Rio, was 51,600. There have been times when as many as 2,000 patients were cared for in the isolation hospital, which is located near the cemetery and is known as the *antecamera da morte*. This hospital, which was an ideal focus for the propagation of the disease by infected mosquitos, and from which few patients used to emerge alive, is now closed.

OBITUARIES.

Israel T. Dana, at his home in Portland, Me., April 13, aged 77; a graduate of the Harvard Medical School in 1849. He was one of the founders of the Maine General Hospital and of the Maine Medical Association. He was formerly professor of materia medica at the Maine Medical School, Brunswick; he was one of the most prominent physicians of Portland and a member of a number of medical societies.

Joshua M. Carey, at his home in Mt. Vernon, N. Y., April 20, aged 70; a graduate of the Eclectic Medical Institute, Cincinnati, Ohio, in 1862. He served throughout the Civil war as an army surgeon of the Federal army, serving in 51 battles. He was formerly a member of the Pennsylvania State Legislature.

Andrew P. Cox, at his home in Coraopolis, Pa., April 21, aged 59; a graduate of Jefferson Medical College. He practised in Big Run, Pa., seventeen years before locating at Coraopolis. He was a wellknown physician and a member of the American Medical Association.

James S. Stevens, at his home in Kensington, Philadelphia, April 23, aged 71. He was a specialist in obstetrics and diseases of children, a Shakespearian scholar, and one of the oldest and best known physicians in the section of the city in which he lived.

Robert M. Read, of Boston, in Los Angeles, Cal., April 21, aged 56; a graduate of Harvard Medical School in 1876. Having engaged in active practice until the past few months when ill health compelled him to seek a different climate.

John I. Skelly, at his home in Pekin, Ill., from apoplexy, April 9, aged 57; a graduate of Detroit Medical College in 1869; member of the American Medical Association and a member of the hospital corps during the Civil war.

Wilbur F. Nutton, at his home in Newark, N. Y., April 18, aged 64; a graduate of the College of Physicians and Surgeons, N. Y., and a member of various local and State medical societies.

Josiah C. Donham, at his home in Hebron, Maine, April 7, aged 66; a graduate of the Medical School of Maine, at Brunswick, in 1867; one time representative in the State Legislature.

Sarah Fowler Stockwell, from cancer, at her home in South Bend, Ind., April 2, aged 62; a graduate of the University of Michigan in 1876; member of the American Medical Association.

John P. Manker, from paralysis of long standing, at his home in Chattanooga, April 9; a graduate of the Chattanooga Medical College in 1894 and an instructor in his alma mater.

John A. Pearsall, at his home in Saratoga, April 18, aged 53. He was a member of the New York Homeopathic Medical Society and of the American Institute of Homeopathy.

Cyrus Kindrick, at his home in Litchfield Corner, Maine, April 4, aged 78; a graduate of Jefferson Medical College in 1848 and a member of various medical organizations.

T. R. Rogers, at his home in Moundsville, W. Va., April 12, aged 70. He was a wellknown and respected physician in the vicinity in which he lived.

J. Howard Rabe, of Clyde, Ohio, after an operation for gallstone, in Philadelphia, April 2, aged 37; a graduate of Jefferson Medical College.

Thomas S. Clark, from paralysis, at his home in Vanceburg, Ky., April 4, aged 55; a graduate of the Medical College of Ohio, Cincinnati, in 1873.

James H. Crabbs, at his home in Fremont, Neb., April 9, aged 77; a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1872.

Henry Lee, as the result of a fall of nine stories in an elevator shaft, in Chicago, April 24. He was a surgeon of some note in Chicago.

Cyrus R. Stuckslager, at his home in McKeesport, Pa., April 7, aged 75. He was a surgeon in the Federal army during the Civil war.

Weller Roos, at his home in Chenango, Forks, N. Y., March 31, aged 50; a graduate of Bellevue Hospital Medical College in 1883.

Thomas F. Jordan, at his home in Hickory Hill, Mo., April 7, aged 42; a graduate of the Missouri Medical College, St. Louis.

Romain C. Barless, at his home in Rose, N. Y., April 3, aged 70, a graduate of Jefferson Medical College, Philadelphia.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended April 23, 1904:

PEASE, F. D., contract surgeon, is relieved from duty at Fort Assiniboine and will proceed to Missoula, Mont., for annulment of contract.

RUTHERFORD, First Lieutenant **HENRY H.**, assistant surgeon, is granted leave for one month on account of sickness.

PEASE, F. D., contract surgeon, is granted leave for twenty days, to take effect upon his arrival at Missoula.

STRAUSS, JULIUS, sergeant first class, is relieved from duty at Aparri, Cagayan, Luzon, and will be sent to San Francisco, Cal.

WHITE, J. SAMUEL, contract surgeon, is granted leave for one month, from about April 15.

So much of orders of March 29 as directs John G. J. Knust, sergeant first class, to join the first detachment of the hospital corps to be sent from the Army General Hospital, Washington Barracks, to the Philippine division, is revoked. Sergeant Knust, upon expiration of furlough authorized in letter from the War Department, April 14, will join the first detachment of the hospital corps to be sent from his station to the Philippine division.

GIBSON, Major **ROBERT J.**, surgeon, is relieved from duty at Iligan, Mindanao, and will report to the commanding officer, department of Luzon, for assignment to duty.

WALKER, Major PHILIP G., **WOLFE**, Captain **EDWIN P.**, and **SHOCKLEY**, First Lieutenant-Major **A. W.**, assistant surgeons, will proceed to Zamboanga, Mindanao, reporting to the commanding general, department of Mindanao, for assignment to duty.

WELLS, Major **GEORGE M.**, surgeon, and **HAMMOND**, **WILLIAM G.**, contract dental surgeon, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

GREGORY, **VERDO B.**, and **SABIN**, **WALLACE E.**, contract surgeons, will report to the commanding general, department of Luzon, for assignment to duty.

ARTAUD, **FRANK E.**, contract surgeon, is relieved from temporary duty at the Convalescent Hospital, Corregidor Island, and will report to the commanding general, department of Luzon, for assignment to duty.

REDDY, **JOSEPH W.**, contract surgeon, is granted leave for two months, with permission to visit the United States.

McMILLAN, **CLEMENS W.**, contract surgeon, will proceed at once to Fort Ethan Allen for temporary duty, and upon the completion of this duty will return to his proper station at Fort Myer.

THOMPSON, **HERBERT**, sergeant first class, now attached to company of instruction No. 2, hospital corps, Fort McDowell, is assigned to duty with that company.

WATERHOUSE, First Lieutenant **SAMUEL M.**, and **EDGAR, JR.**, First Lieutenant **BENJAMIN J.**, assistant surgeons, will report to Lieutenant-Colonel **George H. Torney**, deputy surgeon-general, president of the examining board at the United States Army General Hospital, Presidio, for examination for promotion. Upon the completion of his examination Lieutenant **Waterhouse** will comply with the requirements of orders of February 20.

McANDREW, First Lieutenant **PATRICK H.**, assistant surgeon, leave granted February 19 is extended fifteen days.

ALLEN, **IRA A.**, contract surgeon, leave granted January 30 is extended one month.

SCHREINER, Captain **EDWARD R.**, assistant surgeon, is granted leave for three months, to take effect when a medical officer is sent to relieve him.

JONES, First Lieutenant **PERCY L.**, assistant surgeon, will proceed to Washington Barracks for temporary duty, and upon the completion of this duty will return to his proper station at Fort Monroe.

COMEGYS, Lieutenant-Colonel **Edw. T.**, deputy surgeon-general, is relieved from duty at the United States General Hospital, Fort Bayard, to take effect at such time as will enable him to comply with this order, and will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands on the transport to sail from that city about June 1.

Changes in the Medical Corps of the U. S. Navy for the week ended April 23, 1904:

STONE, E. P., surgeon, detached from the Mayflower and ordered to the Naval Academy—April 15.

PRYOR, J. C., passed assistant surgeon, ordered to the Naval Hospital, Newport, R. I.—April 15.

HOLCOMB, R. C., passed assistant surgeon, detached from the Naval Hospital, Newport, R. I., and ordered to the Mayflower—April 15.

STRITE, C. E., acting assistant surgeon, appointed acting assistant surgeon from April 13, 1904—April 15.

LOWNDES, C. H. T., surgeon, detached from the Naval Academy, and ordered to the Chesapeake—April 19.

DEVALIN, C. M., passed assistant surgeon, detached from the Rainbow, and ordered to the Albany—April 20.

TRAYNOR, J. P., assistant surgeon, detached from the Albany, and ordered to the Rainbow—April 20.

ARNOLD, W. F., surgeon, retired from active service April 19, 1904—April 21.

Changes in the Public Health and Marine-Hospital Service for the week ended April 21, 1904:

BROWN, B. W., passed assistant surgeon, granted leave of absence for two days from April 25—April 19, 1904.

BLUE, RUPERT, passed assistant surgeon, granted leave of absence for three days from April 19—April 18, 1904.

GREENE, J. B., passed assistant surgeon, relieved from duty at Havana, Cuba, and directed to report to medical officer in command at New York (Stapleton) for duty and assignment to quarters—April 20, 1904.

HOLT, J. M., passed assistant surgeon, to report to medical officer in command at San Francisco, Cal., for duty and assignment to quarters—April 20, 1904.

McLAUGHLIN, A. J., assistant surgeon, granted leave of absence for four days from April 20—April 20, 1904.

WARREN, B. S., assistant surgeon, granted extension of leave of absence for one day from April 17—April 20, 1904.

ASHFORD, F. A., assistant surgeon, leave of absence granted for ten days from March 28, 1904, amended so that said leave shall be for eleven days—April 19.

ALTREE, G. H., acting assistant surgeon, granted leave of absence for five days from April 19—April 19, 1904.

BAILEY, C. W., acting assistant surgeon, granted leave of absence for eleven days from April 22—April 20, 1904.

DUKE, B. F., acting assistant surgeon, granted leave of absence for six days from April 18—April 18, 1904.

MARSH, W. H., acting assistant surgeon, granted leave of absence for five days from April 26—April 20, 1904.

MONCURE, J. A., acting assistant surgeon, department letter of March 31, 1904, granting leave of absence for thirty days from April 10, 1904, amended so as to read thirty days from April 12, 1904—April 20, 1904.

ILTIS, G. W., pharmacist, granted leave of absence for twenty-five days from May 5—April 14, 1904.

SOCIETY REPORTS

GERMAN SURGICAL ASSOCIATION.

XXXIII Congress, Held at Berlin, April 6, 7, 8, and 9.

[Specially reported for *American Medicine* by Lawrence Hendee, A.B., M.D., Instructor in Anatomy, Cornell University, Ithaca; Z. S. Volontärarzt, Chirurgische Klinik, Königsberg, I/Pr., Member of the German Surgical Association, with due acknowledgment of Dr. Wohlgenuth, authorized reporter for the German Medical Press, and the members of the Association, who kindly furnished abstracts.]

The session was formally opened by Professor BRAUN (Göttingen). His opening address was devoted particularly to a review of the work done in medicine by the members who had died during the past year, *i. e.*, Geh. Rat. Feldmann, and Jürgens (Berlin), Schwalbe (Los Angeles), Tribitzki, (Krakau), Petri, Donold, Schatz, and Gussenbauer (Wien). He gave an especially warm tribute to Gussenbauer, reviewing carefully his work and effect on the scientific world in general. The work of the Library Committee was highly praised, and especially that of Professor Fischer (Berlin), a member of the committee, stating that it was due in great part to his personal work, covering a period of three and a half years, that the catalogue of the library had been finished and the library put in condition to be of use to the members. At the president's suggestion, a vote of thanks by the Association was extended to the Library Committee and Professor Fischer.

KÜMMELL (Hamburg) was elected second secretary of the Association. Geh. Rat. KÖRTE (Berlin), secretary, read the names of the new members—72 in number.

Suturing the Bloodvessels in Arteriovenous Aneurysm in the Popliteal Space.—KÖRTE (Berlin). The case was that of a boy 13 years old, who was stabbed with a pocket-knife in the right popliteal space. The wound at the time was sutured. Eight days afterward patient came under his observation. There was a small freshly healed wound, in which pulsation was plainly felt; auscultation gave a buzzing sound, synchronous with the radial pulse, but no aneurysmal tumor was visible. At operation, eight months later, the vessels were freed and cleaned, and the vein and artery were found to be joined for about 6 mm. They were isolated and separated along the line of junction. The opening in the walls of both artery and vein was closed by a very fine linen suture and the wound dressed with compression. Five months later the wound was well healed, showing a firm scar, and the pulse in the popliteal and tibial arteries plainly discernible with no venous pulsation.

Clinical and Experimental Contributions to Arteriovenous Aneurysm.—FRANZ (Berlin) first reported a case similar to Körte's, occurring in Von Bergmann's clinic. In this case he considered it necessary to ligate the vessels as there was considerable rise in temperature of the lower extremities, while as a rule in such cases there is usually a fall of temperature. He then presented the results of experiments in animals, which he had been conducting for some time. In his experiments he joined by opening and suturing together the artery and vein. In each case immediate venous pulsation was noticed. The arterial stream in the vein in a short time flowed toward both the distal and proximal portions of the vein. Because of the course of the arterial blood in the vein, he considered simple ligation of the vein on both sides of the fistula sufficient.

Demonstration of a Preparation of Arteriovenous Aneurysm from an Unusual Cause.—REISE (Britz). The chief point of interest was the cause of the aneurysm; it being due to an injury to the bloodvessels by a splinter of bone separated and unobserved, while chiseling during a bone operation.

Interosseous Bloodvessels (Arterial) and their Relation to the Etiology of Bone Disease.—LEXER (Berlin). This was one of the most interesting papers presented during the morning session. Lexer first referred to his former report, made in the congress of the preceding year, principally upon investigations of the interosseous arterial vessels of the bones of newborn. During the past year the investigations were extended, including those of children, young adults and advanced age. The investigations were principally anatomic in character. He used for injection mercury suspended in oil of turpentine, the injection being carried to a point where the injected vessels were plainly visible beneath the raised peritoneum. Röntgen ray pictures then were taken, the injected vessels standing out distinctly. He found the picture given by the interosseous vessels to vary in relation to the age of the bone, particularly in the number and anastomosing of the metaphyseal vessels. In relation to the age of the bone there was a decrease in number as well as the anastomosis with the diaphyseal arteries. The same condition was found to be present in short bones with the exception that they did not have the special locations or districts of bloodvessels. He held that the free anastomosis of the metaphyseal interosseous arteries played an important role in the young in the location of infection through the blood channel; especially in osteomyelitis, tuberculosis, metastatic tumors and parasitic infection. He also included through its mechanical influence the lesions caused by lodgment of emboli. He considered that this theory was upheld clinically as the above diseases were comparatively rare in older bones. In the evening session he gave a lantern exhibit of his preparations, showing

ing about 40 examples. The exhibit was an interesting as well as an instructive one. (The entire collection of negatives will be sent to the St. Louis Exhibition, to be placed in the collection of exhibits from Von Bergmann's clinic.)

The Arrangement of the Vertebral Arteries in Scoliosis.—HOFFMAN (Graz) exhibited diagrams showing the relation of the arteries of the normal vertebral column as compared to those in scoliosis. In the normal vertebrae he claimed the arteries take a regular course passing from anterior to posterior in a direction regularly upward or downward. In scoliosis he found them passing straight backward, neither going upward nor downward, and that they were frequently bent and irregular in their course.

Discussion.—LEXER (Berlin) held that there was no regular course for the arteries in either the normal or in scoliosis. HELFERICH (Kiel), referring to Lexer's article, first agreed with him as regards the relation of the interosseous arteries and the etiology of bone disease. Continuing further he disagreed with Hoffman as regards the regularity of arrangement of the arteries in the normal as well as in scoliosis. ASHOFF (Munich) asked if all bone metastasis could be accounted for by Lexer's theory. He mentioned Recklinghausen's theory as regards the etiologic factor of injury.

Experimental Investigation in Regard to the Effect of Sodium Fluorid upon Bone, Especially the Maxillary Bones.—STUBENRAUCH (Munich) found that by adding sodium fluorid to the diet of young dogs there resulted a typical caries of the teeth, with great porosity of the bones of the extremities. However, there was no interference in the growth of the bones.

Demonstration of Preparations from a Case of Multiple Bone Sarcoma with Osteitis Deformans.—REHN (Frankfurt, a/M). The case reported was that of a girl 23 years old. Patient had pain for some time in right hip. Ten months after commencement of observation there developed a tumor. Operation and removal of tumor. Microscopically the tumor gave the appearance of a myeloid sarcoma. Two months later there appeared a tumor on the left pelvic bone, and still later tumors on the femur, several ribs, and lower extremity. The bones had a consistency like that found in osteomalacia. He was in doubt as to whether the multiple tumors were true neoplasms or not. In none did the microscopic examination give a true sarcomatous picture. He thought that they might possibly also be new formations, due to inflammatory reaction.

The End-results of Plastic Operations on Tendons, with Demonstration of Patients.—HOFFA (Berlin), in introduction, spoke of the importance plastic operations on tendons had reached, and referred to the work his assistant—Koch—had done in regard to such operations when there were defective or paralyzed muscles. Fourteen patients were presented upon whom he had operated. The operations were along the line of tenorrhaphy and tendon transplantation. The tendons he had operated on included tendon achilles, quadriceps extensor, triceps, and those attached to the external and internal condyles. He recommended the combining of the methods of Nicoladoni and Lange so that the best results could be obtained.

Implanted Carcinoma.—PETERSON (Heidelberg) stated that all cases in which the carcinoma cells had left the original tumor and located in some other situation, could be classed as implanted or transplanted carcinoma. This implantation might come by continuity, blood stream, lymph stream or by direct transplantation from one body to another and also by continued contact with a surface. The three surfaces especially mentioned were serous, epithelial and wound. He held that those involving wound surfaces to be of the most interest to the surgeon. In this connection he mentioned the possibility of such infection—in Schuchardts' paravaginal incision for the removal of a carcinoma of the uterus, but further stated that this instance could not be held as a perfect example as one could not be certain of the existence or not of a previous infection through lymph channels.

Late Recedive of Carcinoma.—JORDAN (Heidelberg) held that recedive of carcinoma was a problem including both the prognosis (dauer Heilung) and the etiologic cause or condition, the form or type of the carcinoma being often the key to the problem. If in the primary operation carcinoma cells were left behind, it then depended upon their malignancy to how soon new tumor formation or building began. He quoted two cases. *First case* was a recedive occurring 19 years after primary operation. The primary tumor was an epithelioma of the tongue (operation 1885). Early in 1904 a recedive was noticed on the old scar. In March, 1904, he performed operation with extirpation of the tumor. The deeper and more distant cervical lymph-nodes were not involved. *Second case* was that of mammary carcinoma with several recedives occurring during 15 years. In 1889 he amputated a mammary carcinoma, the first recedive occurring in 1892, the second recedive in 1896, the third in 1899, the fourth in 1901 and the fifth in 1903. The lymph-nodes in the subclavicular and supraclavicular glands were involved and were extirpated. Each recedive except the last was local in character. Since the last recedive there have been as yet no signs of recurrence. Jordan claims that if the statistics of carcinoma should be revised and more careful observations made, many cases of so-called permanent cure would be placed in the list of late recurrence.

The Physiologic and Physical Bearing on Intrathoracic Operations of His Pneumatic or Vacuum Operation—

room.—SAUERBRUCH (Breslau). His vacuum room consists of an air-tight operating-box large enough for the table, operator and assistants. The patient's head is outside the operating box, a rubber curtain fitting around the neck preventing the ingress of air. By means of an air-pump the air in the room is reduced to a vacuum equal to 10 mm. of mercury (giving the same air-pressure as an elevation of 300 meters). By this means the internal pressure of the lung is greater than the external so that on opening the pleural cavity there was no pneumothorax or collapse of the lung. As yet experiments have been conducted with but one exception, on dogs. What the result in all cases on man as far as affecting the heart action is concerned is not known. The experiments are still in the physiologic stage and have been successful. Demonstrations on dogs were given daily and were quite interesting.

Surgical Possibilities of the Sauerbruch Operation-room.—MIKULICZ-RADECKI (Breslau) dwelt on the possibilities and increased field of thoracic operations by this new method. He especially mentioned the removal of the chief difficulties in transpleural and transdiaphragmatic operations; also the increased possibilities in operations on the esophagus. Considerable amusement was caused by his suggestions of its application to heart surgery, even to operations on the mitral valve. He was quite pleased with the results of the experiments on animals. In closing, he spoke of a case in which a man was operated on by the new method but died of heart collapse which he did not consider due to the method.

A Modification of the Sauerbruch Method to Prevent the Complication of Pneumothorax.—BRAUER (Heidelberg) stated that his modification was based on the increase of the internal lung-pressure above normal rather than the decrease of the external. The increase of this pressure was obtained by the use of special apparatus in combination with the anesthetic whereby internal pressure could be increased and regulated. There were two methods of its administration: 1. Through a tracheotomy. This was chiefly for animal experiments, but could be used in man when such a procedure was justified. 2. By a Waldenburg ether mask and an air-pressure apparatus. Brauer had perfected an apparatus consisting of a box fastened around the patient's head, in which by a Roth-Dräger chloroform apparatus the anesthetic could be easily administered. Holes protected by rubber curtains in the box were for the assistant through which his arm went in administration of the narcosis. Brauer claimed his apparatus was as effective as that of Sauerbruch's and had the added advantage of simplicity and inexpensiveness.

Intrathoracic Operations.—PETERSON (Heidelberg) demonstrated an apparatus similar to Brauer's, for which he claimed superiority over both Brauer's and Sauerbruch's. He also raised the point of the beneficial effect of lung gymnastics. He reported one case of a man operated on for a tumor of the dorsal vertebra involving the pleural cavity, in which his pressure apparatus was used with good results. Unfortunately on the first dressing, three days after operation, the apparatus was not used—the lung collapsed, and death followed.

Discussion.—An animated discussion between SAUERBRUCH, BRAUER, and PETERSON followed; no new points, however, were brought out. MÜLLER (Rostoch) suggested that they wait and report again next year after further investigation.

Report of Cases on Which Cardiomyolysis Had Been Made.—BECK (Karlsruhe). Three cases were reported. First case, that of a boy suffering with ascites and engorgement of both liver and kidneys. The heart action was very irregular and weak. At operation resection of the fourth, fifth, and sixth ribs was done and cardiomyolysis performed. On the heart and pericardium were found fungoid masses, with numerous firm adhesions. During the first three days after operation the heart action was very bad. On the fourth day the boy began to improve, and was soon completely recovered, with disappearance of all symptoms that were present before operation. At present he is able to do active athletic work. In the two other cases, firm adhesions were encountered, and after the operation both patients recovered, and are at present in excellent condition. Beck considered the operation to open a new field in surgery, and that it was particularly applicable after pleuritis or pericarditis when the adhesions formed caused severe interference to the heart's action. In his technic he made a rib section, then opened the pericardium longitudinally.

Upon the Question of Röntgen Ray Treatment of Carcinoma.—PERTHES (Leipzig) reported 29 cases of carcinoma treated by the röntgen ray. Thirteen cases were of the epithelioma type, involving the skin. Of these, 12 are healed with a good scar. The one still remaining was a very large, deep ulcer. Three of the cases have been under observation 10 months and show no signs of recedive; three others must be further treated because of the lymph-node involvement. In the cases of carcinoma involving the mouth cavity or tongue, he had no definite results. In eight cases of inoperable carcinoma of the breast, he has had a decrease in size of the tumor with scar formation, but as yet is not able to report complete healing in these cases. In his technic he uses for the skin carcinomas a medium strength ray as measured by the Holzknecht chromodimeter, the length of treatment being about 15 minutes daily, obtaining his results in from 24 days to 70 days. In three cases of carcinoma of the lip he used the full strength ray, with results in from 50 days to 60 days. The cases of carcinoma of the lip have been under observation seven months

without the appearance of recedive. He considers the röntgen ray treatment of great advantage in epithelioma of the nose or eyelid, as it leaves them in condition for better function and also better results from a cosmetic standpoint. In epithelioma of the lip in patients of advanced age he advises the use of the röntgen ray in combination with the knife. In all cases he advises the use of the knife for the lymph-nodes. He found the intensity of the rays by measurement to be reduced at least a half by the passage through the skin. He found the decrease in size of the tumors began before the appearance of the inflammatory reaction. Histologically, he found degeneration of the carcinoma cells. By experiments on the eggs of *Ascaris megalocephala* and hens, he found cell growth prevented or halted by the röntgen ray.

Röntgen Ray Therapy.—LASSAR (Berlin) presented a large number of patients who had been treated by the röntgen ray. The list included ulcus rodens, actinomycosis, eczema, epitheliomas. In each case there was excellent scar formation as well as cosmetic results.

Lantern-slide Demonstrations of Anatomic Investigation on the Motor Centers of the Brain.—KRAUSE (Berlin). His investigations were made on the brains of individuals during the course of operation for epilepsy.

Slides Showing Different Types of Cell Collections and Forms in Carcinoma of Uterus, Vulva, and Rectum With a Comparison of the Malignancy of the Different Forms.—PETERSON (Heidelberg) found that carcinoma simplex gave the highest percentage of positive recovery—carcinoma papilliform and solidum standing next—while carcinoma adenosa, gelatinosa gives nil percent (0%) recovery.

Röntgen Ray Pictures of Paget's Disease of the Bones.—HOFFA (Berlin) presented pictures of bones of the lower extremity in three cases that came under his observation.

Physiology and Pathology of Prognathia.—SCHROEDER (Greifswald) presented demonstrations of the form of the supermaxilla and the position of the teeth in prognathia; also his apparatus for the treatment of the condition.

Demonstration of Various Röntgen Ray Pictures.—IMMELMAN (Berlin). His demonstration was confined to pictures of the hip-joint before and after the reduction for congenital dislocation. He presented pictures of 13 cases, the age of the patients varying from 3 years to 11½ years.

Etiology of Foreign Bodies in the Knee-joint.—HOLLANDER (Berlin) first presented pictures illustrating the various forms of capsular disease, then röntgen ray photographs, showing foreign bodies in the joint.

A Case of Phocomelia.—HIRSCH (Berlin) presented röntgen ray pictures of the bones in the deformed upper and lower extremities.

TREPLIN (Hamburg) presented röntgen ray pictures of a case of diverticulum of the esophagus.

BOCKENHEIMER (Berlin) demonstrated his apparatus for lighting up the mouth and throat for examination.

Five New Operations on the Liver and Gall-system.—KEHR (Halberstadt). The first case was that of ligaturing the hepatic artery for aneurysm. His diagnosis before operation was gallstone in gallbladder, which on opening the patient turned out to be an aneurysm of the hepatic artery. He amputated the gallbladder, as he feared that necrosis of the sack would follow the ligation of the artery. Result, good recovery. He considered that aneurysm of the hepatic artery was a condition that should always be borne in mind, though not frequent, it occasionally was encountered. Second Case.—Resection of the ductus choledochus and hepaticus with hepaticoduodenostomy. The patient had a tumor of the two ducts, necessitating their removal. Kehr claimed this as the first case of extirpation of the gall-passages. (Recovery?) Third Case.—Gallstone operation; found a defect in the duodenum, the duodenum being practically closed. He performed gastroenterostomy. Fourth Case.—Found it necessary to do a hepatocholeogastroenterostomy, exitus of patient within a week. Fifth Case.—Kehr found an implantation of the fistel of a pancreatic retention cyst into the gallbladder. He performed a cystogastrostomy. The stomach appeared to bear the pancreatic secretions well. Presented the patient.

Experimental Investigation into the Condition of the Stump after Cholecystectomy.—HABERER and CLAIRMONT (Wien), read by Haberer. The experimental work of Nasse, reported in twenty-third Congress, of Oddi and of Voegt, was first reviewed. As Nasse claimed that new cystic formation did not occur, and Oddi and Voegt claimed that it did, Haberer took pains to state the difference in technic between them; the principal point being that Nasse removed the gallbladder and duct completely, while Oddi and Voegt left part or the entire cystic duct. He compared the statement of Riedel, that a large stump or duct remaining after cholecystectomy was dangerous, with that of Kehr's (1901), who had found new bladder formation when a part of the duct was allowed to remain. The experimental research of Haberer and Clairmont covered 13 cases, the animals being dogs and cats. In 10 cases the gallbladder was removed but the entire duct allowed to remain. In two cases both the gallbladder and duct up to the common bile duct were removed. In one case the gallbladder and part of the duct were removed, a piece .5 cm. long of the duct being allowed to remain. The animals were killed from one to seven months after the operation, and in most cases the bile passages injected by Teichman's method. The results of the experiments were

as follows: In each case (10) of pure cholecystectomy, it was found that in a short time the distal end of the remaining cystic duct showed new bladder formation or dilation, while the proximal portion of the duct showed no dilation or enlargement. The picture was that of a small, and in some cases large bladder-like formation, with a distinct outlet and lumen. The same formation was seen in the case in which a piece of the cystic duct .5 cm. long was allowed to remain. In the two cases in which the entire duct with bladder had been removed, no new formation or dilation was to be seen. In conjunction with his animal experiments, he reported two other cases in man, which by good fortune came into the anatomic rooms, each patient some time previous having had a cholecystectomy performed. In both of these cases new bladder formation was observed, the same as in his animal experiments. In each case only that which had a distinct outlet and lumen was considered as new bladder formation. His explanation for the new formation is that after the operation, the bile, as before, flows into the cystic duct and tends to collect and remain at the distal end, thereby causing traction and dilation. This condition tends to increase automatically, as with increased dilation comes an increased amount of bile in storage, with increased weight, and therefore increased dilation or sac formation. When the cystic duct is completely removed there is no place or chance for the bile to collect and form a reservoir. In closing, he considered it proper, from the results of the experiments, for the surgeon to leave as much as possible of the cystic duct, in order to provide for new bladder formation.

The Operative Removal of a Gallstone Situated in the Duodenal Portion of the Common Bile Duct.—KRASKE (Freiburg) spoke of the increased difficulties of the operative removal of a stone occupying such a position. He preferred first, if possible, by manipulation to render the stone movable and then push it toward the upper portion of the duct, away from the neighborhood of the duodenum and pancreatic duct, before opening the common duct. The possible injury to the mucosa of the lumen of the common bile duct, and also the pancreas, must be borne in mind. If the stone is located in the diverticulum of Vater, he opens the duodenum in order to remove it. He reported two cases. In the first case the pancreatic duct was injured (?) in the manipulation of the stone. The patient died five weeks after operation, from inanition. Second case.—Opened the common bile duct near the duodenum. The sutures held for three days; the fourth day they gave away. Patient died.

Discussion.—ENDERLEIN (Marburg) had performed hepatocholeogastrostomy on animals, the results of which were not such in his opinion to warrant its performance in man. HIRSCHBERG (Frankfurt, a/M) thought in the case reported by Kehr, that there was a possibility that the anastomosis had not held permanently and that the bile had sought a natural way by itself. RIEDEL (Jena) considered it quite important in operations for a gallstone in such a position to have an incision by which the liver could be raised up and the entire course of the bile ducts seen. For this he recommended his incision which he commenced at the ensiform appendix and carried down in the middle line considerably below the umbilicus. PETERSON (Heidelberg) reported the results of such operations in the Heidelberg clinic. HEIDENHAIN (Worms) demonstrated his new instrument for the removal of the stone. PAYR (Graz) mentioned the occurrence of arteriohepatic aneurysm which might give the same clinical picture. He had had one such case. KAUSCH (Breslau) stated with the stone in the duct near the duodenum, the duct and not the duodenum was opened whenever possible. He claimed that if the suture in the common bile duct did not hold, the most that occurred was a biliary fistula, while if the suture in the duodenum failed to hold it caused the death of the patient. He considered Riedel's incision as improper. Personally he recommended an incision following the course of the lateral abdominal nerves. KEHR (Halberstadt) considered the opening through the duodenum the best. He stated he had had 20 such cases, but with two deaths, one of which had a defect in the duodenum so that he found it necessary to tamponade the wound into the duodenum.

Report of a Case of Papillary Epithelioma of the Gallbladder.—PELS-LENSDEN (Berlin). In this case no gallstone was found. The microscopic examination showed a similarity in structure and cell formation with those found in the bladder. Presented the patient.

Surgical Treatment of Hepatoptosis by Laparotomy and Hepatopexy.—MAYER AND DEPAGE (Brussels) reported a case of a 34-year old woman with the following operative technic: Patient was placed in Trendelenburg's position (with the hips high), by means of which the liver occupied a much higher position. An incision 15 cm. long and parallel to the lower costal border was made. The upper lip of the parietal peritoneum was then turned around under the lower border of the liver and there fixed by catgut sutures. The wound was closed by continuous sutures. The case has now been under observation for four months, and up to the present the operation appears to be successful. Depage, in 1893, had adopted the method of shortening and fixation of the ligamentum teres. Four cases in which there were markedly pendulous abdomens have been operated on by this method. These cases have been under observation for from three to eleven years and show as yet no recurrence.

Traumatic Rupture of the Liver.—GRASER (Erlangen) reported a case, the patient having had very severe pain in the stomach for eight weeks; there then developed a very large left-sided tumor, reaching to the anterior spine of ilium. Tumor gave fluctuation. Diagnosis, soft sarcoma. Operation. Exploratory puncture gave pus. On opening he found a large cavity filled with pus, in which were several detached masses that, on examination, proved to be detached and necrotic pieces of liver substance. In the previous history it was found that the patient five years before had fallen a distance of 15 feet, striking on his side. Diagnosis after operation was that of an old liver rupture with separation of several portions of liver substance. He considered the source of infection to be through the blood channels. He based this upon the results of a case in which he had examined the portal blood six times, and each time had found streptococci, from which he concluded that the blood coming from the intestines to the liver always carried a large number of bacteria.

Gunshot Wound of the Abdomen Involving the Stomach, Liver, Spleen and Kidney.—RIESE (Britz). The principal point of interest was the extent of the injury and recovery of the patient. In injuries to the liver he recommended suturing and drainage.

The Surgery of the Diaphragm.—NEUGEBAUER (Mährisch Ostrau) after a few preliminary remarks demonstrated several patients in which he had operated on the diaphragm with good results.

The Connection Between Disease of the Bile Ducts and Inflammation of the Pancreas.—KÖRTE (Berlin) considered disease of the bile passages to have an important etiologic bearing in pancreatic disease. He spoke of two paths for the extension of the disease. (a) Through contact in the intrapancreatic portions of the duct. This also involving the lymph-nodes. (b) From the mouth of the common duct in the diverticulum. This he again subdivided into: 1. Both openings being on the floor of the diverticulum. 2. One duct opening on the lateral wall of the diverticulum. 3. Both openings being situated on the apex of the papilla. In conjunction he mentioned the following cases: Two cases of abscess in the head of the pancreas. Two cases of peripancreatic abscess. One case of acute fat necrosis and pancreatitis. Two cases of necrotic pancreatitis associated with fat necrosis. The etiology of the above cases was as follows: One case of pancreatic stone. Four cases of gallstone in common duct. One case with several small stones in the common duct. One case of acute cholecystitis with liver abscess. He gave the following symptoms for the pancreatitis: 1. Epigastric pain. 2. Vomiting, peritonitis involving particularly the upper part of the abdomen. 3. Collapse. 4. Occasionally tumor felt. 5. Fever. This last is not always constant as one case was without fever. Of the seven patients four died, three recovered. In five of the cases the gallstone alone was removed with drainage. One case of gallstone and liver abscess—abscess opened—drainage (recovery). One case of pancreas freed—necrotic fat removed and drainage.

Report of Experimental Investigation of Peritonitis from Infection from Biliary Passages.—ERHARDT (Königsberg) had conducted his examinations in animals. He made an artificial biliary fistula. He found *Bacterium coli communis* to be the most frequent cause of the peritoneal infection, but that in virulence it was exactly opposite to its customary virulence when coming from the stomach or intestine. In fact, if the infection from the bile is due to the agency of *B. coli communis*, the prognosis is distinctly more favorable. In 17 animals the infection was due to *B. coli communis*, and of the 17, 12 recovered.

Injury to the Pituitary Body.—MADELUNG (Strasbourg) reported a case of a girl 9 years old, who three years previous was shot in the head, the track of the bullet leading to the pituitary body. The body-weight, since the injury, had increased 42 kilograms, the increased being due in the most part to increase of fat.

Discussion.—STOLPER (Göttingen) mentioned a somewhat similar case in which there had also been great increase in the body-weight. BENDER (Berlin) also mentioned a case in which he had noticed a great increase in the size of the bone structures, after injury to the pituitary body. KRONLEIN (Zurich), VON EISELSBERG (Vienna) mention experiments they had performed on cats, removing the entire pituitary body. All the animals died. They now intended to continue their experiments, causing only an injury to the pituitary body, to note the results.

Psychic Disturbance from an Abscess in the Temporal Lobe.—BORCHARD (Posen) held that the resulting psychic symptoms occurring in disease as compared to injuries involving the frontal or temporal lobes were exceedingly puzzling to account for, especially why after operation or injury to these portions, psychic symptoms were exceedingly rare, while in abscesses or tumors involving the same regions psychic disturbances, such as depravation of character, sexual cynicism, etc., were often encountered. He advanced the theory that possibly they may be due more to the traction of the tumor or disturbances of circulation in abscess or inflammation than to the actual injury itself. He reported a case of a girl 8 years old, who was injured in the left temporal region. Trephining was performed and brain substance as deep as the lateral ventricle was removed. At this time no psychic disturbances appeared; nine months later there developed an abscess in the temporal

lobe, and then appeared the special psychic symptoms affecting the character, and also sexual symptoms. After opening and drainage of the abscess—which was about the size of a walnut, the psychic symptoms disappeared immediately. Occasionally since then the scar of the wound became hard and firm when psychic disturbance affecting the character appears, but disappears as soon as the scar returns to normal. The case now has been under observation about six years.

Discussion.—FRIEDRICH (Leipzig) mentioned a case that came under his observation, which had had an extensive injury to the temporal lobe, with psychic symptoms following.

A Case of Thrombosis of the Cavernous Sinus, with Recovery.—HILDEBRAND (Basel) reported a case, giving the history in detail, the principal points of which were as follows: The patient (man) had the right nostril cauterized for chronic nasal catarrh. Two days later fever appeared, with angina. Temperature went down, but patient had headache, with some swelling of the right nostril. Shortly after, the patient became restless, slept poorly. Temperature, 39° C.; pulse, 58; nausea, headache; pupils contracted, with poor reflex. The next day ptosis, right side; paralysis of the adductors. By evening pulse 52, temperature 40° C., some protrusion of right eyeball. On following morning marked protrusion of eyeball and immovable, complete ptosis of over-lid, eyeball somewhat edematous, temporal and superior maxillary regions somewhat swollen, right pupil larger than left without reaction, left pupil very small. Aside from the eschar and some catarrh symptoms, nothing to be observed especially in nostril. Temperature, 40° C.; pulse, 60; veins on the background of the eye congested. Tavel's antistreptococcus serum injected. Temperature shortly after greatly decreased. The eye appeared improved. Five days later again high fever, but with frequent pulse; erysipelas serum exanthem in injection points. Two days later temperature normal. All the various symptoms gradually disappeared, patient fully recovered. Diagnosis was certain from the various symptoms. He called attention to the early paralysis of the adductors and its late disappearance, accounting for it by its closer anatomic relation to the sinus while the ophthalmic branch from the fifth lies more free. He considered that the infection probably came by way of the ethmoidal veins.

Experimental Investigation of the Effect of Thyroidectomy on the Sexual Functions.—LANZ (Amsterdam) credited Wharton with first calling attention to the connection between the thyroid gland and the sexual function. Following he mentioned the works of Schiff, Trachewsky, Halsted, and Von Eiselsberg on this subject. He reported the results of his own investigations. The following is the series of his animal cases: First Case.—Hen; thyroidectomy; decrease in weight of egg to 5 gm., while by a control the egg weighed 50 gm. to 60 gm. Second Case.—Cat; thyroidectomy. Tetany followed shortly after; death; negative. Third Case.—Dog (male); thyroidectomy; before operation actively motile spermatozoa were found; after operation spermatozoa disappeared and did not reappear later. Fourth Case.—Partial thyroidectomy; a sixth of the gland allowed to remain; no effect in sexual functions. Fifth Case.—(Female). Iodin injection in thyroid. Within a year the gland was markedly atrophied. Animal became sterile. Sixth Case.—Gland in a pregnant animal in the greater part removed. Caused remarkable change in both mother and young. Hofmeister and Von Eiselsberg were credited with the work of establishing the relation between thyroidectomy and chronic cachexia of the young. Results of experiments with serum therapy after thyroidectomy as regards their ability to propagate. First Case.—Male and female pups under six months; thyroidectomy; cretinism and complete and permanent loss of ability to propagate. Second Case.—Three months old goat (female); thyroidectomy; very little reaction; goat developed slowly; never reached full size; fat and in fair condition. Able with constant serum therapy to propagate, although propagating function greatly decreased. Young occasionally showed cretinism. All the young failed to develop to full size, but mentally were normal. In thyroidectomy of pregnant animals he found that shortly after delivery the milk disappeared and the breasts atrophied completely. In two cases of complete thyroidectomy in humans that came under his observation, the man lost his potency immediately, while in the woman the chief symptom was the disappearance of menstruation.

Report and Demonstration of Several Cases of Plastic Operations.—KAUSCH (Breslau). The cases demonstrated were those of contusion wounds of the hands with great laceration of the tendons, one case of scrotum torn away, and cases of laceration of the thigh, and one of the nose.

A Case of Operative Reposition of Old Irreducible Luxation of the Inferior Maxillary Articulation.—SAMTER (Königsberg). Patient demonstrated.

Extirpation of the Pharynx and the Upper Cervical Portion of the Esophagus.—GLÜCK (Berlin) exhibited a large number of charts illustrating the various steps of his operation. Also how the patient was fed through his artificial pharynx and esophagus. He reported that in 11 cases operated on by him, he had had 10 recoveries. He tasted that the patients were able to swallow and also speak fairly loud after the operation and insertion of artificial pharynx and esophagus.

The Catgut Suture for Patellar Fracture.—RIEDEL (Jena) demonstrated patient showing excellent results from the use of catgut for suturing a patellar fracture.

Treatment of Luxation of the Patella.—GRASER (Erlangen) reported several cases of repeated luxation of the patella outward—onto the condyle—the patella being also somewhat obliquely rotated. These cases were complicated by genu valgum. He obtained very good results—reduction of the luxation, then performing osteotomy on the condyle, turning it inward. He demonstrated several patients.

Total Extirpation of the Scapula.—BOCKENHEIMER (Berlin) demonstrated two patients (boys) on whom total extirpation of the scapula was performed. One for chronic and the other for acute osteomyelitis. Extirpation was performed by the subperiosteal method. No muscles or nerves were injured. In both cases the scapula is completely regenerated, though not anatomically perfect. In both cases there is excellent function of the arm. One of the patients is an acrobat, the operation having in no way interfered.

HAHN (Nürnberg) demonstrated the preparation and patient having a large tumor of the scapula, with extirpation of scapula. The second demonstration was a case of total extirpation of the scapula for osteomyelitis.

BENNECKE (Berlin) demonstrated the patient and röntgen ray pictures of progressive luxation of the wrist-joint.

IMMELMANN (Berlin) demonstrated the patient and showed röntgen ray pictures of traumatic edema of the dorsal side of the hand.

[To be continued.]

Consumption of Alcohol in the United States.—The following figures representing gallons consumed per capita extend a comparison over a period of above 30 years:

	Malt Liquors	Distilled Spirits	Wines
1903.....	18.01	1.46	0.48
1902.....	17.49	1.36	0.63
1901.....	16.20	1.33	0.37
1900.....	16.01	1.27	0.40
Five-year average:			
1895-99.....	15.34	1.09	0.34
1890-94.....	15.13	1.44	0.43
1871-75.....	6.73	1.59	0.44

The consumption of malt liquors has increased steadily throughout this period and is especially marked in the past few years. The per capita absorption of beer is nearly three times larger than it was 30 years ago, and it is to be particularly noted that the consumption of hard liquors and wines meantime suffers no material decrease relative to population. The additional 11 gallons of beer taken on by the average person since 1870 have not served materially to reduce the load of whisky and the like formerly carried, and have been accompanied by some little increase in the load of wine. The greatly enlarged consumption of beer, in other words, supplements and does not displace the old consumption of distilled spirits and wines. —[Springfield Republican.]

Association of Assistant Physicians of the Ohio State Hospitals.—The third meeting was held April 6 and 7, at Gallipolis, Ohio. The president's annual address, "The Reasons for the Existence of the Association, and Its Policy," by G. T. Harding, Jr., of Columbus, protested strongly against a niggardly economy to the detriment of the best medical work in these institutions. J. O'Brien discussed two cases of presenile delusional insanity observed at the Massillon State Hospital and at the McLean Hospital. Ralph W. Holmes, of Gallipolis, presented the specimens from a case of epilepsy following scarlet fever, in which the accessory sinuses on the left side were found at autopsy enormously enlarged and the left half of the cerebrum destroyed in large part. Here the aphasia following the disease gradually subsided and speech was regained while the patient became left-handed. E. B. Morrison, of Gallipolis, exhibited an epileptic patient with facial hemiatrophy. Wm. H. Pritchard, of Gallipolis, gave the clinical history and presented the pathologic specimens from a case of paradoxical embolism due to a persistent foramen ovale. Walter H. Buhlig, of Gallipolis, presented an epileptic with astasia-abasia. Arthur G. Helmick, of Gallipolis, read the clinical history and showed the specimens from an epileptic who died from measles and laryngeal diphtheria. F. D. Ferneau, of Toledo, read a paper with the subject, "Tuberculosis in the Insane." Inasmuch as this is a question now being debated by the medical profession and the legislative bodies of Ohio, and as it concerns directly the treatment of the tuberculous patients in the various State hospitals, it was freely and intelligently discussed by the members of the Association. A. P. Ohlmacher, of Gallipolis, presented and discussed the pathologic specimens in "A Case of Acute Sudden Death of Status Lymphaticus in an Epileptic." Officers: President, Wm. H. Pritchard, Gallipolis; vice-president, Paul W. Tappan, Dayton; secretary, Walter H. Buhlig, Gallipolis; treasurer, F. D. Ferneau, Toledo. As a result of the discussion of Dr. Gaver's paper on needed reforms in Ohio's lunacy laws, the legislative committee was charged with making a study of these laws in order to bring up for consideration at a future meeting such changes as seemed needed. Ralph W. Holmes, Gallipolis, James F. Kelley, Cleveland, and Mylo Wilson, Athens, were appointed by the president to represent the interests of the Association at the meeting of the Ohio State Medical Association, to be held at Cleveland.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

TYPHOID PERFORATION.¹

BY

WILLIAM STEWART FULTON, M.D.,
of Wheeling, W. Va.

On January 1, I was called to see A. H., a young boy of 14, who seemed to be suffering from an attack of grip. He complained of headache, backache, and muscular soreness. An examination showed his temperature was 102°; pulse, 100; no swelling or tenderness of abdomen; tongue coated. His mother said he had not been feeling well for two or three weeks; bowels had been constipated for some time; appetite not good, and that he had been restless at night.

Calomel was prescribed in broken doses, to be followed by a saline purge. A liquid diet was ordered and the patient was to be kept in bed until my next visit, which was on the day following, about noon.

On this second visit I found his temperature normal; his pulse 80, and of good quality. His bowels had moved well and he was hungry and wanted to get up; his tongue, however, was still coated. I advised his mother to keep him in bed until the following morning, when, if he still felt better, she might let him get up and dress.

Nothing more was heard of the patient until January 8, when I was called about 9 a.m. I found the boy in bed, complaining of pain in the abdomen, most marked over the right iliac region; he had awakened at 4.30 that morning with a sharp shooting pain in the abdomen, rather to the right side; his mother had tried to ease the pain by application of mustard plasters and the use of hot-water bottles, but with little success.

At the time of this visit there was slight rigidity of the abdominal muscles, also an anxious expression; the temperature was normal; pulse 90. The history of the case from January 2 to January 8 is as follows: The boy got up on January 3; he had taken his meals with the rest of the family as usual, and had gone to school January 4 and 5; on January 6 he had helped his father in the latter's store, and on January 7 he had gone to Sabbath school; his bowels had not moved since the sixth. An enema of soapsuds was ordered, and I told his mother that I would be back to see him in an hour. When I called again the bowels had moved very freely, the patient was resting easily; no pain; temperature normal, and pulse 88; the abdominal muscles were still a little rigid.

I ordered a milk diet, and told them to keep the boy in bed, and to telephone me if there were any recurrence of the pain.

Was called again the same day at 3 p.m. The patient was lying on his back, both legs drawn up, complaining bitterly of pain all over the abdomen, exaggerated slightly in the right iliac region. The abdominal muscles were greatly contracted, hard and board-like; also there was a very anxious expression; his temperature was 99.5°; pulse 100.

I advised an operation at once, telling his parents that it looked very much like a case of appendicitis, with possible rupture.

The boy was removed to the Wheeling City Hospital, and taken directly to the operating table (January 8). Chloroform was given and the patient took the anesthetic very nicely. An oblique incision was made in the right iliac region about 2½ inches in length. Upon opening the peritoneal cavity, more than a pint of a mucopurulent substance, mixed with small particles of fecal matter, began to pour through the wound. By introducing my finger into the abdominal cavity I found that there were no adhesions and that the appendix was normal.

I at once enlarged the opening and pulled out a loop of bowel. This proved to be the ileum, and a large perforated ulcer was found about 2 inches from the lower end. The ulcer was oval in shape—its longest diameter, a little over 1 inch, its transverse diameter a little less than ½ inch. The ileum was greatly inflamed, and was covered with lymph deposits, which were removed with a sponge dipped in normal salt solution. I then flushed out the abdominal cavity several times with normal salt solution, making the cavity as clean as I possibly could under the circumstances, and finally, after the last flushing, left the cavity filled with the saline solution.

Upon closer examination of the ulcer, it was found impossible to close the opening with suture, as the tissue was too necrotic and friable. On the other hand, to excise the ulcer and bring the healthy edges together, I found, would, on account of the ulcer's size, narrow the lumen of the bowel too much, and a resection of the bowel was not advisable, for the patient was too weak to stand the risk of the increased danger of shock, and even of death from so extensive an operation. It was seen at once that a typhoid perforation had to be dealt with, and the question was, how, under the circumstances, was it to be taken care of?

It was determined to make use of the great healing and resistive powers of the peritoneum; accordingly, after the necessary dissection, the ulcer was surrounded with the peritoneum, very fine chromicized catgut being used; this made

the ulcer extraperitoneal, protecting the abdominal cavity, so that any discharge coming from the perforation must come through the wound, and there be taken care of by the dressing.

The skin, fascia, and the peritoneum were then brought firmly together with six silk wormgut sutures—three above and three below the fistulous opening—an opening at each end of the incision being left for drainage. Gauze was used for draining, one strip being placed along the transverse colon, from the upper end of the incision; the second strip was run down deep in the pelvis, extending into the left iliac, from the lower end of the wound, and a small drain was also packed directly down to the ulcer; loose gauze dressings were placed over the entire abdomen, to be changed every three hours.

On leaving the table the boy was in fairly good condition; temperature, per rectum, 102°; pulse, 115. He quickly came out from under the anesthetic, and complained of some pain; morphin, 8 mg. (½ gr.) was then given hypodermically, for the double purpose of relieving the pain and of quieting peristalsis; in three hours the dressings were changed, and found saturated.

Patient passed a very good night; at 10.30 o'clock next morning his temperature was normal; pulse, 105. He complained considerably of tympany; this was relieved by rectal tube; at 4.30 p.m., same day, temperature was 102°; pulse, 115; then hot tea and oroth were given alternately every third hour, the patient retaining the nourishment very well.

On the morning of January 10, 15 cc. (½ oz.) of Hunyadi water was given every hour until four doses had been taken, followed by glycerin enema; the bowels moved nicely. On January 12, four days after the operation, the dressings were dry; the drains were removed, with some little difficulty however, owing to their adhesions to the viscera.

The patient's temperature now ran a mild typhoid course, never going above 103°, reaching that point on January 22. The fistulous opening was closed and the wound completely healed at the end of three weeks. The patient was discharged from the hospital on February 26, seven weeks after the operation.

Conclusions.—1. It is evident that this was a case of typhoid from the start, but not being prepared to make a blood count, I had to do without some of the classic signs. However, the case, at least, shows that advantage is to be gained from early diagnosis and prompt surgical interference without waiting for classic symptoms. 2. That we can have the most serious lesions even in the so-called "mild or walking" typhoid fever cases. 3. That pain, rigidity of abdominal muscles, and quick, tense pulse are three symptoms to be looked for. 4. That the extraperitoneal method is one of the quickest and safest ways of disposing of large perforated ulcers of the intestines, when a resection is not advisable.

THE ENTRANCE AND REMOVAL OF AN UNUSUAL FOREIGN BODY FROM THE BLADDER.

BY

ALBERT P. WEAVER, M.D.,
of Philadelphia.

It has been thoroughly demonstrated in medical literature that foreign bodies of an unusual character are frequently found in the bladder. However a careful search of the literature has resulted in a failure to discover a case similar to the following, which demonstrates how little the laity knows of human anatomy and with what boldness some will interfere with the natural functions of life with no knowledge whatever of the danger of infection to which they expose themselves or their victims.

CASE. S. K., aged 24, married. The patient, a well nourished robust woman, is nursing a healthy child of seven months. On December 4, 1903, at 2 o'clock p.m., the husband called me in great haste stating that his wife was having uterine hemorrhages associated with great pain. On my arrival at the house the husband said his wife had been pregnant about two months, and that they had decided to end this pregnancy. Therefore he secured a "sponge tent," which he described as about the same thickness and one third the length of an ordinary lead pencil, somewhat pointed at one end and covered over with a thin coating of a mucilaginous substance; when moistened with water it became slippery. He said he found the uterus very low down, and without the aid of a speculum or any other instrument he inserted the sponge tent, 10 o'clock p.m., December 3, without any trouble; however, the string which was attached to it was short and disappeared within the uterus. His wife suffered no inconvenience or pain until 14 hours later, when blood appeared accompanied by bearing down pains which became more severe until at last the pain was unbearable and I was sent for. The wife corroborated the statement of her husband; both were apparently ignorant of the crime they were committing and of the dangerous septic infection to which she was exposed. After explaining the possible danger of the woman losing her life and emphasizing the unlawfulness of such an act, they assured me they would assume all the responsibility

¹ Reported to the Ohio County, W. Va., Medical Society, at a meeting held February 26, 1904.

and allow me to notify any authorities I might deem necessary, and I therefore took charge of the case. On examination I found bright red blood coming apparently from the vagina; two or three heavy napkins had been saturated. The commode at the side of the bed contained over two quarts of blood and urine, which had been passed during the two hours previous. Intermittent pains appeared from five to eight minutes apart. Digital examination showed the uterus well up in the pelvic cavity and difficult to reach with the end of the index finger. The os was tightly closed, firm but rather soft to the touch. It was in normal position and freely movable, with all the indications of a 2½ or 3 months' pregnancy.

No hemorrhage was coming from the uterus and I therefore again questioned the husband as to the manner in which he had used the appliance.

He insisted that the womb was low down, and that he had made the insertion without any difficulty. I strongly suspected that he had mistaken the opening of the urethra for the uterus, and close examination showed the blood was coming from the urethra. With a soft rubber catheter about one ounce of bloody urine was drawn. The catheter passing through the urethra caused no pain or inconvenience, but as soon as it entered the bladder violent pains came on, with severe bearing down sensation, forcing from the urethra more blood and urine. This verified the diagnosis that the sponge tent had been inserted through the urethra into the bladder. Its presence there between 15 and 16 hours, had produced an aggravated cystitis. Temperature, 101° F. Pulse, 90.

Immediate preparations were made for its removal. Dr. J. L. Dukes anesthetized the patient with ether. The urethra was dilated sufficiently with an ordinary pair of uterine dressing forceps to admit the entrance of the little finger. Dilatation was gradually increased until the index finger could be inserted into the bladder, where a rough mass could be plainly felt. By working the finger around this mass it could be readily moved, but each time it was moved the walls of the bladder would contract, forcing out blood mixed with urine.

The index finger pressed tightly against the mass, prevented it from changing its position when contractions of the bladder occurred. The uterine dressing forceps were now passed into the bladder alongside of the finger until the foreign body could be grasped. The finger was removed, and with slow and steady traction effort was made to remove the foreign body, but this could not be done, as small pieces would break off, showing it to be a real sponge. After several unsuccessful attempts the urethra was further dilated and the middle finger was forced through the urethra, making a complete dilation. The uterine dressing forceps were again passed into the bladder and a full grasp of the foreign body secured; by steady and firm traction with a twisting motion the complete foreign body was pulled out. It consisted of a cone-shaped piece of coarse sponge, 7 cm. (2½ in.) in length. Width at base, 4 cm. (1½ in.). Width at apex, 2 cm. (¾ in.). It was saturated with blood and urine, and emitted an exceedingly offensive fetid odor. Near the base end was attached a white silk cord.

After its removal the bladder was thoroughly explored by means of the index finger, and then thoroughly washed out with a hot 10% solution of boracic acid. This operation took 25 minutes. The patient was put to bed. Considerable vomiting occurred from the effects of the ether. For three days the bladder was washed out twice in 24 hours with the boracic solution.

For 48 hours there was incontinence of urine, which gradually subsided, until at the expiration of four days there was complete control of the bladder. On the fifth day the patient was up attending to her regular household duties. Frequent urination continued for 10 days, but at the expiration of two weeks complete recovery was established. After the expiration of over five months no cystitis or irritation of the bladder has occurred. The patient is in good health, and pregnancy is going on in normal condition.

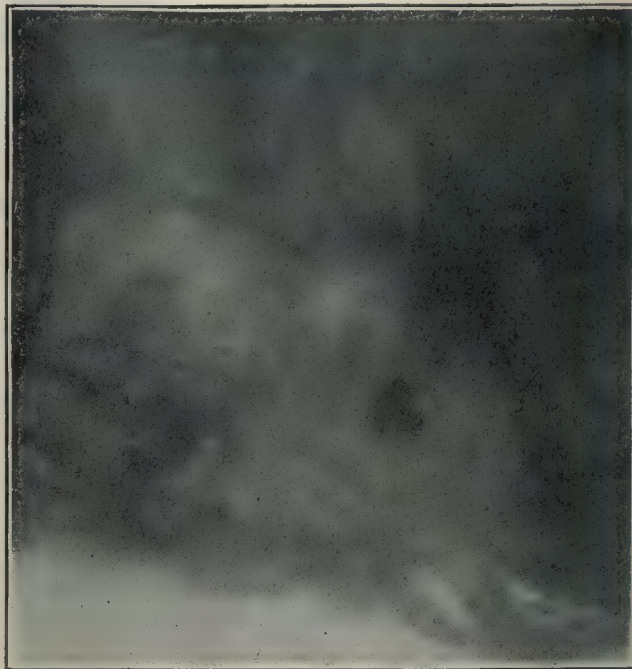
EXTRACTION OF A BULLET, LOCATED BY THE RÖNTGEN RAYS, FROM THE ORBIT.¹

BY

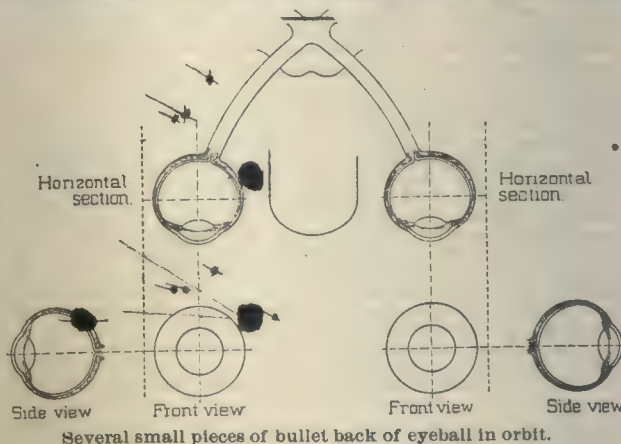
HOWARD T. HANSELL, M.D.,
of Philadelphia.

On February 15, 1904, Miss S. attempted suicide by shooting. The bullet from a 22-caliber pistol passed through the temporal muscle and the temporal bone of the right side. The woman fell to the floor and as soon as practicable was sent to a hospital in an ambulance. Neither immediately after the injury nor at any later time was she unconscious. After a two weeks' stay in the hospital she came unaccompanied to my office. I found a small blue-colored indentation in the skin 1½ in. posterior to the bony margin of the orbit and on a line horizontal with its center. There was complete paralysis of the third nerve and total loss of vision, but no impairment of the cerebral faculties and no paralysis. The eyeball was turned down and out, almost completely immobile, deeply injected, painful to the touch and no view of the fundus was obtainable on account of hemorrhages into the vitreous. I assumed that

the bullet had perforated the external orbital wall and was lodged in the posterior portion of the orbit, the nerves, blood-vessels and possibly the muscles of the eye having been destroyed either by the bullet or by the depressed fragments of the temporal bone, and that in order to extract it an incision should be made through the temporal muscle, and the bone trephined. The assumption was generally incorrect. By means of a radiograph and the localization method of Dr. W. M. Sweet, the position of the bullet was demonstrated to be between the posterior part of the ball and the inner wall of the orbit. An incision was made through the upper lid and the posterior tis-



sues between the eye and the roof of the orbit divided, making a wound large enough for the insertion of the little finger, until the designated site of the bullet was reached. The hemorrhage was insignificant since the course of the incision was such that the large vessels were avoided. The bullet was freed from the surrounding tissues and removed with the forceps. A strip of iodoform gauze was inserted into the wound and allowed to remain for 24 hours when the edges of the incision in the lid were sutured. Healing was prompt and the patient was discharged on the third day. Several weeks have elapsed since operation. The eye has regained much of its former



motility, the drooping of the lid is decidedly less, the injection has mostly disappeared and the pain has subsided.

The radiograph shows not only the position of the bullet but also the presence of 3 or 4 minute fragments lying in the orbit posterior to the globe. These are probably innocuous and will be allowed to remain.

The pistol was held in the right hand and its barrel directed forward and slightly upward. After having entered the orbit the bullet struck the roof of the orbit with insufficient force to penetrate it and glanced off, finally lodging in the position from which it was extracted.

¹ Read before the Ophthalmic Section, College of Physicians, Phila., March 21, 1904.

ORIGINAL ARTICLES

SURGERY OF URINARY TUBERCULOSIS IN WOMEN.*

BY

GUY L. HUNNER, M.D.,

of Baltimore, Md.

Associate in Gynecology, The Johns Hopkins University.

In a recent paper on "Tuberculosis of the Urinary System in Women,"† I reported 35 cases which have occurred in the service of Dr. Howard A. Kelly and his associates in Baltimore.

That paper was devoted chiefly to the questions of diagnosis. These must likewise be emphasized in this paper for there can be no true surgery of the urinary tract without painstaking and in the majority of cases, accurate diagnosis. In addition I wish to give you some idea of the present status of the surgical technic as evolved in the work on these 35 cases. And finally a review will be given of the results of this surgery with reference to wound healing, cure of the local disease, and effect on the general health of the patient.

Etiology and Pathology.—All of our cases were in women, and their average age at the time of treatment was 32½ years, the average duration of symptoms having been 4½ years.

Expressed in decades the classification of ages at the time of treatment is as follows:

Ages.	Number of Cases.
10 to 19	1
20 to 29	14
30 to 39	12
40 to 49	6
50 to 59	2

Considered from the age of onset the majority of patients were under 30 years of age. Twenty-two of these were at the Johns Hopkins Hospital and it is interesting to note that while a fifth of the gynecologic patients at that institution are colored women, and while the colored race is peculiarly susceptible to tuberculosis in all its forms, medical and surgical, all of these patients were white women.

The family history was recorded in 28 cases, and in 13 of these there was noted tuberculosis in some member of the family.

Several patients had foci of disease elsewhere. One patient had suffered from a knee-joint inflammation, probably tuberculous in nature, after her urinary symptoms were established. One patient had had tuberculous right submaxillary glands removed 2 years before her bladder symptoms began. One was operated on for suppurating axillary glands 2 months after her kidney operation. One patient had been operated on for pelvic inflammatory disease, probably of a tuberculous character, 3 years before her symptoms began in the kidney. One patient has had her pelvic organs removed for tuberculosis since her nephrectomy. Five patients not of the above number had evidence of former or active lung involvement.

The operation was on the right side in 17 cases and on the left in 18 cases.

All of the cases showed the chronic caseous form of nephritis in contradistinction to the acute diffuse miliary type. All grades of nephritis were seen varying from the kidney with multiple small nodules or abscesses, with much of the kidney still functioning, to the cases of pyonephrosis with complete destruction of the secretory substance. Several were smaller than normal and largely occupied by fibrous tissue. One kidney was converted into a multilocular cystic mass.

* Read before the meeting of the Southern Surgical and Gynecological Association, Atlanta, December, 1903.

† This paper was published in the January number of *The Johns Hopkins Hospital Bulletin*, and in the January number of the *Maryland Medical Journal*. The reader is referred to these journals for a brief summary of the history of each of these cases. The designation by case number in this present paper refers in each instance to the cases as cited in the former paper.

When kidney and bladder are diseased it is impossible to say in which organ the disease was primary. There was no cystoscopic note in 4 cases. The bladder was normal or showed simple redness and swelling of the ureteral orifice, thus indicating a kidney origin, in 13 cases. The bladder was ulcerated or showed distinct inflammation about the ureteral orifice in 18 cases. Excision of the ulcerated areas in one of these cases resulted in cure and the excised tissue was not tuberculous. Two bladders healed rapidly on ordinary cystitis treatment after excision of the diseased kidney, and one healed spontaneously within 6 months. One bladder healed before removing the kidney, on having a vesicovaginal fistula made and receiving daily irrigations. One patient with slight inflammation about the ureteral orifice has had no treatment and no symptoms since the kidney extirpation. I would class these 6 cases among those whose disease was primary in the kidney. One patient died 11 weeks after operation from apparent failure of the other kidney. Her disease may have been primary in the bladder. This leaves 11 patients to be accounted for out of the 18 who were known to have bladder lesions. All of these 11 patients still have some bladder symptoms and four are known to have ulceration of the bladder. Nine of them have had more or less thorough bladder treatment. This persistence of the bladder lesion after removal of the diseased kidney and in spite of treatment, is good evidence, I think, that these 11 patients have tuberculosis of the bladder.

Was the disease primary in the bladder in these 11 cases? It may seem significant that the symptoms first began in the bladder in 8 of these. But we can no more draw dogmatic conclusions from the history than from the pathologic conditions. Three of the patients with extensive kidney lesions had complained only of bladder symptoms, over periods of 13 months, 3½ and 9 years respectively. Of the 13 cases which the cystoscope showed to have normal bladders, 10 had suffered with bladder symptoms at some period, and the earliest symptom was in the bladder in 4 cases. In my former paper I stated "while the symptoms first noted were in the bladder in 17 out of 34 of the cases, a close scrutiny of the histories and comparison with the clinical and pathologic findings convince me that in by far the great majority of cases, urinary tuberculosis in women originates in the kidney. With the widest margin in favor of primary bladder infection, I have classed but 5 of the 35 cases under this heading." On more careful investigation I am still less inclined to consider any of these cases as cystic in origin.

In 30 cases reported by Israel he thinks that 8 may have been of the ascending type, but his cases include both sexes, and we would expect the ascending form more frequently in men. In favor of descending infection is the fact that of the 11 cases of our series showing probable bladder tuberculosis, in 8 the lesion was local and confined to the region of the ureteral orifice on the affected side.

I have seen but 2 cases of urinary system tuberculosis in which the lesion was apparently confined to the bladder, and 1 of these was a case of direct extension of the disease through the bladder wall after operation for pelvic tuberculosis.

Of the 13 patients with normal bladder, only four had any evidence of tuberculosis outside the kidney and ureter. There is scarcely any doubt that in addition to claiming the kidney as the most frequent primary seat of tuberculosis in the urinary system, we may also say that it is not infrequently the primary seat of tuberculosis in the body as a whole. This is an important conclusion if we are to consider kidney tuberculosis a surgical disease.

Symptoms and Diagnosis.—Symptoms may be entirely wanting, the patient complaining only of "blood in the urine" (Case XIII) or of a "thick ropy urine" (Case VI). From a comparison of clinical histories and patho-

logic findings there can be but little doubt that a characteristic of the disease is its latency, hence the slow onset of symptoms in most cases, as also the sudden onset like an attack of renal calculus in other cases, where the first symptom is probably caused by the blocking of a thickened ureter with a bit of caseous material or blood-clot from the kidney.

Pain.—In 17 of the cases the first symptoms were referred to the bladder. Eleven of the patients complained first of a discomfort in the back, varying from a slight soreness or fullness, or stiff feeling, to all grades of backache. Five patients gave a history of acute onset, with renal colic, in which the first or early attacks of sudden violent pain were accompanied by nausea, vomiting, chills, and fever. Pain in the course of the ureter is not uncommon.

Bladder Symptoms.—These were present at some time in the course of the disease in 31 out of 34 cases in which a history was recorded. In 3 of the cases the entire local symptoms had been confined to the bladder. The symptoms vary from a slight discomfort, with frequency of urination, to the most excruciating pains. The most severe pain may arise during the act of voiding, giving rise to strangury and bleeding. Reflex symptoms from the kidney or ureter are very common, as seen from the fact that 31 out of 34 of these patients had bladder symptoms, while only 18 had bladder lesions. These reflex symptoms usually take the form of a constant desire to urinate. The frequency may occur only during an attack of kidney colic, or during the attack there may be severe spasmodic pain referred to the bladder. Pain referred to the urethra or to its external orifice is not uncommon.

Urine.—Polyuria is said to be a not uncommon feature in the early stages. I find that the average patient does not differentiate between the frequency incident to the early irritation and an actual increase in amount of urine. Oliguria is common in the later stages of the disease, unless the patient is drinking large quantities of fluids.

Hematuria.—It is probable that blood is present at some stage in every case. Ten patients had noticed blood in the urine; 5 histories state that no blood had been noticed, while in 20 cases there is nothing said about this point in the history. In 6 of these 20 cases, however, blood was found microscopically after their admission to the hospital. Blood, unless carefully looked for, may be easily missed in the routine microscopic examination, because of the large number of pus elements. When blood was noticed by the patient it was generally in the early history of her symptoms. Our earliest case was one in which hematuria for 2 months had been the only indication of disease. After the bladder is involved in ulceration, blood can always be found microscopically, and I have seen it profuse from this source. Cases of serious hemorrhage from advanced kidney disease are reported in the literature. Of the 10 patients who had noticed blood, 8 patients were examined cystoscopically, and all but one of these had ulceration of the bladder. König¹ says that before the foci of disease communicate with the pelvis there may be absolutely no sign of disease in the urine. We would expect, however, in all cases to find some microscopic evidences of disease, such as blood, pus, tubercle bacilli, or casts, before there is actual communication with the pelvis.

Pyuria.—Pus was present in every case. With blocking of the diseased ureter the urine may be clear. The amount of albumin seemed to vary largely with the varying quantities of pus and blood. Casts, hyaline or granular, or both varieties, were reported in but 3 cases. I believe careful examination of fresh specimens would reveal casts more frequently.

Urea Tests and Cryoscopy.—Urea tests for the two sides were recorded in but few cases. This test always shows a marked diminution of the urea percentage on

the diseased side. Cryoscopy was tried in two of these cases and yielded striking results.² In Case XXIV the urine catheterized from the diseased side showed a freezing-point of -0.49° , while a mixed specimen froze at -1.89° . In Case XXXI the urine from the diseased side congealed at -0.625° and that from the good kidney, collected through the bladder, at -1.74° . The freezing point of the blood in these 2 cases was normal, or -56° . In the average case we can make an accurate diagnosis without cryoscopy, but in case of disease of both kidneys the freezing test for the blood and separate urines will prove of great value in determining whether there is approximate renal sufficiency, and the relative value of the 2 kidneys; in other words, whether any operative interference is justifiable, and if so, whether one or both kidneys should be operated on, and the nature of the operation.

Reaction.—The urine was acid in every case, thus demonstrating that the popular textbook idea of alkaline pyuria differentiating a cystitis from a pyelitis will bear revision.

Bacteriology.—Slant agar tests were made in many of these cases, but unfortunately the records are preserved in but 9 of them. Of these, 4 were sterile, 4 contained a colon bacillus growth, and 1 a growth of streptococcus. From my bacteriologic observations I would say that the rule in tuberculous pyuria is to find sterile urine when testing on our ordinary media. The mixed infection in all our cases but one has been by *Bacillus coli*. It is probable that the acid urine present in tuberculous cases limits the varieties of bacteria that can exist in the urine to the acid producers. On the other hand, the presence of colon in most of these mixed infections of our series may be a coincidence, for we know that about half of all cystitis infections are by the colon group.

Demonstration of the presence of tubercle bacilli is the only manner in which we can make a positive diagnosis. This is done by finding the bacilli in the urine or by causing tuberculosis in the guinea pig by urine inoculation. Tubercle bacilli should be demonstrated in practically every case. One or two slides made from the centrifugalized urine should be examined daily for at least a week if necessary. In this time there is almost certain to be a breaking down of tuberculous foci and the precipitation of bacilli. This is a far less laborious and more certain method than that of examining a multitude of slides in one day. I allow the catheterized specimen to stand in a conical glass for a few hours and then pipet about 5 cc. to 10 cc. from the bottom for centrifugalization.

The differential stain should always be used. We have heretofore considered that drawing a catheterized specimen from the bladder excludes the smegma bacillus. But I have had an experience only the past summer that demonstrates the necessity of a differential stain in all cases. From a bladder showing universal ulceration apparently secondary to disease of the right kidney and ureter, I obtained by catheterization a specimen of urine on two different days, each specimen showing by the Gabbett method of decolorizing, a number of organisms retaining the typical stain, but being somewhat plumper in form than the tubercle bacillus. No evidence of tuberculosis could be found in the excised kidney and ureter, and after a vesicovaginal fistula and irrigations for 6 months I was able to close the fistula over a bladder with normal mucous membrane. I do not believe this could have been a tuberculous bladder. One case (XV) of our series makes me question whether even the differential stain can be relied upon. Her physician, one of the most scientific in New York City, had repeatedly found organisms corresponding to tubercle bacilli after the differential stain. After the patient's admission to the hospital, the ward interne, using the differential stain, found similar organisms in a catheterized specimen from the bladder. These specimens were examined by the hospital pathologist, Dr. N.

McL. Harris, and considered by him as undoubted tubercle bacilli. But most thorough search of sections taken from every portion of the necrotic and sclerotic kidney failed to show any tissue with evidence of tubercles. This patient's urine is normal at present, showing that the bacilli in question were in all probability not from the remaining kidney. Case XII had a similar sclerotic kidney, in which there was but one small caseous focus in which tubercle tissue could be demonstrated. Every other portion of the kidney showed chronic granulation tissue, but no areas typical of tuberculosis. Knowing that we may have complete obliteration of the tissue typical of tuberculosis I have depended upon the differential stain in Case XV, and upon this evidence only has this case been included in this series. Future work may show that the differential stain cannot always be depended upon.

In 22 cases on which a note is made as to search for tubercle bacilli 15 yielded positive results. In one other case bacilli were not found, but inoculation of a guinea-pig with urine from the affected side resulted in death of the animal from tuberculosis. Of the 7 cases in which a negative note is recorded there was usually but one effort made to find the bacilli. Of the 15 positive cases 8 were specimens catheterized from the bladder and 7 were specimens taken directly from the kidney. In one of the latter, bacilli were found in specimens catheterized from either kidney. As one would expect, bacilli seem more plentiful in the specimens taken directly from the kidney. If the guinea-pig is used for purposes of diagnosis it is well to inject at least 3 pigs, 1 intraperitoneally, and 2 subcutaneously in the flanks. A catheterized specimen should be taken into a sterile receptacle and centrifugalized as soon as possible under approximately aseptic precautions; and the centrifugalized sediment should then be used for inoculation before there is time for development of contaminating organisms, for the guinea-pig is peculiarly susceptible to infection and is likely to die early if organisms other than the tubercle bacilli are introduced. If a specimen of the diseased bladder tissue can be curetted a portion of this may be introduced into the flank of a guinea-pig while the remainder is kept for microscopic examination.

Tuberculin Reaction.—If tubercle bacilli cannot be found and one has not time to wait for a guinea-pig test, the tuberculin reaction may be tried. This is uncertain in cases with fever but for suitable cases we have learned to place considerable confidence in its indications.

Cystoscopy.—Examination of the bladder with the cystoscope is of great service in diagnosis. Very often there is no change in the bladder except a slight redness and puffiness of one ureteral orifice. Again, there may be local changes of considerable degree in the bladder mucosa about the orifice of the affected side. If the bladder is universally inflamed one may still be positive about the diseased kidney from the fact that one ureter is thickened and shortened, and its orifice, instead of standing out on a mons ureteris, is located in a saucer-like depression of the bladder wall.

Catheterization of the Kidney.—In my former paper I stated my views against the catheterization of a supposedly healthy ureter and kidney in the presence of disease of the other kidney. Much information may be gained regarding the character of the urine and the rate of flow by simply placing the patient in the Sims or the knee-chest posture and watching the ureteral orifices. More can be learned by catching the urine for examination as it leaves the ureters. Dr. Kelly has a speculum with an oblique end which is more easily held to cover the ureteral orifice than is the ordinary circular end speculum. Our usual method of separating the urine is to catheterize the diseased side and have the patient take the dorsal position. The bladder is then thoroughly washed out and emptied. The urine which collects in the bladder while the catheter drains the diseased side represents the better side. If the entire bladder is dis-

eased and there is but one thickened ureter and the symptoms are confined to the corresponding side, I think it entirely justifiable to catheterize this side, even though the regions of both ureteral orifices look the same. With these conditions and failure of the catheter to enter the thickened ureter, I would abandon an attempt at diagnosis through the bladder and depend upon a preliminary incision over the supposedly better kidney before attacking the side known to be diseased. It must not be forgotten that both kidneys and the bladder and only one ureter may be diseased. I have seen one such case in which a much hypertrophied and diseased left kidney and ureter were removed, dependence upon the integrity of the right kidney being placed upon the fact that the patient was in fair health, had a normal right ureter, and a right kidney apparently normal on palpation. The bladder was so diseased that neither ureteral orifice could be found. In a week the patient died, having passed no urine; and, on investigation, the right kidney was found to be a multilocular cystic mass with one caseous area in its cortex, while the ureter was normal.

I have used the Harris segregator and the Downes modification of this instrument, and am not favorably disposed toward them. It is only necessary to use the hand of a rubber glove as a receptacle in order to demonstrate how easily fluid leaks around the lever ridge at the bifurcation of the catheters; and a thickened, diseased bladder floor is by no means as pliable as this rubber glove basin. Cathelin's rubber diaphragm separator is a more practical instrument, but this, again, cannot be depended upon in the cases in which it is most needed, for in a roughened, uneven bladder floor the wire rim holding the rubber diaphragm must ride over the more projecting nodules and allow the intermingling of the urines in the sulci beneath the wire.

Tumor.—The absence of tumor formation is not of diagnostic importance. In women, the size of the right kidney can usually be ascertained, while the left kidney may be considerably enlarged and still not be palpable. A priori, one would expect the largest tumor in a case with perirenal abscess or collection of pus in the capsula adiposa. None of our cases showed this condition. A note on palpation is recorded in 26 of our cases. In six of these there was visible or very large palpable tumor. Five of these were either large pyonephrotic or multiple abscess kidneys, while the sixth was a kidney with caseous lobules opening more or less freely into the kidney pelvis. In this sixth case I had noted repeated variation in the size of the kidney. With elevation of temperature, chills, and pain in the left lumbar region, the kidney became distinctly larger. In 10 of the 26 cases the note says the kidney is enlarged. In five the kidney was palpable, but of normal or diminished size. In five the kidney was not palpable. Enlargement is often due to perinephritis of a nonpurulent character. The capsula adiposa becomes inflamed and thickened, and forms a dense cartilage-like shell about the kidney. The kidney itself under these conditions may be enlarged, normal, or greatly diminished in size.

Ureter.—A note on palpation for ureters is made in 19 cases. In 1 case the ureters are said to be free from tenderness, nothing being said as to palpability. In 18 cases one or both ureters are described as palpable, and the usual note is that they are thick and tender. The ureter can generally be palpated as it crosses the pelvic brim, and in the pelvic portion it may be palpated through the vagina and particularly through the rectum. Palpation of the kidney often causes pain and a desire to void urine. These symptoms are more frequently elicited on palpation of the ureter. The base of the bladder may be thickened and tender, particularly on the affected side, and its palpation may cause referred pain in the urethra.

General Condition.—It is surprising that a patient may carry a badly diseased kidney and still possess good

nutrition, a high percentage of hemoglobin, and to all appearances be in perfect health. Most patients however show some anemia and give a history of having lost weight and strength. Some of our patients who are in excellent health today were brought to the hospital on a stretcher and were most hopeless looking beings. Lack of drainage of the infected kidney, and bladder symptoms disturbing the patient's rest at night, are the chief causes of a cachectic condition. The temperature in many of our cases was normal on admission and remained normal until operation. In others there was slight fever, often of the hectic type. In 7 cases the temperature was 103° F. or higher, and one patient with a large pyonephrosis had a temperature on the day of admission of 106.2° F.

Treatment.—If the disease is one-sided, as it is in about 90% of cases when seen reasonably early, operation without delay is indicated, for of 100 patients dying without surgical intervention, 51% are found to have double-sided disease.³ As Israel points out, the infection of the second kidney is generally a matter of years, for the disease is usually diagnosed and operated upon at a late period, and is still found to be one-sided in 9 out of 10 cases. In our series the operation was at a period 4½ years after the symptoms began and the disease was probably unilateral in 92%. We know from our pathologic specimens that it is possible for tuberculous disease of the kidney to heal. We know from clinical experience that persons may live for years with both kidneys diseased. But we know also that one may live in comparative health for years with but one kidney, and that the seat of tuberculosis. If previous cryoscopy has shown renal sufficiency and a wide difference in the value of the two kidneys it is indicated to remove the poorer kidney if this be the seat of predominating symptoms. Occasionally one will find a portion of the poorer kidney in a condition of apparent health. In such a case the question of a partial resection must be considered. Partial resection is the operation of choice in the rare cases of double kidney with double pelvis and ureter, in which but one segment of the kidney and but one ureter show disease.

Nephrotomy.—Simple incision and drainage is no longer used as a curative measure and is not justifiable unless for special reasons, which make nephrectomy inadvisable. As already inferred, both kidneys may be so extensively diseased that life would be precarious if either were removed, and yet one kidney only may be the seat of repeated distention with pus, causing fever, chills, loss of appetite, loss of rest, and causing secondarily a profound cachexia. In such a case free incision and permanent drainage of the more diseased kidney is indicated. Second, the patient may be too ill when first seen to bear a nephrectomy. Opening of the large pus kidney or of a perinephritic abscess in such cases is the only operation advisable, and this may be done under local cocaine anesthesia or under general anesthesia with nitrous oxid gas. After the patient improves sufficiently, complete nephrectomy or intracapsular enucleation of the kidney may be done. Four of our patients had nephrotomy with a later nephrectomy. The removal of the kidney in three of these cases was accomplished by intracapsular enucleation, these being the only cases of the series in which this expedient became necessary.

Nephrotomy with drainage was the only operation in 3 of our cases. Two of these had evident involvement of the opposite kidney, and died from this cause, Case IV within 11 weeks, and Case V after 2 years. Case XIV improved rapidly during 6 weeks in the hospital, and then insisted upon returning home. She is the only patient in the series whose ultimate condition we have been unable to learn. Generally in cases of large pyonephrosis or of perirenal abscess the greatest prominence is situated in the anterior flank region. Given, a tumor in this region, and inability to make a diagnosis between gallbladder, kidney, or other point of origin, it is prob-

ably indicated to approach the tumor over its most prominent portion. If the peritoneum is entered and the tumor found to be renal in origin, this exploratory wound should be closed, and the incision and drainage made in the lumbar route.

Nephrectomy.—With normal bladder, and the ureter showing no macroscopic changes, conservative surgery calls for simple removal of the tuberculous kidney. In such cases the renal end of the ureter may be tied with silk or catgut, a clamp set above the ligature, and the ureter burned across with the cautery. Or, still better, the cautery clamp may be used to sever and seal the ureter. If the kidney has been removed without contamination of the tissues, the wound is closed for per primam healing, but if the kidney has ruptured and contaminated the field, or if one is not reasonably certain that the ureter is free from tuberculosis a small iodoform gauze drain is inserted. Our series includes 9 cases of nephrectomy (VI, XIII, XV, XVII, XVIII, XX, XXI, XXVIII, XXXIII). Case XXI died 6 weeks after operation with evident involvement of the opposite kidney. The remaining 8 patients are living, and the wounds have healed in all but three—Cases XVII, XXVIII, and XXXIII.

Nephrectomy and Partial Ureterectomy.—By partial ureterectomy we generally mean the removal of the ureter down to the pelvic brim, or as far as it can be followed through the wound made for the kidney extirpation. The term is used as well for those cases in which but a few centimeters are removed for microscopic examination. I believe the operation should be confined to the removal of 5 cm. or 6 cm., for if the ureter is not diseased nothing is gained by following it lower, and if it is diseased, it is better to bring its upper end out on the skin surface (as suggested by Israel) than to leave a long tract for infection between the end of the ureter and the skin wound. If future ureterectomy through an inguinal wound is contemplated, a few centimeters of ureter to be released above the pelvic brim will not materially complicate the operation. Nephrectomy and partial ureterectomy were done in 7 of our cases. They are all living, and the wounds have all closed, except in Case XXIV, whose wound is still slightly open after 22 months.

Nephroureterectomy.—If the ureter is involved, as it is in the majority of cases when the patient comes for treatment, the ideal operation is the complete removal of both kidney and ureter. Dr. Kelly has developed a splendid technic in this operation, and I shall enter with some detail into the methods now in use by him and his associates. The operation was formerly done through what one patient describes in her letter as "an 18-inch incision," in other words, the patient was "quartered." We now use 2 short incisions; the operation is usually extraperitoneal, and may be done in favorable cases without cutting a muscle. The patient is placed in a prone or semiprone position with an inflated rubber bag (Edebohls') well up under the lower thorax. The lumbar incision begins in the angle formed by the erector spinæ muscle and the last rib, and is carried downward and forward 8 cm. to 12 cm. in a line about parallel with the direction of the twelfth rib. The incision is carried through the skin, subcutaneous fat, and deep fascia, and exposes the latissimus dorsi muscle whose anterior border crosses the incision about midway. This muscle is grasped by skin retractors and drawn posteriorly, thus exposing the posterior border of the external oblique. The border of the external oblique is drawn anteriorly and the border of the internal oblique is exposed, together with the lumbar fascia, as it gives origin to the transversalis muscle. We have thus, without cutting a muscle or any important nerve or vessel, exposed the superior lumbar trigonum, a triangular fascial area with its base forming the arcuate ligament just inferior to the twelfth rib. An artery forceps is plunged through this fascia, and on spreading its blades the retrorenal fat appears through the opening. This

lumbar fascia is now cut or torn until its opening is of the desired dimensions.

If the inflammation is confined to the kidney this organ is usually seen sliding up and down in the wound, and after breaking through the capsula adiposa, the kidney is delivered with more or less ease, according to its size. If the capsula adiposa is the seat of inflammatory disease, the kidney may be anchored deep in the wound and be hidden from view until this outer capsule is dissected free from the capsula renalis. In some cases with perirenal thickening the kidney is best delivered with its thickened capsule intact; in others the fatty capsule must first be stripped and the kidney then delivered. In still other cases, particularly in those where the kidney has been previously drained, the capsula adiposa has become so thickened and adherent that it is impossible to deliver the kidney, and one must first cut through both the fatty capsule and the thickened capsula renalis and then do an intracapsular nephrectomy.

It is sometimes an advantage in the adherent cases to first sever the ureter. I have found it an excellent plan in these difficult cases to resect the twelfth rib, in fact, this is my rule in tuberculous kidney cases. In such cases the preliminary incision is made directly over the twelfth rib, beginning somewhat more posterior than the incision just described, and the latissimus dorsi muscle is divided instead of retracted. This enables one to approach the inflammatory field by a more direct route, exposes any adventitious vessels, and greatly facilitates the control of the normal vessels after the kidney is delivered. To control the vessels it is possible in most cases first to strip them entirely of the fat about the hilum and to expose them for separate ligation. With a blunt instrument, best with a serrated spatula, one strips down the fat alternately on the anterior and posterior surfaces and then ties the vessels from the posterior exposure. When working on the right side the surgeon should bear in mind the shortness of the right renal veins and the proximity of the inferior vena cava. After freeing the kidney, the ureter is dissected loose down to the brim of the pelvis. The ureter is then clamped at about its isthmus, and a ligature is placed somewhat below the clamp. The ureter is cut or burned through with the thermocautery, and its mucosa above the ligature is carefully cauterized. The clamp and ligature are both dispensed with and a clean field insured by using the Downes cautery clamp. If the operation has progressed to this point without contamination of the field by tuberculous material, the wound may be entirely closed and the patient turned to the dorsal position for the ureterectomy.

The ureter incision is made parallel to and about 5 cm. above Poupart's ligament, beginning about opposite the anterior superior spine of the ilium and ending near the sheath of the rectus. With a little experience this incision can be made so that its ends lie between the main branches of the superficial circumflex iliac and the superficial epigastric vessels, so that one does not have to clamp or tie a vessel in reaching the muscles. The peritoneum is now exposed by cutting through the muscles or by separating them layer after layer in the direction of their fibers. On reaching the peritoneum this is pushed toward the median line, thus exposing the external iliac vessels running along the border of the true pelvis. Following these vessels toward the median line by sight, or preferably by touch, the ureter is found as it dips over into the pelvis at about the junction of the external with the common iliacs. The ureter goes with the peritoneum and should be sought as the peritoneum is being pushed medianward. Occasionally the periureteral thickening holds both ureter and peritoneum in firm union with the fascial sheath of the iliac vessels. Having found the ureter at this point one reaches above the pelvic brim for the upper end, which has already been loosened from above. Grasping the freed upper end, the ureter is gently torn from the

peritoneum in front and from the fascial attachments behind. Great care must be exercised in freeing a strongly adherent ureter from the iliac vessels; if necessary, a portion of the periureteral tissues are cut free and left with the vessel sheath. If the ureter is densely adherent to the peritoneum, it is best to free it by a sharp knife dissection, thus avoiding ragged tears into the peritoneal cavity. At times the deep pelvic portion of the ureter, or the broad ligament portion, is surrounded by a dense mass of thickened fat. If the patient is in fair condition this should be removed down to the bladder wall, although the uterine vessels of the corresponding side will have to be sacrificed. In the average case one can sever the ureter at the bladder without permanent injury to the uterine vessels. The inguinal wound is completely closed or it is drained, according to the conditions of the individual case.

Our list comprises 13 nephroureterectomies (Cases I, II, III, X, XII, XXII, XXV, XXVI, XXVII, XXIX, XXX, XXXIV, XXXV). These patients are all living, and their wounds healed promptly, except in Case XXV, whose wound still opens at times after 14 months.

Nephroureterocystectomy.—Resection of a diseased portion of the bladder, together with the ureter and kidney, was done in 3 cases. In Case XVI Dr. Kelly removed the left kidney through a lumbar wound, and the left ureter and a section of the bladder through a suprapubic median transperitoneal incision. The abdomen was closed without drainage. On the fourteenth day symptoms of general peritonitis began, there was no further passage of urine through the urethra, and the patient died on the fifteenth day.

In Case XXXI, I removed a small area of the diseased bladder with the urethra, and another ulcerated area 3 cm. or 4 cm. in diameter from the vertex of the bladder through a suprapubic extraperitoneal incision. The urethra and urethrovesical region were removed through the usual extraperitoneal inguinal incision without tying the uterine vessels, these being simply displaced forward with a curved spatula. A cone of the bladder was drawn well into the wound, and before the bladder was opened, interrupted catgut sutures were set beyond the area to be resected. After removal of the urethrovesical area these sutures were easily tied. A small drain was inserted to the bladder suture, but there was no leakage. The patient is in excellent health, and free from bladder lesion, after almost 2 years. I performed a similar operation in Case XXXII, removing a portion of the bladder with the ureter without injury to the uterine vessels. In this case, however, the ureter was densely adherent to the peritoneum throughout the pelvis, and the patient's condition necessitated rapid work, resulting in a free tearing of the peritoneum. She had disease of the opposite kidney, and the operation was undertaken only because of the repeated blocking of the ureter, with resulting high fever, severe chills, and profound prostration. The operation of safety in her case would have been simple nephrotomy, but her social conditions were such that she desired to take extreme chances and be rid of after-treatment. For this same reason I closed a vesicovaginal fistula which had been previously made for treatment of a cystitis. The patient showed signs of uremia from the time of operation, and died on the sixth day. Her death may have been hastened by peritonitis due to leakage from the bladder wound, for after loosening the drain on the fourth day, less urine was collected through the retention catheter. Several criticisms should be made regarding the conduct of this case. In the first place, the surgeon should not allow the wishes of the patient or her friends to carry him beyond what seems the only safe course in operating. This patient might still be alive if nephrotomy had been done. Second, in view of the resection of a portion of the bladder, the vesicovaginal fistula should have been left for drainage of the bladder. Third, in any similar case in which the peritoneum is opened, the

packing between the bladder and the intestines should be generous in amount, and should not be disturbed until firm intestinal adhesions are formed.

Treatment of the Bladder.—I am not in favor of a partial resection of the bladder at the primary operation except in rare instances. If the disease is confined to the immediate vicinity of the ureteral orifice and tubercles can be seen in the ulcerated area, and if the nephroureterectomy has progressed without opening the peritoneum, I think the bladder operation may be added. Or a vertex ulcer, situated where it can easily be reached by an extraperitoneal incision, may be removed. We know that some cases of bladder involvement are not specific, and that they clear up after removal of the diseased kidney. In Case XXXI, I felt positive that the periureteral inflammation and the deep ulceration in the vertex were tuberculous, but the microscope showed them to be non-specific, and I doubt not that the cystitis would have quickly healed under ordinary methods of treatment. In Case XXIV I felt certain, from the appearance of the bladder, that it was tuberculous; but the entire disease, covering a third of the organ, has healed in 6 months without treatment.

I cannot agree with Motz,⁴ of Paris, who thinks there is a tendency to spontaneous healing in tuberculosis of the bladder. He reports 8 cases of cure, six of which healed without vesical treatment, four after the removal of a tuberculous kidney. He bases his diagnosis on the existence of cystitis symptoms and the presence of tubercle bacilli in the urine, cystoscopic examination apparently having been made in but 1 case. Many of our cases with bladder symptoms and tubercle bacilli had perfectly normal bladders. When in the cystitis cases we get healing without treatment, or after the ordinary methods of treatment, we set them down as cases of secondary cystitis, in which the bladder walls are free from invasion by tubercle bacilli. I have recently had enough experience with biweekly and weekly instillations of bichlorid of mercury in strengths of 1-10,000 to 1-5,000 to believe this drug has a place in the local treatment of tuberculosis of the bladder, but outside of this I know of no treatment except complete excision of the diseased area.

In excising tuberculous areas in the bladder both mucosa and muscle should be included, and if there is a suspicion that some of the disease remains, or if it is necessary to open into the peritoneum, a vesicovaginal fistula should be made. This places the bladder at physiologic rest as long as may be deemed necessary. It makes the bladder suture safe, and prevents infection and pressure ulcers that may occur with a retention catheter in the urethra. A small strip of iodoform gauze should lead from the bladder into the vagina for the first 48 hours to prevent the fistula from closing. The fistula may easily be closed under local cocain anesthesia when its purposes have been served. If future experience should demonstrate the desirability of removing a portion of the bladder with the ureter, this operation in multiparas and women with large vaginas will probably be performed through the vagina. After freeing the ureter down to the uterine vessels, a finger beneath the end of the ureter makes a safe guide for puncture through the vaginal wall with sharp scissors. The ureter is dragged down through this puncture opening, and the vaginal wound is enlarged according to the area of bladder to be resected. After resection of the diseased area the deeper portion of the bladder and vaginal wounds may be closed, leaving the portion nearest the internal urethral orifice open for the purposes of a vesicovaginal fistula. The ureterectomy was finished through the vaginal route in Cases II, III, XXII, and XXV. In Case XXII, I removed a considerable area of thickened muscle of the bladder wall with the ureter, and opened into the bladder mucosa.

Treatment of the Ureter.—While, as stated above, the ideal operation in case of thickened ureter is nephro-

ureterectomy, we are not justified in adding the ureter operation unless the patient is in fair condition. We have not yet had enough experience to say just how much or how little harm may come from leaving a diseased ureter *in situ*. Case XXIII suffered for some months after her kidney was removed, from intermittent abscess formation in the pelvic portion of her ureter. After days of fever, malaise, and pain, the accumulation of pus would discharge into the bladder, and the patient would experience instant relief. A priori one would suppose that the presence of a diseased ureter would influence the bladder disease. And it probably does at first, but we know that physiologic rest for the ureter is followed in many cases by quiescence of the tuberculous process and atrophy of the organ. Of the 4 cases known to have a bladder lesion at present, two still carry the diseased ureter and have a lumbar fistula. Of the 11 cases with bladder symptoms only three have the ureter.

An analysis of our cases throws some light upon the problem of wound healing. Of the 9 nephrectomy cases, one, Case XXI, died. Case VI is reported in good health but nothing is said as to wound healing. Case XIII was closed at operation and healed by primary union. Cases XV and XVIII healed before they left the hospital. Case XVII is still open after 3½ years, the rib probably being infected. Case XXXIII is open after 17 months, and Case XXVIII is open after 14 months, a piece of gauze having been discharged from her wound after 5 months.

Of special interest are the cases of nephrectomy and partial ureterectomy, because of the opportunity to examine the ureter microscopically. Of the 7 specimens, 2 were not examined, 4 were tuberculous, and 1 showed a chronic ureteritis. Of the cases showing a tuberculous ureteritis, Case XIX healed at once before leaving the sanatorium, Cases VIII and XXIII closed after 2 years, and Case XXIV is still open after almost 2 years. Case IX, with chronic ureteritis healed in 4 weeks.

From the 13 cases of nephroureterectomy, 9 ureters were tuberculous, and 4 showed chronic ureteritis. In the 4 cases showing chronic ureteritis the wounds closed promptly in Cases I and XXVI, while in Case XII there was granulation for 6 months and in Case II for 5 years. The 9 tuberculous ureter cases closed soon except Case XXV whose lumbar wound is still granulating after 14 months. The tardy healing in Cases II and XII can be explained only on the supposition of wound infection from the kidney during the operation. Of the 3 cases of nephroureterocystectomy, Cases XVI and XXXII died and the wounds in Case XXXI healed promptly.

Of the 23 cases in which the whole or a part of the ureter was removed the ureter was examined microscopically in 22, and of these 17 were tuberculous while 5 showed chronic inflammation. From the above analysis it appears first, that tuberculosis of the ureter exists in a large proportion of cases of tuberculosis of the kidney; second, that a wound may close rapidly after the partial removal of a tuberculous ureter or it may suppurate for years after the complete removal of a non-tuberculous ureter; but that as a rule, the partial removal or the leaving of a tuberculous ureter is followed by months or years of suppuration, while the complete removal results in rapid closure of the wounds.

After-treatment.—In all cases of abdominal operation it has been Dr. Kelly's practice for a number of years to give the patient a liter of salt solution before she leaves the operating table. This is given either as a high enema, a subcutaneous infusion, or it is left in the peritoneal cavity. This allays thirst to a great extent and flushes the kidneys, the patient passing about the normal quantity of urine in the first 24 hours. In all kidney operations this operation infusion is supplemented by enemas of salt solution given every 4 to 6 hours for the first day or two. These enemas are small, containing from 200 cc. to 600 cc. of fluid, to which nour-

ishment may be added. The enema should be of body temperature or slightly warmer, and it should be given slowly, preferably by means of a rectal tube and gravity funnel.

In case oliguria or uremic symptoms develop after operation, the amount of fluids should be pushed and the patient treated much as one would treat acute Bright's disease. The skin and bowels should be kept active. The patient may be kept in blankets. Heart depressants must be avoided after a severe operation. Diuretics are indicated and are preferably given with the enemas. The infusion of digitalis is one of the most useful. I have had most gratifying results with the diuretic pill composed of squill, digitalis and calomel, 1 gr. of each. This pill acts well on both the bowels and kidneys.

Summary of Results.—One patient (Case XIV) has not been heard from since leaving the hospital.

Five patients (Cases IV, V, XVI, XXI, XXXII), or 14%, have died; two (Cases XVI and XXXII) from the results of the operation. Cases IV, V, XXI and XXXII had involvement of the other side, the first 3 dying from this cause.

Two patients now living, after respectively 8 and 14 years (Cases II and III), may have tuberculous infection of the remaining kidney.

Eleven patients (Cases III, IX, X, XII, XXIII, XXIV, XXV, XXVII, XXVIII, XXXIII, XXXIV) still have bladder symptoms or are known to have a bladder lesion. The elapsed time since operation in these cases has been 14 years, 1 case; 5 years, 2 cases; 4 years, 1 case; 2 years, 2 cases; from 18 months to 6 months, 5 cases. All but one of these patients are in good general health, five of them reporting better health than they have known for many years.

Case XVIII still has partial incontinence of urine due to treatment of the urethra before she was admitted to the sanatorium. She has no trouble after 3 years due to the tuberculosis.

Two patients (Cases XXIX and XXX) on dismissal 6 months ago had colon bacillus infection of the remaining kidney, but they had very little pus in the urine, no symptoms, and considered themselves well. Case XXIX was seen December 8. She had gained 30 pounds in weight, the bladder was normal, but the colon bacillus infection was still present in the remaining kidney.

Ten patients (Cases I, VI, VIII, XIII, XIX, XX, XXII, XXVI, XXXI, XXXV) are reported or known to be in perfect health. The elapsed time since operation has been 8 years, 1 case; 6 years, 2 cases; 5 years, 1 case; 3 years, 2 cases; 2 years, 2 cases; 1 year, 1 case; 6 months, 1 case.

Case VII was operated on for pelvic and abdominal tuberculosis in June, 1902, 6 years after her kidney operation. A letter to Dr. Kelly in December, 1903, from California, reports fair health, and the pursuit of field work in botany.

This gives us 25 out of the 35 cases, or 70% to be classified as having either fairly good or excellent health.

Cases XI and XV are in poor health (each after 5 years) with evidence of chronic interstitial nephritis.

Cases XVII and XXXIII have lung tuberculosis, but Case XVII is doing heavy work as a maid and Case XXXIII (already mentioned as having cystitis) is in apparent good health.

General Summary.—Tuberculosis of the urinary system is a surgical disease, being, as a rule, unilateral, and often the only focus of tuberculosis in the body.

If the disease is bilateral and there are no pronounced symptoms referable to the kidneys, the treatment should be that usually accorded tuberculosis of the lungs, viz., suitable climate, nutritious diet, and proper regulation of the patient's rest and exercise; but if one or both sides begin to cause marked local or general manifestations, surgical intervention is often of great benefit.

In case of bilateral disease, or in associated disease of

the lung, the anesthetic is of great importance. Local cocaine anesthesia may be used for nephrotomy, and nitrous oxid gas for nephrotomy, nephrectomy, or nephroureterectomy.

Thickened ureters are generally tuberculous; and should be removed with the kidney if the patient's condition justifies.

Bladder disease in these cases is often nontuberculous, and removal of the diseased area should not be attempted at the first operation. If the bladder fails to heal within a year under ordinary methods of cystitis treatment, the disease is probably tuberculous, and if not occupying more than half of the bladder, it should be excised.

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PERVIGILUM, OR LONG PERIODS OF PHYSIOLOGIC WAKEFULNESS.

BY

GEORGE M. GOULD, M.D.,
of Philadelphia.

Sleeplessness as a result of pathologic conditions of the brain or mind has often been described,¹ and especially the very general and extreme illustrations in the insane are well known. There are other instances arising from shock, etc., which show at least the influence of morbid action, as, for instance, the case cited by Winslow² of a woman who was horrified at finding her husband dead at her side in bed. There are also cases of "idiopathic sleeplessness," in which weeks may pass without 5 minutes of continuous sleep, and in which the intellect does not show disorder, and there are no symptoms of bodily and mental fatigue, etc. Winslow cites the case of Paganini, who, he says, rarely slept, "so intense was his passion for music." Boerhaave is recorded not to have slept for a period of 6 weeks in consequence of his brain being overwrought by intense thought on a profound subject of study.

In this connection may be quoted a passage from the *Semi-Monthly Medical News*, of 1859:

The question how long a person can exist without sleep is one oftener asked than answered, and the difficulties of answering the question by experiment would seem to leave it forever unsolved. A Chinese merchant had been convicted of murdering his wife, and was sentenced to die by being deprived of sleep. This painful mode of death was carried into execution under the following circumstances: The condemned was placed in prison under the care of three of the police guard, who relieved each other every alternate hour, and who prevented the prisoner falling asleep, night or day. He thus lived 19 days without enjoying any sleep. At the commencement of the eighth day his sufferings were so intense that he implored the authorities to grant him the blessed opportunity of being strangled, guillotined, burned to death, drowned, garroted, shot, quartered, blown up with gunpowder, or put to death in any conceivable way which their humanity or ferocity could invent. This will give a slight idea of the horrors of death from want of sleep.

But all such cases are plainly different from those in which a healthy person in obedience to duty or affection does not allow himself to sleep for an extended period of time. In the issue of *American Medicine* of February 6, 1904, there is mention of a physician who slept only in his sleigh while being driven from patient to patient, for a period of as much as two weeks. But, of course, such sleep, with good health, can satisfy the demands of the organism.

Dr. Charles Mackay³ says:

¹ I formerly attended a patient who rarely closed her eyes in sleep for 10 consecutive minutes for nearly a year. Her existence under these circumstances was perfectly miraculous.—FORBES WINSLOW.

² Obscure Diseases of the Brain and Mind.

³ The Scenery and Poetry of the English Lakes.

Wordsworth in speaking of Southey said, "He fell a victim, not to literary toil, but to his strong affection for his first wife, which led him night after night, when his labors of the day were ended, to watch with sleepless anxiety over her sick-bed." The strongest mind, as he observed, will ultimately give way under the long-continued deprivation of the natural refreshment of the body. No brain can remain in permanent health that has been overtaken by nightly vigils, still more than by daily labor. When such vigils are accompanied by the perpetually recurring pain of beholding the sufferings of a beloved object, and the as perpetually recurring fear of losing it, they become doubly and trebly injurious; and the labor that must be done becomes no longer the joy and solace that it used to be. It is transformed from a pleasure into a pain, from a friend into an enemy, from a companion into a fearful monster crying, like the daughter of the horse-leech, "give! give!" It is then that the fine and delicate machinery of the mind is deranged. It is then that the "sweet bells are jangled and out of tune," that the light is extinguished and the glory under a cloud, that Eternity may lift but not time. Such it appears was the case with the amiable Southey; the grand, if not the great poet, the accomplished scholar and the estimable man in every relation of life.

Forbes Winslow in discussing the "Pathology of Sleep,"¹ says that "a state of pervigilium, or watching, cannot with impunity be extended beyond 18 or 20 hours, except in the mindless, thoughtless state of mania."

Probably physicians, more frequently than any other class of men, choose or feel compelled to endure prolonged sleeplessness. Three or four cases have come to my notice, the details of which may be of interest to us both as physiologists and as brother physicians. They are particularly trustworthy and of value physiologically because the reports are made by most honorable physicians trained to observe and report accurately such phenomena.²

The case of Dr. W. L. Rodman, of Philadelphia. Dr. Rodman writes:

In April, 1890, my youngest child was born; 3 weeks afterward my wife was taken desperately ill, with what proved to be a most malignant attack of scarlet fever, contracted from my eldest daughter who had such a mild attack that she never went to bed and never had throat symptoms. The diagnosis was made too late to protect her mother from infection. In her weakened condition my wife—always susceptible to throat troubles—became desperately ill from the onset. She was attended by a laryngologist and two excellent general practitioners. She refused to have a trained nurse and would permit no one save myself to nurse her. As far as I can say I slept not at all for eight days and nights. I am very sure that I never laid down or had off my clothing during this time. Of course it is possible that I may have slept in a chair but very unlikely, as I never could do that, and had I fallen asleep under such circumstances, would have, in all probability, slept long enough for me to be conscious of it.

I kept myself awake by drinking black coffee freely. At the end of eight days when my wife had sufficiently improved for me to be willing to rest I found sleep impossible. I was compelled for the only time in my life to take a hypnotic.

In 1881, when a surgeon in the U. S. Army and stationed at Fort Linn, I. T., I was compelled to go five days and nights without sleep. My colleague had diphtheria and he felt that tracheotomy might be necessary any moment and I was the only medical man within 100 miles of the post. I did the routine work of the post during the day and sat up each night with my friend, Dr. Williams, until relief was sent from another post. I believe that the length of time one can go without sleep depends entirely upon circumstances. Some can doubtless go longer than others; all can go longer than they perhaps think if affection, duty, or both require it.

The case of Dr. T. B. Greenley, of Meadow Lawn, Ky., according to his letter to me of January 7, 1904, is as follows, using his own words. This is his sixtieth year of active practice. He is now 86 years old.

"... of my long campaign in 1846 of going 18 days and nights continuously without lying down to rest in that time. It was in September of that year, the disease being malarial in character. I practised in the valley below the city of Louisville, and had to visit patients in five counties and two States. I went on horseback keeping three horses. I could take near cuts by paths through woods or fields and get to patients quicker than in a buggy, and of nights more safely. As to sleep, all I got was on the horse. When going toward home I knew the horse would keep the right road and I could brace myself in the stirrups and go to sleep in two minutes. If the horse stopped or anyone

looking for me spoke to me I was awake immediately. I was always awake at the bedside, examining patients or putting up medicine. The disease being malarial, and curable, I only lost one patient between July and Christmas, although I had 12 cases of pernicious, or congestive intermittent fever. I did not think I could, or anyone else could go so long without rest, but there was so much sickness I hated to give up and went as long as I could. On the eighteenth day at night I got home about ten o'clock and told my wife I was bound to rest, but it was no use to try to sleep at home as it was Hello! all the time, so I would hide till morning. I went to the stable loft and made my bed on the hay, when I got a good rest, as well as sleep. In those days I did not mind a week's campaign without rest or much sleep, but of course I could not do the same now, although I feel as well as I ever did. I am not to say very old yet, only being in my eighty-sixth year.

The Case of Dr. R. Matas, of New Orleans:

The facts (says Dr. Matas in a personal letter) are simply that for 15 days and nights I did not sleep. I worked at my practice during the day, and at night I demonstrated practical anatomy from 7 to 10 p. m.; I then sat up writing and reading by the side of a patient who interested me very much. I kept awake by shower baths, coffee, and tea, and at the end of 15 days my patient rallied and improved; then when I might have slept, I could not; I found no rest, no comfort in bed, and in spite of my best efforts I kept awake and suffered from insomnia for weeks, until finally I got into equilibrium again, but not until I had paid the penalty in an outbreak of uric acid manifestations, which have left their impress upon me to this day. I broke out in a general eczema and pruritus, which I was not able to relieve until I took thyroid extract; then I suffered from intercostal myalgia and other evidences of muscular rheumatism accompanied by excessive uratic excretion. All this finally passed, but still I suffer occasionally from muscular pains which remind me forcibly of my old indiscretion. To this day I drink Vichy (Celestins) 50 liters per month, and pay the French government indirectly an annual contribution of \$120, which has been going on for eleven years, in solemn remembrance of that unfortunate experience.

Dr. Matas adds:

It is not an unusual doctor's story. But the lesson to be gathered is that every man has his own way of making a fool of himself, and that we doctors often obtain this distinction by sacrificing ourselves to our patients and throwing away to them the better part of our lives, heedless of the time when our sacrifices avail us naught, except to serve as a warning to our less sentimental and more sensible successors.

The Case of Dr. Buffington, of Baton Rouge, La.—Dr. Matas, of New Orleans, writes as follows:

The case of Dr. Buffington, who died a few months ago in Baton Rouge, is another. He died in his ninth decade, and practised medicine over 60 years in the same county. He had an enormous obstetric practice, and during the more active years of his life it is well known that for weeks and months he would never go to bed, but would sleep as best he could in his buggy while driving from one patient to another.

FAMILY PERIODIC PARALYSIS.¹

BY

GEORGE E. HOLTZAPPLE, M.D.,
of York, Pa.

Much has been written lately on the subject of periodic paralysis, yet it remains a disease which is unique in its manifestations, obscure in its pathology, and of rare occurrence. I desire in this paper to give a brief history of this affection, as I have seen it in a family extending now along some branches, through a period of four generations. My observations have been made during the last 20 years. The characteristic symptoms and clinical phenomena of the cases heretofore reported, by European and American observers, are similar to those which characterize these cases. In the cases thus far reported, I have failed to learn of any deaths due to this disease, and, on the contrary, I believe the disease is not considered serious. Of the family of which I write, a number have died in an attack, and many have suffered from periodic sick-headache, which I always regarded as equivalent to an attack of paralysis, both having a common cause, whatsoever that may be.

A typical attack of this peculiar paralysis is charac-

¹ Journ. Psycholog. Med., Vol. v.

² The names of the physicians are given at my particular request in order to insure that credibility and authority which is desirable.

¹ Read at the meeting of the Medical Society of the State of Pennsylvania, held at York, September 22, 23, 24, 1903.

terized by periodic flaccid motor paralysis involving all the voluntary muscles, except those of the face, eyes, tongue, organs of speech, of deglutition, and of the sphincters of the rectum and bladder. The paralysis may be partial or complete, general or localized. The upper extremities alone, or only the lower may be involved. It may be confined to the neck, or half of the body may be completely paralyzed, while partial paralysis affects the other half. The attack may be partial in the morning and become complete during the day.

When one of these patients suffers from complete general paralysis he is utterly helpless, cannot move a finger or toe, neither lift nor turn the head on the pillow, and, if unsupported, it either drops on the sternum or backward between the scapulas. In some instances breathing becomes distinctly labored, and deep breathing, cough and vomiting are impossible. The bowels almost never move and urine is seldom voided during an attack, unless the bladder is over-distended. There are absolutely no psychic symptoms. The mind remains perfectly clear, and in a patient who died in my presence it was clear until the last moment. The onset is almost always at night, and is ushered in during sleep, with either very slight or no premonitory symptoms. The patient may retire with a feeling of weakness in the extremities, which usually comes on toward evening, or he may have a voracious appetite, which, if appeased by indulging in rich food, is sure to precipitate an attack. On waking he may find himself helpless, able to speak and swallow, but unable to move head, extremities, or trunk. In some cases speech, deglutition, and breathing, may be affected.

None of the special senses has been involved in these cases. There are no sensory symptoms, save in some instances formication and numbness in the paralyzed parts, also a sense of heaviness and a tired feeling, which at times becomes very annoying to the patient, and of which he is greatly relieved by frequent change of position. Patients during an attack usually have no desire for food, some suffer slight nausea, but they usually take nothing but water, until they have fully recovered. In an ordinary attack the circulation remains good; the color of the lips and fingernails is normal and capillary circulation is not sluggish. During a very severe attack I have seen the pulse weak and irregular, with evidence of cardiac dilation. Some patients during an attack are almost constantly affected by congestion of the conjunctivas and the mucous membranes of the respiratory tract. The accumulation of mucus in these cases may, at times, greatly embarrass breathing. During an attack of complete paralysis, the reflexes and the faradic excitability are abolished in the paralyzed part, but return with the restoration of motor power. Most of these patients during an attack complain of absolutely nothing except that they are helpless. The duration of these attacks may be a few hours, or one, two, and, in rare instances, three full days. Improvement may be abrupt and of very short duration, or it may require three or four hours, or even a half day. Vomiting and one or two loose movements of the bowels sometimes occur during the period of improvement. Some of these patients contend that forced exertion aids materially in hastening improvement or in warding off an impending attack. The first symptom of improvement is simply the ability to produce slight muscular contraction here or there, maybe in a finger or toe, soon followed by ability to move a large portion of the part involved. Some will complain the day following of an attack of muscular soreness, especially if they had to be handled much. Others do not complain of anything following an attack.

It is nothing uncommon for one of these patients to be as helpless as a log at 7 a.m. and at 11 a.m. be engaged in doing a hard day's work, not feeling the slightest inconvenience from having been completely paralyzed a few hours before. In some, improvement is more rapid

when it begins in the upper extremities, and in others when it begins in the lower.

Some can predict for a certainty an impending attack, others can not. A heavy meal, especially in the evening, is sure to precipitate an attack in some, while others are not affected by the quality, or quantity of the food taken.

The number of this family who have had attacks of paralysis is 16. Eighteen have been affected with sick-headache. Five have had attacks of paralysis and headache. Eleven members have had attacks of paralysis alone, and 13 have had attacks of only headache. The total number affected with either attacks of paralysis or of headache or both is 30.

This disease was transmitted through the father having had attacks of paralysis, in six instances, through the mother in three instances; through the father having had attacks of sick-headache, in four instances, through the mother having had attacks of sick-headache, in seven instances. In nine instances the paralysis was transmitted through the father, and in seven instances through the mother. Six of the number reported, died in an attack, one death occurring in my presence. In five of these cases the disease was transmitted through one of the parents having had only sick-headache; and in one instance the father had attacks of paralysis, and finally died in an attack. The parents of the first generation who suffered from this disease were F. O. and M. O., of German descent. Both parents were hearty and well, except Mr. O., who was afflicted with periodic sick-headache. There is no neuropathic history obtainable. The first generation consisted of five males and five females. Three of the sons had attacks of paralysis, one had attacks of headache, and one was unaffected. Of the daughters four had sick-headache, none had attacks of paralysis, and one was unaffected. I will append a number of histories, some very brief, others more full.

CASE I.—Mr. M. O., a member of the first generation, now aged 68 years. His early personal history is negative. He never used alcoholic stimulants, but used tobacco rather freely since he was 15. There is no luetic history in the whole family. His boyhood days were spent in a store until he was 15, when he began an apprenticeship as a bricklayer. He suffered from his first attack of paralysis at 14. His attacks always came on during the night. To indulge in a rich meal, especially in the evening, was sure to precipitate an attack during the following night. A heavy cold would also predispose to an attack. There were no premonitory symptoms. He would retire feeling well, to wake up and find himself helpless. In a severe attack he would be unable to move a finger or toe, neither could he take a deep breath, and speech was often difficult. He could usually swallow well, and the muscles of the eyes and face were not involved, while the muscles of the neck were often completely paralyzed.

He never suffered from headache, and there were no mental symptoms. His appetite was usually gone, nausea was common, but he was never able to vomit. His bowels never moved during an attack, and he always had full control of the sphincters of the rectum and bladder. He never had pain in the extremities, even if handled by the nurse. The paralyzed parts often felt numb.

Present Condition.—On examination I find he is well nourished, and his color is good. His body is full of warts; he has nevi of the face, the color of the mucous membrane is good, his tongue is slightly coated, and there is slight arcus senilis, although the arteries at the wrist are not stiff.

Pulse is 80, regular, full, and strong; cardiac impulse rather weak, apex beat in the fifth interspace within mammillary line. The heart sounds are clear, and aortic second sound is not accentuated. Respirations 20, breath sounds clear; there is no cough unless he feels an attack when there is an accumulation of mucus and a desire to cough. Cough is common when the paralysis is partial, otherwise not possible. The muscles of the extremities are slightly emaciated, and those of the lower ones so weak that locomotion is impossible. The extensor muscles of the extremities are all slightly stronger than the flexors. Tactile and painful sensations are normal above the hips. The weakness in the lower extremities commenced 16 years ago, and increased gradually until two years ago, when he was compelled to take to an invalid chair; his arms, though weak, are strong enough to work the wheeled chair. The special senses are unaffected, and there are no mental symptoms. The pupillary reflexes are normal. The tendon-reflexes of the upper extremities are scarcely to be elicited, and those of the lower extremities are abolished. The sphincters of the rectum and bladder are not affected.

CASE II.—Dr. C. F. O., son of M. O., had one attack when 24. He has a son and daughter, thus far unaffected.

CASE III.—Mrs. J. G., daughter of M. O., now 30, has had repeated attacks since she was 15. The characteristic symptoms of her attacks are similar to those of the attacks in her father. She never had headaches.

CASE IV.—Mr. L. G., aged 16, a son of Mrs. J. G., had a number of typical attacks of periodic paralysis.

CASE V.—Mr. J. O., a member of the first generation, began to have attacks of periodic paralysis at 20. He never had headache, and except for the attacks of paralysis had very little to complain of. The attacks were of frequent occurrence until he reached the age of 54, when he died in an attack.

CASE VI.—Mr. J. O. Jr., began to have attacks of paralysis at 16. The attacks were often of weekly occurrence, most severe during the damp and cold months. At the age of about 25 he went to Missouri, had an attack, and died.

CASE VII.—Mrs. L. P., daughter of J. O., had attacks of headache until she was 31, when the headache ceased, and she began to have periodic attacks of paralysis. The following note of a recent attack serves to portray the peculiar behavior of this malady:

On April 13, 1903, she retired feeling well. At 1 a.m. she awoke, and found she was unable to turn, upper and lower extremities were paralyzed, except that she could move hands and feet. At 5 a.m. improvement commenced, and at 9 a.m. she had recovered completely. She then cleaned a few rooms in her house, and retired at 10 p.m. feeling perfectly well. At 4.30 the following morning she awoke and was again almost helpless. On forced exertion she improved for the time being, managed to remain up, until 12 o'clock noon, when she became worse, and at 3 p.m. was completely paralyzed. I saw her at 6 p.m.; she could move her head from side to side, but could not lift it from the pillow, neither could she move a finger or a toe. She suffered no pain when at rest, but a rather severe, dull, muscular soreness when handled. There was some numbness in the extremities. There were no mental symptoms, and the special senses were not affected. Speech and swallowing were unaffected. Pupils reacted to light and shade very readily. Color of lips and mucous membranes was good, and capillary circulation was active. Temperature was normal, respirations 20, pulse 80, full, regular, of good volume, no diastolic tension normal. Her appetite was good, but she was afraid to eat. There was no nausea. She drank water freely and without difficulty. The bowels had not moved, and urine was not voided since she was completely paralyzed, yet she felt that she had complete control of the sphincters of the rectum and bladder. Breathing was sometimes a little labored and deep breathing impossible. Heart-sounds were clear, cardiac impulse easily felt, and apex beat in the fifth interspace within mammillary line. Tactile and painful sensation normal. The tendon-reflexes and the faradic excitability of the muscles involved were lost.

April 16 I called to see her at 10.30 a.m., and found her absent from home, she having called on a neighbor. She returned and reported feeling perfectly well, save for a little muscular soreness, which she attributed to being handled. Her appetite was good, pulse 76, respirations 20. The tendon-reflexes and faradic excitability were fully as marked as in health.

At 6.45 the preceding evening, as was her custom in such a condition, she took 2 gm. (30 gr.) of potassium bromid and .065 gm. (1 gr.) of caffeine citrate. At 7.30 she felt decided improvement. At 8 p.m. she took another dose of the same medicine. Improvement continued and was complete at midnight. She declares that improvement is never as rapid in her case when she sits in a chair as when she lies in bed.

CASE VIII.—C. O., a member of the first generation, began to have attacks of periodic paralysis which recurred at intervals during a period of three years, when he died in an attack.

CASE IX.—Mrs. J. G., a sister of C. O., never had an attack of paralysis, but had, on an average, one attack of sick-headache a week during her whole lifetime, each attack lasting about 24 hours. She seemed to be benefited by vomiting but not by sleep. She was a moderate eater, though rich meals, at times, did not seem to predispose to an attack. During an attack she was often chilly and nervous, but had no visionary disturbances. She never had convulsive seizures.

Thirst was always an indication that improvement would set in. The only other disease that she ever had was pneumonia. During the last three years of life she became very weak and uncertain in her gait. At times she was almost helpless in her lower extremities, and sensation was much diminished. The upper extremities were apparently unaffected. She died at 76. Mrs. J. G. had seven children, three sons and four daughters. All of the sons suffered from headaches and the paralytic attacks, and all of them died in an attack of paralysis.

CASE X.—Mr. F. G., son of Mrs. J. G., began to have attacks of periodic paralysis at 17. His early history is negative, except that he had spasms when quite small. His attacks of paralysis recurred at intervals of a week, or three or four months, most frequent in spring. The duration varied from a few hours to three full days. The attacks came on during the night, and lack of exercise predisposed to a seizure. He had the headache more frequently than the paralysis, and an attack of headache was certain to protect him for a while from an attack of paralysis. He never suffered any pain during an attack, nor muscular soreness afterward. He was actually a

big eater, and the paralytic seizures were always preceded by a voracious appetite that was difficult to control, yet satiety by indulging in rich food was sure to precipitate an attack. He had no premonitions except the bulimia. During an attack of paralysis his appetite was gone, bowels remained quiet, and he retained control of the sphincters of the rectum and bladder. He was usually troubled by an accumulation of mucus in the bronchial tubes, which at times embarrassed his breathing. His mind was always unaffected.

His last attack came on during a Saturday night, and continued until the following Monday, when I was called at 9 a.m. to relieve him of the accumulation of mucus, which had embarrassed his breathing very greatly. I found him cyanosed, breathing very much labored, pulse very irregular, and at times not perceptible at the wrist, with physical signs of cardiac dilation. His mind was perfectly clear. I was with him until 9.30 a.m., when his pulse suddenly ceased to beat at the wrist, there was a vacant stare, and he was dead. His age was 27.

CASE XI.—Rev. E. O. G., a brother of the preceding patient, would sometimes have a tired and drowsy feeling toward evening that would betoken an impending attack of paralysis. Sometimes an attack was preceded by slight jaundice. The onset was always at night. His attacks began at 16, and recurred at intervals of a few days to a few months, being most frequent during damp, cold months. During an attack he would suffer from a lame, tired feeling, which would necessitate frequent change of position. Improvement was sometimes abrupt, at other times it would require a few hours. He was often completely paralyzed in the morning, and in a few hours would be engaged in doing a hard day's work, not suffering any inconvenience from having been completely paralyzed just shortly before. His appetite and general health were usually very good immediately after the return of motor power. His last attack came on during a Saturday night and continued until the following Monday at 4 a.m. There was nothing unusual in the manifestations or behavior of this attack until at the hour mentioned he told his wife, who was nursing him, that he felt very badly, and expressed a wish to be turned on his side, which was done, when he requested to be quickly turned to his former position, and he was dead.

CASE XII.—Mr. F. G., another brother of the preceding patient, had colic for one week, when he was taken with periodic paralysis one evening and died the following evening, aged 43.

CASE XIII.—Mrs. J. F., a sister of the preceding brothers, gets attacks of headache and mild attacks of paralysis.

CASE XIV.—Mrs. G. H., a daughter of Rev. E. O. G., is a frequent sufferer from periodic paralysis. Her age is 22. She gives positively no premonitory symptoms. Overeating, exertion, excitement, or worry does not seem to predispose to an attack. Attacks are more frequent in damp weather, and to lie in a draft at night is sure to precipitate an attack. When paralyzed she is simply helpless, and has no pain anywhere. She may suffer from some sore throat, and from an accumulation of mucus in the bronchial tubes. The paralysis may be partial or local, and appetite remains good. There is no nausea, nor vomiting during the height of an attack, nor during the period of improvement, which was not uncommon in the case of her father. She does not seem to be affected by the kind or quantity of food taken.

The following note was made March 3, 1903, at 10 a.m.: She retired the evening before at 11.30 feeling well except for being slightly tired. During the night she awoke and was paralyzed. On examination the patient complained of little pain and soreness throughout the body. There were no sensory symptoms, no numbness, tingling, nor formication. There was no muscular twitching. Muscles of the neck and extremities were paralyzed; tactile and painful sensations normal; reflexes and faradic excitability in the affected parts abolished. Pulse regular, full; tension normal. Cardiac impulse strong, apex beat within nipple line, cardiac sounds clear, no murmurs. Respirations 21, not labored, but she was unable to take a deep breath; capillary circulation active. Temperature, normal. Pupils reacted to light and shade very readily. She has little headache; eyes not sensitive to light. She had full control of sphincters. Urinalysis and microscopic examination of urine were negative. Leukocytes 8,800; otherwise nothing abnormal was noted in the examination of the blood.

CASE XV.—H. F., of the second generation, the son of Mrs. J. F., is one of the worst subjects of this disease now living. He gives no specific nor alcoholic history; had most of the diseases common to childhood. He began to suffer from sick-headache at 9. Had frequent attacks which were most common during damp seasons. At 16 he ceased to have headache, and began to have attacks of paralysis. The attacks in this case are usually preceded by a tired, dull, irritable, sleepy feeling. There is usually some twitching of the muscles of the neck, trunk, and extremities, beside a dry, stuffy feeling in the head; also a slight cough, injected conjunctiva, and a numb feeling which gradually extends over the entire body. If he retires with these symptoms he is almost sure to wake up and find himself paralyzed. If the paralysis is incomplete, the flexors are more affected than the extensors. The muscles of the face are, at times, partially paralyzed; swallowing and speech may be affected, and breathing is often labored, which is aggravated by an accumulation of mucus. Any gastric disorder is apt to be followed by an attack of paralysis. He has had involuntary

movements of the bowels as well as incontinence of urine during an attack.

The following note was made January 25, 1903, at 10 p.m.: He felt the onset of an attack and was scarcely able to walk. He complained of a dull, stuffy feeling in the head, slight cough, and a general numb feeling. He also felt impelled to move all the time. His color was good, no cyanosis, no jaundice; had a few rales in the chest; vasomotor reflex marked; pupillary reflex active and knee-jerk slightly increased. The flexor muscles were weaker than the extensors. The temperature was normal, pulse 70, respirations 22. He took sodium bromid 2 gm. ($\frac{1}{2}$ dr.) and caffein citrate .065 gm. (1 gr.). This dose was repeated in one and a half hours; he retired and a few hours later awoke and found himself all right.

The following morning at 8.30 his temperature was 98°, pulse 70, respirations 22.

He had slight headache and general muscular soreness and tenderness, which was a common sequence in his case.

He has two brothers and one sister. One brother and the sister got headache after the age of 9. The brother ceased to have headache at 16, then had a few attacks of paralysis—none since. The sister ceased to have headache at 20, and afterward had frequent attacks of paralysis.

Pathology.—We are still ignorant of the pathology of this disease. A necropsy would doubtless reveal much that would explain the pathology of this disease, but none was thus far obtainable in this family. No other deaths have yet been reported to my knowledge. Theories have been advanced but none has yet been proved by demonstration. Some observers believe this condition is due to a toxemia affecting the nerve-endings of the motor fibers in the muscles. Goldflam also discovered vacuolation of some of the muscle fibers.

Personally I always regarded this condition as a vasomotor neurosis, affecting the blood-supply to the anterior horns which are almost wholly supplied by the anterior spinal artery.

I do not know that vasomotor nerves have ever been demonstrated in the vessel walls of the spinal cord, but vasomotor centers do exist in the anterior horns, and it is not likely that the arteries supplying so important a tissue as is found in the anterior horns would not be supplied with vasomotor nerve regulating influence. The nutritional changes noted in the muscle fibers may be due to disturbance of function of the trophic cells. The exciting cause, be it toxic, may have a direct influence on the vasomotor nerves regulating the blood-supply to this part of the central nervous system, or it may have an indirect influence, when due to gastrointestinal disturbance, or when paralysis results from sleeping in a draft.

The progressive permanent paralysis, which occurred late in life in two of the cases here reported, I always thought was likely due to a slow progressive degeneration in the anterior horns, due to frequent disturbance of nutrition and the atrophy of the muscles due to involvement of the trophic cells. Only a careful necropsy will determine the validity of this line of argument.

The paralysis in this disease always appeared to me as closely allied to the paralysis which sometimes occurs in migraine or hemicrania, such as oculomotor paralysis, aphonia, and paralysis of one extremity or of half of the body.

Treatment.—Believing that the attacks of hemicrania and paralysis in this family have a common cause, and on the assumption that both conditions are a vasomotor neurosis, I resolved to try large doses of bromid with caffein. I began this treatment 18 years ago, immediately after witnessing a death reported in this paper. The dose of bromid usually consisted of 2 gm. ($\frac{1}{2}$ dr.) potassium bromid with .065 gm. or .130 gm. (1 gr. or 2 gr.) caffein citrate; and this dose was repeated, if necessary in one or two hours.

This seemed to give unmistakable relief, so that from this time on most of those who were subject to this disease kept the medicine on hand, and, without exception, these patients were certain that while it did not cure, it did have a very decidedly abortive influence, and hastened improvement, when taken during a paroxysm.

Prior to this nothing was attempted but prophylactic

measures when exciting causes were known. Prophylaxis is an important matter with some, for if, in the presence of severe acute catarrhal inflammation of the respiratory apparatus, one should be so imprudent as to indulge in heavy food, life might soon be in danger.

In this respect this report differs from all others I have read. In one case reported, Rev. E. O. G. took one or two doses during the evening if he felt an impending attack and for a period of two years he did not fail to meet a pulpit appointment. He was then taken with a febrile affection which he attributed to the medicine taken, and from this time he took no more bromid. During the two years he took the medicine, he felt the attacks often. After his febrile attack he was free from the disease for about a year. He was then taken with an attack on a Saturday evening, which continued until Monday at 4 a.m., when he died very suddenly. This was the first attack after he had discontinued the bromid. He did not take the bromid unless he felt an impending attack, which he was always able to do.

A number of these patients have told me that they feel an improvement invariably, a half-hour after taking the medicine. I do not know of a single instance in which a severe attack developed when the bromid had been taken during the onset.

Small doses of bromids have been used by other observers with apparently no benefit, but I never prescribed small doses, only large ones with a view of making a decided impression on the nervous system. The frequency of the attacks does not seem to be affected at all by the use of the bromids.

Those suffering from hemicrania seldom take anything for fear their headache may cease and they become subject to attacks of paralysis, for in a number of the cases reported it has plainly been shown that these attacks are but the equivalent of an attack of paralysis.

SOME PULMONARY LESIONS PRODUCED BY THE BACILLUS OF HEMORRHAGIC SEPTICEMIA OF CARABAOS.

BY

PAUL G. WOOLLEY, M.D.,

of Manila, P. I.

Pathologist, Government Biologic Laboratory.

The lesions caused by the bacillus of hemorrhagic septicemia in cattle are legion. Subcutaneous and lymphatic suppurations, gastrointestinal ulcerations, and hemorrhages, widespread subcutaneous and subserous edemas, pathologic joint conditions, and varying types of pulmonary changes are frequently seen, sometimes alone, but usually accompanied by ecchymoses.

During the epidemic of hemorrhagic septicemia through which the government carabaos have lately passed, we have had opportunities to study many of these lesions.

Among the animals dead of the prevailing infection was one in whose lungs were lesions so like those of contagious peripneumonia that we were at some loss to make a positive diagnosis until careful pathologic and bacteriologic examinations had been made. Unfortunately, the autopsy had to be done under such unfavorable circumstances, and so hurriedly that there are necessarily some gaps in the protocol that cannot be filled, yet the known clinical facts, together with the bacteriologic and pathologic findings leave no room for doubt as to the nature of the disorder.

CASE I.—Pleuropneumonia. The animal was a fairly well-nourished carabao that had arrived at Manila (from Shanghai) 3 days prior to coming under our observation. It had seemed well and had acted in a perfectly normal manner since landing. On the evening before death the overseer had noticed nothing peculiar about it. There was no cough, and it ate and drank. The next morning the animal was found dead in its stall.

Since its arrival in Manila it had been with the rest of the

herd that had come from China at the same time, and while a few of these died, it was proved that they had died of hemorrhagic septicemia, and they had showed no lesions similar to those found in this animal. Since its death other members of the herd have died also, but in these there have been no lesions resembling pleuropneumonia.

The autopsy was done early in the afternoon of the day of death. On opening the body there was none of the subcutaneous gelatinous edema that has been so characteristic in the cases of hemorrhagic septicemia which we have studied. Neither were there any extravasations of blood in the subcutaneous tissues.

The abdominal cavity showed nothing remarkable, though the liver presented a number of abscesses in which flukes were found.

The remarkable lesions were in the thoracic cavity. When this was opened, a quantity of pale, clear amber fluid gushed out. In the residual liquid in the pleural cavities were some fibrinous shreds. The pleural surfaces were, for the most part, covered with a wellmarked fibrinous exudate, which could readily be peeled off, leaving a reddened, congested, roughened surface. The pleura itself was thickened and edematous. The subpleural tissues were in places filled with a serogelatinous exudate, and this condition was most marked under the mediastinal surfaces. The mediastinal connective tissues were completely filled with the same gelatinous material. The pericardium in its whole extent was lined with a fibrinous exudate, and its surfaces were separated by a serous fluid containing flakes of fibrin.

The lungs were not collapsed, and contained air only in the anterior and apical portions. Cut surfaces of the organs were firm and red, in some places very dark, and divided by fine and coarse bands of what looked like edematous connective tissue, so that the whole section had a marbled appearance. These bands varied from $\frac{1}{8}$ inch to $\frac{1}{2}$ inch in thickness and were in places quite saturated with serum, and even honey-combed with small cystic areas filled with a bluish-looking, gelatinous material. There were no hemorrhages in the thoracic organs, except in the heart. The right auricle of this organ was nearly black with large and small confluent hemorrhages. The mediastinal and preapical glands were enlarged, pale, and showed areas of necrosis.

Bacteriologic Examination.—Smears made from the heart's blood, from the liver, lungs, and preapical lymph-glands, showed a considerable number of small, oval, polar-staining bacilli. Cultures were made on agar, from the heart's blood, and from the bands in the lungs. Within 24 hours small, translucent, shining, moist colonies appeared on the surfaces looking like dewdrops. The organisms comprising these colonies were short rods, which when stained with $\frac{1}{2}$ carbol fuchsin or carbol thionin, showed well-marked polar staining. All the cultures made at autopsy gave the same kind of growth, and the organism was present in pure culture. The other features of this bacillus were that it did not stain by Gram's method, did not form spores, did not liquefy gelatin, and did not coagulate milk. In peptone solution, after 24 to 48 hours' growth at 37° C., it gave a well-marked cholera-red reaction.

Intrapleural injection of small amounts of broth culture (25 cc., 48 hours' culture) killed a guinea-pig in something less than 20 hours, and a postmortem examination of the dead animal revealed a well-marked fibrinous pleuritis, a fibrinous pericarditis, and hemorrhages into the pericardium and pleura. The lungs were partially solidified. The pancreas was surrounded by a gelatinous tissue which produced the impression that the organ had been embedded in a perfectly clear gelatin. The organism was recovered in pure culture from the heart's blood and pleural exudate, and smears from the heart, liver, kidneys, spleen, and lungs showed apparently the same organism.

Pathologic Examination.—In sections from the lungs the air spaces contained a granular material, and an occasional leukocyte or desquamated endothelial cell. The bloodvessels were all intensely congested, and filled with red blood cells. The mucous membrane of the bronchi was desquamated in some places, and these tubes contained a fibrinopurulent material. The bands seen at autopsy were, for the most part, composed of fibrin and leukocytes, but the largest of them, those extending down from the pleura, also contained a considerable amount of fibrous tissue. The smaller bands ran in all directions across the lung tissue. Such bands were rather sharply outlined from the surrounding edematous lung tissue, but they contained the hyaline, degenerating remains of the air cells which they had involved, and which were filled with leukocytes. It was in these fibrinopurulent bands that the bacteria might be seen in sections stained with methylene blue and eosin, and it was from one such band that the cultures described, were obtained. Occasionally about such bands a wellmarked leukocytic infiltration was observed, so that the tissue appeared like that in the gray stage of hepatization in pneumonia; in such cases the bacilli were present in the air spaces. These bands were not homogeneous. Some were comprised of nearly solid masses of leukocytes and fibrin, but many of them were formed of an external layer of polymorphous cells, leaving an intermediate clear space, free of cells, but across which fine filaments of fibrin were interlaced. Occasionally, too, other larger cells of endothelial origin were enmeshed in this fibrinous lace-work. Then, too, the conges-

tion, which was general, was more intense about these bands. There were no signs of periarterial fibrosis, but on the contrary, the bloodvessels seemed normal save for the congestion.

The liver shows no more than wellmarked congestion of the centers of the lobules.

It seems that this may be considered a pure case of infectious pleuropneumonia, and not one of the contagious type.

The facts in the clinical history seem to support Theobald Smith's theory of the etiology of the disease. The ocean trip, a rough passage, rough handling, all would tend to produce the primary bronchopneumonia and emphysema, upon which the later states follow. In this case, the bronchopneumonia was perhaps the first stage of the disease. The presence of a very infectious disease in the same herd would account for the presence of the causative organism in the lungs of the infected animal. But even without the bacilli of hemorrhagic septicemia in other animals, the organisms might have invaded the weakened animal from the upper respiratory tract, where they might have been present, and probably were, if the same conditions hold here as in the cattle that Moore examined. There is, too, a very good reason for the presence of these organisms in cattle here, if, as has been proved in other places, they are present in water. The health of the carabao, or water buffalo, depends to a great extent upon the daily bath, which is usually taken in a wallow, in the thick mud of which the animals immerse or embed themselves until only the ears, eyes, nose, and horns are visible. Frequently the whole head disappears from sight. Habits of this sort offer every inducement for such organisms as are present to enter the animal. However, we have not been able to demonstrate the bacillus of hemorrhagic septicemia in the water or soil.

CASE II.—The animal was very weak when first observed, but in fair physical condition otherwise. The conjunctivas were somewhat congested, respiration was rapid, and the feces normal. Temperature 40.2° C. When taken off the truck at the laboratory it staggered a few steps and fell on its side. There were numerous bruises on the body, probably the result of a rough voyage across the China Sea. It ate food when placed near it and also drank, although it did not apparently suffer from thirst. It had no cough. During the next few days it became a little brighter and somewhat stronger. On June 6 it was again weak and could not stand up, the hind legs seeming to be especially feeble. It gradually became weaker and diarrhea developed, but with no traces of blood or mucus. Death occurred on the ninth day after landing.

The postmortem examination showed a few patches of subcutaneous edema on the sides. There were a few small pericardial hemorrhages about the base of the heart. The lungs showed a number of subpleural nodules, which on section exposed granular areas, similar to those seen in bronchopneumonia, in the stages of red and gray hepatization and suppuration. The suppurating areas were filled with a thick, granular, greenish-yellow, sticky material.

Cultures were made from the lung abscesses on agar and blood-serum. After 24 hours at 37° C., the agar tubes showed a growth of small transparent grayish, round colonies. The blood-serum showed a very scanty growth of small colonies. Transfers were made from these tubes to various other media, and plates were also made. After a careful study of its morphologic and cultural characteristics, it appeared that the organism under consideration was a short bacillus with round ends, and nonmotile. Its measurements varied between 1.0 micron and 2.0 microns in length, and 0.3 micron and 0.5 micron in thickness. The largest forms were seen in glucose media, the smallest on potato. From the animal blood it showed well-marked polar staining, although this was not so distinct in organisms grown on artificial media. It was stained easily with the usual watery anilin stains, but was not stained by Gram's or Weigert's methods. The rods, as a rule, occurred singly, often in pairs, occasionally in chains of 5 or 6 individuals. The appearance of the growths on the usual culture media was in no way characteristic. The colonies on agar were small, grayish, transparent, and well circumscribed, with little or no tendency to spread. On all the solid media approximately the same appearance was noticed. In gelatin, liquefaction was caused. In bouillon, a granular deposit was formed on the sides and bottom of the tube. During the first few hours of growth the whole medium was faintly clouded, but as the sediment was deposited, the liquid became clear. After a few days the sediment became viscid, as could be shown by shaking the tube, when the precipitate rose, not in floccules, but in threads. In Dunham's peptone solution the same general characteristics were observed as in broth, but the growth was not so abundant.

The cholera-red reaction was produced by the addition of sulfuric acid (free from nitrites) at the end of 24 to 36 hours. No phenol was detectable. No gas was produced in solid glucose or lactose media, and the reaction of the media was not changed. Milk was unaffected, even after 2 weeks. No acid was produced, no coagulation occurred, and there was no reduction of the litmus. Stab cultures in solid media showed nothing remarkable; the growth followed the line of inoculation closely, with no tendency to spread, and extended to the bottom of the punctures as a finely granular growth composed of small colonies. The surface growth was small, just surrounding the point of entrance of the needle.

This organism was pathogenic for monkeys, small birds, rabbits and guinea-pigs, when injected subcutaneously, intravenously, intrapleurally or intraperitoneally. Death was the result of a septicemia or acute seropurulent inflammation with subsequent septicemia.

Sections of the lungs in this case showed a general edematous condition with wellmarked congestion. There were some areas of emphysema. The peribronchial tissue was infiltrated with red blood cells and leukocytes, which filled the air spaces and which were enmeshed in a network of fibrin. Occasional bands of fibroid tissue were met extending down from the pleura. Some of these showed infiltration with leukocytes. There was no perivascular fibrosis.

The pleura itself was thickened but showed no evidence of chronic inflammation. The tissue beneath it was, however, infiltrated with small round cells and showed wellmarked new vascular formation.

CASE III.—A native horse. In this case no clinical history was obtained. The lung lesions corresponded with those in Case II. There was likewise a gelatinous edema about the base of the heart. Cultures were made from the small abscesses and nodules, and in smears and cultures an organism was present that agreed in every detail with the ones from Cases I and II.

The sections from the lungs showed congestion. The air cells were either widely distended, or filled with a fibrinopurulent material or a granular material that resembled coagulated albumin. As a whole, the fibrous tissue in the lungs was increased. There was a considerable subpleural accumulation of well-formed granulation tissue, and there was an increase of peribronchial fibrous tissue. The bronchi were filled with fibrinopurulent material in some cases mixed with the desquamated lining cells of those tubes. In some places, too, the lining mucous membrane of the bronchi was thickened. Extending down from the pleura into the pulmonary tissue were some considerable bands of fibrous tissue, but in this case they showed but little round-celled infiltration and no leukocytes.

The smaller consolidated areas resembled the gray stage of hepatization. The larger ones were veritable abscesses in the sides of which the hyaline remains of air spaces could be seen, but in the center no such remnants and only the nuclear material and cells undergoing karyorrhexis.

These cases then were examples of the invasion of the lungs by the bacillus of hemorrhagic septicemia. How they gained access to the lungs we cannot state with absolute certainty, but we suspect that they came from the upper air passages and that the pulmonary invasion was subsequent to a bronchitis in all 3 cases. It is tolerably certain too that in all of the cases, death was the result of a terminal septicemia incident to the entrance into the blood stream of the organisms which were present in the lesions of the lungs.

TEMPORARY SUTURES FOR HEMOSTASIS.

BY

WILLIAM C. WOOD, M.D.,

of Gloversville, N. Y.

Gynecologist to Nathan Littauer Hospital, Gloversville, N. Y.

The control of arterial hemorrhage may be easy for the hospital surgeon surrounded by trained assistants and supplied with a multitude of special instruments, but to the general practitioner, miles away from home perhaps, and armed only with his pocket case, with only the assistance that frightened and excited friends can render, it is a serious thing. Even if professional assistance can be had, it is usually confined to one medical man, who must give his whole attention to the perhaps unfamiliar matter of giving ether.

An easy, practical, sure method of controlling bleeding suggested itself to me a few years ago, and it has proved so satisfactory in so many cases that I wish to present it to the profession. It may be that it is not original with me, yet I have never seen mention made

of it in the textbooks, nor has it ever been spoken of to me by any surgeon I have met.

It consists of the application of a temporary deep suture passing under the artery, either in the wound itself or above it; this suture may be of catgut and be left till absorbed, or of silkwormgut or silver wire, or in a great emergency, of strong linen thread; in the latter cases it may be removed as soon as the danger from bleeding is over or the artery is tied in a more regular way. Thus, with little more danger of sepsis than would result from giving a hypodermic injection, bleeding can be controlled and the doctor have time to proceed with preparations for an aseptic operation if one is necessary.

The following case reports will illustrate the practical application of this method:

CASE I.—A girl, aged about 24, was walking on the railroad track when she was run over by a switching engine; the wheels passed over her left arm, crushing it nearly to the shoulder. Some time after, she was found lying on the track and was taken to the Nathan Littauer Hospital. It was, of course, necessary to amputate the arm at the shoulder-joint.

The patient was anesthetized, the arm scrubbed carefully, and an incision made through the deltoid, making the external flap, the humerus was disarticulated and the knife then carried down close to the bone as far as desired to make the inner flap. Before cutting this off, however, a long curved needle, threaded with coarse catgut, was passed down deep into the tissue of the flap and tied tightly in a bow-knot. The flap was then cut off and the arteries tied at leisure, the provisional suture untied and removed, and the flaps brought together with sutures. The amount of blood lost was surprisingly small, and the patient made a prompt recovery.

CASE II.—I was called one night by Dr. McCulloch of Gloversville, N. Y., to see a man who was bleeding arterially from an ulcer on the forehead, which had been treated with an arsenic paste. Pressure had failed to stop the blood, and artery forceps would not hold. Two deep sutures of catgut were placed just outside of the border of the ulcer in the healthy skin, which stopped the bleeding; the sutures were left till absorbed.

CASE III.—A young man while cutting bands on a threshing machine received a deep stab wound in the biceps muscle, severing an artery. His fellow workmen corded the arm but not enough to control the hemorrhage and when he arrived at my office, coming from four miles out in the country, he had lost about all the blood he could well spare; I bared the arm, gave it a hasty scrub with hot water and green soap and then with a long curved needle threaded with silkwormgut took a deep stitch in the muscle about an inch above the wound, applied an antiseptic dressing and sent him home with orders to return the third day. He came back the next day complaining bitterly of the pain caused by the suture, which I made a pretense of loosening, advising him at the same time to bear it a little longer, which he did till the fourth day, when I removed it.

If this method had not been pursued in this case, a very much collapsed patient would have had to wait until I could have secured assistance; he would have had to take an anesthetic; he would have had a large wound instead of a small one; and he would have been disabled a much longer time.

CASE IV.—A physician who was miles away, phoned to me about midnight stating that he had a case of secondary hemorrhage in a patient whose hand had been frightfully burned from grasping a live wire, and that he could not get his artery clamps to take hold nor could he control it by pressure. I suggested that he use the deep suture, which he did, controlling the bleeding till morning when he was able to cut down upon the artery and tie it in what seemed to him to be the more scientific manner. He did not remove the provisional suture until the other was secure.

The foregoing instances are enough to show how generally useful and how successful this method of controlling bleeding is and it is therefore not necessary to multiply reports of cases. It is an emergency method and used as such will not only add to the comfort and give relief to both patient and doctor but its promptness will save lives, which is of much greater consequence than more finished or brilliant operative procedure.

The American Federation of Reciprocating Examining and Licensing Medical Boards will hold a meeting at the Great Northern Hotel, Chicago, Tuesday, May 24, 1904. A cordial invitation is extended to the various state boards to send delegates of representation.

A PLEA FOR THE MEATUS.¹

BY

A. NELKEN, M.D.,

of New Orleans, La.,

Consultant, Clinic Genitourinary and Venereal Diseases, Touro Infirmary.

In a recent paper² I used the expression: "A cut meatus and all the woes which that entails." Since the publication of this paper I have been asked several times to explain why the results of a cut meatus should be referred to as woeful.

Both in hospital and private practice I have frequently seen men upon whom a meatotomy has been done. Not a small number of times I have performed this trivial operation myself. A little cocaine, a cut with knife or scissors, and we have an urethral opening through which we can work without difficulty. Among medical men the opinion seems to be general that meatotomy is inconsequential and can be done without hesitancy whenever it seems to be indicated. On looking up the available literature on the subject, I find but one writer who disapproved of the operation. Most authorities do not hesitate to recommend it whenever a narrow meatus interferes with instrumental examination or treatment of the urethra. Lydston states that meatotomy is almost invariably beneficial in cases of genitourinary irritation, whether stricture exists or not.

Great stress is always laid upon a narrow meatus as a cause of persistent urethral discharge following gonococcal infection.

The advice is always given that in operating, the opening should be made somewhat larger than ultimately desired, as the tendency in healing is toward contraction. This recommendation is frequently followed so well that I have seen meatuses which would admit readily a 36 Fr. sound. Sometimes the result of the operation is actually an artificial hypospadias.

I do not mean to be placed on record as believing that meatotomy is never justifiable. An abnormally small meatus (under 18) may require division for the treatment of pathologic conditions in the urethra or bladder.

Stricture of the meatus (due usually to balanitis or ulcer) is a pathologic narrowing in which surgical interference may be justifiable. But I believe that the responsibility of a moderately contracted meatus in the gonorrhea is frequently exaggerated and, certainly, we should eliminate other possible factors before the meatus. In the last two years—that is, that the organ has begun to question the expediency of the operation. I have done but one meatotomy, and during blood and pleurae failed to recognize the necessity of this kidneys, spleen, were of chronic urethritis.

Pathologic Examination. Contracted meatus I mean one which air spaces contained a gr and 22 Fr.

leukocyte or desquamated element on 1,000 measurements, were all intensely congested. The mucous membrane of the meatus to be 24 of the some places, and these tubes to find an adult whose urethral material. The bands seen at aut measurement will often composed of fibrin and leukocytes to be capable of considerable amount of fibrous tissue. meatus will admit a 20 all directions across the lung tissue. use occasion for cutting sharply outlined from the surrounding or treatment of the but they contained the hyaline, degenerated cells which they had involved, and leukocytes. It was in these fibrinopure, the acorn tipped bacteria might be seen in sections stained with eosin, and it was from one such described, were obtained. Occasional wellmarked leukocytic infiltration went there is always tissue appeared like that in the gray picture of large calipneumonia; in such cases the bacilli spaces. These bands were not homoprised of nearly solid masses of leukocytes chiefly responsible of them were formed of an external treatment of gonocells, leaving an intermediate clear light of our present across which fine filaments of fibrin sionally, too, other larger cells of al Society. enmeshed in this fibrinous lace-work hea, New Orleans Medical

knowledge of the subject, is the absurd statement that gleet is *always* dependent on urethral stricture, Otis himself has, in his urethrometer, devised an instrument which, properly used, would save many a meatus from division in order to facilitate the passage of sounds for the cure of stricture which exists only in the surgeon's fancy. The Otis urethrometer is too well known to require description. Closed and with rubber cover it will readily pass an 18 meatus.

It should be introduced as far back as the bulbomembranous junction and then opened until the patient feels the distention of the canal. According to Otis this occurs as a rule when the dial records a dilation of 32. Later authorities consider 30 as the average. However it is well not to be too arbitrary in fixing a limit. I have seen men of ordinary development who complained of no discomfort with a dilation of 40 Fr. to 45 Fr.

On slowly withdrawing the instrument while dilated, the exact position and caliber of any stricture can be defined. Otis, who was a faddist on urethral stricture, said that, as the urethrometer has no shoulder to catch on withdrawing as has the bulbous sound, we might overlook stricture of large caliber. It may be laid down as a fairly safe rule that any stricture which permits the urethrometer, dilated to 30 Fr., to pass unnoticed, is a stricture of very questionable importance.

The urethroscope is essential in the precise treatment of chronic urethritis. While the larger caliber tubes necessarily give the more exact results, still I have done very satisfactory work with as small a tube as No. 20, using direct light. The shorter the tube, other things being equal, the better the view, and the penis can be so crowded down over a fairly short tube, as to bring the entire anterior canal under observation.

Nor does the presence of stricture necessitate the sacrifice of the normal urethral orifice. It is not my intention to discuss this condition, save in reference to meatotomy. In cutting operations there can rarely be a good reason for dividing the normal meatus. When we desire to employ gradual dilation, the ordinary metal sound can be used up to the caliber of the meatus. Beyond this point dilation can be continued with the urethral dilator. The Oberländer, covered, will pass through an 18 meatus, and in my hands has given very satisfactory results in the treatment of urethral stricture. Superior to the Oberländer are the Kollmann and Powell dilators. They will pass a 22 opening.

When the meatus will admit of their employment, these latter instruments, especially the Powell, which opens evenly and not cone-shaped, as does the Kollmann, give entire satisfaction. Dilators have the advantage of being easily introduced, are painless, and permit more gradual dilation than do sounds; although with them, pressure is not so uniform. So much for the diagnosis and treatment of pathologic urethral conditions without division of the normal meatus.

If, however, no undesirable results followed this trivial surgical procedure, we might reason that its convenience is sufficient excuse for its performance. Let us consider whether this is the case.

One can hardly question that the fan-shaped spraying stream of the man whose meatus has been cut is disagreeable to its possessor. Patients have repeatedly told me that sexual intercourse is not as pleasurable after the operation as it was before.

But these objections, while of weight, do not compare in importance with the fact that a small meatus is a protection against urethral infection. The apparent immunity of some men, in spite of a very lax sexual life, may, I believe, often be explained on this ground. My attention was early attracted to the fact that men upon whom a meatotomy had been done were prone to develop a urethritis after almost every impure sexual indulgence—not a true gonorrhea, as a rule, but a simple urethritis, due to contact with a septic or irritating discharge in the female acting on a canal whose normal

resistance had been already weakened by disease or by excessive instrumentation.

I have been able to find but one writer to agree with the foregoing conclusions. In Park's "Surgery," Belfield says: "Division of the meatus should never be performed if that orifice admits a 22 Fr. bulb; for while the operation is trivial, the result is a gaping deformity of the natural nozzle-shaped orifice, whereby the expulsion of urine is unfavorably influenced and the patient's liability to gonorrhea and urethral chancre undoubtedly increased."

This forceful opinion succinctly expresses the objection to the operation. So convinced am I that its results are malicious that I think a plastic operation frequently justifiable to restore the normal caliber of a meatus disabled by free meatotomy.

SPECIAL ARTICLES

MEDICINE AN EXACT SCIENCE: QUERY.

BY

JOSEPH CLEMENTS, M.D.,

of Nutley, N. J.

Member of the American Association for the Advancement of Science.

It is confessed by savants that there is but one little bit of absolute knowledge—the to-and-fro motion of ether waves, alike in every part of the universe—the results of the achievements of the past. Knowledge is largely relative.

In an editorial of the *Journal of the American Medical Association*, August 10, 1903, the writer says: "If one critically examines the number of points positively established in medical science he may be surprised to find how few they really are. Every other branch of science is in the same condition, more or less, according to its age and nature." Marked progress, however, obtains in all departments of science.

Take astronomy, for example. The sun 50 years ago was estimated to be 95,000,000 miles distant from the earth. Today it is less than 94,000,000, and our planet is considerably less than the 8,000 miles in diameter as measured at that period. Now, while advance in science has secured this greater exactness, the basic principles—the central body, the motion of the planets, their orbits, the solidification phenomena—all these were points established long ago, and progress had been along the lines of exactness in interpretation and adjustment of these.

It is so in almost all departments of science. In medicine, however, fewer of the basic essential principles may be said to be established. This is so because it cannot be claimed that any consensus of view and doctrine prevails in regard to the principle, alike fundamental in medicine as a science, and operative in organic phenomena. The physics and chemistry are points settled mainly as to their role in the phenomena, but the "something else not identified with any known physical and chemic activities" (Simmons), which is not distinctly recognized and allowed for, seems to be a point not positively established.

Leaving out biology and medicine, or, more specifically, biology in its relation to medicine, and the great family of sciences may be said to be established in regard to their general basic principles, and progress in exactness of interpretation and utilization of these to all practical ends, is the watchword of the future.

However, it remains for medicine to establish its foundation principle, to bring it into distinct recognition, to interpret its facts, and thereby step to its place and evidence its entity as among the foremost and the most exact of the sciences.

The question of the hour is in regard to the force operative in living things, unique to protoplasm, and specific to organic processes. Specifically the nature of the potentiality, or the terms by which it is designated is not a matter for concern and adjustment here and now, but the fact that life phenomena, organic processes, cannot be accounted for on a hypothesis of chemistry and physics, or effected potentially by their sole

energy must be recognized and confessed, or disproved. This is the bar to medical progress.

The anomalous conditions in medicine are, that while acknowledging—for who does not?—that protoplasmic activities embrace the whole dynamics of organic phenomena, yet hypotheses are advanced and acted upon ignoring the magisterial role of protoplasmic potencies, and hypothesizing other potencies—pathogenic properties in so-called germs of disease, and active principles in drugs; the one active in origination of, and effective in the activities constituting pathologic conditions and processes; the other therapeutically operative in "cure." These I antagonize as untenable and unscientific.

As stated, these hypotheses are simply postulated and acted upon, and are not defended when challenged, being well nigh disclaimed when confronted.

As a result of these conditions and theories, pathology and therapeutics are unsatisfactory and unreliable. Different schools and systems of medicine obtain. Bacteriology is in much, work in the twilight; disagreement in diagnoses of pathologic conditions and therapeutics, advised in cases toward which all eyes are turned, and on the part of men equally able and eminent, are not infrequent, engendering scepticism in the people, who run to quacks—it is said there are 100,000 of them in Germany alone—and within the profession, so that there is almost a stampede to "mechanical therapeutics," which at least affords spectacular means of drawing the renegade patronage, and so relief from the burdensome conditions is secured. Nor is this an exaggerated picture, or the painting of it a pleasurable task, save that these are facts in the case.

The position assumed and maintained is, that these ought and need not be the conditions prevailing; that in its potencies and possibilities medicine is and may become actually an exact science, thus commanding the confidence and esteem of all men; as a science ranking among the most exact, as a profession commanding universal trust. The task of evidencing and maintaining this position is before us.

Did not Descartes, who classed all knowledge into three sciences, make medicine one of the three? In *Science*, April 10, 1903, there is a chart, ingeniously arranged by Professor J. McKeen Cattell, "showing the relation of the sciences." A moment's glance will make evident that a physician, while having some knowledge of the dozen sciences thus grouped, must have a pretty thorough mastery of more than half of these. Medicine includes two-thirds rather than one.

The basic principle in medicine is the fundamental principle in all biology, and its great question is the problem of the ages: What is life? Medicine need not blush that it, perhaps, more than any other science, has "points not positively established." The most momentous, the profoundest question of interest to the human mind, is the problem of life, with what it includes.

It is within the province of human intellectuality that there be an essay, dignified and in keeping with the importance and profundity of the matter, to solve this problem.

To "play with life" (Jacques Loeb), to isolate a process in organic phenomena and to excite its spectacular performance for a few hours beyond the usual after-death, and then jump to the confidence of indefinitely prolonging human life; to supply electrically a catalytic stimulus which seems to bring about parthenogenesis—where there is no need of it—and at once to conclude that "electricity and life are one and the same thing," are too puerile to associate with science in any way. Make the endeavor in keeping with the dignity of science, the publication of which will not incur the charge of "the vulgarization of science," (*Independent*, New York) and the regal nature of the phenomenon manipulated.

Meanwhile, until the "Great Biologic Problem" is solved, the point may be positively established, and a consensus of recognition obtained, that there is a force operative in living things; that protoplasmic activities are regal and dominant in organic processes.

That this fact of a special force in living phenomena is of scientific demonstration one need not fear to assert. In all vital motion it is demonstrable that the initiative is in and by the living matter, the bioplasm of the cells. Respiration, oxidation—biologic—depends entirely, in its initiative and operation

upon the protoplasm, and the activity of the cell respiration is operated and dominated by the activity of the cell protoplasm—cell respiration and protoplasmic activities are identical.

The union of gases with liberation of energy is oxidation in inorganic chemistry. In biologic or physiologic chemistry the phenomena are more complex, and the dynamics are more complex, too. Oxidation in the lungs is by union of gases there, CO_2 being given up and oxygen taken into the cells and passed on into the cellular and other tissues. This is by force of protoplasmic activity, driven by its energy.

The theory of force stored in food-stuffs is only evidenced and the force liberated and transferred in the presence of protoplasmic activity; the anabolism of physiologic digestive phenomena is not in evidence in the artificial, which is simply chemic. It is surely impossible not to recognize a force special to and operative in a magisterial sense in living processes, though it seems to put one under the ban to speak of vitality under the present pressure of the trend of scientific thought—a fact marvelous in view of the facts. The recognition of the sovereignty and unity of protoplasmic activities in which the property and force unique to protoplasm is on exhibition, competent and efficient to organic phenomena of every grade and class, is the key to exactness in medical science, and failure in this recognition is the secret and cause of the anomalies to which reference has been made. Thus in study and research in organic phenomena the conviction is forced upon one that these have their specific force, alike in all their grades, call it what you will. Other forces are in evidence—chemic, electric, etc.—cooperative and adjuvant, and always under the sovereignty of the life energy.

Dr. Huxley's physical basis of life, protoplasm, is thus the depository of the life force; here it may be said to be "resident," and in a sense in which such language may not be used in regard to any other cosmic matter of which we have knowledge. Whether the hypothesis that every particle of matter is endowed with a force or energy specific to itself be true or not, we are driven by the facts in organic phenomena, to the conviction that germ plasma holds a psychovitalistic force as an endowment, and in no such sense is a force predicable of any other known substance.

However this may be, medical facts interpreted in recognition of protoplasmic activity as the operative agency in organic processes will rid medical science of its confessed anomalies, and place it in the front rank with those that are approaching exactness.

In the exactitude which this would give the vague and ill-defined notions of disease now current would be impossible. What is disease? May it have been evolved from a germ? We have a "germ theory of disease." What can it mean? To name a disease and to add a drug as its "cure" is present day commercial medicine, on the theory that "for every disease there is a drug that will cure it."¹ Out of such notions has arisen the commercialism of a bottled and marketed pharmaceutical cure for the ills of the flesh, with the many millions of revenue to patent medicine makers and venders. This is a really serious and vital question in medicine, demanding some sort of interference. Disease is a process, a phenomenon. It is a congeries of organic processes, protoplasmic in origin and nature and effective operation; processes that are graded, progressive, and in a sense classic and unique; for instance, syphilis, pneumonia, tuberculosis, etc. These phenomena have causes and initiatory conditions, but are effected by the energy operative in all organic processes. Pathologic processes are abnormal physiologic processes.

Exact medical science will recognize more distinctly than appears to be general, that causes in disease are not the active agencies in the processes, and will specifically distinguish between that which has, in the causal sense, given rise to, or provoked the phenomena, and the processes themselves. These are protoplasmic activities; they are neither bacterial nor chemic, save in a sense causal or provocative and adjuvant to the protoplasmic, which are solely regal. So that to cause disease and to originate the phenomena, scientifically speaking, have a world of difference between them, and it is vital that the distinction be distinguished.

¹ In a popular medical journal.

Causes in pathologic phenomena may be inert, active, or chemic, the two latter may not be synonymous. A microorganism, as a cause in disease, is active in its own physiologic functions, a microbe, even, must eat to live. In the generation of gases and liberation and transformation of energy in these microorganic vital functions, we have, additional to the contact presence of the microbic body, the active chemistry of these functions. Also in the effect of miasmatic inhalations, and in defective or abnormal phosphoric oxidation—largely causal in tuberculosis—we have initiation of chemic operations. In these, with the atomic and molecular changes accruing, we have a large account to place to the credit of the chemic side of this summary of causal determination in disease.

Causes in pathologic conditions may have a further relation to the processes to which they have given rise, and a closer relation, in becoming cooperative and adjuvant, rendering more complex as well as more violent, the abnormal processes in operation. Is it not an error to suppose that causes in disease are always active, that the splint or bullet always carries in microorganisms which are active in the pus formation and inflammation which follow? Sterilize the cinder particle and drop it in the eye and the same disturbance will result as from a bit of cinder from the smokestack of the engine. A microorganism, its life functions, its only properties and activities (bacteria do not make vinegar as bees may be said to make honey), may be causal in disease, its life activities, with chemistry involved, being concomitant and also adjuvant to the pathologic processes which its irritative presence may have occasioned. Just so a drug, mineral or vegetable, inert in itself, may become active in chemic processes which arise on its combination with other matters within the vital domain, the inert thus becoming active. It is a principle in biology that vital motion is modified by every substance that has contact relation with the living matter, and it may be added that the kind and degree of the modification or change will be determined by the nature of the matters coming into juxtaposition. An inert substance, simply by its irritant contact may stimulate or modify protoplasmic activity. The role of microorganisms, active in their life functions, and that of drugs, with the augmented chemic processes accruing, reveal large possibilities in causal phenomena, and furnish the key to the etiologic interpretation, and the basis of therapeutic science.

But these causal agencies leave intact protoplasmic activities as the dominant agency and entity, equally in pathologic and physiologic processes.

I submit the question, does not this furnish a more rational and scientific interpretation of the phenomena under discussion than the impossible hypotheses of pathogenic properties possessed and actively exerted by microorganisms upon superior organisms, and of drugs, of imaginary curative properties and therapeutic potentialities?

As Virchow himself came to realize in his later years, "Disease is the response of the vital processes to the stimulus of the cause," and "Bacilli are never more than the cause in tuberculosis." I find more than that, the added adjuvant relation, direful in provocation and intensification of the pathologic and destructive phenomena. The special force operative in these processes is the active agency in embryologic evolution and organic existence, inherent to the organism, yet needing specific environment and the stimulus thus afforded. Seeds only germinate in the environment of soil, moisture, temperature, etc. Given these and the potential becomes active.

Metabolism is the primordial act of life. The presence of nutrient matter is part of the necessary stimulant environment. Given the proximity of nutrient substances to the cell protoplasm—respiration oxidation being always concomitant, and metabolism follows in exhibition of protoplasmic activities. Thus, in interpreting the facts in physiology, pathology, and therapeutics, the instrument, microscopic and mental, must be turned mainly and specifically to the superior organism where the phenomena are in progress.

It is not too much to claim that we have here the basis of exactitude in medical science, in which empiricism may largely be eliminated, and the principles may be applied specifically. In acne, Gilchrist makes the microorganism the chief point of observation and investigation. He has found these organisms

apparently to figure largely in the processes and has distinguished them by the term "*Bacillus acnes*." In this complaint we have a petite yet unique congeries of pathologic processes. Here are papule, pustule, nodule, as grades or stages, indicating processes and changes, superficial and deeper, involving mischief in the interstitial and structural tissues—a picture of graver diseases. Now, the bacilli may have causal relation to the phenomena—a point not yet positively proved. Its adjuvant and baneful role seems to be more in evidence, as seen in the contents of the products of the abnormal cell proliferation, which disfigure the surface of the parts affected. Protoplasmic activity is the agency effective in the abnormal operations. The papule or pustule is in no sense the product of the bacillus, whose utmost part played in the drama is that of irritant, provocative of the modified vital motion, of which the pustule is the product. To make the microorganism the chief study and matter of research in interpretation of the pathologic conditions does not commend itself as a scientific procedure in the case. An epidemic occurs, say dysentery. Microscopic enterprise discovers microorganisms in the dejecta. Forthwith they are isolated, classified, morphologized, tincturized, cultured, and colonized and inoculated into guineapigs and the results observed in interpretation of the disease phenomena in the human organism. Now all of this certainly has its place, more or less, in reaching a correct attitude toward the disease and its relief; nevertheless, may not such magnifying of the minor and merely causal, eclipse and obscure the importance of the major and magisterial entity in the phenomena? May not effort in this direction become too self-centered on the part of bacteriology?

The refinements of bacteriologic science warrant the statement that a single microbe, under favorable conditions, may be the progenitor of a family numbering 16,000,000, in about 12 hours.¹ No such specific knowledge of the phenomena of protoplasmic activities is attained. Why is the response of vital motion different in the use of unlike drugs? For instance, strychnin, codein, nitric acid, and others (selected at random). Nitric acid has no effect upon some inorganic substances, while in certain others it is followed by the tumbling apart of their molecules, reasons for which, chemistology makes apparent. Effects answering to these occur in regard to drugs and organic matters within an organism, and the response of the protoplasmic activities vary as the substances vary. The chemic action is diverse and so is the modification or change of vital motion in the protoplasm. Disease processes as well as therapeutic, originate in vital motion, and are the outgrowth of, or rather, are identical with protoplasmic activities. Here is the place, this is the field for investigation, a field and territory grass-grown in comparison with the beaten track of bacterial investigation and speculation, this latter being minor and of little importance save as throwing light upon the former. In the article, "Cell Implantation in the Production of Tumors,"² we have a scientific study beginning where the disease began—in the cell, the cell protoplasm. The so-called cancer germ has so far eluded all research, but it doubtless will be found. Tumor production, however, is going on in the absence of identification of any microorganism as related to it. The real agency and operative entity is in evidence here as everywhere—protoplasmic energy and activity. This is what is witnessed after inoculation of guineapigs with a virus, including microorganisms—guineapig pathologic protoplasmic activity. To interpret this as in any way the work of the bacillus, or the product of pathogenic property of the microorganism, a property and a virulence exerted by it upon the superior organism, must certainly be a fallacy.

SERUMS.

The use of serums in specific cases and conditions has a basis of reason and proved utility, and will, at least temporarily, have place in exact medical science; but with the exactitude even now attained, I do not think we are driven to the extremity of need of a "combined serum obtained from a jackass and a goat," as exploited in medical journals, in manipulation of any pathologic conditions now confronting, or in prophylaxis of such in anticipation.

Serums, in the very nature of things, and serum therapy, must have a quite limited field of operation, and a limited tenure of office, too. The position taken by Mr. Herbert Spencer, whose opinions command world-wide regard, that immunity from certain diseases obtained in the use of serums may possibly and even probably mean the loss of vital force or property which more than counterbalances the advantages of the immunity obtained, is a question worthy of serious consideration, and may at least point a conservative tale in regard to any rash use of the polypharmacy of jackass and goat serum. Most diseases are the entail of civilization. The Indian is acquiring our diseases with our up-to-date refinements. He has not yet attained to the position of cancer pathology, for to the Indian and aboriginal in general this, I believe, is at present unknown. As we approach normal conditions, or our modern modes of life adapted to them, these refinements or complexities of pathologic conditions may disappear, and the "strenuous" therapeutics of today be no longer needed. The etiology of disease is in much even yet an unexplored field. It has long been thought that we eat too much, and of improper foods, and the "nutrition experiments" now in progress at New Haven under the superintendence of Professor Chittenden, are speculatively suggestive, and may throw considerable light upon etiologic problems.

At present, however, in a limited and conservative way serum therapy may be found useful, as it certainly has proved to be in smallpox, tetanus, and other complaints. This, and the role of microorganisms in disease, and other like matters will have due consideration in the now active era of research work, and will be adjusted to their true place, or be among the eliminations necessary to the coming to exact science, which we all hail!

THERAPEUTICS.

In therapeutics, as active interference in disease processes, there is needed some reconstruction both in theory and practice.

In one of the most widely read journals appeared (April, 1903) the following: "How few physicians know the exact physiologic action of drugs, etc." To which the editor replied: "How can physicians know the exact physiologic action of drugs when there is no exact physiologic action?" The editor's reply was in the interest of exact pharmacy, of which a word later.

There is no physiologic action in drugs—the terminology is unscientific and misleading. Drugs are at least of 2 classes—mineral and vegetable. In the inorganic materia medica there are no active principles, nor is there added such property in their pharmaceutical handling. Hence the absurdity of the Hahnemannian hypothesis of "grades of potency in unlimited decennials." (Nevertheless, there is an important principle in exact therapeutics in the hypothesis, when correctly interpreted.)

In the organic materia medica, in the plant state and growing, there are "active principles," for there are classes of cells and tissues, various in their grade and properties, constituting functions, as in the animal kingdom. In the therapeutic use of animal tissues different results are obtained from thyroid, testicular, and other glands and parts of the animal, interpretable upon the fact of difference in the tissues and their atomic and molecular structure and arrangement, and the kind of chemic processes their ingestion gives rise to, and the modified or altered protoplasmic activities thus influenced or initiated. It is just so in regard to plants and different parts of the same vegetable. Some are active, while others are less so or passive in the part they play in plant physiology and embryology. But their specific activity has ceased before reaching the condition termed drugs. The only action attributable to them is the same as in the inorganic, the chemic action accruing from their combination with other elements within the organism. Some may be actually assimilable by the organism, these having nutrient relation to the organic economy, and standing in the relation of foods to the tissues. It is possible that parts of cactus grandiflora may be utilized, protoplasmically, in improving the condition of the tissues of the heart muscle in impoverishment of that viscus, especially in the earlier stages of disease arising from disturbance in the coronary arteries, interfering

¹ See address of President of the British Medical Association, at Swansea, June, 1903.

² See the Journal of the Am. Med. Asso., April 10, 1903.

with muscular nutrition. Of course, the nutrient element in drug therapeutics is not very considerable, and their dynamic role predominates.

Bring together the various elements of which drugs are composed, combining them with substances like those within the vital domain, and *inorganic chemistry* defines the laboratory processes or phenomena resulting, while in an organism they are *physiologic*, being, however, in marked particulars different, the one from the other.

The action of drugs, after ingestion, is chemic, this and nothing more. Protoplasmic activities are modified or changed in response to the irritant or other influence their material presence occasions, and the still further modified and altered influence of which the active chemic processes thus initiated are the cause.

The action following the ingestion of drugs may be first simply chemic action, this particularly of the drugs, and secondarily, protoplasmic activity—vital motion modified by the influence of the chemic action in operation. The action of drugs is simply causal and adjuvant to protoplasmic activities. Thus pathologic phenomena are protoplasmic and independent of microorganic action, save as cause, provocative of the abnormal operations in progress. So therapeutic phenomena are protoplasmic, independently of the action of drugs, which is simply chemic and causal to the physiologic processes which are en route to normal. Were drugs injected into a dead body, there might be action of the drugs—chemic action, but nothing physiologic or therapeutic. It is incorrect and misleading to conceive or speak of physiologic action of drugs, exact or otherwise. Drugs have chemic action, physiologic action is strictly and solely protoplasmic, and not to be counterfeited.

Nor is this verbal quibbling, or a matter of less than vital importance to the interests of the human race, in view of the fact of the colossal delusion of a drug "cure" for disease, saddled as a curse upon the world, growing out of this misconception.

The distinctions, as chemistry teaches, between organic and inorganic in the processes involved, are marked and characteristic. In organic chemistry we have the same tumbling apart of the molecule as in simple chemistry, but the conditions required are different, and the phenomena are dominated by a force unique to themselves, so that processes impossible to simple chemistry are in evidence in the physiologic. The phenomenon termed metabolism is impossible in simple or inorganic chemistry. Beside the pulling down and tumbling apart of molecular arrangement in organic matter, physiologic chemistry, under the sovereignty of protoplasmic activity, combines, reforms, constructs, and causes to grow, an evolution process, pure and simple, centrifugal, utterly unlike any phenomena possible to simple chemistry or obtaining in the inorganic realm. The chemistry of an organism has a specific phase, construction, unique to itself, and operated by the life force. Physiologic and therapeutic phenomena, in connection with drugs, are protoplasmic in origin and effective agency, and are the response of the vital forces to the stimulus of the drug, inclusive of the chemic action, the result of its ingestion—physiologic action is vital. The contact of certain substances with the living matter of certain cells or classes of cells is followed by a specific kind of vital motion. Empiricism has taught this; so that given precisely the same substances in the same conditions of the organism and identical phenomena will always accrue.

Again, different cell protoplasm and tissues by means of it are affected by various substances variously; in other words, unlike medicaments affect like structures differently—cellular matter responds variously to different drugs. Some drugs affect muscular structures, others the nervous, in both instances, through modification of protoplasmic activities. Certain substances, by their material contact, or chemic action, or electric phenomena, influence vital motion in direct metabolism in cell formation and proliferation, while in others the chemic action initiated by the drug is followed by liberation or transformation of energy, as seen in heightened or altered temperature, blood-pressure, etc.

These various processes are only to be thus isolated in conception and speech, in fact and in act they are, in much con-

comitant and reciprocal, change in blood-pressure, for instance, being due as much to muscular conditions of the vessel walls as to increased energy in impetus from the heart itself. So that a drug which is followed by altered pressure thus, is not merely cause of liberation of energy, but also of changes in the condition of the muscular fibers of the coats of the vessels. Protoplasmic activities are complex in a high degree.

The ultimate destiny, so to speak, of medicaments, is the bioplasm of the cells and cellular tissues. The superlatively fine matter and motion to be reached and influenced in the use of drugs, indicate the gravity of the situation, and vital importance of care in the selection of substances, and methods of preparation, and determination of form in their use to these ends. This brings me to the pharmaceutic aspect of the question in its relation to the therapeutics in exact medical science.

Exactitude in medical science is dependent largely upon exact and scientific pharmacy. The highest therapeutics can only be invariably attained in the use of invariably correct and exact medicaments. The use of quinin in the place of the whole bark marked an advance in scientific pharmacy, which was but a step to be followed by others. Thus the way was opened for the whole and exact system of alkalometry. Up to as many as 5 or 6 alkaloids have been isolated from a seed, bulb, flower, leaf, or root. Each of these is found to be of different atomic and molecular structure, with affinities and incompatibilities variant one from the other. The chemic processes to which they give rise are, of course, as variant as their chemic composition. These differing alkaloidal preparations, used empirically, have been found to be followed by varying response in the organism. The modified protoplasmic activities accruing from one or more alkaloids have been found to be subversive and detrimental to that of another in the same plant or part. In certain conditions the response following the use of one alkaloid meets the requirements in the case, the action accruing from one or more of those in the same drug in its entirety is actually lethal in those conditions, and disaster results. The danger and ill-results observed in the use of the whole half dozen, more or less, alkaloids, as found in the extracts and tincture of digitalis, is a case in point. No wonder the profession has become chary in the employment of digitalis. In specific conditions and emergencies the extract or tincture may be given for a time, usually brief, the ground gained then being held and increased by digitalin, which is perfectly safe, even in prolonged use, which cannot be said of the employment of the combined glucosids digitalin, digitalein, digitonin, digitoxin, with the coarser matters making up the leaf or seed.

Moreover, in the pharmacy of the crude plant, or part of it, how great must be the variations in its quality arising from soil and environment of rainfall, sun exposure, picking and "curing," with transit and other handlings, which no assaying and standardizing can adjust so as to give uniformity of quality and condition of the drug when it reaches the physician's office. But in the alkaloids, in their scientific preparation in the single, such assay, etc., is possible so as to secure exactness and uniformity invariably. These, therefore, must commend themselves as lending vast aid in securing exact scientific therapeutics. I certainly think that the polypharmacy of three or four to half a dozen salts in a preparation must, in view of the chemic possibilities of such a combination, create a very babel of tongues in the bell of the protoplasmic cell.

The use of the single salts of the hypophosphites, and of the alkaloids, single or combined by therapeutic skill, marks an advance toward exact medical science which is bearing good fruit. More than 30,000 American physicians have stepped to the higher ground of these advanced positions, and therapeutic scepticism will not long stand before the success they are attaining in the use of these "medicaments of precision." The consideration of this part of the subject requires a treatise of itself, but I close with a brief summary.

SUMMARY.

Diseases in their various grades—simple and complex—are a congeries of organic processes. Physiologic phenomena are such likewise; classic and of the same nature and character as to the operative force. Pathologic processes are unique and classic, having orderly and progressive grades and sequences.

Thus pathologic conditions and processes are abnormal physiologic phenomena, further to be defined as subnormal and super-normal, in endless variety of manifestation.

It is the province of medical science and the sphere of its art, to acquire knowledge of the nature and character and causes of these departures from the normal, and to manipulate and control these phenomena, guiding them back or on to normal conditions.

In doing this the various causes and conditions giving rise to or provoking and aggravating these complex phenomena, and having their part and place in the drama of disease, are to be given due consideration, and to be dealt with in modification of the erratic processes, but the burden of therapeutic interference is in the manipulation of the vital or protoplasmic processes in progress of enactment. Bacteriologic experiment and research in elucidation of the complexity of protoplasmic activities in disease may be a royal handmaid in the most difficult and most complicated undertaking ever essayed—the manipulation of the vital processes, or the handling of life. No "playing with life" in this, on the part of one knowing what he is about. The matters to be handled are "infinitely little" (Trowbridge). The phenomena are effected "in centers that are central, and yet more central" (Beale), and where only the light of thought may enter and observe, for what eye has seen that wonder expressed in disturbed protoplasmic equilibrium, with vitalization or confer and transfer of life, with its properties and potentialities in multiplex variety, its completed phenomena being metabolism and construction of the anatomic unit, the precursor or harbinger and pledge of organic evolution? To manipulate and modify these life processes, to stimulate and hasten, to check and hold in abeyance, or obliterate, to guide and turn protoplasmic forces and activities into other directions and channels, and bring, like a runaway steed, into calm and usual motion and service, is art and skill based upon science first and foremost and most exact, and a triumph second only to that which designed and originated the sublime phenomenon in its beginning.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

April 23, 1904. [Vol. XLII, No. 17.]

1. The Surgical Treatment of Goiter. C. H. MAYO.
2. More Local and Less General Anesthesia in Gynecologic Operations. J. CLARENCE WEBSTER.
3. The Ultimate Results of the Bloodless Replacements of Congenitally Dislocated Hips. (Concluded.) JOHN RIDLON.
4. The Use of Ether as an Anesthetic at the Battle of the Wilderness in the Civil War. W. T. G. MORTON.
5. The Intracellular Toxin of *Bacillus Pyocyaneus*. DONALD R. MACINTYRE.
6. The Effect of Putrefactive Bodies on the Chemic Tests for Morphin. M. W. CLIFT.
7. The Extraction of a Toxin from Liver Cells: A Preliminary Report. V. C. VAUGHAN, J. F. MUNSON and FRANK R. SPENCER.
8. A Method of Microscopic Observation by Means of Lateral Illumination. D. J. DAVIS.
9. The Dangers of Potassic Chlorate. PAUL BARTHOLOW.

1.—Surgical Treatment of Goiter.—C. H. Mayo reports a large number of parenchymatous goiters successfully treated in the last 15 years by combined internal and external methods, together with 110 operations for some type of thyroid tumor. Of these, 34 were exophthalmic goiter, with six deaths. He prefers the Kocher collar incision. Inspection after free exposure will indicate the best method of procedure. He uses ether unless dyspnea or exophthalmic symptoms are marked. In such cases he employs cocaine. The exophthalmic cases were all benefited within three months, about 50% became free from symptoms within three to six months. In 25% the improvement was continuous during a year, in 25% it was partial. None who lived was made worse, and those in whom death occurred were the most severe types, especially presenting tachycardia from 130 to 150. [H.M.]

2.—Local and General Anesthesia in Gynecology.—J. C. Webster uses nitrous oxid largely in pelvic examinations and this combined with ether in operations when a general anesthetic is necessary. He employs Schleich's solution, however, in many major operations, using it in plastic operations

on cervix, vagina, and vulva, in opening the abdomen, the removal of diseased tubes and ovaries, shortening of the round ligaments, myomectomy, supravaginal amputation of the uterus, appendectomy, resection of intestine, etc. A suggestive influence is sometimes added by a few drops of chloroform held over the face. He has removed a cystic fibromyoma of 87 lbs. and performed vaginal cesarean section without general anesthesia. In extreme anemia and sepsis the local method greatly diminishes risk. Division, suturing or dragging of the parietal peritoneum causes pain. Separation of adhesions between viscera or newgrowths rarely causes distress. The omentum may be ligated, divided, or cauterized without pain; dragging causes pain. Handling the intestines or appendix, or removing the latter, is not painful; pulling on the mesentery is. Compression and division of the broad ligaments is painful. Cauterization, scraping or stitching of the peritoneal surface of the uterus is rarely noticed except at the attachment of the round ligaments. Ligation, division, or stretching of these always causes distress. [H.M.]

3.—Results of Bloodless Hip Replacements.—J. Ridlon practises this operation in every suitable case, believes it is the best for all operable cases, and the only one in all bilateral congenital dislocations. That the perfect anatomic replacements are fewer than hoped should not condemn the method. He quotes Davis' description of Paci's operation with Lorenz's modifications. He divides the cases he reports into those observed by himself before his first operation, those observed from 1897 to the advent of Lorenz, those examined or operated on by Lorenz, those operated on or examined by himself since October, 1902. The statistics show about 10% perfectly stable anatomically perfect replacements, 50% to 60% of anterior transpositions or appositions and supracotyloid displacements, "good results," and about 20% to 30% of failures. He doubts if anterior or supracotyloid displacements can ever be made perfect replacements by bloodless procedure. In anterior transposition the tissues in front have been too much torn to retain the head in the acetabulum if replaced. Supracotyloid displacement is due to a deficient upper lip. When the adductors are not freely torn and the anterior tissues not overstretched, relapse into the dorsal position may occur. Then replacement may be made again and again with a reasonable prospect of success. [H.M.]

5.—Intracellular Toxin of *Bacillus Pyocyaneus*.—D. R. MacIntyre finds this toxin can be in part extracted by sulfuric acid but not by salt solution. Heat to 120° C. in the autoclave for 30 minutes only slightly diminishes the toxicity. The cell substance contains a hemolysin which may be extracted in the fresh state or after treatment with alcohol and ether by physiologic salt solution. The minimum lethal dose for guineapigs intraperitoneally is 1 to 50,000 parts body-weight. When 1 to 10,000 parts is injected subcutaneously no permanent ill-effect results. Subcutaneous injections do not give immunity to subsequent intraperitoneal injections. [H.M.]

6.—Effect of Putrefactive Bodies on Chemic Tests for Morphin.—M. W. Clift describes his experiments with Kippenberger's method of differentiation, in which he obtained crystalline residues when morphin was absent. [H.M.]

7.—A Toxin from Liver Cells.—V. C. Vaughan, J. F. Munson, and F. R. Spencer have obtained a cleavage product which when dissolved in water and injected intraperitoneally kills in the proportion of 1 part to 500. In smaller quantities there is marked emaciation with slow recovery. They have not secured marked immunity by gradually increasing the dose. After acute poisoning the liver and adrenals are congested, the spleen soft and spotted, the gastric and mesenteric vessels are dilated, with small hemorrhages under the peritoneum. [H.M.]

8.—Microscopic Observation with Lateral Illumination.—D. J. Davis uses a blackened Nernst lamp with a transparent area of 0.5 cm. at the vertex. The pencil of rays is passed through a condenser, a low-power objective answering the purpose. The essential part of the apparatus is a triangular equilateral prism so placed beneath the objective that the upper surface is horizontal, each angle being 60°. Through this, total reflection of the light occurs. A drop or two of the fluid to be examined is placed on this and a cover-slip applied. Particles

in this become visible by reflection, refraction, and diffraction. They are seen as points of light against a dark background. Particles as small as 0.005 micron are visible. This is within the limits of the size of molecules. It is a favorable method for determining motility and clumping, and probably for observing ultramicroscopic organisms, and tracing branching nerve-fibers. The writer thinks it will replace the hanging drop. [H.M.]

9.—Dangers of Potassic Chlorate.—P. Bartholow refers to the frequent errors from confounding this with KCl. Judging from the way in which it develops a toxic strength, it seems likely its molecule is endowed with an uncommon potentiality, for its pharmacodynamic effects are often irresistibly sudden and fatal. It passes unchanged through the body. Its use as a gargle has caused death. It may profoundly alter the composition of the blood suddenly and after small doses. It shows its utmost power when taken on an empty stomach. [H.M.]

Boston Medical and Surgical Journal.

April 14, 1904. [Vol. CL, No. 15.]

1. Bilateral Facial Atrophy, with Report of a Case and Its Treatment by Subcutaneous Injection of Paraffin. BENJAMIN T. BURLEY.
2. A Many-Phased Case of Chorea. HORACE E. MARION.
3. A Case of Huntington's Chorea: Its Social Aspects. J. J. PUTNAM.
4. A New Treatment for Morphin Addiction. WILLIAM S. BIRGE.

1.—Bilateral Facial Atrophy Treated by Subcutaneous Injection of Paraffin.—Benjamin T. Burley calls attention to the extreme rarity of this condition and reports a new method of treatment. The patient is now a young woman of 23; at 8 she had a severe attack of pneumonia from which she recovered and was well until 11, when she suffered another attack, from which she appeared to make a normal recovery. It was soon noticed, however, that her face, instead of regaining its normal fulness, became progressively thinner and her cheeks were sunken. Supposing that her general system was affected she was treated by tonics, etc. The shrunken condition of the face remained though she otherwise appeared to be of normal health. After observing the patient for 2 months, it was decided to employ paraffin subcutaneously to replace the lost tissue. At the first sitting 1.5 cc. of paraffin of melting point, 109.5° F., was injected below each malar process. The subsequent swelling was slight and disappeared in 24 hours. Similar treatments were carried out at intervals of a week, the process of filling beneath the skin being extended outward and downward, both sides symmetrically. In all, nine treatments were given. The result at the end of this time is so satisfactory that no further treatment is likely to be necessary, at least for some months. [A.B.C.]

3.—Huntington's Chorea: Its Social Aspects.—J. J. Putnam reports a case in which the manifestations would not be recognized as abnormal by a casual observer. There should be a wider knowledge of the early signs in order to prevent marriage. At first the disorder seems a lack of concentration rather than true dementia, but in spite of ever increasing apathy, attacks of excitement or depression may intervene. The physician would not be justified in destroying the product of conception, even did the law permit it, as the child may develop normally, but he should advise measures for preventing conception. Increase in insanity and the neuroses is more apparent than real, and the racial stock is not injured to the extent individual deterioration would suggest. The evidence is considerable, that a child conceived during manifest insanity is not more likely to become insane than one conceived before or after this period. Persons with the disease under discussion, epileptics, and the insane should not marry, but in the milder neuroses and psychoses, when the severer ones have shown themselves only in preceding generations, more latitude may be allowed. [H.M.]

4.—A New Treatment for Morphinism.—W. S. Birge reports a treatment by which the patient is put in condition in three to five days for removal of the drug which is then completely eliminated in 72 hours without shock or discomfort. Alcoholics must be entirely discontinued, the excretions stimulated by calomel, salts, and Turkish baths, the usual quantity of morphin being continued till noon of the appointed

day. At 2 p.m., five drops of a solution of mandragorin is given hypodermically with an eighth grain of pilocarpin; this may be increased till comfort ensues. Strychnin and spartein may be given for cardiac weakness, and other symptoms be treated as they arise. The mandragorin is continued for 72 hours. The strength of the solution is not given by the writer. [H.M.]

Medical Record.

April 23, 1904. [Vol. 65, No. 17.]

1. Acute Infectious Osteomyelitis of the Spine and Acute Suppurative Perimenigitis. J. RAMSAY HUNT.
2. Observations upon the Protective Value of the Inspection of Public Women as Carried Out in Paris. FREDERIC GRIFFITH.
3. Some Points on the Diagnosis and Drug Treatment of Pneumonia in Infants and Young Children. LOUIS FISCHER.
4. Prophylaxis of Puerperal Sepsis. GEORGE L. BRODHEAD.
5. Preliminary Notes on Transillumination of the Stomach with Fluorescin. H. W. LINCOLN.
6. Supplementary Note on a Case of Typhoid Spine. LEONARD W. ELY.

1.—Acute Osteomyelitis of the Spine, with Acute Suppurative Perimenigitis.—J. Ramsay Hunt calls attention to the rarity with which infectious osteomyelitis attacks the vertebral column. He reports two cases. The first is summarized as follows: Boy, aged 18. Sudden onset with severe pains in sacral region, following a trauma. High fever, rapid pulse, great prostration, leukocytosis 40,000, splenic tumor, edema, and boggy over sacrum. Symptoms of compression of cauda equina. *Diagnosis:* Acute osteomyelitis of the sacrum with an extradural accumulation of pus. Operation, cure. The second is summarized as follows: Boy, aged 5 years, previously healthy. Sudden onset with fever and severe pain in middorsal region. Five days later, symptoms of spinal cord compression (paraplegia). High fever, great prostration, leukocytosis 40,000. Slight edema, glazing of skin and boggy, with extreme tenderness over the middorsal region of the spine. *Diagnosis:* Primary vertebral osteomyelitis with an extradural accumulation of pus. Operation, cure. Hunt reviews extensively the literature on this subject. The abrupt onset in a young adult of intense local vertebral pain and tenderness with increasing symptoms of infection should always suggest the osteomyelitis. The prognosis of acute vertebral osteomyelitis is grave. Of 62 cases, of which 50 were operated, 30 proved fatal. The statistics of cases recorded during the past 5 years are more favorable. Of 28 cases, all but 2 of which were operated, there were 20 recoveries. [A.B.C.]

2.—Value of the Inspection of Prostitutes in Paris.—Frederic Griffith writes at length upon this subject. He states that a complete department has been established under the direct supervision of the Prefecture of Police, with a chief, a corps of inspectors, both police and medical, with assistants. One-half of a city prison has been set aside as a detention hospital, having over 200 beds, and inspection offices and a dispensary are maintained. Here every actively engaged prostitute in Paris is supposed to come for examination. Every interest of the woman is protected by the government supervisors. A third arrest brands the woman as a professional prostitute. Her name is listed upon the department record. A small photograph of the girl is taken and glued to a card upon which is written the individual's name, address, and date of registration. The card is given to the girl, she is directed to return to the dispensary for medical examination at intervals of 15 days under penalty of imprisonment. The French inspection system is to a greater or less extent the pattern for St. Petersburg, Berlin, and Vienna, and there is a growing tendency for cities in our country to look toward it as being probably the best solution of our own municipal social questions. [A.B.C.]

4.—Prophylaxis of Puerperal Sepsis.—G. L. Brodhead thinks that outside of hospitals, puerperal sepsis is about as common as before antiseptic methods. Since it has been conclusively shown that the vaginal secretion of healthy women is absolutely free from pyogenic cocci, the cause of sepsis must necessarily be the introduction of septic material from without, and that as a rule the germs are carried in on the examining finger, and thus the internal or vaginal examination during labor is directly responsible for a large number of deaths as well as a vast amount of suffering and invalidism; and Brod-

head believes that in teaching antepartum and intrapartum diagnosis by external manipulation lies one of the greatest safeguards against puerperal infection. In his own practice he has demonstrated over and over again that labor can be successfully concluded with no vaginal examination whatever. But if internal examination is necessary, as it is under some circumstances and complications, then he uses the following method of sterilization as advocated by Stewart of New York: For the vulva use a solution of chlorinated lime, one teaspoonful, and acetic acid (U. S. P.) two teaspoonfuls to the quart. For the hands, after cleansing with soap, water, and powdered pumice stone, he uses chlorinated lime, two teaspoonfuls; acetic acid, four teaspoonfuls, and water to make one quart. The hands are immersed for five minutes in this solution, they are then rinsed off in a 1% lysol solution, after which rubber gloves are worn. [W.K.]

5.—Transillumination of the Stomach with Fluorescin.

—H. W. Lincoln states that transillumination of the stomach, employing a solution of fluorescin, dates only since October, 1903, when Kemp introduced the measure. He has employed this method in a number of instances and is satisfied with the result. It may be used in stout as well as thin persons with good results; even in the colored race the results are fair. The method employed is as follows: Give the patient 10 gr. or more of quinin during the day of examination or the day previous. Introduce the lamp. Have the patient drink a glass of water, into which has been dissolved 30 gr. to 40 gr. of sodium bicarbonate, to render the gastric contents alkaline. Allow another glass of water to be taken, into which has been placed $\frac{1}{2}$ gr. of fluorescin, 1 dr. of glycerin, and 20 gr. or more of sodium bicarbonate. The abdomen being bared, conduct the patient into the dark room, or, if at night, simply turn out the lights. It is better to introduce the lamp before the solution, so that should there be any trouble, the fluorescin will not be vomited. [A.B.C.]

6.—Supplementary Note of a Case of Typhoid Spine.

—Leonard W. Ely, in the *Medical Record* of December 20, 1902, reported the present case. He stated then that the patient was going about wearing his brace; further statements with reference to the case are as follows: Soon after the report the patient undertook active work and began to leave off his brace. Pain in his back became worse and lateral curvature more pronounced. He applied to Dr. Gibney for treatment, and this consisted of the thermocautery 2 or 3 times weekly, and of the brace, which was worn during the entire 24 hours. At the end of 6 weeks the cautery was stopped. After 4 months the brace was left off altogether and with the exception of some weakness, the only symptom remaining consisted of occasional attacks of cramp-like pain occurring at increasing intervals, and ceasing altogether after 2 or 3 months. The whole duration of the disease was about 18 months, which agrees well with the accounts of the cases heretofore published. An examination by Dr. Gibney, several months ago, showed that the only visible remnant of the affection was a slight lateral curvature. [A.B.C.]

New York Medical Journal.

April 16, 1904. [Vol. LXXIX, No. 16.]

1. Ureteral Catheterism as a Routine Method of Diagnosis in Renal Disease. JOHN VAN DER POEL.
2. Penetrating and Perforation Gunshot and Stab Wounds of the Abdomen, with Report of Cases. JOHN YOUNG BROWN.
3. Retrouterine Hematocoele. W. C. GAYLER.
4. Multiple Neuritis: A Case Resulting Probably from Morphin Toxemia. FRANK HALLECK STEPHENSON.
5. Guides to the Prognosis in Epilepsy, with Remarks on the Curability of the Disease; Including Reports of 34 Cases. WILLIAM P. SPRATLING.
6. Ergot in Typhoid Fever. ALFRED T. LIVINGSTON.
7. On Laboratory Diagnosis. M. P. OVERHOLSER.
8. Are the Antidotal Effects of Alcohol, Glycerin, etc., upon Carbolic Acid, Chemical or Physical? PHILIP ASHER.

1.—Ureteral catheterism as a routine method of diagnosis in renal disease is discussed by John Van Der Poel. He says there is no doubt but that when it is possible and practicable, the results are far more accurate and certain than by any other method. The advantages of catheterism over the other methods are expressed as follows: 1. The cystoscope is more easy of introduction than are the separators or segregators, is

less painful during the bladder manipulations, and much less so during the collection of the urines. Hence, as a rule: 2. With ureteral catheterism we can collect the urines during as long a time as may be thought necessary, the patient not requiring any supervision. 3. A cystoscopic examination of the bladder can be made at the same time, which, in some cases, is useful, in others, indispensable. 4. We are much more certain of the exact results, especially when the two urines are of a similar character, whether clear, bloody, or purulent (Albarran). 5. It is the only method by which we are fairly certain that there is no bladder contamination. [C.A.O.]

2.—See *American Medicine*, Vol. VI, p. 693.

3.—Retrouterine Hematocoele.—W. C. Gayler gives the results of a reexamination of 36 women who had suffered from a retrouterine hematocoele, and had been treated according to the various methods now in vogue. Thirty-three were caused by tubal abortion, two by tubal rupture, and one was caused by an escape of menstrual fluid into the abdominal cavity. Laparotomy was performed on 18 of the 36 patients. One died of sepsis, 15 were absolutely well at the end of four years, and two still complained of pains and discomfort in the pelvis. The average time until the complete recovery of the 15 who did recover was six weeks. The three who had been operated upon by way of the vagina were absolutely well. The period of convalescence was short, and two had again become pregnant. The conservative treatment consisted of rest in bed, liquid diet, and application of warmth to the abdomen. Only 13 of the 15 patients who were treated conservatively returned for reexamination. Eleven were free from their complaints, and showed no abnormalities. Two still complained of pain, a feeling of fullness, and pressure in the pelvis, and had a decided resistance in the culdesac upon internal examination. The average time that these patients stayed in the hospital was 20 days. [C.A.O.]

4.—Multiple Neuritis.—F. H. Stephenson reports a case of multiple neuritis which he believes to be due to morphin toxemia of 12 years' duration or to the possible poisoning from the so-called gold cure medication. The major items upon which the diagnosis was made were the motor and sensory symptoms, their symmetric distribution, their predominance in the extremities, the marked affection of the extensors, the modification of the reflexes, cold extremities, tenderness, aching and cramping sensations in the calf of the leg and toes after walking; also when holding the limb extended. The patient was directed to remain in bed or in a reclining chair much of the time. For the toxic condition and its attendant anemia large doses of the tincture of iron chlorid and salol were employed, also a nutritious diet, with oil rubs, sun baths and eliminatives. In the early stages hot applications gave great relief to the pain; others get greater relief from the cold. Gentle stroking or kneading of the muscles is very grateful to these patients, and aids return circulation and local nutrition. In some of the cases nitroglycerin seems to have a specific effect. [C.A.O.]

5.—Prognosis in Epilepsy.—After an experience of 14 years in the daily care and treatment of 1,800 cases of epilepsy in persons of all ages, types, conditions and degrees of duration of the disease, W. P. Spratling arrives at the following conclusions: 1. Epilepsy is curable in from 5% to 10% of all cases. 2. It requires, as a rule, a long continued course of treatment—never less than two to three years, carefully mapped out and executed to the letter, not only along one, but along many lines, to effect a cure. 3. The failure to secure better results, generally, in the treatment of this disease must frequently be laid to the failure to treat the individual and his disease as a unit, and to treat them both along the very broad, comprehensive, and unyielding lines they both require. 4. The drug treatment of epilepsy alone, while invaluable in many cases, and of some use in every case, often fails completely to meet the most important requirements. 5. Guides to the prognosis in epilepsy are always uncertain and unsatisfactory until treatment has been in operation from 6 months to 9 months, and in some cases a year or longer. The remarks pertain largely to the facts grouped about a series of 34 cases cured at the Craig Colony. In 20 cases the disease developed before the tenth year; in 9 between the tenth and twentieth years; and in 4 between the twentieth and fortieth years, while it commenced

in one only after the fortieth year. Twenty-three of them had grand mal attacks alone; 7 had grand mal and petit mal attacks combined; 3 petit mal only, while 1 had hysterio-epileptic convulsions of great violence, with occasional attacks of grand mal, uncontaminated by hysteria. The average duration of treatment for the whole number was 35½ months. Thirteen of the 34 cases had suffered from epilepsy from 1 to 5 years; 10 from 5 to 10 years; 7 from 10 to 20 years, while 4 had it 20 years or more. [C.A.O.]

6.—Ergot in Typhoid Fever.—A. T. Livingston urges the immediate and continued use of ergot in typhoid fever. He believes the peculiar function of this drug to be the stimulating, toning, and strengthening of whatever unstriated fiber is weak, relaxed, stretched or paralyzed. The solution of ergot which he finds the most satisfactory for hypodermic use is made by dissolving 1 dr. of solid extract of ergot in 1 oz. of sterilized distilled (cooled) water. After filtering the solution, add 2 m. of chloroform. The dose is ½ dr. to 1 dr., which may be given from 2 to 6 times a day, or oftener, as indicated in the individual case. [C.A.O.]

8.—Antidotal Effects on Carbolic Acid.—Philip Asher has made a number of experiments to determine whether or not the antidotal effects of alcohol, glycerin, etc., upon carbolic acid were chemic or physical. He found that the physical or chemic properties of the various factors used were never affected, and consequently chemic change never occurred. The antidotal power possessed by alcohol and glycerin depends largely upon the state of dilution. In addition to that of dilution, alcohol possesses dehydrating and astringent properties, which prevent absorption of the acid by the tissues. [C.A.O.]

Medical News.

April 23, 1904. [Vol. 84, No. 17.]

1. The Behavior of the Costal Arch in Diseases of the Abdominal Organs and Its Importance as a Diagnostic Symptom. ELLSWORTH ELIOT, JR.
2. The Pulse as a Guide to the Life Insurance Examiner. ROBERT H. BABCOCK.
3. Some External Diseases of the Eye Due to Rheumatism. RICHARD KALISH.
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5. Some Features of Renal Tuberculosis. F. TILDEN BROWN.
6. Hookworm Disease and Miners' Anemia in the Anthracite Coal Fields. JONATHAN M. WAINWRIGHT and HENRY J. NICHOLS.
7. When and How Shall We Operate for Obstructing Hypertrophy of the Prostate Gland? PAUL THORNDIKE.
8. Reflections on the Surgery of Prostatic Hypertrophy. JOHN G. SHELTON.

2.—The Pulse as a Guide to the Life Insurance Examiner.—R. H. Babcock finds that life insurance companies do not lay particular stress on pulse tension; a persistent rate of more than 85 is considered a barrier. A rate of 100 is normal to some—generally those of a neurotic temperament. It may be due to vagus inhibition or stimulation of the accelerators by coffee, tea, tobacco, or alcohol. The most annoying cause of tachycardia is the psychic disturbance attending the examination. Under the influence of frequent contractions the apex beat becomes feeble and ill-defined, the first sound is murmurish. Other signs of nervousness must be noted. An excited heart does not show as marked contrast between rest and exercise as in cardiac inadequacy. Only exceptionally is pressure increased by psychic disturbance. Increase of tension and acceleration are generally combined in pathologic disorders of the myocardium. Tachycardia may also be due to pyrexia, heart syphilis, irritability from athletics, masturbation, or venereal excess, to convalescence from acute disease. When combined with high tension in a man of middle age with corpulent abdomen, it is of weighty import. Such an individual is not a good risk. A rate below 60 often indicates fatty degeneration, though it may be normal. When the person is elderly, look for arteriosclerosis. Lowness of blood-pressure in a person of middle age is a sign of cardiac weakness. An intermittent heart-beat is due to vagus inhibition by gastric, psychic, or other disturbances. An intermittent pulse may be due to feeble heart-beats from altered blood or muscle fibers. Irregular pulse-beats under exercise indicate myocardial weakness. [H.M.]

3.—External Diseases of the Eye from Rheumatism.—R. Kalish describes a marginal blepharitis of the young adult,

recurrent styes and chalazia, a circumscribed bulbar conjunctivitis, and striated keratitis, resisting other forms of treatment and yielding to rheumatic remedies, such as salicylates, iodide, baths, massage, etc. [H.M.]

4.—Spontaneous Rupture of the Spleen.—Charles F. Craig reports two cases occurring at the U. S. Hospital at the Presidio, San Francisco. He calls attention to the extreme rarity of this condition in temperate climates; it is said to be most frequent during malarial infections or in persons suffering from typhoid relapsing fever, and occasionally in leukemia. The first case was in a man of 23, a returned soldier from the Philippines. He was admitted to the hospital suffering from typhoid fever; the disease pursued the normal course, and three weeks after admission his temperature was normal; suddenly he complained of severe pain over the abdomen, especially the left hypochondrium, and on the following day collapse appeared, but not of a severe character. The condition persisted until the fourth day, when the patient died. Autopsy revealed a distinct laceration of the capsule of the spleen, and much blood in the vicinity of that organ. The rupture was without doubt spontaneous. The second case was in a man of 60, who had suffered from malaria for 15 years, and had used alcoholics for 25 years. He dated his present illness from a fall, for which he was confined in the hospital three months; suddenly it was noticed that respiration became difficult, and death occurred. He had become considerably emaciated before death. Autopsy revealed malignant disease of the liver, with metastasis of the lungs, and the ruptured spleen later, he believes, was due to pressure upon it by the enlarged liver. It was spontaneous in the sense that there was no sudden violence to account for it. [A.B.C.]

5.—Renal Tuberculosis.—F. Tilden Brown discusses the early symptoms of this affection. The patient, usually from 20 to 35, generally complains first of frequent micturition; often the disease is hereditary. Previous personal history usually shows more or less ill-health, with occasional mild febrile attacks; the patient is generally poorly nourished; the urine, which may be of abnormal appearance, should be thoroughly examined, and a small amount of pus or blood may be found; tubercle bacilli should especially be looked for. Unilateral tuberculosis having been diagnosed, the question of treatment is uppermost, but in the majority of cases the best prognosis lies in nephrectomy and, if possible, a change of air and improved hygiene should anticipate the operation. Nephrectomy for tuberculosis should always be done extraperitoneally; whatever the general procedure of the operation may be. A general description of the operation, treatment of the ureter, the pedicle, etc., are given. [A.B.C.]

6.—Hookworm Disease.—J. M. Wainwright and H. J. Nichols trace the spread of the parasite from one country to another in Europe through the mining regions. This is accounted for by the life history of the worm and the sanitary conditions of the mines. Coal dust has been used experimentally in developing the ova. None of the anthracite mines in this country, and only a few coal mines in Europe, have any privy facilities under ground. The men deposit excreta anywhere. The eggs are transmitted from the boots to the hand and thence to the food, the worker eating his dinner in the mine without washing his hands. The disease is widespread in our Southern States and our recently annexed islands. Stiles drew attention to the economic meaning of the parasite known in the lay press as the "bacillus of laziness." The worms live in the human host for six years. The writers, in examining 400 anthracite miners, found only one case, showing that the hookworm has not obtained much foothold among anthracite miners as yet. All mine mules are infected with an organism closely allied to the human parasite, but these are probably not transferable. No aid in keeping out the disease can be expected from the miners. The State Bureau of Mines or Health should have the stools of newly employed miners carefully examined. [H.M.]

7.—Prostatic Hypertrophy and its Treatment.—Paul Thorndike writes at length upon this subject, and concludes as follows: (1) The catheter has as wide a range of usefulness as it ever had, in the palliation of obstructing prostatic hypertrophy; (2) the various operative procedures at present at our

command are to be resorted to, with the exception of certain small classes of cases referred to in these remarks, after the catheter has ceased to palliate; (3) the time for this operative interference is at the moment when the catheter has ceased to palliate, and not after months or years of further and unavailing struggle to make it do so; (4) the more radical operation of enucleation, on the one hand, and the Bottini operation with its various modifications on the other, are not procedures of the same kind, do not have the same object in view, and are in no sense to be weighed in the balance, the one class against the other. They should rather be contrasted, the one class as radical operations aiming at a cure, and the other as efficient palliating procedures, each having its own distinct indications for its appropriate use. [A.B.C.]

8.—Surgery of Prostatic Hypertrophy.—John G. Sheldon considers patients suffering from this affection in two classes: (1) cases in an extreme condition, and (2) cases with sufficient vitality to withstand a radical operation. In the latter variety he performs perineal partial prostatectomy. The operation he describes at length, reporting 11 cases in which operation was performed. He concludes as follows: 1. Infection is the all-important consideration in prostatics. 2. Perineal drainage of the bladder relieves the patient. 3. Many of these patients will not stand extensive operative procedures or long continued anesthesia. 4. Partial removal of the prostate, by the method herewith advised, will be tolerated by many infected patients, and a good result obtained. 5. Perineal drainage of the bladder only should be done in desperate cases and in debilitated patients in whom morcellation is necessary. In these cases, the prostate should be removed at the second operation. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Early Diagnosis of Acute Intestinal Obstruction.—W. Hale White¹ differentiates acute intestinal obstruction from acute hemorrhagic pancreatitis, perforation, or rupture of the various hollow viscera, or cysts within the abdominal cavity, thrombosis and embolism of the mesenteric vessels, intestinal colic, twisted or ovarian cysts, ruptured extrauterine fetation, and ruptured pyosalpinx. It is of importance to remember that the early symptoms of acute intestinal obstruction are caused by strangulation, and not by obstruction. This is illustrated by the fact that volvulus of the large intestine gives sudden and acute symptoms because of strangulation, while the symptoms of a complete obstruction, as by gallstone without strangulation, are much less severe. It is further illustrated by the fact that in many recorded cases fecal impaction has existed for weeks, and even months, without causing marked constitutional disturbances. To make a correct diagnosis of the form of obstruction which exists, if the symptoms are severe and acute we are to remember that it is the picture of strangulation as from a band, internal hernia, volvulus, or kinking, and not from mere obstruction. The severity of the symptoms of intussusception depends upon the portion of the bowel strangulated; obstruction in the small intestine produces more marked symptoms than obstruction in the large intestine, because whatever obstructs the small intestine at the same time usually strangulates it. [A.B.C.]

The Influence of Complicating Diseases upon Leukemia.—George Dock² reports a case, of which he gives the following summary: A woman with mixed-cell leukemia, with greatly enlarged spleen. Two weeks after an attack of what was probably influenza, the leukocytes dropped from 367,070 to 7,500, in two weeks more to 4,775, with reduction of abnormal red and white cells. The spleen was much smaller. In two months the leukocytes reached 40,000, in 10 weeks 157,000, in a year 461,666. The liver and spleen remained small for many months; for the next six months the patient grew worse, and died one and a half years after the first observation. Dock reviews the literature at length in an endeavor to deter-

mine the effect of infections, and of processes other than infection upon the course of leukemia. In general, there is a tendency for the leukemic character to disappear more or less completely under the influence of infections, the fall in leukocytes occurring soon after the infection, more promptly in acute than in chronic infections. The conclusion reached is that a satisfactory explanation of these changes is not at present possible. As to treatment, Dock suggests that as the ordinary treatment is hopeless, carefully planned experiments, either with bacterial products or organ extracts, might show a more safe and permanent result. [A.G.E.]

Epidemic Catarrh on Shipboard.—Dudley N. Carpenter¹ reports that on the battleship Illinois, manned by some 700 men, a series of catarrhal fevers were several times observed. During the epidemics the majority of the cases were of a respiratory type, beginning suddenly with pain in the back, head and limbs, chilly sensations, marked constipation, weakness, anorexia and fever. Among the complications pleurisy, peritonsillar abscess, otitis media, and arthritis occurred. Carpenter says there was undoubtedly a contagious factor producing these catarrhal fevers, but at the base of the trouble he believes that poor ventilation on shipboard was the most potent cause. The influence of overcrowding and poor ventilation has often been observed in camps, asylums and public institutions, and it is particularly objectionable on shipboard. [A.B.C.]

Concerning Infantilism Independent of the Thyroid Gland.—L. Ferranini² insists that Lorain's infantilism is not the same as the infantilism of Brissaud or myxedematous infantilism. The former is a small man with impeded or incomplete development, the latter is an individual, whose development has ceased with early childhood, in the former ossification is complete, in the latter it is imperfect. Lorain's infantilism has nothing to do with dwarfism. In it the different parts of the body are proportionate, but smaller than the age would lead us to suspect; in it the beard, axillary and pubic hairs are missing, the genitalia small, the intelligence normal. Brissaud's type is that of myxedema and is often helped by thyroid extract, while Lorain's type is not improved by it very much. The causes of infantilism are such as produce physiologic weakness, infections, intoxications, nutritional disturbances and conditions predisposing to disease. He reports cases in which the condition was traced to tuberculosis, hereditary syphilis, malaria, alcoholism in parents, and congenital heart disease. He studied carefully the metabolic processes observed in a case, in which the infantilism was due to congenital mitral disease, and states that the conditions corresponded to an age actually less than that of the patient. [E.L.]

GENERAL SURGERY

A. B. CRAIG

MARTIN B. TINKER

C. A. ORR

REVIEW OF LITERATURE

Spontaneous Gangrene of the Hollow Viscera.—Roswell Park³ reports in detail two patients suffering from pronounced abdominal symptoms, such as severe pain, vomiting, distention of the abdomen, constipation, etc. In each case laparotomy was performed, and in each instance widespread gangrene of the intestine and other viscera were noted; in neither was autopsy permitted. An extensive discussion as to the probable etiology of the condition is entered into, particularly the probability that mesenteric occlusion by thrombosis of the vessels or simple emboli in the same may have been responsible for the condition. Park recounts and discusses the symptoms at length and differentiates between the condition described and that presented by perforating ulcer of the stomach, acute intestinal obstruction, pancreatitis, acute splenic infarction, acute appendicitis, acute cholecystitis, ruptured extrauterine pregnancy, and intrathoracic lesions. He emphasizes the statement, that in the presence of sudden and acute symptoms, with acute intense abdominal pain, collapse and rigidity

¹ Journal of the Association of Military Surgeons, January, 1904.

² Archiv für Psychiatrie, 1904, xxxviii, 206.

³ Annals of Surgery, April, 1904.

¹ The Lancet, March 10, 1904.

² American Journal of the Medical Sciences, April, 1904.

of the abdominal walls, there should be no speculation as to the character of the lesion, the triad of symptoms constitutes a reliable and exacting demand for abdominal section. [A.B.C.]

Spinal Anesthesia in Military Surgery.—Colonel Augustin A. Guirre,¹ writing from the Military Hospital of Instruction of the city of Mexico, reports a series of 210 cases operated upon by spinal anesthesia. He introduces the fluid exactly in the middle line below the spinal apophysis of the third or fourth lumbar vertebra, or even below the first, instead of going to one side and entering the needle obliquely. Clotting of the introduced needle is avoided by rapid introduction and having within the needle a wire mandril, which is removed after the needle is introduced. In 5% of the cases anesthesia was not sufficiently painless to perform operation; in 11% of the cases there were accidents caused by the introduction, though in no instance was there a fatal outcome. These accidents were such as vomiting, nausea, acceleration of the pulse, and convulsions (in one case). Anesthesia lasted from one hour to one and one-half hours. The advantages of this method, according to the author, are: (1) Easy application, as the operative manual required does not present many difficulties; (2) the possibility of its being performed by the surgeon himself, which does away with the services of an assistant; (3) speedy action; (4) safety, no fatal result was recorded in his series; (5) a simple apparatus, easily carried and easily sterilized. [A.B.C.]

Operation on the Spinal Cord.—Samuel J. Mixter and Henry M. Chase² report two cases. A summary of the first is as follows: High fracture of the spine, sixth cervical vertebra; there were present all the classic symptoms on which authorities have previously based their opinion that operation was contraindicated because it suggested total transverse lesion with a crush of the cord beyond repair. The patient was operated upon within 24 hours; operation showed fracture and depression of the spinous process and laminae apparently lying against the cord. There was a blood clot under the lamina, none under the dura. The condition of the bodies of the vertebra were not known. The patient lived 11½ months, during which there was marked and steady improvement from a condition of almost total paralysis of the entire body below the seat of injury. The patient regained nearly the normal use of his hands and much improvement in the condition of his body and legs. Complications arose and the patient died. Microscopic examination of the cord removed postmortem are given in detail. The second patient sustained a similar injury in the cervical region and showed marked paralysis. Following operation, he has almost recovered the normal use of the affected parts. The authors insist that patients sustaining such injuries, even though they point to complete solution of continuity in the cord, should be operated upon, because a definite diagnosis of such a condition can not be made with certainty. [A.B.C.]

Malignant Disease Observed in a U. S. Army Hospital.—Col. Alfred C. Girard³ reporting the cases from the U. S. Hospital at the Presidio, San Francisco, states that most of the cases occur in young able-bodied men with no family history of malignant disease. The etiology of the cause in almost every instance was some injury to the affected part. The cases described occurred during the period between July 1, 1899, and May 1, 1902. Of the fourteen cases there were eight due to carcinoma, and six to sarcoma. Of the cases of carcinoma, two were operated upon, both recovering, and six were inoperable. In six cases of sarcoma all were operated upon, five recovering. The cases of sarcoma were as follows: Sarcoma of the mesentery, of the popliteal space, of the breast, of the testicle, (two cases), and of the femur. The cases of carcinoma were as follows: Carcinoma of the breast, epithelioma of the jaw, carcinoma of the larynx, of the bladder, of the omentum and abdominal viscera (two cases), of the liver and other viscera, of the pancreas and spleen. Gordon states that the point of practical importance appears to be the great difficulty of recognizing a malignant process within the abdominal cavity before the case becomes practically inoperable. [A.B.C.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Treatment of Ozena with Injections of Hard Paraffin.—Noticing that ozena is oftener found in an abnormally large nasal cavity, which offers splendid opportunities for the accumulation of crusts, than in a narrow passage, H. Fliess¹ attempted to imitate nature by injecting paraffin into the inflamed meatus, thus making the passage much narrower. All crusts were first carefully removed, the infected meatus, nasal floor, and septum cocaineized, and the atrophic mucous membrane injected with paraffin. Usually the lateral portions were treated, sometimes the septal walls also. Twelve patients were thus treated, and in all the results were better than had ever been produced by any other treatment. A complete cure did not result in any of them, but the crusts disappeared altogether, and also the bad odor. No unpleasant complications were noted. On account of the danger of pulmonary embolism from the use of soft paraffin Fliess employed hard paraffin altogether. [E.L.]

Alcohol Poultices.—J. S. Kolbassenko² recommends an alcohol poultice in all surgical inflammations and suppurations. He considers it a very active analgesic, and has found that if used early, suppuration is very often aborted, while at a later stage its use results in localization of the abscess to its original focus. Six to eight layers of gauze are kept saturated with 50% to 95% alcohol, and to prevent undue evaporation this is covered with a layer of oil cloth. When the skin is tender, or if ulcerated surfaces have to be treated, xeroform powder or xeroform-orthoform ointment, or sterile vaselin may first be applied to the surface. The dressings should be continued until hyperesthesia has disappeared from the inflamed area. The action of this dressing is noted not only in superficial disturbances, but also in inflammations of the deeper-lying tissues and organs. Kolbassenko has also seen good results from the dressing in phlegmonous angina and in early scarlet fever; in both diseases the applications having been made to the neck. [E.L.]

Treatment of Acute Nephritis.—A very simple, efficacious method of treating acute nephritis is according to L. Stembo,³ by ice. Favorable results in two very grave cases caused him to use it systematically in 20 cases of nephritis which came under his observation during a scarlet fever epidemic lasting 18 months. It shortened the duration of the illness markedly in all cases. Long narrow ice-bags are filled with small pieces of ice and tied firmly over the region of the kidneys, the patient lying on his side. It is removed after two or three hours, and replaced one hour later. Flannel may be interposed between the ice-bag and the skin in very sensitive people. He also employed it with success in exacerbations of chronic nephritis. He explains the marked success of the treatment through relief of the congestion in the diseased and enlarged kidneys; this relief is produced quicker than with heat, which acts indirectly through hyperemia of the skin, producing anemia of the internal organs and therefore also of the kidneys. [E.L.]

Treatment of Articular Rheumatism with Menzer's Antistreptococcic Serum.—A. Schmidt⁴ employed Menzer's antistreptococcic serum in 15 cases of articular rheumatism; 8 were of the subacute variety (many measures were tried without result), 4 were acute and 3 chronic. The injections (15 cc. to 20 cc. daily) were made into the joints and were repeated in 8 days. The more pronounced the reaction (redness, swelling, erythema, etc.), the more certain is the curative success. Local reaction must therefore not be considered an injurious side-effect. Six patients were decidedly improved; in 4 there was subjective betterment, and in 5 no result was noted. A specific action, as with diphtheric serum, was not obtained. He recommends the treatment in subacute cases, when other remedial agents fail. [E.L.]

¹ Berliner klinische Wochenschrift, March 7, 1904, xli, No. 10.

² Therapeutische Monatshefte, xvii, 635.

³ Therapie der Gegenwart, November, 1903.

⁴ Berliner medizinische Wochenschrift, Vol. xl, No. 49.

¹ Journal of the Association of Military Surgeons, January, 1904.

² Annals of Surgery, April, 1904.

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Water meters should be placed in every house and building of every city. This is demanded in the interest of the health of the people. The reckless waste of water is making it more and more impossible to give pure germ-free water to every household, and the wasteful use constantly deteriorates the quality of that which can be supplied. The partially filtered water gives a feeling of false security, and thus becomes more dangerous than that which is black and polluted. It has been proved almost impossible to get everybody to boil the water used even when it is plainly fouled, but when it is apparently pure but in reality germ-laden, the apparent security at once increases the number of cases of typhoid. There is no reason against, and every consideration of justice urges the measuring of the water used just as much as in the cases of gas or electricity.

Three hundred and twenty-one new cases of typhoid fever in one week in "corrupt and contented" Philadelphia, should arouse her citizens to the infamy of the crime which has brought about such a condition. Since the first of January there have been over 2,000 cases. In England, in 1901, there was a deathrate from typhoid fever of 1.55 per 1,000,000; in Paris, 3.91; while in Hamburg the rate was only .33. It is an old saying that for every such death someone should be hanged, but the fatalism which has from of old dominated the human mind as to disease and death is still inveterate, and it is almost impossible to arouse the truer perception that every case of typhoid fever represents, in reality, a crime somewhere, and somebody has been guilty of criminal negligence, which should be brought home to him. Every case, as we all know, is unnecessary, and unnecessary disease and death is in its last analysis a crime. In our modern communities it is not difficult to place the blame where it belongs, but it is a very different matter to bring to punishment the criminals. At first sight it would seem that the political wretches, the swearing, drinking thieves, and bosses, placed in power over the health and lives of the citizens are to blame. But at once arises the second sobering thought that the citizens are more blameworthy who give these fellows their ill-used power.

Domiciliary Health Records.—Beside supervising the production of milk and meat, examining wet-nurses, attending to school hygiene, dismissing tubercu-

lous soldiers from the army and disinfecting their apartments, placing cuspidors for general use, registering all cases of tuberculosis, disinfecting houses in which these have occurred, isolating the poor tuberculous in hospitals, instituting obligatory insurance against disease, and establishing tuberculosis dispensaries, Bernheim¹ recommends special medical supervision over dwellings and the use of a health book for houses. The instituting of such a book, dealing with the records of dwellings, seems to us to be a particularly wise procedure. In addition to furnishing valuable statistics on a large scale, it would result in more intelligently dealing with the vast problem of tuberculosis. As Flick, in his pioneer investigations, has shown, tuberculosis clings to certain houses. The same has been said to be true of cancer. If, through a book, or preferably, a card system, the municipal health office, should keep records of all the deaths that occur in every private house in Philadelphia, valuable information would be accumulated in the course of a few years. Deaths occurring in hospitals could be recorded on the cards belonging to the houses from which the patients had come. The simplest plan would be to make out a card for every house as soon as a death takes place in it, and to record thereon all subsequent deaths occurring in that house. Anyone desiring to learn whether in a certain house or a particular street there have been many deaths from tuberculosis, cancer, or any other chronic disease, could very easily obtain this information by consulting these records. A system of cross references would make it possible by looking under the heading of any particular disease to determine in what part of the city that disease is most common.

Arctic Sanatoriums.—The advantages offered by the three months of Arctic summer are so numerous, that there have appeared recently several announcements of floating and permanent hospitals for patients suffering from incipient pulmonary affections and neurasthenic states. According to the *British Medical Journal*, it is proposed to erect a sanatorium on the shores of Lake Torne, in Lapland, a long and beautiful sheet of water at Wassijauve, near the end of the Ofote Railroad. That railroad, it may be mentioned, has only one station in a distance of 121 miles. There is no

¹ La Rev. Philanthr., viii, 43, p. 27; Hyg. Rundschau, April 1, 1904.

human dwelling near that station, which is on the line between Sweden and Norway, and was erected solely for the requirements of the Customs Office. Except for a small settlement at Wassijauve, the only sign of human existence in the district is the occasional passage of a few Laplanders with their herds of reindeer. Already, there has been installed at this spot a scientific station in a solidly built block-house containing seven rooms, and it is proposed to build the sanatorium in the same way. In *American Medicine*, April 23, 1904, Dr. Frederick Sohon has called attention to the great advantages of the Arctic climate. We learn that Dr. Sohon has decided to organize a cruise to the fjords of Greenland, leaving in June, and returning before the hardships of the Arctic winter begin. These regions of perpetual sunshine may be reached within 10 days from Nova Scotia, and the trip may be made with safety and comfort in a suitable vessel altered and appointed for this purpose. Dr. Sohon would be pleased to communicate with any prospective passenger patients. His address is 512 I street, N. W., Washington, D. C.

The Mosely Educational Commission.—By the courtesy of the editor of the *British Medical Journal*, we are able to lay before our readers some of the principal conclusions reached by the medical members of the Mosely Commission as to medical education in the United States and Canada. In 1902 Mr. A. Mosely, impressed by the practical ability of American engineers, organized an industrial commission of British business men to visit the United States in order to find an answer to the question: "How is it that the United States can afford to pay half a dollar in wages where we pay a shilling, and yet compete with us in the markets of the world?" The answer turned largely upon the character of the education, using that word in its widest sense, available in the United States. In the autumn of last year Mr. Mosely arranged for an education commission to visit the United States with a view to studying the schools and universities. The subjects placed for investigation before this commission were:

1. The development of individuality in the primary schools.
2. The social and intellectual effects of the wide distribution of secondary education.
3. The effect of specific instruction given (a) in business methods; (b) in applied science.
4. The present state of opinion as to the value of professional and technical instruction of university rank designed with special reference to the tasks of business life.

The commission consisted of 26 persons selected for their special acquaintance with various departments of education in Great Britain and Ireland. The medical representatives were Dr. J. Rose Bradford, professor of medicine, University College, London, and Dr. W. H. Gaskell, university lecturer in physiology, Cambridge. Dr. Gaskell says that there is at the present time a feeling of unrest and uncertainty both in the United States and in Canada as to the best methods of instruction. Experiments are being tried, and he has evidently found it difficult to give any very decided general view.

The Teaching of Anatomy and Physiology.—Dr. Gaskell finds that in the universities of Harvard and

Johns Hopkins the student is first of all required to spend three to four years in an academic course for the degree of M.A., and is only then permitted to enter upon the medical curriculum of four years, at the end of which he receives the degree of M.D. This long period is recognized as a drawback, though the great advantage of a collegiate course is universally recognized, so that Dr. Gaskell believes that there will be a tendency more and more developed in the United States to institute a combined course of six years, which will enable the student to obtain his academic degree at the end of four years and his medical at the end of six, a system very similar to that in force in the universities of Canada and at Cambridge and Oxford. The system is already in working order in the more western universities of Chicago, Minneapolis, and Ann Arbor. Here the teaching of human anatomy and physiology is included in the scientific subjects for the scientific degree, and, in consequence, the laboratories for these subjects are built in close connection with those for the other scientific subjects, and not, as in most of the eastern States, in the midst of the town near the hospital, but far removed from the scientific buildings of the university. In this tendency of the universities of the Middle West not to divorce physiology and human anatomy from a list of subjects belonging to a science school and confine them entirely to medicine, he finds one of the most hopeful signs for biologic progress in the States, and he adds:

Such a subject as physiology especially ought never to be taught or studied except in close proximity to the laboratory buildings of chemistry, physics, and anatomy, both human and comparative. All the problems of physiology fall under one of these three heads, and where there is easy intercourse between the teachers and thinkers in these various subjects, there will be found the broadest views and the most efficient teaching power. When the scientific buildings of the university are situated many miles away from the medical school, and in the latter alone is provision made for teaching physiology and human anatomy, then such intercourse is very much hindered, to the detriment of both schools. I hope sincerely that in the new arrangements for the London University, the proposal to concentrate all the preliminary medical subjects, even up to bacteriology, into one more scientific schools apart from the hospitals, will be carried out.

Methods of Teaching Medicine.—Dr. Gaskell found that in many universities didactic lectures were looked upon as nearly valueless, on the ground that they were only a repetition of what was already in the textbook, and were not, therefore, needed. Dr. Gaskell sums up this part of his subject as follows:

The idea underlying the whole system of instruction in these scientific subjects is that they are subjects based on experimental research, that the question which the student ought to be taught to ask from the very first is not, What man is the authority for such and such a statement? but: What is the experimental evidence which proves the truth of the statement? Therefore, in every way the student is taught to consider that he himself is undertaking a research, that he is rediscovering for himself what others have found out before him. In accordance with this view no slovenly work is allowed; every experiment must be done as though it was an actual research, time markers, stimulation markers, being used, with the result, so I am assured, that in a very short time it becomes a habit in each man to perform every experiment with real care and thoroughness. Such a method of instruction necessarily means a large amount of time given to the subject, and a con-

siderable staff of efficient teachers to supervise the practical work and conduct the recitations, for the latter in order to be of real good must not be given to too large a class.

Dr. Gaskell then describes at length the Harvard "concentration system," a brief account of which is quoted below from Dr. Bradford's report. At Harvard the students are also required to prepare theses, which are read at fixed times and discussed in the class by students and teachers. This is an adaptation to an elementary class of the system of "seminars," followed in all advanced work in all the graduate schools for the degrees of Ph.D. and M.A. A seminar is really a discussion opened either by the teacher or by a member of the class in which all are expected to take part. This system, founded on the belief that the best way of learning is to teach, Dr. Gaskell regards as very valuable, though he questions whether it can with advantage be applied to a large elementary class. In some of the more fortunate universities, each student had a separate place entirely his own, but where this was not possible, the class was divided into sections, so that during the whole time each section was at work, the working places belonged absolutely to the members of that section. The whole system, Dr. Gaskell points out, throws a great strain upon the teachers, but he says:

To my mind, two of the most striking points about the laboratory instruction of all kinds in the States is the energy and activity displayed by the teachers, their earnest endeavor to do their utmost without sparing themselves, and the determination of the students to be taught. I do not think it is only because the practical work counts in their final examination that the men attend and work steadily, but because they want to get their money's worth; they have come to the university to be educated for the medical profession, and the stimulus of want or means spurs on a large number, with the net result that the class as a whole attends well, works well, and in consequence soon becomes thoroughly interested in what must interest everyone—the discoveries of science.

Laboratory Work in Medical Teaching in the United States.—According to the Mosely Commission Report, the greater number of subdivisions of the preliminary medical scientific subjects necessitates a greater number of well-equipped laboratories and a greater staff of teachers. Upon this topic Dr. Gaskell makes the following observations:

With respect to the first item, the building of laboratories, the activity going on in the States makes one ashamed of one's own country. Everywhere one has the feeling that the whole country is so impressed with the desire for the best educational methods that whenever new buildings are required the money is forthcoming for their erection. Either it is given by a munificent donor or is left by will, or is obtained from the past alumni and the general public by the exertions of the president. In the State universities matters may move a bit more slowly, but here, too, new buildings arise with considerable rapidity at the demand of the faculty. It is impossible to enumerate all the rooms for students and research in the different departments of all the universities visited; it is sufficient to say that at Harvard and at University of Pennsylvania it was felt that the laboratories for the preliminary scientific medical subjects were not quite up to date, and in consequence in both places palatial buildings are arising for the teaching of physiology, pathology, etc. The building at Philadelphia, which is nearly completed, will be, I should think, the finest in the world, unless the Harvard building beats it. At Chicago also there is practically unlimited space for buildings, and also an unlimited purse.

The laboratories in all the universities are found to be well equipped, and in some cases the laboratory unit system has been introduced and has given great satisfaction. He says:

The essence of this system is the limitation of the size of each room in which practical work is done. Instead of one large room holding places for 70 or 80 students, there are a number of small ones each with places for 25 students. Each room has its own demonstrator, and every student has his place during the course. The new laboratory for physiology and pathology at Toronto is built on this plan, and impressed me very much. The dissecting-room at Johns Hopkins is also divided in the same way, so that each room contains three bodies, and as there are seven students to a body, there are 21 students in the room under the charge of a demonstrator. A dissecting-room under these circumstances does not give the usual feeling of being overcrowded. There is an air of seclusion and quiet work such as one is accustomed to associate with a class of advanced students in English laboratories but not with a large elementary class. I am inclined to think that one of the most important lessons we can learn from Canada and the United States is how to treat a large elementary class as though its members belonged to a small select one. In order to carry out any such plan successfully, we must not only have the right kind of laboratories, but also a sufficient number of efficient teachers; each unit of the laboratory must have its own demonstrator, while the professor supervises and superintends the whole laboratory.

Lectures, Recitations and Examinations in Medical Teaching.—In his report, Professor Bradford says that in our country the general trend of opinion seemed to be in favor of curtailing formal and didactic courses of lectures, and in some universities they have been abolished altogether. In the case of medicine their place is taken by what is called the "recitation," which varies in value enormously in different schools. He gives the following description:

In some in the recitation the teacher meets a section of the class and a given subject is discussed between them, the teacher questioning the class and the individual members of the class frequently questioning the teacher. In fact, in many of the recitations it was very striking to see that the ordinary distinction between the teacher and the taught was very largely broken down, and that the teacher was, so to say, almost a member of the class. In such instances the recitation was based on a given subject which the class had previously read up in one or more textbooks. It is obvious that such a method of instruction has a very distinct educational value, particularly if the subject is selected judiciously. In other instances the recitation was based on a given textbook, and the class was informed at a previous meeting that at the next meeting pages so-and-so to so-and-so would be considered, and in the course of the academic year the textbook was gone through almost page by page by the class. The attendance at recitations was remarkably good, and the students were earnest and eagerly took notes. When the recitation was based on a textbook the recitation was really a means of ensuring that the student had made himself acquainted with the text, although, doubtless, in many instances the experience of the teacher enabled him to add to the information imparted by the book. The recitation in one form or another may be said to be universal as a system of instruction, and has to a great extent, and, in some instances, entirely supplanted the lecture. No very useful purpose can at present be served by comparing the examination systems in vogue in the States with those obtaining in England, as the conditions are so entirely different in that the degree granted by the universities confers no right to practise; the latter is obtained by passing a State examination under the supervision of a special Board. In all the universities the manner in which the student has followed his courses of instruction is a determining factor in deciding whether he shall or shall not receive a degree. Further, it is

very usual for the examination in each subject to take place at the end of the course of instruction in that subject, and hence the examination, particularly in what are called in this country the preliminary and early subjects, is to a large extent a piecemeal one. As regards the final subjects—medicine, surgery, and obstetrics—in some instances the student is examined in all at one time. The fundamental and far-reaching difference between the American and the English systems lies in the fact that the record of a student's work, recitations, laboratory classes, ward work, is kept, and very largely, and in some cases almost entirely, determines the result. A very prevalent custom is not to admit him to the written or practical examination, often held at the end of a course, unless the report of his class work is satisfactory. Such written or practical examination when held is conducted by the professor himself, but the report of the class work is made by the instructor or demonstrator in charge. All the student's drawings, laboratory notes, clinical records of cases seem to be marked and pigeon-holed. In many universities if the student is rejected in three branches he loses a whole year and the courses have to be repeated. It is difficult to form an estimate as to the number of students who fail, but in the leading universities the proportion would seem to be small compared with what obtains in England.

Conclusions of the Mosely Commission.—Dr. Gaskell makes the following suggestions:

1. In English medical and scientific schools separate laboratories with a separate staff of teachers ought to be provided for anatomy, histology, physiology, physiologic chemistry, experimental psychology, and perhaps neurology; such laboratories should be arranged on the laboratory unit plan and fitted up throughout with electric light, electric power, and telephones.
2. In cases where there is not sufficient accommodation for the whole class at once, the class should be divided into sections and the teaching so arranged that every student has his place to himself during the whole of that course.
3. I would not advocate the extreme concentration method of learning a subject, but would rather spread such a subject as physiology (in the English sense) over two years. In the first year I would give a general course, in which the subject should be treated as a whole in an elementary way, taking, therefore, together the histologic, chemic, and physiologic aspects of the subject, so as to give the student a good general view of the subject, and leaving the more detailed study to separate courses in the second year in the separate laboratories of histology, physiologic chemistry, and physiology.
4. I am inclined to think that histology should not be connected with embryology and put into the department of anatomy, but the laboratories of histology and physiologic chemistry should be under the control of a professor of physiology, the head of each department being an assistant professor.
5. I am not convinced that didactic lectures are in large measure a mistake, and that recitations should largely take their place. I think, however, that the system of seminars should be encouraged as much as possible.
6. A six or seven years' conjoint course for the academic and medical degrees should be encouraged as much as possible, and in all universities the preliminary medical scientific subjects should be included among the subjects for the degree in arts or sciences.
7. There is much to be said in favor of taking into account the work done by the student during the term in his examination. There are, however, so many difficulties in the way, owing to our system of examination, that it does not seem advisable to lay much stress on this point.

Professor Bradford's conclusions are:

1. That the enthusiasm of the teachers and of the students was one of the most striking features of my visit.
2. All the leading universities had exceedingly fine, and in some cases magnificent laboratories, and the equipment was of a high order of excellence.
3. In the teaching of the nonclinical subjects the laboratory and practical side was especially developed.
4. Systematic instruction by lectures seemed not to be in general favor.

5. Even in the final subjects (medicine, surgery, etc.) the teaching was extraordinarily systematized; but, speaking generally, the students did not have the clinical facilities they obtain in this country.

6. The scientific investigation of disease in clinical laboratories had reached a very high order of development.

7. The teachers in this country in such subjects as pathology might well consider whether some of the methods in vogue, such as the early study of bacteriology and the custom of giving the class unknown organisms and sections to identify, and the careful record of the students' work, are not features thoroughly deserving of imitation.

The Watercress: Its Virtues in Beriberi, etc.—The *Lancet* (February 20, 1904) announces the receipt from the Foreign Office of a copy of a dispatch from His Majesty's Consul at Noumea, New Caledonia, with reference to the mysterious disease, beriberi, which is very prevalent among the workers in the mines—of whatever nationality—in that island. Also, of a note on that dispatch by Sir Patrick Manson, medical adviser to the department. Mr. Haggard states that "it seems to have been found out quite accidentally that watercress is an almost certain cure. Consequently all the mining companies are cultivating it largely." Sir Patrick Manson suggested the immediate publication of the statement, with the judicious scepticism of the possibility of "inadequate experience." That this vegetable has a specific action on the germ of the disease I question. However, it is an experience worth following up. The publicity given by the medical press will insure this. Whatever may be the ultimate decision arrived at in this connection, there is no questioning the fact that the present boom of the watercress in that remote region is a specimen of the rediscovery of the medicinal value of an herb which was a famous remedy in ancient and medieval times; and whose traditional virtues, although forgotten to science, still lingered among the uneducated of many regions. In the remote districts of the British Islands, the watercress always maintained an exceptional reputation as a blood-purifier and an appetizer—especially when "taken in the morning fasting," and in "The New London Dispensatory," published by the famous herbalist, William Salmon, in 1684–1685, the properties and virtues of the "herb" in question are summarized as follows, page 81:

Nasturtium aquaticum, watercresses, hot and dry in 3°, they cut, attenuate, and open obstruction of liver, spleen and gall; are diuretick, lithoutriptick, alexipharmick and carminative: the Essence taken for 30 days, together three times a day, in Rhenish wine breaks and expels the stone, and perfectly cures the Scurvy and green sickness, and provokes the tears; they are a good Sallet, Winter and Summer, being boil'd: the juice only put into the nose often, cures the *polypus*, and being put in with Vinegar causes sleep: but when we mean the inspissate juice. If the herb be bruised with a little leaven and fermented, you may extract by distillation, an antiscorbutick spirit, prevalent to all the purposes aforesaid.

Guards Her Floating Ribs.—It is reported that a woman of Boston, 80 years old, and worth \$75,000, is hiding herself because she says physicians want her body to dissect, and all for the reason that her floating ribs have by muscular action been transferred from her right to her left side. She says that recently when she was in a hospital for treatment her malformation was discovered, and she was offered \$2,000 on condition that she would bequeath her body for dissection. She fears that the doctors won't be content to wait until she dies, and so she has concealed herself. Her malformation is said to be unique, in that it has been caused by gradual muscular action.

AMERICAN NEWS AND NOTES

GENERAL.

In the First Stage of Eddyism.—Every little while we read in the paper that someone has run a rusty nail in his hand or foot or other portion of his body, and lockjaw resulted therefrom, and that the patient died. If every person was aware of a perfect remedy for such wounds and would apply it, then such reports would cease. The remedy is simple, always at hand, can be applied by anyone—what is better, is infallible. It is simply to smoke the wound or any wound that is bruised or inflamed, with a woolen cloth. Twenty minutes in the smoke will take the pain out of the worst case of inflammation arising from such a wound. People may sneer at this remedy as much as they please, but when they are afflicted with such wounds, let them try it.—[From the Granite (Ore.) Gem.]

Agricultural Department and the Bordeaux Mixture.—It is not at all surprising to read now an official statement to the effect that the experiments conducted by the Department of Agriculture have nothing to do with the mixture referred to and that "these experiments have not reached such a stage as to be of benefit to the public." This was evident, but the statement relieves the Department of Agriculture from the imputation of ignorant quackery which the former dispatches conveyed. It is emphatically denied that the department has any process "to take the place of the present standard means of purification" or ever made any statement that could be so interpreted, and the observation is added: "The importance of sand filtration in getting rid of typhoid organisms in water-supply is so well established as to be beyond question."

Complexions and Insanity.—Mr. Hobart Langdon, writing on this subject, says that only 3% of the total number of insane people have light hair, and only 2% have blue eyes. His figures are obtained from 68 asylums located in various parts of the United States, Canada, and England. The total number of patients in these institutions was 16,512, of whom 703 had light hair, and only 66 red hair or auburn locks. In other words, 96% of the inmates were brunettes, with either black or brown hair. In one asylum in New England there was not a single inmate that was not a brunette. He makes no attempt to account for this peculiar fact, but asserts that it certainly looks as though blonds were less liable to insanity than those with darker hair or eyes. A peculiar feature was that the percentage of those regarded as incurably insane was much greater among the blonds than the brunettes. The total shows that among the dark-haired inmates only 50% were marked hopelessly insane, while among the blonds 81% were put in this category, and that only 3 among the red-haired patients escaped the same classification.

Miscellaneous.—The Tristate Medical Society of Iowa, Illinois, and Missouri will meet in St. Louis, June 15, 16, and 17. An interesting program is being prepared, and some of the most distinguished physicians and surgeons of the country will attend the meeting.—The New York School of Clinical Medicine: At the meeting of the medical board held April 9, Dr. J. L. Adams was elected secretary of the school, and preferences were conferred upon the following: Mental diseases, Dr. E. C. Dent, Superintendent Manhattan State Hospital West, Ward's Island; internal medicine, Dr. William Brewster Clark; gastrointestinal diseases, Dr. Robert Coleman Kemp, Associate Professor Graham Rogers; hydrotherapeutics, Dr. Alfred W. Gardner; ophthalmology and otology, Dr. George Ash Taylor; pediatrics, Associate Professor H. F. Sentfner; clinical instructor and assistant, Dr. William E. West; genitourinary diseases, Chief of Clinic and Associate Professor C. Stern; dermatology, chief of clinic and instructor L. D. Weiss.—New York: Dr. Warren L. Babcock, chief surgeon at the State Soldiers' Home Hospital, at Bath, N. Y., announces that he will resign his position at the Home on May 12, to accept the Superintendency of the Grace Hospital, Detroit, Mich. The plans for the new hospital which is to replace the old Fordham Hospital in The Bronx have been filed. The new hospital will be five stories high and fireproof, and will have a frontage of 121 feet and a depth of 43 feet, with a four-story extension 92 x 35 feet. The cost of the group of buildings is estimated at \$560,000 in round numbers.—Philadelphia: Wills Hospital Ophthalmic Society will hold a meeting May 9, 1904, at 8.15 p.m. The main subject chosen for discussion is affections of the lacrimal apparatus. Physicians interested in ophthalmology are cordially invited. The American Climatological Association will hold the twenty-first annual meeting in the banquet room of the Aldine Hotel, Chestnut street above Nineteenth, Philadelphia, on June 2, 3, and 4, 1904.—American Proctologic Society: The sixth annual meeting will be held at Seaside House, Atlantic City, N. J., June 8 and 9, 1904.

EASTERN STATES.

Suggestive Vital Statistics.—The Annual Report of the Board of Health of Connecticut contains some interesting facts. One of the most striking tables shows the steady and rapid decrease of tuberculosis in that state. The table covers

a period of 20 years during which, notwithstanding an increase in population from 622,700 to 908,420 by the last census, the annual deaths from tuberculosis fell from 1,505 to 1,356. Based on the numbers estimated of population the deathrate per 10,000 of population fell during the two decades from 23.2 to 14.9, or a reduction of 38.8%. As distinct from tuberculosis, pneumonia shows a rapid increase, and now heads all in mortality. In 1903 there were 1,428 deaths from this cause as compared with 1,317 from tuberculosis. The decrease of typhoid fever is assigned to the systematic effort of purification at the source of disease. He criticises severely the common tendency of treating measles and whoopingcough as trivial. The birth returns continue to indicate the slow and steady extinction of the purely native race, births from American born falling in 10 years from 8,487 to 8,283; while the births from foreign and mixed parentage rose during the same time from 11,467 to 12,576.

NEW YORK.

Why They Fought the Bill Abolishing the Coroner's Office.—In opposing the bill which legislates the coroners out of office and creates a bureau of medical examiners under the supervision of the Health Department, W. M. K. Olcott, at a public hearing recently by Mayor McClellan, declared that the measure had been drawn by the medical societies and that one of its purposes was to furnish more bodies for the medical laboratories of that city.

Epidemic of Measles in New York.—Officials of the Health Department report an alarming spread of measles. Many cases have proved fatal, being followed by pneumonia. The department's weekly report shows, in the five boroughs of Greater New York, 1,630 cases of measles, with 37 deaths due directly thereto, and 135 deaths from pneumonia. Physicians attribute the existing conditions to the severe winter, which caused living rooms to be kept tightly closed at the expense of ventilation.

Grand Lodge of Masons and Sanatorium for the Tuberculous.—At the meeting last week of the Grand Lodge of Masons, a project for the erection and endowment of the Masonic sanatorium for the tuberculous, under the auspices of the fraternity in New York State, was considered. The project is yet in an embryo state, although steps are being taken by the Masonic Sanatorium League to collect a fund as a nucleus for the purpose of establishing and endowing the sanatorium. If the project receives the endorsement of the Grand Lodge, active measures will be taken for its accomplishment.

PHILADELPHIA, PENNSYLVANIA, ETC.

State Board of Medical Examiners of New Jersey.—Examinations will be held at Trenton, N. J., June 21 and 22. Application for the regular blanks should be made before June 11.

Spotted Fever.—Not only has this disease been reported at League Island, Philadelphia, but also in Trenton there has occurred the first case in 40 years; two additional cases are reported as having occurred in Bordentown, N. J.

Baby Farm Investigations Show Children Were Destroyed by Quicklime.—Newborn infants are destroyed by quicklime in lying-in establishments, according to the latest revelations made to the coroner in his investigation into the conduct of these places.

Cerebrospinal Fever Reported at the Navy Yard.—Spinal meningitis has broken out among the sailors in the camp at League Island, and the alarm lest it spread is giving the physicians and the men much concern. Three men are down with the disease. The Bureau of Health was notified recently. Precautionary measures have already been instituted by the naval physicians, who have isolated the afflicted men.

War against Unlicensed Physicians.—The action taken by the County Medical Society and the State Board of Medical Examiners in waging war against unlicensed practitioners in the city of Philadelphia is meeting with the hearty support and cooperation of the entire profession in the city and State. Several arrests have been made and prosecutions instituted, others will doubtless follow, as these organizations are thoroughly in earnest in their desire to purge the community of these illegal practitioners.

Sanitary Affairs at League Island.—A further inspection of sanitary conditions at the League Island Navy Yard was begun a few days ago by a board of naval medical officers appointed by Surgeon-General Rixey, of the Navy, who made a personal inspection last week. The men on the board are Medical Director T. H. Streets, of the Naval Home; Surgeon H. G. Beyer, from the department at Washington, and Surgeon J. D. Gatewood, of the training ship Yankee. They were accompanied on the inspection by Drs. Biddle and Norton, who are stationed at the yard. The outbreak of cerebrospinal meningitis among sailors at League Island last week has caused much concern among the officials at Washington, and every possible effort is being made to find the source of the disease and perfect the sanitary condition of the yard.

SOUTHERN STATES.

To Prove the Mosquito Theory.—Information from New Orleans states that Dr. Frederic Forralbas is there from Havana, with a cage full of mosquitos of the variety which it is claimed propagate yellow fever. He is taking them to the St. Louis Exposition, where they are to be used in demonstrating the mosquito theory. The exhibit will renew itself and will be one of the interesting features of the Health Department. Dr. Forralbas believes that the results will be a general admission of the mosquito theory, doing away with quarantines.

Physical Examination for Candidates for the Naval Academy at Annapolis.—The *Army and Navy Register* for April 30, states that arrangements have been made at the Naval Academy for the special physical examination of candidates otherwise qualified for admission to that institution. This is the result of a report which has been made by Medical Inspector Howard E. Ames, on duty at the Naval Academy. He has pointed out the necessity of special precautions in the examination of candidates to the end that there may be excluded from the academic course those who are not up to a very high physical standard. He has pointed out that the present requirement of height with age is too low; that insufficient attention is given to the question of weight; that "vision is a subject that is treated in the slightest manner"; that defective hearing is still another trouble that is constantly waived; that the mouth with its appendages, particularly the teeth, is almost overlooked; that the grave defect of heart trouble is repeatedly waived. The Navy Department, acting on the advices from Annapolis, has decided this year to increase the physical requirements of candidates in the hope that the standard may be increased. Consequently, a special board has been detailed to conduct the examinations, composed of Medical Director John C. Wise, who is a member of the naval retiring and medical examining board in Washington; Surgeon William C. Braisted, on duty at the naval hospital at New York, and Passed Assistant Surgeon T. D. Myers, retired, who is on special duty in Philadelphia and in Washington.

WESTERN STATES.

Pneumonia Decreasing in Chicago.—Chicago's Bulletin of the Health Department for the week ended April 23, says: The pneumonia mortality has already broken all April records. During the first 23 days of the month 403 deaths were reported—a daily average of 22.1. The April daily average for the previous 14 years had been 12.4. For the current month the daily deaths from pneumonia have been 78% higher than usual.

Accident Statistics in Chicago.—An analysis of the 10,707 accidents recorded last year in Chicago is presented in a report just submitted by the Civic Federation. The largest number of accidents from any one cause, it was found, was under the head of "run over or struck by street cars," with a total of 457. Next, despite all the track elevation in the city, came accidents from railway trains or engines, with a showing of 446. In consequence of street cars striking wagons, 442 injuries were caused.

Efficient Work of the Dairy Inspectors in Chicago.—Chicago's Bulletin of the Health Department for April 23, says: The Dairy Inspector has examined during the last two weeks about 45 dairies in the immediate vicinity of the city. Of these 13 have been abolished on account of exceedingly insanitary conditions, and the work will be continued until all these places have been cleaned up. A milk inspector detailed to examine restaurants has made an inspection of the sanitary condition and also taken samples of milk and cream in all of the small restaurants on S. State and Clark streets from the river to Thirty-fifth street. Many of these restaurants were found to have filthy kitchens and a number were found selling milk and cream below grade. The usual 10 days' notice in which to comply with the sanitary regulations concerning the keeping and handling of milk and cream was given and a copy of the ordinance was left at each place. Those who do not comply with these regulations will be sued at the expiration of the notice. The war on the dirty milk can is being kept up. Any dealer who has filthy cans in his possession will be fined and advertised in the papers. Dealers have been notified that the ordinance requiring shipper's cans to be returned to farmers clean and dry within 36 hours will be rigidly enforced and all rusty cans will be destroyed wherever found. Vessels used in the handling of milk must be scalded or sterilized daily. All milk bottles must be sterilized in boiling water or steam, after being thoroughly washed.

CANADA.

Canada Sanatorium.—The first Government Sanatorium in Canada has just been completed at Kentville, N. S., and will be ready to receive patients about July 1. The location is in the Annapolis valley, 70 miles from Halifax, at an elevation of 400 feet, in a locality famed as a health resort, being a part of what is known as the garden of the province. The cost of the buildings, without furnishings, has been \$20,000. It will accommodate 20 patients.

Esquimaux Almost Exterminated by Measles.—News from Winnipeg, under date of April 28, says: All the Esquimaux living in the Mackenzie basin except ten families have been killed by the ravages of measles. Before the epidemic there were 40 or 50 families, or 200 or more persons.

FOREIGN NEWS AND NOTES

GENERAL.

Decrease in Typhoid Fever in Paris.—In 1882 the deaths from typhoid fever in Paris were 142 per 100,000 inhabitants; today the proportion is only 10 per 100,000.

Typhoid Fever in the Russian Army.—Recent information from London states that: A dispatch to the Standard from Kieff says it is stated in military circles there that 10,000 soldiers are in hospitals in Manchuria, chiefly typhoid patients.

Beverages and Cancer.—Dr. Alfred Wolff discovers that all the districts of high cancer mortality are districts in which beer and cider are largely drunk. Bavaria, for instance, heads the list in Germany, and Salsburg in Austria—both great beer drinking provinces. In France the statistics are still more striking. There is the most marked contrast between the high cancer mortality in beer drinking departments and the low deathrate from cancer elsewhere.

Race Suicide.—According to reports from London it appears that a controversy has arisen between Bishop Ripon, who delivered a discourse calling attention to race suicide in London and European countries, and Mr. Henry James, who takes the position that the falling off in the birthrate shows that people are beginning to think for themselves. He holds that it is the ultimate satisfactory solution of all of our social troubles and labor conditions. The large families of the working class are an inexorable burden and the overstocked labor market leads to poverty, degradation, and crime. Dr. Taylor, president of the British Gynecological Society, and a scientist of European reputation, points out that the birthrate of the United Kingdom from 1874 to 1878 was 34.3 per 1,000; from 1894 to 1898, 29.1 per 1,000, and in 1901, 28. The decline was greater than in any European country. There are 500 births a week fewer in London than 20 years ago.

OBITUARIES.

Abram Miller Henkel, from Bright's disease, at his home in Staunton, Va., April 19, aged 61; a graduate of the University of the City of New York in 1867, since which time he practised continuously in Staunton. He was a member of the Virginia State Medical Society, the American Medical Association, the National Association of Surgeons, and attending physician to the Wesleyan and Lutheran female schools, and a member of the Wesleyan State Hospital Board. He was a widely known and much esteemed physician.

Charles Kerr, at his home in Springfield, Ill., April 13, aged 66; a graduate of the Rush Medical College, Chicago, in 1865; was an army surgeon in the Federal service during the Civil war; member of the American Medical Association and one time member of the Iowa Legislature.

Edward J. McGorrick, at his home in Des Moines, April 16, aged 69; a graduate of the medical department of St. Louis University in 1855. He served as an army surgeon in various military divisions during the Civil war and was one time surgeon-general of Iowa.

Louis Drescher, at his home in Newark, N. J., April 27, aged 84. He was educated in Germany and came to the United States about fifty years ago. He retired from medical practice several years ago and thereafter devoted his time to inventions.

Oscar H. Huntley, from pneumonia, at his home in Buda, Ill., April 18; a graduate of Jefferson Medical College in 1856; surgeon in the Confederate service during the Civil war and one of the oldest practitioners in Bureau county, Ill.

Edward L. Randall, from pneumonia, at his home in Knoxville, Tenn., April 18, aged 50; a graduate of Missouri Medical College, St. Louis, in 1869. Dean and professor of theory and practice of medicine in Knoxville Medical College.

John W. Adams, from heart disease, at his home in St. Louis, April 9, aged 39; a graduate of Beaumont Hospital Medical College, St. Louis, in 1887; a professor of physical diagnosis in the St. Louis College of Physicians and Surgeons.

Josiah D. McVey, from heart disease, at his home in Lake City, Iowa, April 10; a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, in 1873; one time member of the Iowa Legislature and a well-known practitioner.

David L. Bailey, from septicemia, at his home in Carbondale, Pa., April 13, aged 53; a graduate of New York University in 1875. He was a member of the Carbondale and Lackawanna County Medical Societies.

Charles H. Winslow, at his home in New York, April 29, aged 72. He was born in Massachusetts, formerly practised medicine at Keokuk, Iowa, later locating in New York, where he had an extensive practice.

Sumner Paine, of Boston, at the Massachusetts General Hospital, April 19; a graduate of the Medical School of Denver. He served as a medical officer in the U. S. Army during the Spanish war.

C. Norton Mourning, at his home in Louisville, Ky., April 16; a graduate of the Hospital College of Medicine, Louisville, in 1900; an assistant in abdominal surgery in that institution.

E. B. Herr, at his home in Lancaster, Pa., April 28, aged 70. He was formerly a member of the Pennsylvania State Legislature and well known in the community in which he lived.

William T. Beach, at his home in Minersville, Pa., April 8, aged 64; a graduate of Jefferson Medical College, in 1863, and for many years president of the Schuylkill Medical Society.

Abner Alexander, of Columbia, N. C., died in Johns Hopkins Hospital, Baltimore, April 9, aged 69; a graduate of Baltimore Medical College, in 1877.

Henry P. Robson, of Snow Hill, Ala., was killed in a railway accident at Wallace, Ala., April 13; a graduate of Birmingham Medical College, in 1902.

Almon Clarke, at his home in Milwaukee, May 1, aged 63. He was a wellknown and esteemed physician throughout the State of Wisconsin.

D. W. Shoemaker, from pneumonia, at his home in Philadelphia, April 27; a graduate of Hahnemann Medical College in 1881.

Ignatz Friedmann, was killed by accident, in Cleveland, Ohio, April 21; a graduate of the University of Budapest, in 1866.

John P. Holmes, at his home in West Newton, Mass., May 1, aged 43; a graduate of Harvard Medical College in 1887.

Vincent Knox, at his home in Woodbury, Texas, April 15, aged 65; a graduate of Arkansas University, in 1886.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the period from April 15 to April 29, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	Los Angeles.....Apr. 2-9.....	2	
	San Francisco.....Apr. 3-10.....	2	
Florida:	Jacksonville.....Apr. 9-23.....	6	
Illinois:	Chicago.....Apr. 9-23.....	11	
	Danville.....Apr. 9-23.....	8	
Indiana:	South Bend.....Apr. 9-23.....	7	1
Kentucky:	Covington.....Apr. 9-23.....	3	
	Louisville.....Apr. 1-14.....	5	
Louisiana:	New Orleans.....Apr. 9-16.....	3	1
Maryland:	Baltimore.....Apr. 9-23.....	11	
Michigan:	Detroit.....Apr. 9-23.....	7	
	Grand Rapids.....Apr. 16-23.....	1	
	87 localities.....Apr. 9-16.....	Present.	
Missouri:	St. Louis.....Apr. 9-23.....	22	2
Nebraska:	Omaha.....Apr. 8-23.....	2	
New Hampshire:	Manchester.....Apr. 9-16.....	1	
New Jersey:	Camden.....Apr. 9-23.....	5	
	Trenton.....Apr. 9-23.....	2	
New York:	Buffalo.....Apr. 16-23.....	7	
	New York.....Apr. 9-23.....	3	
Ohio:	Cincinnati.....Apr. 8-15.....	5	1
	Cleveland.....Apr. 8-22.....	3	1
	Dayton.....Apr. 9-23.....	14	2
Pennsylvania:	Allentown.....Apr. 16-23.....	3	
	Johnstown.....Apr. 9-23.....	3	
	Philadelphia.....Apr. 16-23.....	One Imported.	
	Pittsburg.....Apr. 9-23.....	9	1
	Williamsport.....Apr. 16-23.....	One Imported.	
South Carolina:	Greenville.....Apr. 9-16.....	2	
Tennessee:	Memphis.....Apr. 9-23.....	40	
	Nashville.....Apr. 9-23.....	11	
Wisconsin:	Milwaukee.....Apr. 9-23.....	31	
SMALLPOX—INSULAR.			
Porto Rico:	San Juan.....Mar. 1-31.....	11	
SMALLPOX—FOREIGN.			
Austria:	Prague.....Mar. 26-Apr. 9.....	8	
Belgium:	Antwerp.....Mar. 26-Apr. 2.....	24	3
	Brussels.....Apr. 2-9.....	2	
Brazil:	Pernambuco.....Mar. 1-15.....	20	
	Rio de Janeiro.....Mar. 13-27.....	121	75
Canada:	Sydney.....Apr. 16-23.....	54	1
	Winnipeg.....Apr. 8-16.....	1	
China:	Shanghai.....Mar. 5-19.....	22	
France:	Marseilles.....Mar. 1-31.....	14	
	Paris.....Apr. 2-9.....	17	1
Great Britain:	Cardiff.....Apr. 2-9.....	1	
	Edinburgh.....Apr. 2-9.....	3	
	Glasgow.....Apr. 8-15.....	33	3
	Hull.....Mar. 26-Apr. 9.....	17	2
	Leeds.....Apr. 2-9.....	3	
	Liverpool.....Apr. 9-16.....	2	

Great Britain:	London.....Mar. 26-Apr. 2.....	67	
	Manchester.....Mar. 26-Apr. 2.....	6	
	Newcastle-on-Tyne.....Apr. 2-9.....	4	1
	Nottingham.....Mar. 26-Apr. 9.....	17	1
	Southampton.....Apr. 2-9.....	1	
	South Shields.....Apr. 2-9.....	1	1
India:	Bombay.....Mar. 21-27.....	23	
	Karachi.....Mar. 20-27.....	2	1
Italy:	Catania.....Mar. 31-Apr. 7.....	3	
	Palermo.....Mar. 26-Apr. 9.....	2	
Java:	Batavia.....Mar. 5-12.....	20	1
Mexico:	City of Mexico.....Mar. 2-Apr. 10.....	13	4
	Torreon.....Apr. 10-16.....	19	35
Netherlands:	Amsterdam.....Apr. 2-9.....	2	
Russia:	St. Petersburg.....Mar. 26-Apr. 2.....	7	2
Spain:	Barcelona.....Apr. 1-10.....	8	
Turkey:	Constantinople.....Mar. 27-Apr. 10.....	6	
	Smyna.....Mar. 20-27.....	1	

YELLOW FEVER.

Brazil:	Rio de Janeiro.....Mar. 13-27.....	6	3
Colombia:	Barranquilla.....Mar. 23-Apr. 3.....	1	
Ecuador:	Guayaquil.....Mar. 19-26.....	10	
Mexico:	Merida.....Apr. 3.....	3	2

CHOLERA—INSULAR.

Philippine Islands:	Manila.....Feb. 27-Mar. 5.....	1	1
	Provinces.....Feb. 13-Mar. 5.....	32	20

CHOLERA—FOREIGN.

India:	Calcutta.....Mar. 12-19.....	38	
	Karachi.....Mar. 20-27.....	1	Imported.
	Madras.....Mar. 12-25.....	23	

PLAGUE—INSULAR.

Philippine Islands:	Manila.....Feb. 27-Mar. 5.....	2	2
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PLAGUE—FOREIGN.

Africa:	Cape Colony.....Mar. 12-19.....	1	1
	Johannesburg.....Mar. 18-20.....	22	6
	Pretoria.....Mar. 28.....	2	
Brazil:	Rio de Janeiro.....Mar. 13-27.....	2	2
Egypt:	Alexandria.....Mar. 12-26.....	126	102
	Port Said.....Mar. 12-26.....	1	1
India:	Bombay.....Mar. 8-29.....	2705	295
	Calcutta.....Mar. 12-19.....	426	355
	Karachi.....Mar. 20-27.....	1	
	Madras.....Mar. 19-25.....	1	
Formosa:	Lima.....Feb. 1-29.....	114	80
Peru:	Lima.....Apr. 17.....	148	
Straits Settlements:	Singapore.....Feb. 26-Mar. 5.....	2	

Changes in the Medical Corps of the U. S. Navy for the week ended April 29, 1904:

HULL, H. F., WICKES, G. L., ZALESKY, W. J., assistant surgeons, appointed assistant surgeons with the rank of lieutenant, junior grade, from April 12, 1904—April 22.

STRITE, G. E., acting assistant surgeon, ordered to the Naval Recruiting Station, Baltimore, Md.—April 22.

BALCH, A. W., assistant surgeon, detached from the *Machias* and ordered home and to await orders—April 23.

SEAMAN, W., assistant surgeon, detached from the *Don Juan De Austria*, and ordered home and to await orders—April 23.

GRUNWELL, A. G., surgeon, sick leave further extended two months from May 2—April 26.

PAYNE, J. H., passed assistant surgeon, detached from the Naval Hospital San Juan, P. R., and ordered to the *Marietta*—April 27.

OHNESORG, K., passed assistant surgeon, detached from the Naval Hospital, Boston, Mass., and ordered to the *Topeka*—April 27.

IDEN, J. H., assistant surgeon, detached from the *Topeka* and ordered home and to await orders—April 27.

STUART, A., assistant surgeon, detached from the *Marietta* and ordered to the Naval Hospital, San Juan, P. R.—April 27.

STRINE, H. F., assistant surgeon, detached from the *Annapolis* and ordered to the *Helena*—April 27.

BACKUS, J. W., assistant surgeon, detached from the *Helena* and ordered to the *Annapolis*—April 27.

Changes in the Medical Corps of the U. S. Army for the week ended April 30, 1904:

HUNTINGTON, First Lieutenant, **PHILIP W.**, assistant surgeon, will proceed to Sorsogon, Sorsogon, for duty, relieving First Lieutenant **William R. Eastmann**, assistant surgeon, who will proceed to Manila for instructions.

HOGAN, DAVID D., contract surgeon, will proceed to Silang, Cavite, for duty, relieving Contract Surgeon **Joseph W. Reddy**, who will proceed to Manila, P. I., for instructions.

HANNER, First Lieutenant **John W.**, assistant surgeon, will proceed to Camp McGrath, Batangas, for duty, relieving Contract Surgeon **Charles F. Kuhn**, who will proceed to Camp Gregg, Pangasinan, for duty.

KULP, Captain **JOHN S.**, assistant surgeon, is assigned to duty as commanding officer, company of instruction, hospital corps, No. 2, Fort McDowell, to date March 30.

HOWELL, First Lieutenant **PARK**, assistant surgeon, will proceed from Fort McPherson to Fort Screven for temporary duty, to enable First Lieutenant **Harry L. Gilchrist**, assistant surgeon, to comply with orders. Upon arrival of First Lieutenant **Reuben B. Miller**, assistant surgeon at Fort Screven from leave, First Lieutenant Howell will return to his proper station.

LITTLE, First Lieutenant **WILLIAM L.**, assistant surgeon, is granted leave for 21 days, to take effect as soon after June 5, 1904, as his services can be spared by his post commander.

CHAMBERS, WILLIAM H., contract dental surgeon, with his enlisted assistant, will be relieved from temporary duty at Camp George H. Thomas, and will proceed with his assistant and dental outfit to Atlanta, Ga., and report at headquarters for duty until May 1, retaining station at Fort McPherson.

GOFF, A. P., contract surgeon, leave granted January 6 is extended one month.

ANDERSON, EVERETT A., contract surgeon, will report to the commanding officer, eleventh cavalry in camp, Presidio, to accompany a detachment of that regiment to Fort Riley and Jefferson Barracks, and upon the completion of that duty will proceed to his home, Devil's Lake, N. D., for annulment of contract.

ALBRIGHT, CHARLES W., and MANSEAU, OSCAR A., sergeants first class, now with company of instructions, hospital corps, No. 2, Fort McDowell, will report to the commanding officer eleventh cavalry in camp, Presidio, to accompany detachments of that command to Fort Des Moines and to Fort Sheridan, respectively, and upon the completion of this duty these soldiers will avail themselves of the furloughs granted them, reporting upon expiration of furlough at Fort McDowell for duty.

PATTON, First Lieutenant IRVINE W., assistant surgeon, will report not later than April 29 at Fort Jay for temporary duty with the troops going to Sea Girt, N. J. The commanding officer of Fort Wadsworth will direct Contract Surgeon George F. Adair to report at Fort Hamilton for temporary duty at that post to relieve Assistant Surgeon Patton. The medical officers will be returned to their proper stations when their services are no longer required.

WILCOX, Colonel TIMOTHY E., assistant surgeon-general, retirement from active service, April 26, 1904, by operation of law under the provisions of the act of Congress approved June 30, 1882, is announced. Colonel Wilcox will proceed to his home.

GREGORY, VERDO B., contract surgeon, will proceed to Atimonan, Tayabas, for duty, relieving Contract Surgeon Elias H. Porter, who will proceed to Binangonan de Lampon, Tayabas, for duty at that station, and in addition to these duties will attend the sick at Baler and Casiguran, Tayabas. Contract Surgeon Wallace E. Sabin will proceed to Candon, Ilocos Sur, for duty.

ARTAUD, FRANK E., contract surgeon, will proceed to Ilagan, Isabela, for duty.

TIGNOR, EDWIN P., contract dental surgeon, is granted leave for 15 days, from about April 30.

CRABTREE, First Lieutenant GEORGE H., and CONNELLAN, JOHN J., sergeant first class, are detailed for duty in connection with the Military Athletic Tournament, Madison Square Garden, New York city, which commences May 2.

MASON, Major CHARLES F., surgeon, is granted leave for four months, from about June 1.

Changes in the Public Health and Marine-Hospital Service for the week ended April 28, 1904:

PETTUS, W. J., assistant surgeon-general, granted leave of absence for seven days from April 26—April 25, 1904.

COBB, J. O., surgeon, granted leave of absence for four months from May 1—April 25, 1904.

WERTENBAKER, C. P., surgeon, to proceed to Toomey, Waterall, Logansport and Greenwood, La., for special temporary duty—April 26, 1904.

ROSENAU, M. J., passed assistant surgeon, one day's leave of absence, April 28, 1904, under paragraph 189 of the regulations.

ANDERSEN, J. F., passed assistant surgeon, granted leave of absence on account of sickness, for 17 days from April 5—April 28, 1904.

BERRY, T. D., assistant surgeon, granted leave of absence for three days from April 22, 1904, under paragraph 191 of the regulations.

HUNT, REID, pharmacologist, to proceed to New York, N. Y., for special temporary duty—April 20, 1904.

ALEXANDER, E., acting assistant surgeon, granted leave of absence for 10 days from May 1—April 26, 1904.

BAILEY, C. W., acting assistant surgeon, Department letter granting Acting Assistant Surgeon Bailey leave of absence for 11 days from April 22, 1904, amended to read 11 days from April 24—April 22, 1904.

BALLARD, J. C., acting assistant surgeon, granted leave of absence for 10 days from May 5—April 21, 1904.

GOLDSBOROUGH, B. W., acting assistant surgeon, granted leave of absence for three days from April 27—April 25, 1904.

RODMAN, J. C., acting assistant surgeon, Bureau letter granting Acting Assistant Surgeon Rodman leave of absence for six days from April 12, amended so as to read one day from April 13—April 23, 1904. Granted leave of absence for five days from April 26—April 25, 1904.

WATERS, M. H., pharmacist, granted leave of absence for five days from May 3—April 24, 1904.

Promotions.

RICHARDSON, T. F., assistant surgeon, commissioned, as passed assistant surgeon to rank as such from March 11—April 21, 1904.

KING, W. W., assistant surgeon, commissioned, as passed assistant surgeon to rank as such from March 13—April 21, 1904.

Boards Convened.

Board convened to meet at Stapleton, N. Y., April 23, 1904, for the examination of an officer of the Revenue Cutter Service.—Detail for the Board: Surgeon Preston H. Bailhache, chairman; Passed Assistant Surgeon A. C. Smith, recorder.

Board convened to meet at Washington, D. C., April 25, 1904, for the physical examination of a candidate for admission into the Revenue Cutter Service.—Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General W. J. Pettus, recorder.

Board convened to meet at San Francisco, Cal., May 9, 1904, for the physical examination of an officer of the Revenue Cutter Service.—Detail for the Board: Passed Assistant Surgeon W. G. Stimpson, chairman; Assistant Surgeon Carl Ramus, recorder.

SOCIETY REPORTS

GERMAN SURGICAL ASSOCIATION.

XXXIII Congress, Held at Berlin, April 6, 7, 8, and 9.

[Specially reported for *American Medicine* by Lawrence Hendee, A.B., M.D., Instructor in Anatomy, Cornell University, Ithaca; Z. S. Volontärarzt, Chirurgische Klinik, Königsberg, I/Pr., Member of the German Surgical Association, with due acknowledgment of Dr. Wohlgenuth, authorized reporter for the German Medical Press, and the members of the Association, who kindly furnished abstracts.]

[Continued from page 698.]

The Increased Weight-carrying Capacity of the Bone Ends of Amputation Stumps through Their Being Covered by Tendons.—WILMS demonstrated several patients in whom on operation he had covered the bone ends by a layer of tendons. The results appeared to be good.

Discussion.—BUNGE (Königsberg) held that the covering the bone end with tendon was unnecessary. He referred to his method, reported in the Congress, 1901, in which he removes the periosteum for a distance of about 1 cm. above the cut surface of the bone and also the medulla for about 2 mm. to 3 mm. By this means he never has seen a painful stump and within a short time the patient is able to bear his weight on the stump.

Bone Suture in Subcutaneous Fractures.—KÖNIG (Altona) advocated this method, particularly in those cases in which there was great displacement with impossibility of complete reduction, fractures in the neighborhood of a joint and in those when there were indications of delayed or impaired union. The operation should be performed within 10 days from the time of injury. By this method he had always had a rapid recovery and excellent function.

Discussion.—NUTZEL (Frankfurt a/M) reported 43 cases of bone suture covering the clavicle, tibia, fibula, femur, and humerus. He considered that by such a procedure in fracture of the femur one can always be sure of a better result with less shortening than by the usual method. BARDENHAUER (Cologne) was opposed to this method as being unnecessary in the majority of cases. He demonstrated by diagrams his method, apparently somewhat complicated, of traction and countertraction through a system of weights and pulleys. He reported 13 cases of fracture of the femur treated by his method in which there was not more than 2 mm. to 4 mm. of contraction. In conjunction with his system of weights and pulleys he causes slight passive movement of the leg on the eighth day and again on the fourteenth day. After the fifteenth day the traction is removed. GEISLER discussed the value of the plaster dressing in connection with traction.

Bone Transplantation for the Healing of a Pseudoarthrosis or Bone Defects.—MANGOLDT (Dresden) reviewed the cases of Bramann (Halle) and Müller (Rostock), then reported two cases of his own. One case was a pseudoarthrosis of the tibia situated about 8 cm. below the knee-joint and due to an osteomyelitis with total unions of the shaft. In the second case there was a bone defect on the posterior side of the shaft of the femur. In both cases bone transplantation was performed. Strips of periosteum with a thin layer of bone attached taken from the outer and inner surfaces of the sound tibia were used. Good results in both cases. In the first case of tibia pseudoarthrosis the patient was able nine months after operation to stand on the former diseased leg. In form the regenerated tibial shaft appeared like the normal. In the second case of bone defect in the femur, the cavity was entirely filled in and closed six months after operation. In conclusion he considered the free transplantation of periosteal strips with bone attached to offer great success especially in the young; the chief precaution in the operation being aseptis. He recommended the taking of the strips from the tibial surfaces, of ulna or ribs.

Method of Wrist-joint Resection, with Demonstration of Patient.—TJETZE (Breslau). The patient was able to move the fingers freely, both extension and flexion being strong—while the hand was also slightly movable in flexion and extension.

Pathology of the Knee-joint.—BECHER (Berlin). Demonstration consisted of charts showing the microscopic picture of various pathologic conditions of the capsule of the joint.

Early Operation for Tuberculosis of the Kidney.—KÜMMEL (Hamburg) first spoke of 280 kidney extirpations—of which 84 were tuberculous. He considered the tuberculous infection of the kidney to come through the blood channels and that the tuberculous kidney was the chief, if not the only source of infection for tuberculous ureteritis and cystitis. He dwelt on the great necessity of early diagnosis of tuberculous nephritis, and the improved methods of its diagnosis and location. Under this heading he considered of great diagnostic importance the catheterization of the kidney, mentioning Joseph's (Heidelberg) method. With the diagnosis positive, extirpation of the diseased kidney should follow. The prognosis varied in proportion to the early diagnosis. In tuberculous cystitis, operative procedure was of little value, the treatment being practically symptomatic.

Tuberculosis of the Kidney and the Results of Its Operative Treatment.—KRÖNLEIN (Zurich), in introduction, spoke of the anatomy and pathology of tuberculous

kidney based upon 51 cases operated upon by him in the last 15 years. Of these 51 cases, 13 were in men and 38 in women; in 92% the kidney on one side only was involved, and 8% double-sided kidney tuberculosis. In the 92% involving one side only, it was distributed in equal proportion between the right and left sides. An ascending tuberculosis was not met with in his experience; the infection coming in each case through the blood channels. In 12 cases it appeared without tuberculous foci in other parts of the body. In other cases it appeared early in combination with foci in other parts; in combination 22 cases with lung tuberculosis; 16 cases in combination with tuberculous cystitis; 12 cases with bone and joint tuberculosis; and 9 cases with genital tuberculosis. In 34 cases he made a total extirpation of the diseased kidney. The operation was always extraperitoneal. Results. Two patients died shortly after operation (complicated with lung tuberculosis); 6 patients died from 2 to 9 months after operation (complicated with lung tuberculosis); 2 patients died—one 6 years and one 10 years after operation. The remaining 24 patients are still alive. The following is the table of their observation; all are in good condition; in each event the year since operation is given: One case, 14 years; 2 cases, 10 years; 1 case, 9 years; 1 case, 6 years; 3 cases, 5 years; 6 cases, 4 years; 2 cases, 3 years; 1 case, 2 years; 7 cases, 1 year—total 24 cases. In the 10 fatal cases, 9 came to autopsy. In the 9 cases, 6 had a sound remaining kidney; in 2 the remaining kidney was tuberculous; and in 1 the remaining kidney showed a nontuberculous parenchymatous nephritis.

ARRENS (Ulm) reported the results of two cases of **nephrotomy**. One was a case with a solitary kidney, and the other for a stone of 28 years' duration. TREPLIN (Hamburg) reported cases of **double-sided renal calculus**. ENDERLEIN (Marburg) reported on the results of experimental and histologic investigation of **hydronephrosis** and its treatment.

The New Method of Operative Treatment of Chronic Nephritis.—BAKES (Trebitsch) reviewed the work of Edebohls, of New York, claiming that Edebohls' statistics were somewhat unreliable, and that he could not recommend in full Edebohls' procedure.

Discussion.—ROSENSTEIN (Berlin) considered that as yet Edebohls has not performed his operation on a single typical chronic nephrosis. STERN (Düsseldorf) has experimented with Edebohls' method on animals with very poor success and is not satisfied with the method. RIEDEL (Jena), KÜMMEL (Hamburg), and FRANKE (Braunschweig) declared that they had very poor results from the operation. (No one in the meeting spoke in its favor.)

Increasing the Resistance of the Peritoneum against Infection in Gastric and Intestinal Operations.—MICKULICZ-RADECKI (Breslau) held that the most careful asepsis is often insufficient to prevent infection of the peritoneum in severe operations on the stomach or intestines. In small or short operations the resistance of the peritoneum is often sufficient to overcome the small amount of infection that may occur, especially when special measures—as emptying the intestine before operation, compression, etc., are taken. The natural resistance of the peritoneum is not, however great enough to withstand infection of special virulence or quantity. The infection most frequently encountered is a polyinfection, usually the *Bacillus coli communis* with streptococci. The statistics show that the mortality from the severer intestinal operations is due to peritonitis following the operation. He reasoned that the resistance could be increased by producing a hyperleukocytosis. MIGATE (Breslau) with the assistance of Professor Flugge, have been conducting a series of animal experiments along these lines. The intraperitoneal injection of normal salt solution gave a hyperleukocytosis, but not of a very high grade. They found energetic nucleic acid gave the highest results. In animals, the leukocytosis following the subcutaneous injection of nucleic acid reached its highest point seven hours after injection and in man 12 hours. In man, a leukocytosis of 25,800 has been observed after its use. In animals they found the peritoneal resistance against infection by the stomach and intestinal contents increased 20 to 30 times. He reported 34 cases in man that had been injected as a preventive measure previous to operation. Of the 34 cases, 7 were stomach resections, 15 gastroenterostomies, while the remaining were various forms of severe abdominal operations. Excellent results were obtained in each case. In his technic of injection he uses 50 cm. of a 2% solution of neutralized Hefe nucleic acid obtained from the chemic factory of Borring (Mannheim). This he injects into the breast 12 hours before operation. In closing, he also advocated the flushing out of the peritoneal cavity with normal salt solution after each severe operation on either stomach or intestine.

Clinical and Experimental Investigations into the Difference in Pathogenic Qualities of the Intestinal Contents as Directed against the Peritoneum.—BRUNNER (Münsterlingen). The paper consisted mostly in the demonstration of charts and preparations.

Subcutaneous Artificial Nourishment.—In Stomach and Intestinal Operations and in Various Inflammatory Conditions of the Peritoneum.—FRIEDRICH (Greifswald) first spoke of the great advantages of this method when nourishment by mouth or rectum could not be taken or retained and when operative interference was not warranted. He had conducted experiments for some time with different solutions and

varying success. In his past experiments he had used olive oil 100 cc. per day, with fair success, reported in the Congress of 1902, grape sugar solutions of 3% to 4% strength, with even better success, not being satisfied with the results he had in conjunction with Siegfried (Physiology Inst Leipzig) sought for an albumoid preparation permanent in character. In pepsin peptone, made by Haden-Radebank bei Dresden, he found such a preparation. The injection of this substance caused no blood changes, rise in temperature or other symptoms and neither peptones nor albumins appeared in the urine after its use. It appeared not only to supply but also to preserve the body albuminoids. Used alone he found a 7% solution gave the best results. At present he is experimenting in its use in combination with normal salt solution and grape sugar solution.

PAYR (Graz) reported a case of **thrombosis** in the veins of the omentum and mesentery following an abdominal operation.

Ulcer of the Lesser Curvature.—RIEDEL (Jena) had tabulated the results of 58 cases, *i. e.*, 28 cases of isolated and 30 cases of multiple ulcers. In the isolated cases the ulcers were distributed as follows: In 17 cases, in the pyloric region; in 5 cases, in the anterior wall; in 3 cases, in the posterior wall; in 2 cases in the smaller curvature; and in 1 case, in the greater curvature. Of the 30 cases of multiple ulcers, 17 had ulcers on both walls, 2 with ulcers on the lesser curvature and anterior wall, 4 with ulcers on the lesser curvature and posterior wall, and 7 were complicated with pyloric ulcers.

Volvulus of the Stomach.—BORCHARD (Berlin) showed numerous diagrams demonstrating volvulus of the stomach in its various forms and stages.

The Status of the Problem of Perityphlitis.—BÜNGNER (Hanau) devoted the introduction of his paper to the review of the anatomic points of origin and relation to the surrounding tissues of the appendix. He presented charts illustrating his classification of appendicitis from the anatomopathologic standpoint. He subdivided the acute form as follows: 1. Epityphlitis and perityphlitis: (a) Simplex; (b) propria; (c) adhesive; (d) serofibrinous. 2. Epityphlitis and perityphlitis suppurative: (a) Intraperitoneal; (b) extraperitoneal. 3. Progressive epityphlitis and perityphlitis purulent. 4. Perityphlitis and epityphlitis with general peritonitis. 5. General pyemic infection. The chronic form he subdivided into that with stenosis, obliteration, hydrops, and empyema.

Review of the Clinical Symptoms of Appendicitis in Connection with the Pathology of Appendix and Abdominal Cavity.—LAUENSTEIN (Hamburg) distinguished two great groups in appendicitis. 1. Appendicitis initialis. This group he further subdivides into catarrhal, chronic, granulosa, and hemorrhagica. 2. Appendicitis perforative. In appendicitis initialis the pathologic changes are limited to the appendix, and in the most cases affect the mucosa only. These pathologic changes are epithelial necrosis, swelling, infiltration, and ecchymosis. In the diagnosis between appendicitis initialis and perforative, the author claimed the pulse had little value. In fact, he considered the pulse in general in appendicitis had more value from a prognostic rather than from a diagnostic standpoint. He entered somewhat deeply into the differentiation between the two types by means of the physical symptoms. He considered the blood examination often of uncertain value.

Intestinal Obstruction from Adhesions Following Appendicitis.—FEDERMANN (Berlin) presented a patient on whom he had operated with success for such a condition. He considered the pulse and temperature as important diagnostic signs in this condition.

CORDAN (Harburg) presented a short paper on the influence of the changes in the bloodvessels of the appendix mesentery in the development of appendicitis.

MEISEL (Freiburg), further investigations of the circulation in acute appendicitis.

Agreement in the Treatment of Acute Appendicitis.—SONNENBURG (Berlin) also advocated the teaching of the general public more about the disease, so they would report themselves early enough in the disease to be successfully treated.

The Favorable Time for Operation in Appendicitis.—KAREWSKI (Berlin) advocated immediate operation in acute cases.

Ureter and Bladder Resection in Hysterectomy for Carcinoma of the Uterus.—DEPAGE and MAYER (Brussels) reported 4 cases, in 3 of which they resected portions of both ureters, together with hysterectomy because the lower part of the ureters were involved in the carcinomatous mass. In the fourth case was a carcinoma of the bladder. In the three cases of hysterectomy, with ureter resection, the cut ends of the ureters were brought down into a button-hole like opening in each side of the bladder, and there sutured. In the case of bladder resection the right ureter was united to ascending colon and left to the descending colon. They claimed success in each case.

The Diagnostic Value of the Trochanterispina Line.—SHORMAKER (Gravenhage). The paper was illustrated by charts and diagrams showing the value of this line for diagnostic purposes—especially in fractures and dislocations. After reading his paper he showed a new instrument devised by him for rib resection.

REHN and STRAUSS (Frankfurt, s/M) both reported several cases of an interesting and peculiar bladder tumor,

occurring in the workmen of a neighboring dye factory. Göbel (Breslau) remarked on the similarity of these cases to those due to the so-called Bilharzia tumors from parasites.

The Treatment of Exceedingly Large Hernia.—MADE-LUNG (Strasburg) reported a case in which the contents of the sack was so great it was impossible to return them all to the abdominal cavity.

Discussion.—KAUSCH (Breslau) and BRAUN (Göttingen) reported similar cases. HELFERICH (Kiel) mentioned the danger of shock in the sudden reduction of such large hernias. BRODNITZ (Frankfurt a/M) reported a case he had treated by alcohol injections, with good results. He advocated this method in very young children.

Chronic Colitis and its Treatment from Surgical Experience.—BECK (Karlsruhe) advocated the surgical interference in uncomplicated cases of inflammation of the colon.

BORCHARD (Posen) reported a case of **intestinal obstruction** from a fresh syphilitic growth. Colostomy and after-treatment for the syphilitic condition brought about complete recovery.

The Etiology of Congenital Atresia of the Intestine.—KREUTZER (Erlangen). The paper was illustrated by charts showing the development of the esophagus and intestine.

REHN (Frankfurt a/M) demonstrated a specimen of **invagination of Meckel's diverticulum** with secondary invagination of the small intestine.

KLAPP demonstrated on a dog in which the **total anesthesia** extending to the head following the use of an oil cocain 1% solution injected by **lumbar puncture**. He has substituted gelatin for the oil with equal results. As yet he has not tried his oil or gelatin cocain solution on man.

Treatment of Stomach and Rectum Carcinoma.—PETERSEN (Heidelberg) took up the question from the prognostic standpoint based on statistics. The author in conjunction with Küferle and Colmers has examined 212 rectal and 66 stomach carcinomas. As the various types give an entirely different prognosis, he recommends the removal of a piece, when possible, before operation in order to make a more specific diagnosis of the variety. In all cases he recommends radical operation. The tabulated results of his cases are as follows:

STOMACH. RECIDIVE, 53 CASES.

1. Adenomatosum.....	24% of cases; recedive, 88%
(a) " simplex.....	9% " 85%
(b) " mucocyst and papilloma..	6% " 50%
(c) " gelatinosa.....	9% " 100%
2. Solidum.....	57% of cases
(a) alveolar.....	13% " 68%
(b) diffuse.....	32% " 55%
(c) gelatinosa.....	12% " 88%
3. Mixed forms.....	19% of cases " 100%

RECTUM. RECIDIVE, 125 CASES.

1. Adenomatosum.....	82% of cases; recedive, 80%
(a) " simplex.....	65% " 84%
(b) " mucocyst and papilloma..	9% " 100%
(c) " gelatinosa.....	8% " 100%
2. Solidum.....	11% of cases
(a) alveolar.....	7% " 100%
(b) diffuse.....	1% " 100%
(c) gelatinosa.....	3% " 100%
3. Mixed forms.....	7% of cases " 100%

Topography of the recedive based upon 34 cases of the stomach and 38 of the rectum. Stomach, organic, recedives, 56%; recedives in the lymph-nodes, 3%; recedives from metastasis, 41%; rectum, organic, recedives, 7%; recedive occurring in the connective tissue around the rectum, 50%; recedive occurring in lymph-nodes at some distance, 3%; recedive arising from metastasis, 40%, the metastasis being subdivided into 7% occurring in the lung and 93% in the liver.

The Results Following the Allowing of Compresses to Remain in the Abdominal Cavity after Operation.—REISE (Britz) had pursued a series of investigations in animals, allowing compresses, etc., to remain in the abdominal cavity after operation. No particular disturbances occurred in any case.

BARDENHAUER (Cologne) reported the results of his cases: (a) **Resection of the shoulder-joint** with notes on the after-treatment. (b) **Fractures and luxations in the neighborhood of the shoulder-joint.** (c) **Total resection of the scapula and head of humerus.** RECRINK (Freiburg) reported cases of **resection of the shaft of the long bones** for malignant tumors. BÖTTICHER (Giessen) demonstrated a preparation from a case of **bone cyst in the humerus.**

HERMES (Berlin), and KATZENSTEIN (Berlin) demonstrated patients operated for **cryptorchismus**, with a description of their operative technic. WENDEL (Marburg) reported a case of **thrombosis of the inferior vena cava** following an operation for an epinephroid tumor. SENER (Crefeld) presented a paper on the **prevention of carcinoma return** after operation for mammary carcinoma. KAUSCH (Breslau) the effect of **diabetes on surgical treatment.** HILDEBRANDT (Berlin) presented several röntgen ray pictures, showing **arteriosclerosis**, involving the anterior and posterior tibial arteries, occurring in **diabetes.** JORDAN (Heidelberg) reported a case of **pyemia** running a chronic course.

Officers Elected.—KRONLEIN (Zurich) at the close of the Seventh Session was elected president of the Association for the ensuing year. KÖRTE (Berlin) read the names of the new members received after the opening of the Congress.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

RHEUMATISM.

BY

EDW. A. CRUEGER, M.D.,
of Philadelphia.

Rheumatism, a disease of as yet undiscovered origin, prevails extensively over wide geographic limits, and especially in temperate climates. Although the disease has afflicted humanity from a very remote period, still from the literature on the subject it would appear to have been differentiated from other maladies of a similar character comparatively recently. Even now the distinction between rheumatism and other arthritides is not always clear at first examination. However, it is possible and generally easy to make a differentiation by the therapeutic reactions which fulfil all the practical and scientific requirements. Perhaps there are very few maladies which directly or indirectly entail more numerous and widespread morbid manifestations, yet fortunately for the sufferers, it is not only possible to relieve all these diseased states, but with a single exception they are all curable. This exception will be mentioned later.

In regard to the etiology of the disease it is considered, by many observers, to be due to a microbe which finds the field for its growth and development in the cartilaginous structures in any part of the body, though for peculiar reasons some of these cartilages are more easily invaded than others. This microbe has not yet been isolated and perhaps it never will be, as the conditions necessary to its existence occur only in the living body and postmortem changes may render it unrecognizable. However, conclusions can be drawn from the analogies between this disorder and those of a known microbic origin. These analogies are not complete, but they are at least suggestive. In one essential point the resemblance is strong. The disease is self-limited and will disappear when the pabulum which it needs is exhausted, or in other words, the disease will run its course and the patient will recover in a certain time. In acute articular rheumatism this time is about six weeks.

In regard to the morbid anatomy, there may be said to be two distinct conditions, primarily an inflammatory swelling of the invaded cartilages with all the local inflammatory symptoms, and, secondarily, the systemic intoxication due to diffusion and absorption of poisons generated in the diseased structures.

It would be useless to describe all the clinical manifestations of rheumatism, especially as the essential points will be alluded to under the head of differential diagnosis. In this, as in many other diseases, we must distinguish between the disease itself and the results of the disease. Thus the arthritis is rheumatism but purpura or migraine is the secondary effect.

The principal interest in rheumatism must, however, be the differential diagnosis and treatment. The sufferer cares very little what he has, so long as he can be and is speedily cured; and the physician must know what to treat in order to effect a cure.

Rheumatism and gout present many similar symptoms. Gout, however, is more apt to be symmetric, the corresponding joints on both sides of the body being affected at the same time, at least in the most common expression of gout which we encounter in this country. Rheumatism will by preference attack the large joints or the heart, while gout occurs most frequently in the small joints. Gout is more common in the aged, while rheumatism is more prone to affect those in the most vigorous decades of life. The duration of gout is usually longer than that of rheumatism and the depression of spirits and melancholia are more of a feature in gout than in rheumatism. Rheumatism is a specific disease, while gout is a condition due to the retention in the system of morbid metabolic products, hence both diseases may, and very often do, coexist; but this relationship also occurs between gout and other diseases. In almost any state in which the temperature is high or continuous, gout exists as a complication.

It has been claimed that pain is of a different character in the two diseases, but this is probably more or less fanciful, though absolute rest will give more relief to rheumatic than to gouty pains. Rheumatism is apt to be associated with circulatory disturbances, while gout is apt to be associated with digestive disturbances. Tophi and Heberden's nodes are the evidences of gout.

Most conclusively, however, the salicylates or salicin will relieve the pain in rheumatism. They intensify the pain in gout.

It is not usually difficult to decide between sprains or bruises, dislocations, fractures, or other traumatic injuries and rheumatism. Here the history of the accident together with the examination will make it a simple matter.

Tuberculous joint disease is often mistaken for rheumatism, and in the early stage it may be difficult to decide, especially if there are no collateral symptoms to guide one. After the disease has existed for some time it is usually a simple matter to differentiate them. Rheumatism is polyarticular, usually associated with circulatory disturbances, and is relieved by salicin; while tuberculous arthritis is usually monarticular, is accompanied by other evidences of tuberculosis and is not benefited by salicin or the salicylates.

Osteitis, periosteitis and bursitis are traceable to injuries and can usually be differentiated by the history, and always by the reaction to salicin. Neuritis and neuralgia follow the course of nerve trunks.

The peculiar dislocations and knobby deformities of arthritic deformans are unlike rheumatism. They are symmetric, obstinately rebellious to treatment and have for their concomitants peculiar nervous symptoms which do not associate with rheumatism. Gonorrheal arthritis follows a primary urethritis and is monarticular. There are, moreover, two essential features in which rheumatism differs from all other arthritides; the character of the temperature and the peculiar odor of lactic acid so often noticeable in the perspiration. The temperature will distinctly rise as each new joint is involved and decline as the joint becomes less painful. This is leaving out of consideration the results of treatment.

Rheumatism is the only disease in which there is an odor like that of sour milk and in which salicin or the salicylates will give prompt relief to the pain. A rheumatic joint is, of course, likely to present a characteristic appearance, but as other conditions may present a similar appearance it has no diagnostic importance.

It must also be borne in mind that rheumatism often complicates or is complicated by any of the other arthritides, or indeed, more than one of them, and then only the rheumatism would be relieved by the specific agent.

In addition to affecting the articulations, rheumatism often occurs either primarily or secondarily in any part of the body where cartilage exists; most usually the heart, lumbar muscles, larynx, and aponeuroses of any of the voluntary muscles. In each case the symptoms are those due to inflammation and pressure. Fortunately it is very rare indeed that there is not also some arthritis present which will assist in making the diagnosis.

Before discussing the treatment it will be necessary to state that the disease is acute, subacute or chronic, in accordance with the clinical manifestations. While the acute and subacute varieties respond readily to treatment, chronic rheumatism cannot be cured by specific treatment. Chronic rheumatism is more than rheumatism. It is principally fibrous tissue formed as the result of the long-continued presence of an irritant; the rheumatic germ if we admit such to be. This is the exception alluded to in the beginning of the paper.

Salicin has the same specific action in rheumatism that iron has in anemia, mercury in syphilis, or quinin in malaria. It must be given in doses of sufficient size, for the failures attributed to it are due either to the fact that the drug has been prescribed for other diseases than rheumatism or that too small doses have been used. There is no essential difference between salicin and the salicylates, except that salicin may be used in larger doses, and does not disturb the stomach. It is also free from the injurious effect on the heart for which some observers have blamed the salicylates. It is probable, however, that this is, at least, an exaggeration.

The initial dose of salicin in any case of rheumatism of ordinary severity should be 1.3 gm. (20 grains) an hour, and this continued until the pain is relieved; or if the dose proves to be insufficient, then it should be increased to 1.6 gm. or 2 gm. (25 gr. or 30 gr.) and this dose kept up until relief is obtained. If there is still no decided amelioration of the symptoms, it is either not rheumatism or it is complicated with some other condition, and it becomes necessary to revise the diagnosis. However, if the case is one of uncomplicated rheumatism, and the pain be markedly relieved or entirely controlled in from six to twelve doses of the size mentioned, as is usually the case, the intervals of administration should be increased to two hours, and this kept up for about six doses, and then a dose of half the size used at the same interval, and this continued until either all the symptoms (such as swelling, stiffness, etc.) entirely disappear or the symptoms exacerbate, due either to a new joint becoming involved or the original one flaring up again, when the initial dose and same treatment should be repeated.

After the rheumatism and its causative factor have been removed, the stomach will no longer tolerate the remedy, but will exhibit symptoms of acute gastritis, which will at once disappear when the remedy is withdrawn. It appears to be simply a chemic reaction between the poison of the disease and the remedy, one neutralizing the other in the human body, which is practically a test-tube and is sensitive to the action of either the toxin of the disease or the remedy, either of which acts as a poison when in excess, and either of which is capable of exactly neutralizing the other.

Experience has shown that the doses mentioned are the quantities usually necessary to produce this neutralizing effect, but there is no reason why they should not be increased if necessary. Contrary to this, it might be possible to control a very mild case with smaller doses.

The doses mentioned refer to salicin. The doses of the various salicylates are from .13 to .78 gm. (2 gr. to 12 gr.). They are all more irritating to the stomach, even in rheumatism, than salicin, though it does sometimes appear that they act more promptly than salicin in relieving the pain, but even then they have to be withdrawn and salicin substituted in a short time. The patient should be confined to bed, or at least kept perfectly quiet until all inflammatory symptoms disappear. However, this need not concern us, for salicin, even in therapeutic doses, is very apt to cause somnolence and slight stupor, which will disappear when the remedy is discontinued.

Unfortunately, one attack of rheumatism does not confer immunity to subsequent infection; but, on the contrary, once a rheumatic always a rheumatic; this is probably due to germs or their spores lying dormant in the body and developing when resistance is lowered sufficiently. The secondary effects of rheumatism will disappear when the cause is removed. The complications must be treated on their merits.

A NEW METRIC MEDICINE GLASS.

BY

M. I. WILBERT, Ph.M.,
of Philadelphia.

Apothecary to the German Hospital, Philadelphia.

In an article on "Popular Dose Measures, and their Relation to the Use of the Metric System in Prescription Writing," published in *American Medicine*, February 15, 1902, there is described, and figured, a tumbler-shaped metric medicine glass that has been in use in the German Hospital, Philadelphia, for a number of years.

A series of experiments that were made some time after the publication of that paper, led to the conclusion that this medicine measure, in common with all measures of its particular type, was not as accurate as one might wish, and that owing to the comparatively wide area of the base, it was difficult indeed to measure, even approximately, the smaller quantities required. This inherent defect of all tumbler-shape measuring glasses will be more appreciated when the fact is recalled that one and two teaspoonful doses are prescribed relatively more frequently than any of the larger quantities.

In summing up my experiments with dose measures, it occurred to me that a medicine glass having a comparatively small diameter at the lower gradations would be more desirable, and would have some important advantages over the usually wide or squatty tumbler-shape measures now in use.

After considerable discussion as to the feasibility of making a moulded, conical glass that would be sufficiently inexpensive to be used as a medicine glass, and after submitting several models and offering a number of suggestions, we were finally successful in inducing one of the large manufacturers of hollow ware to undertake and make for us a moulded glass that would conform to our ideas and requirements.

The resulting medicine measure, a picture of which is appended, is of inverted cone-shape, with a heavy base or foot. It is 75 mm. high, over all, and has an inner diameter of 50 mm. at the lip, while at the base the inner diameter is but 10 mm. At the one teaspoonful mark, which is 25 mm. above the bottom, the inner diameter of the glass is about 20 mm., while at the two teaspoonful mark, 35 mm. above the bottom, the diameter is but little more than 27 mm.

Specimens of this medicine glass shown at the meeting of the American Pharmaceutical Association at Mackinac Island (August, 1903) were favorably commented on by a number of the members.

As will be noted this glass conforms to one of the most reasonable requirements for measures of capacity, and one that should be insisted on for all measures intended for liquids, namely, that the height of the contained liquid at any given graduation, should be greater than its diameter.



The evident advantages possessed by a graduated conical glass, to measure differing quantities of liquid, are so apparent that it is surprising indeed that this particular shape has not been suggested or used before as a popular dose measure.

In actual practice these glasses have proved to be even more satisfactory than was at first expected. In addition to

being infinitely more accurate as dose measures, particularly for the one and two teaspoonful quantities, they also facilitate the administration of doses of liquid medicines. This latter is due to the fact that the short sloping sides of the glass make it possible to bring the edge of the glass to the lips of the patient without slopping or spilling any of the contained liquid, while the comparatively wide mouth of the glass facilitates drinking from it. In addition to this the glass has no sharp corners and is therefore very readily cleaned and easily kept clean.

The most surprising advantage, however, is the durability that the glass has been demonstrated to possess. This particular shape has been in use at the German Hospital, Philadelphia, for nearly a year, and during that time, despite the fact that there has been a decided increase in the number of patients treated, we have broken less than one half the number of medicine glasses that were used for a similar period of the previous year. This is all the more surprising as it had been argued that a glass having a foot like a goblet, would necessarily be more fragile than one having straight sides. The manufacturers themselves have become so impressed with the advantages of this particular glass that they are now about putting on the market a medicine glass, graduated in drams and ounces, having the same style and shape.

In reference to metric graduations, it may be well to say that comparatively few physicians appear to appreciate the fact that the ordinary household utensils, ordinarily used as medicine measures, really conform, very closely, to metric quantities and do not even approximately correspond to the usually accepted equivalents of drams and ounces. The average teaspoon, for instance, will hold, when even full, almost exactly 5 cc., or about 30% more than the usually accepted equivalent, one dram. The tablespoon, on the other hand, seldom exceeds the usually accepted equivalent, or about 15 cc., and very seldom, if ever, holds more than the equivalent of three teaspoonfuls. It is true, that many physicians have themselves discovered this discrepancy and found that the average two or

four-ounce bottle, instead of holding 16 or 32 doses of one teaspoonful, respectively, as usually supposed, only holds 12 or 24 of such doses, when measured by means of the ordinary teaspoon. The equivalents, therefore, that have been adopted in France, Belgium, and other countries, where the metric system of weights and measures has been thoroughly established, are not arbitrary ones, chosen to fit in with that particular system, but are based on fact and experiment, and may well be borne in mind by all, even such as do not use the metric system in their routine work.

Considerable attention is being directed at the present time to the unification of standards of strength and quality, particularly of the more potent drugs and their preparations. Some attention has also been paid to the unification of doses and dose measures, so that, probably in the near future, we may have some international agreement on the equivalents to be used for the various household utensils used as dose measures, very much similar to the recommendation adopted by the recent "International Conference for the Unification of Potent Drugs and Preparations" in regard to drops and droppers. This item in the accepted protocol, it will be remembered, was a recommendation to adopt a normal drop measure or tube, the exterior diameter of the dropping surface of which should be 3 mm. and deliver 20 drops of distilled water to a gram or cubic centimeter (at 15° centigrade). In the meantime, however, while we are waiting for such action to be taken it may be well for physicians to recognize, or remember, the fact, that a very serious discrepancy does exist between the quantities usually regarded as a spoonful by them, and the quantities that are measured out by attendants or patients, either with a tumbler-shape medicine glass or the more generally used spoon. This discrepancy may, and probably does, account for a very large proportion of the so-called idiosyncrasies, abnormal susceptibility or, on the other hand, nonsusceptibility, to many of the more potent medicaments on the part of some patients, and certainly does not tend to foster accurate or close observation or to promote the progress of therapeutics along rational lines.

Free Hotel for Chicago's Cripples.—A summer resort for the exclusive patronage of the children of the Crippled Children's School, of Chicago, will be opened this summer near one of the Wisconsin lakes. To these who are unwelcome at the hotels built for the more fortunate the proposed summer resort will be a Saratoga, only during July and August the guests will pay nothing. The hotel is to be built by the Crippled Children's Vacation and Lunch Association. So soon as the site has been settled on, a hotel or "country house," equipped to meet the especial requirements of the cripples, will be built, and no expense spared to add to its comforts and conveniences.

"The Champion Fit Thrower of Harlem."—It is stated recently that on a public street in New York a man was seen to fall apparently with a convulsion. A crowd of curious persons gathered about him, many of whom were women, who expressed sympathy for the unfortunate man; an ambulance was ordered, and when the ambulance surgeon saw the man he recognized him as one known as the "champion fit thrower of Harlem." The bystanders, especially the women, were angered and called the surgeon a "brute," who, yielding to their wishes, took the man to a hospital. Various devices were adopted there to prove that the patient was not in a genuine fit. He withstood the sharp jabs of pins and the torture of fire without a wince, but when one of the surgeons suggested putting the man into a scalding hot bath he jumped from his cot and tried to flee from the room. Then he acknowledged the sham, and was sent, a prisoner, to jail.

Inoculation of Swine to Prevent Cholera.—Another valuable antitoxin has been discovered as the culmination of a long series of experiments, extending over a number of years, conducted by the Department of Agriculture. The animal industries of this country will probably be as greatly benefited by the preventive inoculation of swine for hog cholera as by any discovery in this domain that has been made in recent years. The basis of the immunity experiments has been the use of attenuated and disease-producing liquid, or dried blood, taken from infected animals, or the use of this blood mixed with blood from immune animals, in which the immunity has been increased by the injection of large doses of disease-producing blood obtained from hogs known to have the disease. The experiments have established the fact, that animals once thus immunized against this disease will resist repeated large doses of disease-producing blood, and also subsequent exposure to diseased animals in the field.

ORIGINAL ARTICLES

THE DIARRHEAS OF INFANCY AND EARLY CHILDHOOD.¹

BY

THOMAS MORGAN ROTCH, M.D.,

Boston, Mass.

Professor of Pediatrics, Harvard University.

So much work has recently been done by pathologists and bacteriologists in connection with diseases of the enteric tract that it has seemed to me that the results of the work of clinical investigators in these diseases should not only be revised, but should be reported. This is especially necessary at this time when bacteriology needs the assistance of clinical observation to determine the questions of prognosis and treatment for diseases caused by certain special organisms which have lately come into prominence.

A word of explanation is perhaps called for as to the title of this paper, namely, "Diarrheas," especially as diarrhea is the name of a symptom of intestinal disturbance and not a disease. The word simply means abnormal peristalsis of the intestine caused by irritation of a part or the whole of the intestine.

The names which in the past have been used to represent the diseases of the enteric tract are now in the light of recent bacteriological research found to be wholly inadequate and often misleading. Striking examples of this statement are the terms summer diarrhea and dysentery, names commonly used and accepted everywhere, even by recent writers, and yet entirely unmeaning so far as representing any specific individual disease of the intestine and merely covering large and indefinite groups of enteric disturbances. If, however, we endeavor, in discussing these names, to adopt more appropriate terms derived from our knowledge of the various pathological conditions which have been found in the intestine we are at once met with greater difficulties, and are forced to acknowledge that we are little better off than when we used the old names of symptoms to represent actual diseases.

Our knowledge of the diseases of the intestine in infants is exceedingly limited, and yet if we expect students in different parts of the world to understand what disease is meant when it is being studied in connection with the writings of others, it is very necessary that some common nomenclature which can be accepted all over the world should be adopted provisionally. For this reason, in 1894, the American Pediatric Society adopted a provisional nomenclature of these diseases, drawn up by Dr. Holt and myself, and as we knew that only approximate conclusions as to the actual lesions which existed could be drawn clinically, we concluded that a practical clinical diagnosis should be made according to the region of the intestine in which the stress of the lesion existed rather than to attempt to designate all the pathological conditions which were present. In support of this view it is well to review the general principles which influence the symptoms and prognosis, and render the diagnosis of intestinal diseases exceedingly difficult, before attempting to discuss any one of them separately.

Clearing the ground in this way we may eventually be able to arrive at a clearer and more definite idea of what special disease is meant when certain names are used, and also learn to differentiate with greater success the individual members of the various groups, for this, in the future, will undoubtedly be of the utmost importance for intelligent and effective treatment.

In regard to the general etiology of the diseases of the intestine, it is now fairly well recognized that certain disturbances arise in the enteric tract which may be

designated as functional. The word "functional" is used here simply in the meaning of disturbance of the function of the intestine without known lesions. These disturbances may be due to nervous conditions, such as fright and dentition, to simple indigestion of food acting as a foreign body in the intestine, or to certain elements eliminated in the intestine which by irritation may not only produce certain symptoms, but which also later may render the tissues vulnerable to bacteria. This functional group of intestinal symptoms represents a prominent and important peculiarity of all diseases occurring in infancy, and one which would naturally be expected to assert itself at this early period of development by a great variety of clinical pictures, namely, symptoms produced by reflex causes, such causes not necessarily being primary in the intestine. By reflex we understand simply peripheral irritation with a resulting action.

In the case of eliminated elements we merely know that the symptoms seem to be produced by morbid products eliminated from the blood by the gastroenteric tract, as, for example, those in the diarrhea occurring in measles. This special etiological factor can be spoken of under the term eliminative, and this group of reflex intestinal disturbances, whether of nervous, digestive or eliminative origin, are all non-inflammatory, and may be classified under the term functional.

In counterdistinction to this great variety of functional diseases, which are especially prominent in infancy, is another group of intestinal disturbances which are caused by specific organisms. These organisms either of themselves or through their toxins may produce certain diseases of the intestine which we call *organic*, using the word "organic" simply in the sense that in these diseases we have recognized known lesions.

Allowing that the term inflammatory has never been explained in a thoroughly satisfactory way or based on unquestioned facts, I have found it clinically best to use it provisionally as of great aid in simplifying our nomenclature when discussing this organic group of intestinal disturbances. With this understanding, the organic group of intestinal disturbances may be divided into *non-inflammatory* and *inflammatory*, so far as the symptoms are concerned, although the determining line between these two conditions is at times very doubtful.

The general pathological anatomy of the gastroenteric tract of infancy is essentially that of the ileum and colon. Again, in the cases in which the more severe lesions are present, the stress of the lesion is usually in the lower ileum and colon, and very frequently in the colon only. The terms ileo-colitis and colitis seem, therefore, to have a provisional place in our nomenclature in place of the crude and misleading terms summer diarrhea and dysentery.

The great number of lymphatic nodules and the abundance of lymphatic plexuses are the principal anatomical conditions which influence the pathology of the enteric tract in early life. It is also noticeable that the pseudo-membrane in ileo-colitis may often be extensive, yet sloughing or perforation are exceedingly rare the younger the individual.

The number of flora which exists in the intestinal tract is very numerous and the varieties have not all as yet been differentiated. It is therefore possible that there may be in a bacteriological sense more diseases of the intestine than are at present recognized and that up to the present time we have from a clinical point of view been diagnosing and treating groups of diseases rather than special members of these groups.

There is little doubt that the bacteria may find their way by means of the stomach to the intestine and that the acid secretion which they meet in their way through it is not sufficient to prevent their arriving alive in the intestine. It has been shown by Knox and others that live bacteria may enter the intestine in water as well as in milk and other carriers. It is also commonly accepted

¹ Read before the Yale Medical Alumni Association, February 10, 1904.

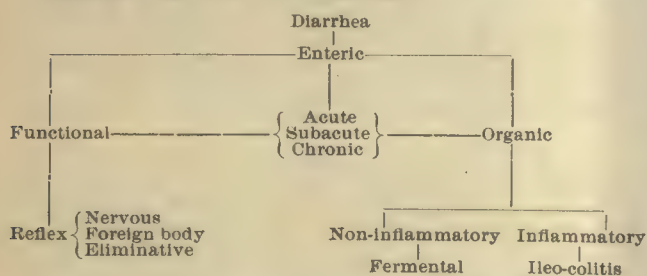
that the bacteria which are found in the intestine when it is in a normal condition do not necessarily cause any abnormal conditions, but that when the intestine has become irritated from any cause, bacteria are able to penetrate its mucous membrane, may become noxious and produce abnormal conditions of a serious nature.

It is now well known that vomiting as a symptom is often very misleading in infancy, so far as a differential diagnosis between the stomach and the intestine is concerned, and that in certain disturbances of the intestine vomiting occurs without disease of the stomach, showing that there is no characteristic symptom of gastric disturbance. On the other hand, the one specific symptom which points toward disease of the intestine is diarrhea, and the only symptom which as a rule can be relied on in diagnosing enteric disturbances is diarrhea. We must understand that marked diarrhea may exist during life and no lesion be found at the autopsy; that there may be serious lesions and yet no blood appear in the dejections and that blood may appear in the dejections and yet no serious lesions exist, the hemorrhage being only that comparable to epistaxis; also that serious intestinal symptoms during life are often proved at the autopsy to have been produced by no pathological lesions while grave lesions may be found at the autopsy when the intestinal symptoms during life were very mild. It is also to be noted that intestinal discharges are often very misleading in making a diagnosis.

Classification and Symptomatology.—Diarrhea or abnormal peristalsis is closely connected with all known clinical diseases of the intestine and in saying this I have, of course, set aside the various developmental conditions and conditions associated with constipation, for the reason that they have, so far as our present knowledge of this class of cases is concerned, no place in this discussion. It must also be understood that although the most frequent time for the occurrence of diarrhea in infants is during the summer months yet that this is only by comparison and does not imply that diarrhea may not occur at any time in the year and in any climatic surroundings.

Table A represents in tabular form a provisional nomenclature explaining what has just been said.

TABLE A.—PROVISIONAL NOMENCLATURE OF DISTURBANCES OF THE INTESTINE IN INFANCY REPRESENTED BY THE SPECIAL SYMPTOM DIARRHEA AND USUALLY SPOKEN OF AS SUMMER DIARRHEA OR DYSENTERY.



Functional.—Under functional are classified certain nervous disturbances, represented by diarrhea, which occur presumably in infants because their nervous system is so easily affected and is so unstable and undeveloped, that without any known lesion, exaggerated peristalsis causing diarrhea may arise from heat, cold, fright and like causes in no way connected with organisms. In the same way foreign bodies such as food or by eliminated irritants may by simple reflex irritation cause such nervous disturbances as to produce diarrhea. In these cases either the small or the large intestine or both may be affected and so far as we know the mucous membrane is either normal or simply hyperemic. There is more or less serous exudation in the intestine, but intestinal decomposition, inflammation, pathological lesions or causative pathogenic organisms are not present pri-

marily. As a rule there is not much abdominal pain and the diarrheal discharges are small in number and not very large. There may be a certain amount of restlessness, pallor and exhaustion. There is occasionally vomiting evidently from reflex irritation, but it is rarely extensive. The temperature is as a rule not raised or is raised very slightly. The pulse is rather weak and is somewhat accelerated. The odor of the discharges is somewhat increased, but not excessively so; there is usually a good deal of flatus. The color of the discharges is lighter than normal but is seldom green. These symptoms, unless they are exaggerated by a recurrence of the cause, by improper food or by bad treatment, usually disappear in a few days on removal of the cause of the nervous disturbance.

Very little is known about the eliminative causes of diarrhea but they seem to represent a conservative effort of nature to dispose of toxins resulting from chemical or bacteriological disturbances in various parts of the body.

There are also certain cases of intestinal indigestion which have not yet been proved to have any pathological lesions or to be caused by organisms and which therefore must be classified as functional. The rapid recovery of the acute form of these cases of indigestion, following a simple laxative and by the regulation of the diet, is so marked that in them we would hardly expect to discover a specific organism as their cause. It is in the chronic form of functional disturbance of the intestine that we should in the future endeavor to determine by careful research whether some specific organism is not involved in the disturbance and is preventing recovery, for as I have already stated although these disturbances may arise in the intestine primarily from other causes than a specific organism, yet, after certain periods of irritation, the intestine becomes vulnerable and infection may take place either from one organism or from a number. It is this class of cases which is least understood and which offers a great field for future investigation.

Organic.—Having discussed the general principles of the disturbances of the intestine represented by diarrhea and explained the class of cases which is understood to be classified under the term functional we can in like manner take up the organic class which includes:

(1) The non-inflammatory cases represented by toxic conditions produced by bacteria or their toxins and (2) the inflammatory cases. In this sense the organic diseases of the intestine may be divided into two groups. (1) *Fermental* which represents the non-inflammatory cases and (2) *Ileo-colitis* which represents the inflammatory cases.

Fermental.—The fermental class holds a position midway between the functional forms of intestinal disturbances and the organic with its pronounced lesions. It includes conditions which arise from acid fermentation and albuminous decomposition and which are produced by microorganisms. The disturbances which arise in this class represent the greater portion of the diarrheal diseases which occur in infancy, especially during the warm months of the year, though they may occur at any time in the year. In these cases the condition of the mucous membrane may be normal or there may be a desquamative catarrh. The process may go no farther, or it may be followed by inflammatory changes in the intestinal mucous membrane. The symptoms of fermental diarrhea may be acute, subacute or chronic.

Acute Fermental Diarrhea.—The group of symptoms which represents acute fermental diarrhea is in all probability produced by a variety of organisms, some of which have been differentiated and some have not. It is well, however, to look clinically upon the symptoms as a group, in order that we may be aided in differentiating this class of cases without marked intestinal lesions from the more serious class in which marked lesions are found. This does not necessarily mean that there is a sharp distinction between the fermental diarrheas and

those diarrheas which occur in the class of inflammatory cases, which we shall consider later and which have been already spoken of as ileo-colitis. In fact, we have considerable evidence that, given an infection of the intestine, it is merely a matter of degree or of length of time as to whether one class or the other, fermental or ileo-colitis, is produced. Of great significance in these cases is the temperature, which in the fermental class of cases evidently represents a toxic condition from its sharp rise and after 24 to 48 hours speedy decline by crisis, but when the process has gone further, as in the cases of ileo-colitis, the temperature does not fall to normal rapidly, but continues raised for a number of weeks and regains its normal line by lysis. In other words, the temperature chart gives us the most valuable aid in differentiating between a form of intestinal disturbance represented by a lack of marked pathological changes in the mucous membrane and one which is represented by marked pathological changes. Fermental diarrhea is in its onset represented by a high temperature and often active vomiting. After a variable period of general discomfort and restlessness diarrhea sets in. The diarrhea is very variable and, although it may be accompanied by much prostration and various nervous disturbances, yet it may disappear after a few days; in other instances, especially in the warm weather, it may last for months. The color of the discharges is commonly some variety of green or greenish-yellow and the odor is often very offensive, sometimes being excessively sour, one which is supposed to arise from acid fermentation, and at other times the extremely foul one of albuminous decomposition. The discharges are generally accompanied by considerable pain and a large amount of gas; they are usually not more than a dozen in number, and are large in amount in comparison with those which occur in ileo-colitis. As a rule, there is no blood, excepting in very small amounts; there is also more or less mucus. There is not, as a rule, much abdominal tenderness or tenesmus of notable grade.

The onset of fermental diarrhea however, is so often characterized by the toxic symptoms of a sudden rise of temperature, followed after a day or two by a normal temperature, that when we meet with this occurrence we are usually justified in eliminating the inflammatory and more serious intestinal lesions, though we are not justified in concluding that the same organism may not under certain conditions go further and produce marked lesions of an inflammatory character.

In some of the more severe cases certain special symptoms become so prominent as almost to produce a different type of the disease. Most important of these are excessive vomiting, attacks of hyperpyrexia and extreme restlessness and insomnia. There is usually rapid and great loss of weight. The symptoms are often so severe that the disease has a serious aspect, but in a considerable number of cases after the intestine has been thoroughly emptied, the temperature falls and the nervous symptoms subside. In cases which are not prolonged by fresh irritation or by unwise treatment, recovery often takes place quite rapidly. Albuminuria occurs in about 15% of all cases; casts, usually hyaline or fine granular, occur in about 60% of the cases of albuminuria. (Morse.) The renal condition in these cases is a degenerative one and not a true nephritis. This class of cases with intense symptoms is often exceedingly difficult to differentiate as this same set of symptoms may represent the initial stage of a number of diseases, especially the acute exanthems.

Subacute Fermental Diarrhea.—Another form of fermental diarrhea is represented by the subacute variety which with its slow onset, without vomiting and with the infrequency of the discharges is not as a rule difficult to differentiate from other acute diseases with heightened temperature and from the acute functional intestinal disturbances in which latter there is usually an absence of fever and very rapid recovery. The diagno-

sis, however, in these cases, if we have the symptoms only to rely upon, must often be held in abeyance for a number of days.

Chronic Fermental Diarrhea.—The cases of acute fermental diarrhea are at times prolonged for many weeks and even months and thus produce a chronic form of diarrhea which so far as I can determine does not necessarily signify that an ileo-colitis is present. This chronic form occurs especially in infants who are suffering from rachitis, syphilis, and general tuberculosis, also in those who have chronic bronchopneumonia.

Ileo-colitis.—The inflammatory form of intestinal disturbances, ileo-colitis, merely represents a large group of diseases each presumably having its own specific organism as a cause and possibly in the future its own pathological findings. Under this term are included all the more marked and grave lesions of the intestine. Eliminating however the cases of ileo-colitis which are produced by the tubercle bacillus, the typhoid bacillus and the *Amoeba coli* we are left with a group of intestinal lesions which probably represents a number of different diseases from an etiological standpoint. These have as yet only been partially differentiated and therefore it will be interesting in a general way to speak of these pathological conditions. It is this group of diseases which up to the present time has been spoken of under the term dysentery. I have already stated that the term dysentery should be dropped from our nomenclature; it merely means difficult defecation and must therefore represent the symptom tenesmus which though definite as a symptom may or may not occur in connection with marked pathological lesions or necessarily with any lesion at all. By using the term ileo-colitis as representing a group of symptoms we avoid the necessity of understanding by this term any one disease or symptom and this term can cover certain organic inflammatory diseases of the intestine with more or less pronounced pathological lesions.

On making a careful study of the various lesions which occur in this class of cases I have found that it simplified the subject to divide them into:

1. Simple catarrhal inflammation which includes the non-ulcerative form of follicular inflammation.
2. Follicular inflammation with ulceration.
3. Pseudomembranous inflammation.

All these three forms differ essentially in their prognosis and they are so often represented by the same symptoms that they can be differentiated only in the most general way. A symptom common to all these pathological conditions is found in the temperature, which, usually high at the onset, is as a rule moderately raised throughout the whole course of the disease and falls after a number of weeks by lysis. In this way we can usually differentiate these diseases from the non-inflammatory conditions and especially from the fermental class of cases in which, as I have already stated, the temperature falls by crisis.

The pathological lesions found in connection with the catarrhal non-ulcerative follicular and the ulcerative follicular approach each other so closely and the symptoms are so similar that a distinction between them is usually impossible.

The pseudomembranous form of ileo-colitis may be primary or secondary. The primary form represents what is usually spoken of as epidemic or sporadic dysentery. The secondary form is that which follows certain infectious diseases. In the pseudomembranous form of ileo-colitis the ileum and colon are chiefly affected. The disease is characterized by the presence of a membrane on the surface of the mucous membrane which extends into it and is due to a combination of fibrinous exudation and necrosis.

These cases of ileo-colitis may be either acute or chronic.

Acute Ileo-colitis.—The symptoms of the various forms of acute ileo-colitis vary greatly, but in a general way

they can be recognized by a group of symptoms which differ from those of the fermental diarrheas. The symptoms, however, of the different forms of ileo-colitis are very unsatisfactory and unreliable for differential diagnosis. The onset may be preceded by a fermental diarrhea or it may be acute from the beginning and have prodromal symptoms of not more than a few hours. The temperature is elevated, the pulse accelerated and there is a rapid loss in weight and strength. The discharges vary greatly, from 10 to 20 or even 50 in the 24 hours, and are comparatively small in amount. When the lesions happen to be in the rectum there is tenesmus both before and after a discharge and in the beginning of an attack an almost constant desire to have a movement. The discharges contain fecal matter at first, but soon become small, and consist of mucus, sometimes with pus, blood and shreds of membrane. The odor may be very offensive, but when the mucus predominates there is very little odor. The color and consistency are extremely variable. The general consistency is lessened and the color is a mixed green, brown and yellow. Blood, when present, is usually from congestion of the bloodvessels and from straining rather than from ulceration, so that we cannot determine from the presence of blood whether ulceration is present or not. The abdomen is soft and not tender or distended according to the time of the disease early or late when we see the patient.

Table B represents the chief general differential symptoms between acute fermental diarrhea and acute ileo-colitis.

TABLE B.—DIFFERENTIAL SYMPTOMS IN ACUTE FERMENTAL DIARRHEA AND ACUTE ILEO-COLITIS.

Acute fermental diarrhea.	Acute Ileo-colitis.
(a) Small intestine mostly.	Large intestine mostly.
(b) 10 to 12 discharges.	10, 15 to 50 discharges.
(c) No or little blood.	Blood.
(d) Mucus.	Mucus.
(e) No tenesmus.	Tenesmus.
(f) Not much abdominal tenderness and pain.	Abdominal tenderness and pain.
(g) No or slight lesions.	Lesions marked.
(h) Temperature high 104° F. for one or two days, and then falling sharply by crisis.	Temperature may be high at first (103° F. to 104° F.) but usually soon moderates (98° to 101° F.) and falls gradually by lysis to normal after some weeks.

In ileo-colitis there may be delirium and convulsions. Vomiting may occur at times. The urine is nearly always diminished in quantity, and sometimes contains a small amount of albumin, especially when the temperature is high. Casts may also be found. The renal condition in these cases is a degenerative one, and not a true nephritis. Acute nephritis is rare.

The clinical picture of all the inflammatory forms represented by ileo-colitis differs somewhat according to the lesions present; thus, it is usually found that in simple catarrhal ileo-colitis, when ulceration has not taken place, that the symptoms are milder and that there is apt to be vomiting. This variety begins to improve generally in one or two weeks, and may recover entirely in another week. In some cases, however, simple catarrhal ileo-colitis may be represented by symptoms of a very severe type, may run a rapid course, and may terminate fatally. When the inflammation is simple follicular without ulceration, the patients are very apt to recover.

When follicular ulceration has taken place, gastric symptoms are not apt to be present. The temperature is not as a rule high, and the course of the disease is rather slow, irregular, and prolonged. The patient fails steadily, and usually dies. A remission in the symptoms and an improvement in the character of the fecal discharges should lead us to infer that ulceration has not taken place.

Pseudomembranous ileo-colitis is rare in infants, but when it occurs it is the most severe of all the forms. The

temperature is high, 103° F., 104° F., or 105° F. There are apt to be blood and membranous detritus in the discharges. The progress of the disease is usually rapid and without remission, and death may take place in a week or ten days. Nervous symptoms, such as restlessness and delirium, are quite prominent.

I shall purposely omit the class of cases which is spoken of as cholera infantum, as so little is known about these cases, and as they may possibly be found later to be merely a severe form of fermental diarrhea.

The differential diagnosis of the different forms of ileo-colitis, which has just been discussed, from the fermental diarrheas depends chiefly on the continued heightened temperature, the more frequent discharges, the small amount in each, the presence of blood, and possibly of pus or membrane, and the tenesmus.

The prognosis of these cases of ileo-colitis when uncomplicated depends upon whether ulceration has occurred, in which case it is less favorable than when it has not occurred.

Chronic Ileo-colitis.—When the diarrhea has continued for some months after the acute symptoms have subsided the disease becomes chronic.

The pathological conditions in these cases are great thickening of the muscular tissues, pigmentation in the mucous membrane and very extensive ulceration.

Symptoms.—There may be no especial pain or tenderness and the temperature may be normal. The appetite often returns but the child does not gain in weight or it loses. The discharges are not so frequent as during the acute stage of the disease, falling to six to eight or even to two or three in the 24 hours. The discharges have a lessened consistency and contain mucus and undigested food. There may at times be exacerbations of the symptoms and the child is very apt to die of some intercurrent disease. The duration may be many months.

Conclusions.—The conclusions as to the diarrheal diseases occurring in infants which we were warranted in accepting up to 1897 were as follows:

1. There were no unvarying symptoms which as a group enabled us to diagnosticate special lesions in the acute cases or in the chronic cases and in the latter class it was not only impossible to determine which part of the enteric tract was affected but even to be able to state definitely that there was a primary specific disease of the intestine or even if there were marked lesions present.

2. In acute cases it was possible to determine usually whether the small intestine or the large was most markedly affected this being accomplished by the small number and comparatively large size of the dejections representing chiefly the small intestine, and the large number and small amount representing chiefly the large intestine.

3. That the temperature was of considerable aid in differentiating the non-inflammatory diarrheas represented by the fermental group from the inflammatory diarrheas represented by the ileo-colitis group; that is, absence of marked lesions in the former and presence of marked lesions in the latter; the temperature being high and falling by crisis in the former and high or moderate and falling by lysis in the latter.

4. That knowing where the stress of the lesion is situated, our treatment should be by the mouth in diseases affecting the upper part of the intestine and usually of the fermental class and by the rectum in diseases affecting the lower part of the intestine and usually of the ileo-colitis class.

5. That pus or pus and blood in the intestinal contents were usually of serious import as they pointed toward marked grave pathological lesions.

Bacteriology; Recent Investigations and their Clinical Significance.—What has so far been discussed in this paper is the knowledge regarding intestinal disturbances in infants which we had up to 1897, when bacteriological findings all over the world—notably in Japan—threw new light upon the subject.

Valuable pioneer work in the field of the diarrheas of infants was done by Booker many years ago, and his statement that his conclusions led him to believe that "no single organism is found to be the specific exciter of the diarrheas of infants" has been confirmed by the latest investigators of today. Time and space do not permit me to mention all the workers in this field, or the names of all the flora found in the enteric tract. The name Escherich will always be closely connected with observations which show that in the intestine of infants during health, the *Bacillus lactis aerogenes*, especially predominates in the upper part of the enteric tract, while the *Bacillus coli communis* holds the same position in the lower part.

It may, however, be said that in diseased conditions the difference between the flora in the upper and lower parts of the intestine is much less marked than in health. A great variety of bacilli had already been described as infesting the intestine of infants when Shiga's observations in Japan awakened new interest in and gave fresh impetus to the study of this class of cases. Thus I might mention the *Bacillus acidophilus* described by Moro and Finkelstein. A number of forms of bacilli pathogenic for man have also been isolated from the intestinal contents of infants suffering from diarrhea, and among others such pathogenic cocci as the *Staphylococcus pyogenes aureus*, *Staphylococcus pyogenes albus*, *Streptococcus pyogenes*, *Bacillus proteus vulgaris*, *Bacillus pyocyaneus*, and certain virulent forms of the colon bacillus.

In 1897 Shiga in Japan first isolated from the intestinal contents of patients suffering from so-called dysentery a bacillus which is called the *Bacillus dysenteriae* (Shiga). Shiga found that the *Bacillus dysenteriae* had many of the characteristics of the colon bacillus, but differed from it in a number of ways, such as in its failure to produce gas from the fermentation of sugar.

Following Shiga's discovery, Flexner in 1900 found this organism to be the cause of epidemic dysentery among the American soldiers in the Philippines. In connection with Flexner's work, that of Strong in Manila should be mentioned and soon after Kruse in Germany found the *Bacillus dysenteriae* in the intestinal contents of patients suffering from the so-called "asylum dysentery." This bacillus is now well recognized all over the world. It has been found in the diarrheal diseases occurring in China, Constantinople and other parts of Europe. It has been successfully isolated in America by Vedder and Duval in epidemics of dysentery and also by Bassett and Knox in connection with their valuable work in search of this organism in milk and drinking water.

According to the results obtained by Knox, since the *Bacillus dysenteriae* is related biologically to the colon and typhoid bacilli, which are usually conveyed to man through water, it is logical to suppose that it may also be carried in this way as well as in milk. As cases, however, have occurred where only sterile water and sterile milk were used as food it would seem that carelessness on the part of the attendants can account for a certain number of cases. Another cause of danger is infection from flies and other insects. Zahorsky in St. Louis and Park and Dunham in the Seal Harbor epidemic have also isolated this bacillus. Advanced and most valuable work has been carried out in the Bronx epidemic by Park.

Wollstein and others have shown that the Shiga bacillus is not present in the intestinal contents of healthy infants nor in the newly born. Wollstein from a study of 114 cases established the identity of diarrheal cases occurring in the winter with those in the summer; in most of these cases the Shiga bacillus was found when there were both blood and mucus; in many of the negative cases there were large quantities of mucus and undigested food, but no blood.

As stated by Flexner in a paper read before the Pediatric Society, in Washington, in 1903, Shiga con-

ceived the idea that among the host of organisms that can at all times be cultivated from the diseased intestine, if the organism causing the pathological lesions was present that the chances were that it would produce such changes in the blood as to cause agglutination, and would thus be proved to be the cause of the lesions. He observed that by means of the so-called Widal test it was possible to pick out of all the organisms which might be isolated in cultures from the discharges from the diseased intestine, that particular one which probably was the cause of the disease. He worked with an epidemic of dysentery and discovered that in all cases a single organism could be picked out by means of this agglutination reaction. When he came to study the properties of this organism he found that it differed from all the previously identified bacterial bacilli. Then he found that it agreed perhaps best with the typhoid bacillus. It differed somewhat from the typhoid bacillus in certain points which permitted its detection and separation from that group of organisms. It was also found that not only was this bacillus of Shiga present, so far as could be determined by clinical tests, but that the blood-serum of the individual who had this bacillus in the intestinal mucosa reacted definitely and positively.

Flexner found that the organism was not easy to obtain, on account of its similarity to other intestinal organisms, from formed stools or from feces. His success depended largely upon the condition of the fecal discharges. If blood occurred with the mucus in the stools the organism was obtained with greater ease than when mucus occurred with an absence of blood. According to Flexner, in searching for the organism a difficulty arises from the fact that it is not so very different from the colon bacillus and from the typhoid bacillus, as observed under ordinary conditions, so that one who is not familiar with it might easily be led astray in his work and in his results.

Pathology.—It is well in this connection to remember that two of the forms which belong to the dysenteric group have been definitely differentiated.

(1) The bacillary form or ileo-colitis caused by Shiga's bacillus; and (2) the amebic form or ileo-colitis caused by the *Amoeba coli*.

The form of ileo-colitis which is caused by the *Amoeba coli* is usually the chronic, and is especially characterized by deep ulcerations, while the bacillary variety represented by Shiga's bacillus may produce both the acute and chronic conditions, but especially the acute.

Knox describes a number of cases in which in infants affected by Shiga's bacillus death occurred and an autopsy was obtained. The lesions were slight; the mucosa pale and thin; the lymphatic elements in the intestinal wall moderately enlarged, and the mesenteric glands swollen. In some cases, however, the colon was extensively involved, the mucosa being thickened and often the seat of more or less extensive ulceration, the ulcers beginning usually at the summit of the swollen solitary follicles. The mesenteric glands were hypertrophied.

No false membrane was found in any of the cases. Knox did not find the lesions to correspond to the symptoms in all cases, the epidemic differing widely in this respect.

The lesions occurring in the ileo-colitis of infants probably differ but little from those which occur in older individuals, the difference being more in the type which is mild, the graver lesions occurring much less frequently than in adults.

According to Park, if the lesions of the small intestine and cecum are suitably localized the corresponding mesenteric glands become secondarily infected and swollen as in typhoid. The spleen is never involved. *Bacillus dysenteriae* (Shiga) probably does not enter into the general circulation, at least such complications as pneumonia and osteomyelitis are not met with.

There is still so much pathological work to be done

before we can recognize as in typhoid and tuberculosis which lesions represent especial organisms in this large dysenteric group that any further discussion of the pathological findings would be out of place in a clinical paper.

During the past summer I had some special work done for me at the Infants' Hospital by Dr. Charles Hunter Dunn, but it would not be practical to speak in this paper at length of the technic used in this work for detecting the *Bacillus dysenteriae*. It should be mentioned however that in order to establish a proof that the organism isolated from a case was the cause of the disease in that case, it was considered necessary to fulfil the following conditions:

1. The organism isolated from any case should show an agglutination reaction with a stock serum obtained through the immunization of an animal with the same type of organism.

2. The organism isolated from any case should show an agglutination reaction with the blood of the patient in dilution of about 1 to 200 at some period of the disease usually after six or seven days.

3. Stock cultures of these organisms obtained from other cases should show an agglutination reaction with the blood of the case under investigation at some stage of the disease.

4. The organism isolated should show all the proper cultural characteristics.

Agglutination does not usually take place until the end of the first week except occasionally in dilutions too low to warrant positive conclusions. The dilutions should be at least 1 to 200. In very marked cases Dunn has obtained agglutination in dilutions of 1 to 5,000. The agglutination lasts for at least three weeks.

The technic employed in Dunn's work was essentially that suggested by Flexner, with certain modifications originating with Vedder and Duval.

The bacteriological part of the work was carried out in the clinico-pathological laboratory of the Massachusetts General Hospital of which Dr. J. H. Wright is the director. I mention these details because in order to arrive at proper conclusions the bacteriological findings must be in the hands of experts.

The number of cases examined was 61, and they were taken at random from a large hospital clinic. They were all cases of diarrhea and no attempt was made to pick out special cases, but every one was taken as it came, so that the bacteriological findings should be unbiased by any idea that the *Bacillus dysenteriae* or any other organism when found should belong more to one of the classes of intestinal disturbances which I have endeavored to explain than to another.

In all the 61 cases examined for me by Dunn, when the *Bacillus dysenteriae* was found, the organism isolated was the "Mannit acid type." This is not the type of the original Shiga, but both types have been found in some of the examinations made in this country. This "Mannit acid type" is the same as that found by Park in the Bronx epidemic, and the same was found by Dr. Wollstein in all but one of Dr. Holt's cases.

The differences in these two principal types are as follows:

(A) THE "SHIGA TYPE."

1. Agglutinates in high dilutions only with the "Flexner serum."
2. Does not produce acid in Mannit media.

(B) "THE MANNIT ACID TYPE."

1. Agglutinates in higher dilutions with the "Harris" than with the "Flexner serum."
2. Does produce acid in Mannit media.

All other reactions and unusual peculiarities are practically identical in the two types. That is, the *Bacillus dysenteriae* represents a group rather than a specific type, and the specific types of this group are A and B as just described. Two other strains have been isolated differing slightly in their reactions to certain sugars from the above-mentioned principal types.

The following organisms were isolated in pure culture as shown in Table I.

TABLE I.

(A) NON-PATHOGENIC.

Bacillus coli communis.
Bacillus lactis aerogenes.

(B) PATHOGENIC.

Staphylococcus pyogenes aureus.
Staphylococcus pyogenes albus.
Streptococcus pyogenes.
Bacillus dysenteriae (Shiga.)

Of the foregoing organisms the *Bacillus dysenteriae* was found fulfilling the conditions considered necessary to establish it as the cause of the disease in ten cases; in other cases when it was found, the proof of its causal connection was not considered conclusive, in default of satisfactory agglutination reactions, and these cases were therefore not included.

In the remaining 48 cases the bacteriological findings consisted chiefly in sugar fermenting organisms with the occasional occurrence of a few pathogenic organisms. The 61 cases examined were clinically classified as tabulated in Table 2.

TABLE 2.

- | | |
|---|---------|
| 1. Chronic intestinal indigestion | 4 cases |
| 2. Fermental diarrhea | 48 " |
| 3. Ileocolitis | 9 " |

Of the cases classified as fermental diarrhea 37 were fairly typical. In the other 11, small specks of blood were present in the intestinal contents but they resembled clinically fermental diarrhea rather than ileocolitis. In the nine cases of ileocolitis the clinical picture was constant. The intestinal contents consisted chiefly of blood and mucus.

In the 48 cases of fermental diarrhea, were found as tabulated in Table 3.

TABLE 3.

- | | |
|--|----------|
| 1. No causative organism | 45 cases |
| 2. <i>Bacillus dysenteriae</i> | 3 " |

In the nine cases of ileocolitis were found as tabulated in Table 4.

TABLE 4.

- | | |
|--|---------|
| 1. No causative organism | 2 cases |
| 2. <i>Bacillus dysenteriae</i> | 7 " |

In the four cases of chronic intestinal indigestion no causative organism was found.

The clinical aspect of the cases in which the *Bacillus dysenteriae* was found was that seven of the cases were representative of the typical symptoms of ileocolitis described in the early part of this paper. The onset was sudden, there was fever, vomiting, marked prostration, diarrhea and tenesmus. There were about 6 to 20 dejections in a day and these were at first watery and green with mucus and with specks of blood. After one or two days they consisted almost wholly of blood and mucus. The temperature was irregular and continued longer than it did in the cases of fermental diarrhea.

Abdominal tenderness was present in more than half of the cases. Three of the cases showed the symptoms of fermental diarrhea and in one of these the clinical picture was typical. There was a sudden onset, sharp rise of temperature, vomiting, diarrhea and a number of loose green dejections with a bad odor and consisting of curds and mucus but no blood. The temperature remained raised for only a short time and the recovery was rapid.

In the other two cases no history of vomiting at the onset could be obtained, otherwise they presented the same clinical picture as the one just described. In none of the three cases were there even specks of blood in the dejections.

SUMMARY.

1. The analysis of these 61 cases showed that the *Bacillus dysenteriae* proved to be the cause of 16% of all the 61 cases examined. 2. The *Bacillus dysenteriae* may cause either the clinical type known as fermental diarrhea or that known as ileocolitis. In the 10 cases in which this organism was found it caused the symptoms of fermental diarrhea in 30% and those of ileocolitis in 70%. 3. Although a causal connection may be demonstrated between the *Bacillus dysenteriae* and fermental diarrhea, it was so demonstrated only in 6% of the cases of fermental diarrhea examined. 4. On the other hand, the *Bacillus dysenteriae* is probably the most frequent cause of ileocolitis, as it was so demonstrated in 78% of the cases examined.

In Park's numerous cases in which the *Bacillus dysenteriae* was found, the type was acute and the prominent symptoms were diarrhea, pain and tenesmus. Blood usually appeared on the second day and was present in considerable or great quantity for from two to five days

and then disappeared either quickly or gradually. The mild cases in general lasted about two weeks and in the malignant cases the patients died in a few days.

It is therefore very evident from what I have previously said that a symptomatology outside of the bacteriological findings cannot as yet be relied upon.

Diagnosis.—The presence of specks of blood in the intestinal contents does not necessarily mean infection with the *Bacillus dysenteriae*, since in all such cases this bacillus was not found.

In regard to leucocytosis, according to the results of Warfield and Knox, a high or low count could not be regarded as of diagnostic value. The differential count, however, showed that while there was no change in the relative ratio of the white cells in the normal infant, in the simple diarrhea or in malnutrition, that as the case became more severe in type there was a progressive increase in the polymorphonuclear neutrophilic cells and a decrease in the small mononuclear variety, and that this polymorphonuclear leucocytosis took place in both cases of acute intestinal poisoning (the fermental class) and in the more severe form (the ileo-colitis class).

The distinction between fermental diarrhea and ileo-colitis is principally connected with the extension of the pathological process, and this depends upon the nature of the infecting organism and the severity of the special infection. Thus a severe infection with a certain organism might cause ileo-colitis in one case, when in another case a milder infection with the same organism might cause fermental diarrhea. In like manner, an infection with an organism not Shiga's might cause fermental diarrhea or ileo-colitis.

The infectious diarrheas are probably caused by a variety of organisms. The *Bacillus dysenteriae* has been proved to be one cause, though not yet the sole cause, but it can most often be connected with the condition corresponding to ileo-colitis.

In conclusion, we must admit that a careful analysis of the means at our disposal for making a clinical diagnosis of intestinal disturbances accompanied by diarrhea, does not permit us to say that an exact diagnosis of the especial disease can be made without a successful and definite bacteriological finding. We are therefore at the present time, when a specific or causative organism is not found in the intestinal contents and when agglutination is not obtained, in the same position, so far as diagnosis and treatment are concerned, as before Shiga discovered the *Bacillus dysenteriae*, namely, that we can usually differentiate diseases of the small intestine from those of the large intestine, but that we cannot name the disease or the intestinal lesion.

Prognosis.—The prognosis at present must rest on our earlier clinical knowledge. Pus in the intestinal contents is especially serious, and the degree of general sepsis in the especial case is to be carefully considered and estimated by clinical experience.

Treatment.—In regard to the treatment of these diarrheal diseases which depend upon infection, no great advance has been made. From what I have already said in regard to the diagnosis of these diseases, we really know so little concerning the especial organisms which cause the greater number of enteric diseases represented by diarrhea that we can merely, assuming that we treat these diseases somewhat empirically, say that our position is simply this: We can usually determine whether it is the small intestine or the large intestine which is affected. Looking at the conditions from this point of view, it is probable that success in treatment will be best when the treatment is through the mouth when the small intestine is affected, and through the rectum when the large intestine is affected. We can also, when the group of symptoms is at all typical, usually determine the fermental class of cases with the probability of slightly marked lesions, and the ileo-colitis class of cases when the lesions are more or less decidedly marked. The treatment in

these cases is almost purely symptomatic, for we certainly have not found from past experience that germicides can be introduced into the intestine which will either kill the organisms which are producing the lesions or counteract to any degree the effects of their toxins. We know that bismuth can pass through the whole course of the intestinal tract, and I have a specimen from an infant to which bismuth was given and in which at the postmortem examination it was found coloring the mucous membrane far down into the colon. It is, therefore, rational to give bismuth, always bearing in mind its limited therapeutic properties. Clearing the intestine of bacteria by laxatives, supporting the strength of the patient, and combating the nervous symptoms and hyperpyrexia are the chief indications, and about all that in the past we have been able to accomplish. It is possible that in the future, when we can determine by bacteriological findings which special organism is producing the especial enteric disturbances, that we may by the serum treatment accomplish good results, but this is said with a proviso that the symptoms are not caused by a mixed infection.

A word here will not be out of place in regard to the treatment of cases of ileo-colitis caused by Shiga's bacillus. In the main the serum treatment has not been especially successful, and according to Park the using of the serum in 30 characteristic cases of mild and severe ileo-colitis gave somewhat doubtful results. In these cases 20 cc. was given every day for three days, and the good results when they appeared were noticed in from 12 hours to 36 hours. Some of the cases of the Mannit fermenting type were just as severe as those of the Shiga type. Park states in regard to infection with the Shiga bacillus that he is convinced that whatever the Shiga bacillus does, it does early. How much damage the streptococcus and staphylococcus which are constantly present can add to the effects of other bacilli, is a point which should be kept in mind.

The serum treatment is, of course, experimental. It must be remembered at the onset that this serum attempts to deal not with the disease, the effects of which are due to poisoning, as is the case with diphtheria; hence it is not a serum which acts as a therapeutic agent alone. What we have to deal with is an organism, and the serum must be able to attack the bacteria themselves and bring about their destruction. We have a recent communication from Kruse, who thinks he has used the serum in adults in Germany with excellent effect. What this serum will do in the case of children is a matter of experience, but its good effects are most likely to be gotten if it is used early. If we wait until the symptoms are more severe, the outcome is doubtful. The serum then, for the best therapeutic effects, should be given early. The serum, as tested on animals, is very effective. It has rescued guineapigs from infection almost without exception. There is not much doubt but that many of the most serious symptoms and results which arise in the later stages of bacterial infection are caused by a mixed infection, and that so far as the Shiga serum is concerned, we do not have any especial evidence that it can be of much aid when the infection is mixed. We must also allow for the difference of the virulence of the organism in different epidemics and the difference in type in regard to the responsiveness to the serum of the especial type, Mannit or not. Recognizing the difficulty of making an exact diagnosis in the beginning of a diarrhea, we should appreciate the importance of treating at once even what seems to be a most simple form of diarrhea.

Doctor Leaves Bequest to His Faithful Horse.—The late Dr. John Gilwee, of St. Louis, left a clause in his will as follows: "In case that my horse Tarry, which I have used for nearly 23 years, survives me, I order that \$2,000 of my estate be placed in trust at 6% per annum, and said interest used for his feed, and shelter and care so long as he lives, and after his death said \$2,000 shall be divided among my legal heirs." "Tarry" outlived his aged master, whom he had served so long and faithfully, and he is now enjoying his reward.

EXAMINATION OF THE TEST-BREAKFAST.

BY

MARK I. KNAPP, M.D.,

of New York City.

In this article I use the terms "test-breakfast" (Ewald's) and "test-meal" synonymously.

A diagnosis of the condition of the stomach cannot be made unless a test-meal is given. Otherwise, the diagnosis is mere guesswork, and wrong guesswork is the rule. We can no more diagnose the condition of the gastrointestinal canal without exact examination than we can ascertain the refraction of the eyes without exact examination; and absolute diagnosis, in gastrology, is most important. No diseases are so quickly amenable to treatment as diseases of the alimentary canal, provided there are no organic lesions. Diseases of the gastrointestinal canal, which have lasted for years, not only have ultimately resulted in cure, but showed the good effects almost immediately after the proper diagnosis was made and the corresponding treatment instituted. The popular idea, unfortunately shared even by the medical fraternity, that chronic dyspepsias are incurable, is absolutely groundless, unless we persist in calling everything we do not understand "nervous dyspepsia," and do not take the trouble to learn more; for, a test-meal examination from which we are to glean the patient's condition is about the most difficult and time-consuming means we possess. I hope that the diseases described by me as *organacidia gastrica*¹ and *insufficiencia pylori*² will prove a step forward in the proper recognition and cure of chronic dyspepsias.

In the diagnosis of diseases of the alimentary canal we have to deal almost entirely with problems of chemistry, therefore the test-meal, by which we decide, must have all the qualities of a standard. And consequently the quality, quantity and time of the test-breakfast must never be left to arbitrary judgment. For a test-meal examination the patient must be prepared by not permitting the introduction into his stomach of any food or drink for the 14 hours immediately preceding the test-meal. The first question must be: Is the patient's stomach empty after such a long fast? Very often the answer is in the negative. And, were the patient permitted to have his test-breakfast at home, the very important knowledge of the condition of the patient's fasting stomach is denied us. Thus we may fail to recognize hypersecretion and minor degrees of gastric dilation. It is my routine practice, first to ascertain whether the fasting stomach is empty or not, and, if not empty, to ascertain the nature of its contents. Such routine has led to successful treatment in cases in which prominent predecessors failed. Invariably, the stomach-tube must be introduced and the condition of the stomach ascertained before the test-meal is given for the first time. In introducing the tube, watch carefully whether it goes into the stomach smoothly. It may encounter some hindrance, some sudden check, which in a second or so will permit pushing the tube further into the stomach. This apparent hindrance is due to spastic contraction of the esophagus, caused by some irritable spot, and this spot may be either an erosion or a cicatrix caused by an erosion. Inquiry of the patient will often elicit the fact that hemorrhages occurred some time previously—probably thought to have come from the lungs—or that there is pain in the region corresponding to the spot. These are cases of ulcer of the esophagus.³ As the patient has to fast for 14 hours, the morning seems the most appropriate time for a test-meal examination. Accordingly, the last meal should be at 7 in the evening and the patient report for the test-meal, fasting, at 9 the next morning. The evening meal, prior to the test-breakfast, should consist of soup, meat, bread, potatoes, vegetables, dessert, and fruit, even at the risk of distress following such a meal. This is explained to the patient, who, sometimes, demurs at such a liberal

diet, but whose assent is easily gained on proper presentation. After this supper, no food or drink (medicines included) is allowed, until the test-meal. Should thirst annoy, permission is given to rinse the mouth with water.

The patient presenting himself for examination, the state of his stomach is ascertained before the test-meal is given, *i. e.*, whether the stomach is empty or not, and, if not, what are the contents. Thus the contents of the supposedly empty stomach may be either the remnants of the last meal, or decomposing and fermenting matter; or, there may be mucus or a mucoid fluid present in variable quantities. Lastly, pure mold growths⁴ of variable color and even in large quantities may be aspirated. Very often large quantities of the green mold are aspirated and misinterpreted as bile. The vomiting early in the morning of a "whole lot of green stuff" is undoubtedly known of by every physician. Such experience is related as frequently by children as by adults. Dark red mold, macroscopically resembling a hemorrhage, is also frequently aspirated, and, if in large quantity, a hemorrhage is thought of at once. Here proper differentiation is of imperative importance.

The contents aspirated from the fasting stomach are examined the same way as we examine the chyme. Free HCl may or may not be present. Sometimes a white fluid is aspirated, neutral or alkaline in reaction, which proves to contain pepsin, but no acids. I believe that a quantity of 30 cc. and over in the fasting stomach should be regarded as pathologic, exception being made when the aspirated contents prove to come from above the stomach, as, for instance, swallowed mucus. After this we are ready for the test-meal, which consists of 35 gms. of roll and 300 cc. of water. Occasionally the patient will object to such quantities of roll and water, but we must insist on its being taken. The reason for just such quantities being that, in Berlin, where this practice was first put in operation, a roll weighs about 35 gms., and a glass of water, of which 2 were given, equals about 150 cc.; and there is every reason for the test-meal being uniform, and universally of the same quality and quantity. Ewald and Boas, who first introduced this test-breakfast, chose as the beverage either water or weak tea. My test-breakfast consists of only roll and water, as with tea we introduce organic acids and fat, and the presence of organic acids in the stomach is always of import. Exactly 35 gms. of roll are weighed, and exactly 300 cc. of filtered water, of room temperature, are measured off. The patient should be instructed to masticate the roll thoroughly, and after eating the test-meal, should remain sitting perfectly quiet for exactly one hour; any exercise having a positive influence on chymification, usually for the worse. The patient should never be allowed to have his test-meal at home for the following reasons: 1. We fail to examine the fasting stomach. 2. The patient seldom has the facilities at hand for absolute precision in weighing and measuring the quantities of bread and water. Often he is told to take a slice of bread and two glasses of water, thus guessing at quantities and depending on his fondness for such a meal for what is taken. Can we be surprised that under such conditions our efforts at diagnosis are nothing more than guesswork? No wonder so much "nervous dyspepsia" abounds. For a correct diagnosis we must employ correct methods and means. Failing in these we must needs fail in our findings. What one considers a slice of bread another may think sufficient for three slices; likewise, different families use different sized glasses. Consequently, the patient should receive the test-meal at the physician's house, where quantities can and should be correctly measured and weighed.

One hour after the test-meal the stomach is aspirated. For this I use an 8-ounce Politzer rubber bag, which has no air valve. This rubber bag is united with the stomach-tube by means of a piece of hard rubber tubing of 3/4-inch

lumen and of about 3 inches length. This hard rubber tubing is thinner at both ends, one end fitting into the bore of the hard rubber end of the Politzer bag and the other end fitting into the stomach-tube.

The examination of the stomach contents will be discussed under (1) physical; (2) microscopic; (3) chemic. Under the first heading we note: Quantity, state of chymification, presence or absence of mucus; color, odor, and admixture of abnormal constituents. The normal quantity to be aspirated after the test-breakfast varies from 30 cc. to 50 cc. The roll should be well pulverized, should settle at the bottom with a thin fluid layer above it; there should be no mucus gluing the chyme together (floating mucus does not come from the stomach); the normal fluid is a rather light yellowish-brown and has a slightly sour-sweet odor. The larger the aspirated quantity, the longer has the chyme been detained in the stomach. This detention may be due either to an obstruction at the pylorus or to weakness of the muscular layer. In the majority of cases the aspirated large quantity is due to a stenotic condition of the pylorus. Compared with the frequency of such stenotic conditions a stenosis due to a pathologic-anatomic cause is relatively rare. Most often such a stenosis is due to a spastic contraction of the pylorus, which in turn is due to increased irritation of the pylorus. I have named this condition "stenosis pylori ab irritatione." If only a very small quantity of chyme is aspirated, or possibly none at all, then the pylorus, the very opposite of stenotic, is insufficient. The state of chymification is only an index of the activity of the muscular coat of the stomach and not of the dynamic capability of the stomach. Should the aspirated roll be very finely pulverized, then the muscularis has performed its function. Should the maceration of the roll have gone still further and the "floury layer" been produced, then the gastric muscularis has been very active, or hyperactive. When a large quantity of chyme is aspirated and the roll presents the appearance of the "floury layer," there is no atony of the stomach. But should the aspirated roll show little or no maceration, the muscularis may still not be liable. In order that the muscularis may contract and thus macerate the chyme, it must be kept within the stomach, that is, it should not escape prematurely. If the pylorus fails to offer the necessary resistance to the escape of chyme, there is nothing upon which the muscular coat of the stomach could contract. Consequently, the absence of sufficient pulverization of the roll should be interpreted as reflecting upon the condition and integrity of the pylorus. The practical difference is very great. Our therapy will be influenced by the proper recognition. So then, when a large quantity of chyme is aspirated and the solid part of it forms, on standing, a "floury layer," the condition of the stomach is not atony but hypertony, due to an irritated and an unduly long, spastically contracted pylorus.

Color and odor differing from what has been mentioned depend upon abnormal constituents in the chyme. Mold growths in the stomach have a decided influence upon the color and odor of the chyme. Great care must be taken not to announce a green colored chyme as containing bile, unless this has been actually found by proper tests. In the same way a dark red chyme should not be called hemorrhagic, unless the presence of blood is ascertained by positive and appropriate tests.

The microscopic examination shows the progress of digestion, the presence of gastritis, of mold, and of microorganisms. In normal digestion the concentric rings of the starch cells are clear and distinct, and if there is thorough diastatic digestion, beautiful blue-green lakes and vacuoles are seen within the starch cells. The starch cells in gastritis have a cloudy appearance, the concentric rings are not discernible, no green lakes are seen. These remarks are the result of my experiments. Different kinds of mold varieties are seen; they may also be of different color. Mold patches have no

distinct configuration, and have been described as detritus. Single sections of young mold filaments look like crystals, for which they have been mistaken. Microorganisms are usually present, and their presence is absolutely independent of the presence of free HCl. One of the chimeric assumptions we suffer from is that free HCl is antagonistic to the presence of microorganisms; microorganisms are present, together with even large quantities of free HCl. The microscope also reveals blood, mucus, cells, and other data of pathologic significance.

The chyme is filtered for the chemic examination. If there is not enough chyme, a piece of dry filter paper is immersed in the aspirated chyme and a drop of the reagent is allowed to fall on this paper and the reaction noticed. The filtered chyme to be titrated is aspirated with a pipet. I use pipets which have a bulb blown in the stem near the mouth end; this kind prevents any of the contents getting into the mouth. In employing the pipet aspirate slowly, so as not to get any air bubbles, as this is both annoying and delaying.

In approaching the chemic tests the questions are: Is the chyme acid? What kinds of acids are present? How much of each of the acids are present? Titration with the decinormal solution of sodium hydrate is used to find the amount of each acid. This solution is given into a buret which is graduated into .1 cc.

The acids to be determined are: Free HCl, organic acids, and the determination of combined HCl. To prove the presence of free HCl several indicators have been used. Chief among them are: Methyl-orange (dimethylamidoazobenzol or Töpfer's solution), a watery solution of congo-red, Günzburg's reagent, Boas' reagent, and tropeolin 00. Methyl-orange is used in a .5% alcoholic solution and gives a beautiful carmin-red color with free acids and also with some acid salts. Congo is chiefly used as congo paper; white filter paper is immersed in a watery solution of congo and then allowed to dry. The congo paper is usually made of a pink color, although some use it of a much darker red. With free acids, mineral and organic, it gives a blue color. Both these dyes react on weak organic acids and consequently they cannot be used to indicate only free HCl. Boas' and Günzburg's reagents are excellent, but they cannot be used for purposes of titration; their composition follows:

Boas' reagent:

Resorcin	5 gm.
Sugar	3 gm.
Dilute alcohol	100 gm.

Günzburg's reagent:

Phloroglucin	2 gm.
Vanillin	1 gm.
Alcohol	30 gm.

Both reagents should be kept in dark bottles. Of the two reagents Boas' is preferable for the reasons that it is much cheaper and as it is colorless the color it produces is better judged. Both reagents are used as follows: One drop of the chyme and one drop of the reagent are put into a white porcelain dish which is then heated over a Bunsen burner, not too near the flame. On evaporation a pink color appears with either of the reagents.

As indicators of only free HCl, the first two mentioned, methyl-orange and congo, should be unequivocally condemned. They not only react with free HCl, but with organic acids as well, and the methyl orange reacts also on weak solutions of the acid phosphates of calcium and of magnesium. This has been fully described in a former article.⁵ Since this last publication there have appeared several articles in which the methyl-orange and congo are still recommended on the plea that they are practically correct. There is no such thing as practically correct. Boas' and Günzburg's reagents are excellent but they cannot be used conveniently for titration. But best of all is the supersaturated

alcoholic solution of tropeolin 00. This is absolutely correct, cheap, practical and adapted for titration, and is the only one that should be used. I have proved the absolute correctness of tropeolin.⁵ This solution is prepared by putting an excess of tropeolin 00 into alcohol. In a day or two the solution is ready for use. It is of a dark cherry-red color, appearing like the ordinary tincture of iodine. The free mineral acids become purplish, cherry-red on the addition of a few drops of this solution. The end-reaction of the tropeolin is characterized by a clear amber color. Numerous times the tropeolin has shown absence of free HCl, which was then corroborated by Günzburg's and Boas' reagents, although the same specimens of chyme gave absolutely positive results with dimethyl. In my article on *gastrostia fungosa*⁴ I illustrated this. I cannot repeat too often that "fallacious tests lead to fallacious diagnoses and fallacious diagnoses to fallacious treatment." One stands aghast before the one who nonchalantly proclaims that "whilst we know that dimethyl and congo are not absolutely correct, yet they are practically so," and who, knowing that such methods of examination are faulty, still pronounces the case one of "nervous dyspepsia," simply because such cases do not yield to his treatment. Conservatism and scepticism are laudable virtues in every science, and especially in medicine. But when those, competent to say, admit the incorrectness of the dimethyl and congo as absolute indicators of free HCl it becomes their duty to take the stand for or against the indicator proposed by me as absolutely correct and eminently practical, and to prove their assertions. When the general practitioner seeks the aid of the specialist he does so with the intention of obtaining knowledge much more exact, much more scientific than his own. But when he simply gets a diagnosis which is "practically correct" and "impractically wrong," or a diagnosis of "nervous dyspepsia," then he soon discovers he had better save time and expense and treat the patient without the aid of the "gastrologist." As before stated both congo and Töpfer's solution should be unequivocally condemned as indicators for free HCl; they are worse than useless, because they deceive and mislead. Those who still declare their unaltered fidelity in these indicators should defend their position by absolute proofs.

The question of the presence of organic acids in the stomach is very important, and I have described 2 methods for their determination.⁴ (1) The floating test, and (2) by means of the methyl-orange. The first method is the direct one, and is carried out as follows:

To 1 cc. of filtered chyme is added 4 cc. of ether in a separatory funnel. The chyme and ether are shaken thoroughly until the organic acids are extracted by the ether. The funnel is now laid aside for a few minutes while 1 drop of a 10% solution of ferric chlorid is added to 2 cc. of distilled water in a narrow test-tube. The funnel is then taken up, and the chyme, which is the lower stratum, is allowed to flow off, and the clear ether is allowed to float slowly on the iron solution in the test-tube, the test-tube being held inclined. At the plane of contact between the iron solution and the ether extract appears a colored ring if some of the organic acids are present. This colored ring must be clear and transparent. There may often appear a yellowish ring, which with due stretching of the imagination, may be taken for lactic acid. But this ring is not transparent, and simply represents a little chyme which came in direct contact with the iron instead of the ether extract. The color of the ring varies with the variety of the organic acid.

This floating test is by far the most superior and the most delicate one for directly proving the acids. Lactic, malic, oxalic, and tartaric acids give a sulfur-yellow ring, also strong alcohol; succinic acid gives a dark mahogany, jasper-red ring. The acid phosphates of calcium, magnesium, potassium and sodium give no ring at all. We thus see the superiority of this over the Uffelman test. The most pronounced sulfur-yellow ring is the one produced by lactic acid. Furthermore, this floating test for lactic acid is very delicate, as lactic acid of an acidity of but 10 is easily

detected. Malic, oxalic, and tartaric acids require an acidity of at least 40 to show the reaction. This fact can be used to differentiate lactic from malic and tartaric acids. We simply have to add water to the chyme in order to bring down the acidity to 10 or 15, and if the reaction is positive, lactic acid should be diagnosed. When the quantity of organic acid is small, the characteristic reaction, the ring, will not appear at once. Then it is best to set the test-tube aside for about 10 to 15 minutes. This floating test can only be used for the qualitative determination. The other method to determine the presence and quantity of the organic acids is based upon the fact, demonstrated by me, that methyl-orange reacts also on weak organic acids, contrary to the hitherto accepted belief. I first titrate with tropeolin and after its end-reaction is reached I add the methyl-orange solution and resume the titration. The positive response to the dimethyl affirms the presence of organic acids, and by the titration we determine its quantity. Often tropeolin gives negative and methyl-orange positive results, in which case there is no free HCl; this fact can then be confirmed by Boas' or Günzburg's reagents. We should bear in mind that notwithstanding the accepted theory to the contrary, free HCl and organic acids do coexist. The presence of free HCl is absolutely no proof against the simultaneous presence of organic acids; for organic acids in large quantities are often together with large quantities of free HCl. In many diagnoses of hyperchlorhydria there is no hyperchlorhydria at all (if, in fact, not hypochlorhydria) but organacidia gastrica.

We proceed to the quantitative determination as follows: First, we determine, by titration, the free HCl, using the tropeolin solution as indicator. After the end-reaction of the tropeolin, 2 drops of methyl-orange are added, when, in the presence of organic acids, the amber-colored chyme will turn a beautiful carmin-red. We now continue the titration until the chyme turns a pale lemon-yellow, which is the end-reaction of the methyl-orange.

Given a specimen of filtered chyme, we proceed as follows:

Five cubic centimeters of the chyme are aspirated with the pipet and put into a clean glass beaker. Two drops of the tropeolin solution are now added. In the absence of free HCl the chyme becomes an amber color; if free HCl is present the chyme colors a cherry-red, the tinge of red varying in gradation with the quantity of the free HCl. Now we begin to titrate. Slowly, drop by drop, the NaHO is added from the buret into the beaker, which is best held with the left hand and shaken after each addition of NaHO. The end-reaction is reached when the beaker contents turn an amber-yellow color. The color change is best judged by looking down upon the angle formed by the wall of the beaker with its bottom. The NaHO is added until this angle shows no more red color. In this connection I would say that "practice makes perfect." After this titration, which gives the quantity of free HCl, we add to the very same specimen in the beaker 2 drops of Töpfer's solution and the titration is resumed. In the presence of organic acids the beaker contents color a carmin-red and now the NaHO is added drop by drop until a pale lemon-yellow color results. This titration determines the quantity of the organic acids. The general acidity is now determined by adding to the contents in the beaker, 2 drops of 1% alcoholic solution of phenolphthalein as the indicator. The titration is again resumed until the beaker contents turn a carmin-red. We calculate as follows: The reading of the buret is noted before any titration is begun. We will say this indicated 4.6. At the end of the tropeolin titration the buret indicated 5.8; at the end of the dimethyl titration 7.3, and at the end of the phenolphthalein titration 7.9. For the first calculation we read from 4.6 to 5.8 giving 1.2 cc. of the NaHO used. For the second calculation we read from where we left off, *i. e.*, from 5.8 to 7.3 giving 1.5 cc. For the calculation of the general acidity we read from the beginning of the titration, from 4.6 to 7.9, giving 3.3 cc. of 1/10 NaHO used. The calculations are expressed by so much percent; that is, it requires so many cubic centimeters of the decinormal sodium hydrate solution to neutralize 100 cc. of the filtered chyme. The word percent is omitted and we simply say the chyme shows free acids 30, by which we mean to express that it requires 30 cc. of the decinormal sodium hydrate to neutralize 100 cc. of the chyme in question. In the example given we used 1.2 cc. NaHO in the first titration; 1.5 cc. in the second, and 3.3 cc. in the third. But as we used 5 cc. of chyme,

which is 1/20 of 100, we must multiply by 20 the coefficients of each titration. Hence we have free HCl 1.2×20 , which is 24; free organic acids 1.5×20 , which is 30; and the general acidity is 3.3×20 , which is 66. The normal acidity may vary between 40 and 60 and the normal amount of free HCl between 20 and 40.

The test for combined HCl is a negative one. We do not test directly for such acid but the indicator we use reacts with all other acids save the HCl in combination. This test is used then when the question arises whether the stomach secretes any HCl at all. The indicator we use for such testing is the 1% watery solution of alizarin. We proceed in the following way:

First we determine the free HCl, organic acids, and the general acidity. We then take 5 cc. of the chyme and titrate, using the alizarin as indicator. The end-reaction of alizarin is indicated by the chyme turning purple. Suppose we proceed with the illustration given before to determine the combined HCl after the foregoing determinations have been made. Suppose the buret, before the beginning of the titration, reads 7.9, where we left off before, and, as the purple color is reached the buret reads 10.8; we have then used up 2.9 cc. of the NaHO which, multiplied by 20 means 58. As we have previously determined the general acidity to be 66, we then deduct 58 from 66 which leaves 8 as the equivalent for the HCl in combination. In the example given the chyme would show the following: free HCl 24; organic acids 30; HCl in combination 8; general acidity 66.

It is assumed that the acidity of the chyme, not otherwise accounted for is due to acid phosphates. I confess that as yet I have been unable to demonstrate the acid phosphates in the chyme of the test-breakfast and consequently I cannot vouch for the correctness of such assumption. However, I tested for the phosphates only according to my own method which consists in the decolorization of the red ferri rhodanid by phosphoric acid and by phosphates. This red ferri rhodanid solution consists of:

Distilled water	5 cc.
10% sol. ferric chlorid	2 drops
5% sol. ammon. sulfocyanid	5 drops

Instead of the ammonium sulfocyanid, another cyanid as sodium or potassium can be used. The reaction is performed in this manner:

One cc. of this reagent is put into each of 2 test-tubes. To one test-tube is added the chyme and to the other as much water as chyme was added to the first test-tube. In the presence of phosphates the red ferri rhodanid is either entirely discolored by the added chyme or nearly so. The test-tube to which water is added serves for comparison, to see whether the change of color, if any, in the test-tube to which the chyme was added, is due to the possible presence of phosphates or simply to dilution.

This test is a very delicate one. The chemic constitution of chyme does not hinder this reaction. This I have proved to my full satisfaction. The chyme was tested first for acid phosphates. When this test gave a negative result the merest trace of acid phosphate was added to the same chyme. The test then proved positive. Consequently this proves conclusively that the chemic constitution of the chyme was not against the applicability of my test.

Occasionally it is desirable to ascertain the deficiency of HCl. This is done by using as the titrating medium the decinormal solution of HCl, this is added to the chyme from a buret until the chyme, removed from the beaker with a platinum loop gives a blue color to congo paper. It is not good to use Boas' or Günzburg's reagent in such cases as too much of the chyme would be lost by the repeated abstraction of the chyme from the beaker.

Diastatic digestion, the conversion of starch into sugar, is recognized in the ordinary way by means of Lugol's solution. The saccharification of the test-meal I have not yet seen go beyond the production of erythro-dextrin. The best for the purpose is a very weak solution; 1 cc. Lugol's solution to 250 cc. distilled water.

Peptic digestion is recognized by the biuret reaction which is essentially Trommer's test for sugar in which the reagents are used in a very dilute form. To the chyme in the test-tube are added first a little of the weak solu-

tion of cupric sulfate and then the weak solution of caustic potash. The proteids give a reddish-violet color in this test.

As a rule pepsin is always present and, as said before, it may also be present in the fluid contents of the fasting stomach which are not acid at all. The best method for the pepsin determination is by means of Mette's tubes which are made in the following way:

Thin-walled capillary glass tubes of about 1 mm. or 1.5 mm. in diameter are filled with fresh egg albumen and thrown into water of about 90° C. to 95° C. remaining 15 minutes. These are then removed, dried and the ends closed by winding a small, thin piece of absorbent cotton around them, after which the ends are dipped in molten paraffin. The latter procedure is to prevent entrance of air so that the tubes can be made in quantities and kept for future use.

To determine the presence and action of pepsin, a piece about an inch and a half long of the prepared Mette's tube is cut off with a file, and the ragged end filed straight and smooth. This piece of tube is then put into a petri dish of 10 cc. capacity, the dish filled with the filtered chyme, and covered to prevent evaporation. For such determinations the acidity of the chyme must be brought up to a standard. The best would be to accept the acidity of 30 free HCl, as the strength for the comparative pepsin determinations. After we have determined the free HCl, we bring the chyme to represent free HCl 30. For that purpose we may have to add some of the decinormal sodium hydrate solution to bring down a higher acidity, or add some of the decinormal hydrochloric acid solution, until the required standard strength is reached. The petri dish, provided with chyme and albumen tube, is covered and put into an incubator, the temperature of which must be kept between 37° C. and 40° C. for from 12 hours to 20 hours. This time may be varied to suit the wishes of the experimenter, but the same length of time must be observed in all comparative experiments. The petri dish is then removed from the incubator, the capillary tube dried, and the column of the digested albumen is read off in millimeters. Normally about 5 millimeters of albumen are digested.

Rennin is another ferment of gastric secretion. It will coagulate milk, and this latter property is used as the method to determine the presence of rennin. Usually 5 cc. to 10 cc. of filtered chyme, carefully neutralized, are mixed with 10 cc. of neutrally reacting milk, and put into an incubator which is kept at a temperature of 37° C. to 40° C. for about half an hour to an hour. The coagulated milk, after removal from the incubator, proves the presence of rennin or its zymogen.

The stomach is supposed by some also to secrete a fat-splitting ferment. This theory needs verification, although I am inclined not to ignore it entirely. I have repeatedly seen under the microscope a large quantity of fat globules in the chyme of one patient, while the chyme of another patient, who partook of the same roll and water, examined under precisely the same conditions, showed very few fat globules. However, I am not ready to give a decisive answer.

The presence of alcohol in the chyme I simply mention.

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TWO FATAL CASES OF "LANDRY'S PARALYSIS," WITH AUTOPSY FINDINGS IN ONE OF THEM.¹

BY

THEODORE DILLER, M.D.,
of Pittsburg, Pa.

Neurologist to the Allegheny General Hospital.

"Landry's paralysis" is, to my mind, a designation of a not very definite symptom-complex; and yet it is a name which is of some use, and which we are not yet ready to discard. But, with advancing knowledge, the name will be less and less needed. At present, it indicates merely a certain clinical course only—one in which rapidly ascending motor paralysis (rarely descending) is

¹ Read at a meeting of the Philadelphia Neurological Society, held March 22, 1904.

the dominant feature. Multiple neuritis, poliomyelitis, or both together, may produce the symptom-complex. It is a question today whether anything else can produce it. The few cases examined by the present-day technic, in which no changes have been found postmortem, do not answer this query in the affirmative, since in these cases death may have occurred before sufficient time had elapsed for the anatomic changes to become evident.

In the *Journal of Nervous and Mental Diseases*, September, 1902, I set forth at some length my views as to the so-called "Landry's paralysis."

CASE I.—A salesman, aged 37, was admitted to the Allegheny General Hospital, September 2, 1903. He had been a "hard drinker." Eight weeks before admission he complained of weakness in his legs and began to use a cane. This weakness steadily increased, and the patient, after a few days, was compelled to take to his bed. After he had been in bed about one week, he complained, for the first time, of sensory symptoms—pain and tenderness in the back and about the chest, abdomen and legs, and, to a less degree, in the arms. In the meantime, he had steadily continued to lose strength in the legs, and impairment of motion in the arms had also become apparent.

Ten days before admission, the patient suffered an attack of "gagging and smothering," and since then similar attacks have frequently recurred. There was no loss of control over the sphincters until the night before admission, when involuntary discharges through both occurred.

On admission (September 2) his legs were almost completely paralyzed. By the greatest effort, he was able to execute only slight movements in his toes. His arms were very weak, although he retained more power in them than in the legs. Double wrist-drop was present, and the grasp was very feeble. He was able to contract feebly the muscles about the shoulders. No atrophy was apparent. Hyperesthesia was present all over the body, including the face. Pressure over the extremities was painful. Tactile sense was everywhere present. The mind seemed unclouded.

The patient's condition steadily declined (muscular paralysis of the extremities becoming complete) until September 7, on the evening of which day he died, apparently of respiratory failure. The patient's mind was clear except during the 24 hours preceding death; and during this time it grew increasingly cloudy and delirious. For a few hours before death he was in a condition of stupor.

When examined by me a few hours before death, the patient was cyanotic; respirations were of the superior costal type and were very labored and shallow; the diaphragm was apparently paralyzed, for the abdominal movement was slight.

An autopsy was performed about six hours after death. The brain and spinal cord were removed. In the former a moderate degree of congestion of the pia was noted. It contained several small hemorrhages. The cord appeared normal. Portions of the left sciatic and ulnar nerves were removed from the thigh and upper arm respectively. The liver was enormously enlarged, to four times its normal size. It was rather soft, and of a dark mahogany color.

Several cultures of the cerebrospinal fluid were made in different media. These were subsequently examined by Dr. R. G. Burns, who reported the presence of *Staphylococcus pyogenes aureus* in all of them.

The brain, cord and peripheral nerves were at once placed in a 5% to 10% solution of formaldehyd; and a few days later they were sent to Dr. Wm. G. Spiller, of Philadelphia, who furnished me with the following report on October 9, 1903:

"The posterior roots of the lumbar region do not stain as well as the anterior roots, by the Weigert hematoxylin method; but this may be because formalin was used in the hardening fluid, as this interferes with the staining of the roots by the Weigert hematoxylin. The posterior roots appear to be normal when they are stained with acid fuchsin. The white matter of the spinal cord does not appear to be degenerated, as shown by the acid fuchsin and Weigert hematoxylin stains.

"Sections stained by thionin, show much alteration of the nerve cells in the anterior horns of the lumbar region. Many of the nerve cells of the anterior horns show central chromatolysis, and some have their nuclei peripherally situated, a condition described by Marinesco as "reaction at distance." The left sciatic and ulnar nerves are partially degenerated as shown by the Weigert hematoxylin and Marchi methods. The alteration is that of multiple neuritis."

Remarks.—The clinical manifestations of this case, therefore, ran their course in about nine weeks. The symptoms of ascending motor paralysis proceeding to an extreme degree and producing death by respiratory paralysis, the late appearance of pain and tenderness, the noninvolvement of the sphincters until five days before death, the unclouded mind seen in this case, form a most striking symptom-complex, pretty closely conforming, except in its rather long course, to the classic picture of Landry's paralysis. The striking anatomic

changes in the anterior horn cells and the peripheral nerves doubtless afford at least a partial explanation for the symptoms. That the staphylococcus discovered in the cultures by Dr. Burns was responsible for these changes is regarded by him as very doubtful, since this microorganism is omnipresent and was probably accidentally introduced into the cultures.

In this case of "Landry's paralysis" it would seem that the lower motor neuron was progressively involved from below upward. While Dr. Spiller's report points only to motor involvement, the late appearance of sensory symptoms points to at least a secondary and partial involvement of the sensory apparatus.

The anatomic changes with their resultant symptoms in this case may have been due to alcoholism. But the clinical course and the greatly enlarged spleen tend to support the view that the anatomic changes were due to an infection. Unfortunately, through an oversight, the liver and spleen were not examined under the microscope.

I am greatly indebted to Drs. Burns and Spiller for their respective reports on this case.

CASE II.—A farmer, aged about 45; was formerly a free drinker, but had not been drinking for the past couple of years. His general health has been good and he denies syphilis.

Early last September, while unloading coal, he felt a sudden severe pain in the small of his back. It gradually grew less during the next week and had about disappeared at the end of 10 days, when he began to lose strength in the legs and this has continued up to the present time. Three weeks later the arms began to lose strength and this has also continued up to the present time.

Examination.—December 19, 1902. No pain; occasional paresthesia. Patient cannot walk or stand alone; but he walks with the support of a friend. Grasp of hands is quite feeble; knee-jerks are absent; there are no objective or subjective symptoms. Legs are flaccid, somewhat wasted, but there is no distinct atrophy. Sphincters intact. Bulbar nerves intact. Mind is clear.

I saw the patient only once, but his physician, Dr. Bemis, writes under date of February 8, 1904.

"When I last saw you, about a month after my examination, the paralysis in the upper extremities was advancing very slowly if at all, but that in the lower limbs was complete with great atrophy and marked enlargement and tenderness of the nerve trunks. I saw Mr. M. at intervals of about a week. The condition as stated continued without any perceptible change until March 11, 1903, when I saw him. His nurse reported him to have been more helpless for a few days. I found the temperature 100°, the first time there had been any elevation. His breathing was shallow and irregular and the pulse intermittent. There was a tendency for food to accumulate in the cheeks and in the pharynx so that he was compelled to cough a good deal after eating. I remained with him over night. In the morning he seemed better. Breathing was regular and deeper and the pulse steady but quick. Notwithstanding that he seemed better, I was satisfied that the paralysis was advancing and beginning to affect the respiratory centers. I told his sister that he was much worse and as there might be urgent need of help before I could return again, which I expected to do on March 15, I would stop and arrange with the village doctor to go to see him if needed. On Sabbath morning I received a telephone message that he had died during the night.

"Dr. Timmons, of West Alexander, was called in Saturday as arranged and was with him until he died. The greatest trouble was dyspnea.

"The outcome confirmed the diagnosis which you made the last time I saw you—an ascending paralysis associated with neuritis."

To recapitulate briefly, there was a progressive paralysis beginning in the legs, involving later the arms, and finally the nerves innervated by the bulb, this last-named involvement producing death about six months after the date of the initial paralysis. During the first four months, the disease was of a purely motor type. "Enlargement and tenderness of the nerve-trunks" were features of the last two months of the illness.

Remarks.—This case may be regarded as one of multiple neuritis predominantly of the motor type. But, in view of the postmortem findings in the first case, of the atrophy, of the ascending type of the paralysis and bulbar involvement, I believe it is highly probable that a postmortem examination would have revealed degenerative changes in the motor cells of the cord and bulb.

It seems most likely that the entire lower motor neuron was involved, as in the first case.

The case, therefore, to my mind, is one of more than, if not other than, multiple neuritis. It presents clinical features different from those seen in ordinary multiple neuritis, not only in its predominantly motor character, but especially in its feature of ascending paralysis. As I have elsewhere shown,¹ sensory symptoms are common in so-called "Landry's paralysis." The sudden initial pain in this case is a curious symptom which I am at a loss to explain.

The case is, clinically, a highly typical one of "Landry's paralysis" except only in its long course. Shall it be so called? If not, how shall it be labeled?

THE REMOVAL OF SEPTAL SPURS AND THE CORRECTION OF DEVIATIONS OF THE SEPTUM BY MORE RATIONAL METHODS.

BY

CHARLES NELSON SPRATT, B.S., M.D.,
of Minneapolis, Minn.

On reading the discussion¹ of a paper, read before the Laryngological Society of London, entitled, "The After-treatment of Intranasal Operations," by Henry T. Butlin, I was impressed by the fact that much of the prolonged after-treatment and many of the unsatisfactory results could have been avoided, had the operators more frequently done the so-called "flap-operation," thus securing healing by first intention. Adhesions, perforation, prolonged healing, frequently seen after the usual methods of operating on the septum, are difficulties not encountered when the mucosa is preserved. What surgeon would remove from the face or scalp an atheromatous cyst, by slicing it off and leaving a great raw surface to heal by granulations? In a laparotomy, raw surfaces are covered, when possible, with peritoneum. Likewise modern surgery demands healing by first intention after operations on the septum. It is a lamentable

of his patient in mind and who desires rapid healing, and aims to avoid, so far as possible, postoperative complications, will employ more rational and careful methods. These remarks refer to operations on the septum, as in most cases of nasal stenosis a cure can be established by such operations. It seems self-evident that a turbinate ought never to be sacrificed if sufficient room can be obtained by the removal of a spur or the

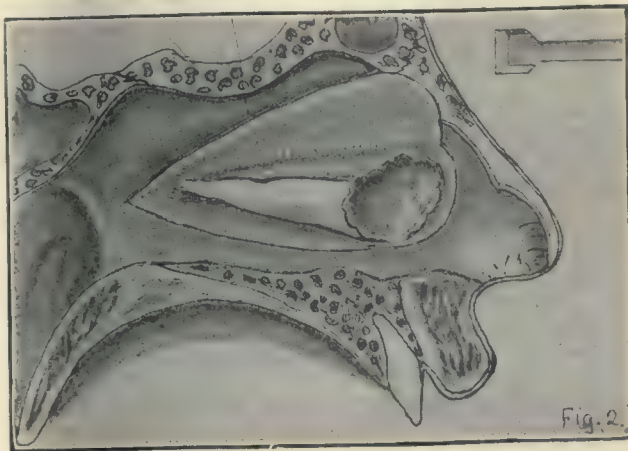


Fig. 2.—The same in longitudinal view. The mucosa over the spur has been reflected upward—a portion of the cartilage has already been resected. The posterior portion of the spur to be removed by means of the chisel.

correction of a deviation of the septum. The turbinates have a function—spurs do not.

The pernicious idea, viz., the removal of the turbinates and thus avoiding operations on the septum, as the former is easier, is unworthy of serious thought.

Heylen,² in 1847, published a method for the treatment of deformities of the septum, which consisted in first reflecting a flap of mucous membrane from the projection and then removing the cartilage or bone with scissors. This old and excellent method is seldom employed, and is scarcely more than mentioned by most American works on rhinology. Some of the German textbooks mention the operation, but as a rule do not impress one with its advantages. Without the help of cocaine and adrenalin, the flap operation was doubtless difficult, as the field of operation would be so obscured by blood that careful, neat work would be impossible, and the pain of the operation would require an unusual amount of courage on the patient's part. With the use of these drugs hemorrhage is rarely excessive, and the operation is performed without pain. I will first describe the operation, then state its advantages and the objections raised by some.



Fig. 1.

Fig. 3.

Fig. 1.—Cross section showing septum with large spur in addition to marked deviation. It is not well united for the usual saw operation or the Asche. Fig. 3.—Cross section of Fig. 1. Cartilage removed and mucosa adherent to that of the opposite side.

fact, that most rhinologists do not consider healing by first intention essential to good nasal surgery, or to be worth the effort. Relief of nasal stenosis is the only object in view and the slow healing by granulation is a matter of course. The most inexperienced operator can, with saw, spoke-shave, enchondrotome or the barbarous trephine, relieve the nasal stenosis. But he who has the welfare

The mucosa of the septum and turbinates is rendered anesthetic by three or four applications of an 8% solution of cocaine in adrenalin chlorid, 1 to 4,000. A Sajous or Krieg knife is introduced posterior to the spur, and a longitudinal incision is made through the mucous membrane beneath the spur as low down on the septum as possible, and parallel to the floor of the nasal cavity. At the anterior end of the spur this incision is continued directly upward, at right angles to the original incision. On freeing the mucous membrane from the cartilage a large triangular flap with its base above is formed. This flap is next folded up, between the septum and middle turbinate, and held there by a small piece of gauze. Hemorrhage from one of the branches of the nasopalatine artery may obscure the field of operation, but this is easily controlled by pressure. If the

¹ Op. cit.

blood is wiped away, the white cartilage is plainly seen. This projecting cartilage is best removed with a chisel. The chisel is preferable to the saw, in that the former leaves a smooth surface to which the flap readily adheres. In removing the long horizontal or ascending spurs, the anterior portion can be removed first, thus allowing a view of the posterior portion and sufficient working space for its removal. It is also of great value in removing spurs with broad bases and those situated at the junction of the septum, and the floor of the nasal fossa. In the latter case a small gouge similar in general shape to the chisel illustrated herewith, is of great value.

The various nasal chisels shown by instrument makers are, as a rule, too thick and clumsy. I have made and used with great satisfaction a chisel like the one illustrated. This is 16 cm. long, and has a cutting edge 6 mm. to 8 mm. wide. The instrument is made quite thin. The shank, directly back of the blade, measures 1 mm. by 3 mm. As this instrument occupies a minimal portion of the nasal cavity, a good view of the field of operation is possible at all times. In operating in narrow nasal cavities, and in those cases in which the spur is situated on the posterior part of the septum, the value of such a thin chisel will be fully appreciated. The cartilage ought to be cut away in layers, and no attempt made to remove the projection in one piece. If the spur extends into the bony portion of the septum, the chisel is advanced by light taps with a mallet.

If in addition to the spur there is considerable deviation, the mucosa of the opposite side is separated from the septum and the whole thickness of cartilage, or bone, removed.

This, called by some, window resection for deviated septum, was described in 1886 by Krieg, who resected both cartilage and mucosa of convex side. Hajek³ retains the mucous membrane and covers the field of operation with it. Healing by first intention is thus secured, and a slow healing by granulations is thus avoided. Freer⁴ recommends 18 or more instruments, most of these being entirely superfluous and unnecessary, as the cartilage can be quickly and neatly removed

covered by normal mucous membrane, and not by scar tissue. 4. Perforation of the septum is a complication that need never occur. The cartilage is removed in small pieces and under the will of the operator. When the spur is removed in one piece with a saw, or crucial incisions are made, as in doing the Asche operation, perforations are at times unavoidable. Another great advantage of the window resection for deviated septum is that the patient is relieved of the discomfort and inconvenience of wearing nasal tubes.

The objections to the operation are perhaps best stated by Hajek.⁷ "The method is complicated, technically difficult, and of long duration, one-half hour to one and a half hours." This statement is greatly exaggerated. We must admit that the method is more complicated than removing the spur and covering by a few strokes of a saw, or correcting a deviation by two cuts of an Asche scissors, but it is not so difficult as to demand more than average operative skill and care. The window resection can generally be done in 25 minutes to 35 minutes, and rarely is the operation prolonged beyond 45 minutes. The difficulties seem greater than they really are. Sometimes the anterior portion of the flap is quite adherent to the cartilage, but with care it can be dissected up and preserved entire. Hemorrhage may also delay the operation, but with the use of adrenalin this is easily controlled.

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THE EFFICIENCY OF LOCAL TREATMENT AS A FACTOR IN THE CURE OF LARYNGEAL TUBERCULOSIS.

BY

ROSS HALL SKILLERN, M.D.,

of Philadelphia.

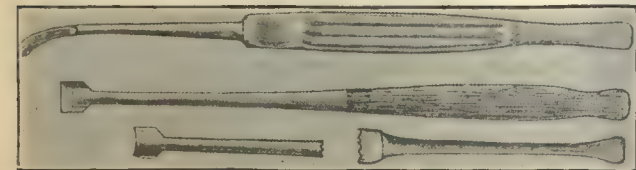


Fig. 4.—Chisel, gouge, knife and flap elevator.

with a pair of Heymann cutting forceps. With a Frankle-Swift speculum, a Sajous knife, a small elevator for flap, a thin chisel, a pair of Heymann cutting forceps and plenty of cotton swabs on toothpicks, spurs can be removed and deviated septums can be corrected.

The flap is held in position against the side of the septum by a spatula, and the nose is lightly packed with iodoform gauze. Twenty-four hours later this is replaced by fresh gauze, and 48 hours after operation the flap will be quite firmly attached to the septum and subsequent packing will not be necessary. The swelling is usually not marked.

The advantages of this method over the usual methods are summed up in the statement that with it primary union is secured. This means: 1. Healing is usually complete in three or four days. If portions of the flap are lost during the operation, the time will be somewhat longer. With care, however, in almost every case the flap can be saved entire. As there is some shrinking, the flap rarely is too large. After the removal of a spur, where no attempt is made to cover the raw area, healing requires a much longer time. Moritz Schmidt⁵ says, "the duration of the healing (viz., after intranasal operations for the removal of spurs from the septum) demands about four weeks in uncomplicated cases; should perforation of the septum have been unavoidable, more time is required;" "healing," quoting Coakley,⁶ "takes place in two and a half to four weeks," etc. "A disagreeable and prolonged scab formation over the cut surface occasionally is seen," etc. 2. Adhesions are impossible, as no raw surfaces are left. 3. Scab formation is not to be feared. The field of operation is

It is not my purpose to enter into detail, or review minutely, either the climatologic or general treatment of this disease, or rather the occasional concomitant symptom of the great disease, pulmonary tuberculosis, but to consider systematically the various forms of laryngeal tuberculosis (due regard being given to the general condition of the patient) and what effect certain forms of treatment have upon the diseased structures. That there may exist cases of primary laryngeal tuberculosis one cannot deny, but they are exceedingly uncommon, and indeed, in many of those reported, foci of infection in the lung have been shown in the autopsy, which were undoubtedly primary to the laryngeal affection. On the other hand, that secondary affection of the larynx is invariably the rule in pulmonary tuberculosis is, of course, never admitted; a large percentage (about 80%) die with no symptom whatever referable to the larynx. It will be remembered that I spoke of this disease as the occasional concomitant symptom of pulmonary tuberculosis. If chronic pulmonary tuberculosis did not exist, it would be almost unnecessary to use the word occasional, as it is fairly constant with the acute type of the disease. However, that it does not exist with the chronic form is fallacy, and these cases nearly always present the same form as the general disease. Under the same conditions, however, a very acute case of laryngeal tuberculosis may occur in chronic pulmonary tuberculosis, but these cases differ from the acute conditions of the larynx found in acute or subacute tuberculous subjects, in that they are more amenable to treatment, thereby proving that the severity of the disease in the lungs is directly bearing on the severity of the disease in the larynx. Whether this is due to the vitiated condi-

tion of the system or to the virulence of those particular bacilli has yet to be determined.

The portions of the larynx first affected depend upon a number of conditions. Usually the disease is first observed in the arytenoids, though in singers and lecturers the cords, or the ventricles of Morgagni are often the first structures attacked. As it is manifestly impossible to note every case at the commencement of the disease, the majority of the following cases were examined at the Rush Hospital either on admittance or as soon as subjective symptoms were observed:

Out of 107 cases, in 38, or about 35%, the disease was first noted in the arytenoid cartilages. In 32 cases, or about 30%, the arytenoid cartilage and cords, including the ventricular bands and the ventricles of Morgagni. In 20 cases, or about 18%, all the portions of the larynx (epiglottis, arytenoids, and cords) were primarily affected. In 7 cases the cords alone were affected, while in 6 cases the first manifestations of the disease were seen in the epiglottis. The cricoid cartilage is reported to have been the primary seat of the disease in 2 cases.

By far the most common form of laryngeal tuberculosis is thickening of the mucous membrane covering the arytenoid cartilage and interarytenoid commissure. Why this part of the larynx is first affected or first shows the disease is well explained by Lennox Browne, who states that these parts bear the strain of extension and vibration during phonation, coughing, etc., and are thereby in action more often than any other portion of the larynx. Shurley contends that the susceptibility of the posterior wall is probably due to its peculiar anatomic formation and the structure of its mucous membrane, made necessary to allow of its folding mobility.

Another theory is that the arytenoids and the posterior third of the cords and ventricular bands being more richly supplied with lymphatics, and the ventricles of Morgagni offering a lodgment for the tubercle bacilli, naturally that portion would be the first affected.

Much depends upon the particular manner of infection, thus, if it occurs through the lymphatics, we would either have tumefaction or thickening of the anemic type, with the formation of small nodules, which later break down and ulcerate. The favorite site of this condition is the arytenoids and commissure.

On the other hand, if there is direct infection from the lungs through an abrasion of the mucous membrane, there would be hyperemia surrounding a superficial ulcer. This type is most often seen on the true or false cords or the posterior surface of the epiglottis.

The anemic type occurs usually in chronic pulmonary tuberculosis, and is apt to run a more chronic course, while the hyperemic is the acute type, and runs a shorter and more severe course, although either type may occur with any form of lung tuberculosis.

General Local Treatment of Tuberculous Laryngitis.—In dealing with this subject, I will review the different treatments advocated during the past 15 years, with reference to the general efficiency and practicability of each.

Before the year 1890 a number of drugs which have been entirely discarded, such as tannin, ethyl iodid, chromic acid, ergot, the salts of zinc and copper, etc., were used, also a number of drugs that are now considered almost indispensable, such as lactic acid, guaiacol, menthol, carbolic acid, iodoform, and a host of others. Counterirritation to the front of the neck, external applications of croton oil, antimonial ointment, and fly-blisters, steam inhalations, sulfurous waters, etc., were also used.

In 1890 a decided departure from the routine treatment was made when Moritz Schmidt used tuberculin (an antituberculous serum discovered by Paquin) hypodermically. He reported 21 cases in which the patients were all greatly relieved by the injection of 1 mg., but adds, "one must be ready to perform tracheotomy, on

account of its giving rise to sudden swelling and asphyxia." This opinion was also shared by Lennox Browne, but later investigations proved that it gave no better results and was far more dangerous than the ordinary local treatment.

In 1891 Koch's tuberculin was introduced, and was at first highly praised, especially by Lennox Browne in his monograph, "Koch's Remedy in Relation Specially to Throat Consumption," but later it proved of less value than the antituberculous serum, and even seemed to do harm.

The first reference to anilin products being used appeared at this time, when Bogroff recommended fuchsin, stating that "when injected into the larynx the superficial cellular elements and intercellular elements and intercellular spaces become infiltrated with particles of the anilin dye, and thus a thin protective film is formed which is impermeable not only by irritating fluids, but by gaseous bodies, and is valuable in cases of laryngeal inflammation from constant irritation from the pulmonary discharge." So far as I know, this has fallen into disuse. Krause modified the lactic acid treatment of Heryng by first cureting then applying the acid. While I believe Krause carried his curetment too far, nevertheless this treatment, using the curet gently, is one of the best in use at the present day in certain cases.

In 1892-93 intralaryngeal injections of a mixture of guaiacol and menthol were popular. Resorcin in 80% to 120% solution was used with some success for ulcers. Stein, of Berlin, in an elaborate paper, strongly urged tracheotomy in the majority of cases.

In 1894, Heryng, the originator of the lactic acid treatment stated that it was useless in cases in which there was hard infiltration without ulceration.

Hunter's modification B of tuberculin was tried in increasing doses from .0025 gm. to .1 gm. The reaction was slight and improvement noted, but no cures were reported.

In 1895, at the International Congress of Physicians at London, Gougenheim strongly urged energetic surgical interference, stating the punch should be used to clear away the diseased arytenoids. In this he was opposed by Lennox Browne. Heryng recommended galvanocautics and electrolysis in cases in which lactic acid was not indicated. Massei and Ruault advocated phenol sulfuricinate (20% to 30% phenol in sodium sulfuricinate). This was of especial value in the form limited to the vocal cords. Tracheotomy at this time found many advocates among whom were Garel, Masucci, Schmidt, Egidi, Macyntire, and others. Carl Von Ruck still recommended antiphthisin finding it less poisonous than tuberculin.

In 1896, Gleitzman contended that the curet, and even the punch forceps should be used in all cases of (1) primary laryngeal tuberculosis, (2) circumscribed infiltrations and ulcerations, (3) dense hard infiltrations and ulcerations of the arytenoid region, the posterior wall of the larynx, the ventricular bands and tumors of the epiglottis, (4) in advanced cases to relieve the dysphagia. Counterindicated in (1) advanced pulmonary disease and hectic type, (2) disseminated disease of the larynx, (3) extensive infiltration producing severe stenosis. Ingals did not coincide with him in this opinion. Spengler used parachlorophenol mixed with an equal volume of glycerin, and reported 40% absolute cures. Lubinski and Seifert, on the other hand, report adverse experiences with this mixture. Harris reported a case in which he used lactic acid, iodoform, and silver nitrate successively after curetment with repeated failure, the patient being subsequently cured by the application of pure ichthyol. Carbolic acid and its derivatives were in great favor at this time. Chappell, with a special syringe, gave intralaryngeal injections of creosote and menthol in castor oil with good results.

In 1897, powders, such as iodoform, aristol, iodol,

etc., were used extensively, and Allan introduced the famous menthol, camphor, and albolin mixture. S. Solis Cohen recommended formaldehyd in solution. Heryng stated that phenol sulfuricinate in 20% to 40% solutions only prolonged discomfort, and was useless in cases in which the epiglottis or ventricular bands were involved, neither was it useful in diffuse inflammation or bleeding surfaces. Murray used enzymol for cleaning off ulcers, with some success. Being a proteolytic digestive ferment it merely digested the dead tissues on the surface of the ulcer which when removed left a clean surface.

In 1898, Chappell reported good results with hypodermic injections of antitubercle horse-serum prepared at the laboratory at Washington.

In 1899, Yonge reported the use of orthoform insufflated into the larynx, which had the advantage over iodoform in that it acted as a decided local anesthetic, and had strong antiseptic qualities. In granular conditions of the vocal cords he found intertracheal injections most efficacious. Gallagher advocated formaldehyd in increasing solutions from 1% in cases in which the disease had not advanced too far. In advanced cases one drop to the ounce of water used in the form of a spray acted as an anesthetic.

In 1900 Schmithuisen reported that he had used the galvanocautery since 1890, and considered it the best form of treatment. Scheppegegrell advocated cupric electrolysis and claimed the following advantages for it: 1. There is no destruction of tissue or lesion of the surface through which pathogenic germs may infect the system. 2. There is no reaction or hemorrhage. 3. It does not require extraordinary skill and is especially easy when direct laryngoscopy can be used. 4. It is applicable in all cases of laryngeal tuberculosis. As the electrodes must remain in position from 5 minutes to 7 minutes, it is unnecessary to give this treatment further consideration, especially when the hypersensitive condition of the tuberculous larynx is remembered. Laverand used a new microbic product which was administered internally and was prepared from Koch's bacillus. I have been unable to procure any statistics regarding this treatment so surmise it is discontinued. Lake still used intertracheal injections, scarification, and cureting with the application of formaldehyd and orthoform.

In 1901 Stanislaus von Stein urged the employment of a solution made up of carbolic acid, 9 parts; salicylic acid, 1 part; lactic acid, 2 parts; menthol, $\frac{1}{5}$ part. After its application dysphagia improved, dry ulcers became clean and the larynx resumed a rosy red color and in cases in which there was ulceration with infiltration, improvement was very rapid. Freudenthal considered the treatment by lactic acid antiquated and barbarous and urged the use of an emulsion of menthol and orthoform with heroin for the cough. Donellan advised the interlaryngeal injection of sodium cinnamate in 1% to 5% solution every three or four days. Lake, in the *Journal of Laryngology* gave a very clear and conservative review of cases amenable to surgical treatment.

In 1902 Freitag and Neuman advanced an entirely new treatment which consisted in absolutely refraining from using the voice, and no local medication. They claim a number of cures under this treatment. Stillman reported an absolute cure in a case in which ulceration and necrosis had set in, by the application of the direct rays of the sun accomplished by means of a hand mirror. Grayson recommended intertracheal injections of a solution of menthol, guaiacol and eucalyptol in olive oil to relieve the cough. Off and Newcomet experimented extensively with the röntgen rays, but the results did not justify their expectations, although there were a number of cases in which improvement was noted.

In 1903 Marmoreck's serum (which the Italians claim to be identical in every respect with Maragliano's) was introduced. While it is too early to pass judgment

upon it, still it appears to be looked on with disfavor. Hallopeau, Championnière, Dieulafoy and LeDentu, reported negative results from its use.

It is a well-established fact that all patients improve temporarily under a new treatment, and this fact has been the cause of many authorities advancing treatments and promising the most brilliant results which ultimately are found to be of no more value than those formerly employed.

It is not my intention to advance anything new in the way of treatment, but rather to consider special procedures which have been found most useful and which are now carried out at the Rush Hospital, Philadelphia.

All patients admitted to the hospital have their throats thoroughly examined as soon as possible. When any throat symptom either subjective or objective is noted they are placed under local treatment.

If the arytenoids are slightly infiltrated with the rest of the larynx normal, and the subjective symptoms consist of a slight huskiness and the voice tiring easily, the larynx is thoroughly cleansed with a normal salt solution, and if the turbinates are congested, which is usually the case, they are reduced by the application of adrenalin chlorid 1 to 10,000. Finally the whole upper respiratory tract is sprayed with the menthol, camphor, albolin solution. In this condition, the old astringent treatment while it temporarily relieves the patient, ultimately does more harm than good by decreasing the elasticity of the tissues and reducing their resisting powers. Steam inhalations have been tried over a period of several years but appear to be of no value beyond the moral effect they exert on the patient.

When the arytenoids and the interarytenoidal space are greatly infiltrated and anemic (the rest of the larynx normal) and the patient complains of partial aphonia, and a feeling as of a foreign body in the throat, etc., the larynx is cleansed as before and the turbinates reduced. A solution of mercuric chlorid 30 cc. (1 oz.) with .65 gm. (10 gr.) of menthol in equal parts of glycerin and water to the strength of 1 to 1,000 is gently swabbed over the affected area. The menthol stimulates the capillary circulation while the mercury acts as an antiseptic and stimulant to the deeper tissues. The nares are sprayed with the menthol, camphor and albolin mixture and the patient is strictly enjoined to use the voice as little as possible. In this form of the disease, some authorities recommend all the way from scarification to the punch forceps, but such procedures appear to me entirely unjustifiable.

In the more advanced condition when the arytenoids are pyriform, the interarytenoidal space obliterated, the aryepiglottic folds and posterior third of the cords and ventricular bands thick and infiltrated, with the whole larynx bathed in a thick tenacious mucus, the patient will complain of dysphagia and a constant desire to clear the throat, there will be severe pains in the larynx and the respiration is short and frequent. The first indication in this type is obviously to cleanse the larynx with the least possible amount of irritation; as a rule it is extremely hypersensitive. This may be accomplished by first shrinking the turbinates and washing out the nasal cavities and choanæ, the patient is then given a 50% solution of hydrogen dioxid and made to gargle the throat several times, this cleanses the walls of the pharynx, tonsils and mouth. The larynx is then partially cocaineized with a 2% solution and swabbed out with dilute Seiler's solution. A preparation of menthol 32 gm. (5 gr.), guaiacol and olive oil of each 15 cc. ($\frac{1}{2}$ oz.) is then applied and the pharynx sprayed with the menthol, camphor, and albolin mixture. The patient is taught to take nourishment using the Wolfenden position (lying down with the head lower than the body) this relieves the dysphagia because food tends to enter the esophagus through the pyriform sinuses on each side of the larynx, and thus avoids contact with the latter. This condition unless checked will

speedily progress with the formation of ulcers over the interarytenoidal space or the arytenoid cartilages and will gradually creep along the cords and ventricular bands until practically the whole larynx is involved. In the treatment of this condition much has been said both for and against lactic acid. I use the acid because nothing better has been found, and because with many others, I firmly believe it is not the acid as much as the rubbing that brings about good results, the real object being to attract the leukocytes with the resulting resolution of the part; therefore the following solution, which is antiseptic and preserves whatever inherent action the lactic acid may possess, is used after thorough cocaineization. Formalin, 7 parts; oil of cloves, 10 parts; lactic acid, 50 parts; and glycerin enough to make 100 parts. Orthoform is then insufflated until all the ulcerated parts are well covered. If the orthoform shows signs of losing its effect aristol is used for a short time with a subsequent return to orthoform. A different type of ulceration often occurs with acute pulmonary tuberculosis in which the whole larynx is red and swollen with numerous ulcers found particularly on the posterior surface of the epiglottis. As the pulmonary trouble usually proves fatal in a few days or weeks, little or nothing can be done beyond the alleviation of suffering.

Regarding surgical treatment in this disease, one must admit that sometimes certain conditions arise in which an operation of more or less severity is demanded, but these are very few.

It is of the utmost importance that the patient's condition will not only warrant the surgical interference, but be able to sustain the system after the operation is completed. Gentle curetment sometimes gives excellent results when there is an excess of granulomas, particularly on the vocal cords, or in ulcerations with an accumulation of debris. Submucous injections and scarification often cause violent reaction and are prone to leave an ulcerating surface which may resist all treatment thereby further provoking the disease.

Occasionally new formations, such as pedunculated tumors are seen which offer more or less obstruction to respiration and give rise to paroxysms of coughing. These obstructions can be readily removed with cutting forceps (such as Lake's) with immediate benefit to the patient.

CONCLUSIONS.

1. Local treatment is always beneficial even if it only relieves the most distressing symptom, *i. e.*, pain.
2. It depends entirely upon the general condition of the patient what form of local treatment is most advisable.
3. While laryngeal tuberculosis in some cases may be entirely cured, there always remains more or less chronic laryngeal catarrh.
4. That extensive surgical procedures in cases in which the lungs are deeply involved except as a palliative treatment are unjustifiable.
5. That extensive curetment should only be employed in those cases in which there is a fair chance of curing the disease and when it is necessary to prolong life a short time.
6. The prognosis depends more on the general systemic condition of the patient than upon the throat lesion. It naturally follows that the more severe the throat lesion the greater the degree of constitutional weakness.
7. If a case is seen at an early stage of its development, the prognosis is good provided of course the concomitant lung disease is responding to treatment.
8. When there is much ulceration and loss of tissue, absolute cure is impossible, but such an amelioration of symptoms may be brought about as to render the patient fairly comfortable for the rest of his existence.
9. The best results are obtained when the tuberculous deposit in the larynx is localized.

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University Students in France.—According to *The British Medical Journal*, the total number of students attending the French universities is 30,405. The Arts Faculty has 4,384 students, of whom 3,873 are French. It has 613 women students. Law has 10,972 students, and of these 4,382 belong to the University of Paris and 1,021 to Toulouse. In the Faculty of Science there are 4,765 students, of whom 1,546 attend the Paris Faculty, 552 that of Lyon, and 476 at Nancy. There is a total of 6,686 students of medicine, of whom 6,115 are French. They are distributed as follows: Paris 3,496, Lyon 958, Bordeaux 654, Montpellier 552. There are 571 foreigners attending this Faculty, of whom 197 belong to Persia, 89 to Turkey, 63 to Bulgaria, and 57 to Roumania. To these must be added 202 French women students and 164 women students from abroad, together with 1,558 students who are taking the course of medicine and pharmacy. Beside these there are 3,014 students of pharmacy.

A MODIFICATION OF EXISTING METHODS FOR STAINING FLAGELLA.

BY

O. P. JOHNSTON, A.M.,

Rush Medical College, formerly of Cornell University,

AND

W. B. MACK,

New York State Veterinary College, Cornell University.

The demonstration of flagella on motile bacteria gives all beginners in bacteriology and many experienced workers much difficulty. The methods employed in most laboratories are complicated and involve several steps that are of no advantage. We find, after considerable experimental work conducted in the bacteriologic laboratory at Cornell University, the following technic almost uniformly successful and comparatively simple. It is not claimed to be a new method, but a modification and combination of existing ones. Its efficiency has been demonstrated for members of the colon group of bacteria and for *Pseudomonas pyocyaneus*. It is believed it will prove equally successful with other species. Further, it has given good results in the hands of inexperienced as well as experienced workers.

The essentials for securing uniformly good preparations, free from background, seem to be: 1. Clean cover-glasses. 2. A film that does not contain much organic matter. 3. And most important of all, a film in which the organisms lie with flagella extended so they can be seen when stained. Much less depends on the stains and the method of staining than is commonly believed.

METHOD.

Cleaning Cover-glasses.—Cover-glasses are cleaned in the ordinary way and then boiled in 5% caustic soda about ten minutes, rinsed in water and boiled in dilute 10% hydrochloric acid about an equal time, then rinsed very thoroughly in water, one at a time, taking care not to soil in handling, and transferred to ether alcohol until ready to wipe. Place a piece of cheese-cloth or thin muslin in 5% caustic soda for a few hours, or over night, rinse in water, then for about the same time place in dilute (10%) hydrochloric acid, rinse thoroughly in water and dry. A quicker way is to rinse the cloth in ether for a few minutes, but it is no more effective and is more expensive. Cleanse the hands thoroughly in soap and water, then in ether, before further handling the cover-glasses. This treatment removes the oil from cover-glasses and the muslin and sebum from the hands. Wipe the cover-glasses from ether alcohol with the muslin thus prepared, using care to handle them only by the edges, and put in a clean covered receptacle; a petri dish is very convenient, until ready to use. When thoroughly cleaned and free from oil, a drop of water placed on a cover-glass spreads over a considerable surface in a very thin film without difficulty. This method of cleaning cover-glasses is rather long, and is not claimed by us to be better than other methods carefully used. It is simply the one we have followed with uniformly good results.

Preparation of Films.—Make a culture of the organism to be stained on slant agar and incubate for 18 to 24 hours. Prepare a tube with 6 cc. to 8 cc. of sterile water, and keep in the incubator until it is at incubator temperature. With a sterile platinum loop, scrape away some of the growth from the agar surface, using care not to remove any of the agar, and rinse it off carefully in the tube of water previously prepared for this purpose. There should be enough to impart to the water a faintly perceptible cloudiness. This should be done in a warm room, the incubator room if one is convenient, and with considerable care. Replace this tube in the incubator and the bacilli will distribute themselves quite evenly through the water, but any clumps or masses settle to the bottom. The tube is left in the incubator for from two to three days before preparing the films. However, good results have been obtained at different times up to four weeks. Place a tray of cover-glasses in the incubator to warm; then, still in the warm room, with a platinum loop put a drop or two from the tube on each cover. We have failed of good results when all conditions seemed right, apparently because the room was too cold. Replace the tray in the incubator until the water has evaporated, when the films are ready to stain. The small amount of organic matter in films prepared in this way gives but little background when stained.

Mordants and Stains.—Different mordants and staining solutions have been used in this work. Those of Löffler or Pitfield, prepared as follows, have given the most uniform and satisfactory results:

LÖFFLER'S MORDANT.

Twenty percent aqueous solution tannic acid . . . 10 cc.
Saturated aqueous solution iron sulfate . . . 5 cc.
Saturated alcoholic solution basic fuchsin . . . 1 cc.
Mix, let stand two or more hours, and filter.

Tannic acid solution should be freshly prepared, but the iron sulfate solution is better if it stands until it begins to turn brownish by oxidation, but it should not be too old. If, when this mordant is used it gives a precipitate, filter again. When properly prepared it should have much the same color as a solution of hematoxylin.

ZIEHL'S CARBOL FUCHSIN.

Saturated alcoholic solution basic fuchsin . . . 2.5 cc.
Five percent carbolic acid 20 cc.

If not clear add fuchsin solution drop by drop until it clears; then filter.

PITFIELD'S MORDANT.

Ten percent aqueous solution tannic acid . . . 10 cc.
Saturated aqueous solution mercuric chlorid . . . 5 cc.
Saturated aqueous solution potassium alum . . . 5 cc.
Ziehl's carbol fuchsin 5 cc.

Mix, let stand two or more hours, and decant clear fluid or filter.

PITFIELD'S STAIN.

Saturated aqueous solution potassium alum . . . 10 cc.
Saturated alcoholic solution gentian-violet . . . 2 cc.
Mix, let stand two or more hours, and filter.

Saturated alcoholic solution of methyl-violet, basic fuchsin, or methylene-blue can be substituted for gentian-violet in the above formula with equally good results.

With a pipet apply to a film all of either mordant the cover-glass will hold, allow it to act two or three minutes without heating, rinse thoroughly in clean water, apply any one of the stains in the same manner, stain two or three minutes without heating, rinse well, and examine in water, or dry and mount in balsam.

All these solutions should be freshly prepared. Considerable care in washing after the mordant will be well repaid by insuring a cleaner background.

These films require no fixing, the mordant fixing them sufficiently, and flaming often ruins them. Heating mordant and stain is not only useless, but gives almost invariably a precipitate which is very objectionable. Around the edge of where the drop was applied to the cover-glass a heavy line of bacteria will be found, and if the right amount of culture was added to the water, many will be found scattered within the ring, some of them isolated so they can be easily studied. A little practice with this will enable one to make good preparations altogether free from background and precipitate.

SUMMARY.

Those things which seem to insure a good preparation are: Clean cover-glasses; but little organic matter in the film to stain and give a heavy background; avoiding fixing film in flame, but allowing the mordant to fix it; avoiding heating either mordant or stain on the films, as it tends to produce a precipitate and background. Finally, the all-important prerequisite for staining flagella is to have a film which contains the organisms with flagella extended, and with this one condition fulfilled, no special technic is required other than the use of a mordant. If these conditions are satisfied, no special difficulty will be experienced by anyone in staining the flagella. Failure to stain flagella usually means failure to get them in the film to be stained. In other words, it has been our experience that it is practically as easy to stain the flagella as the organism itself. In general, this much might be said, that conditions which would seem to lower the irritability of the organisms, tend to give the best films for staining. Such conditions are an even temperature, avoiding sudden changes of temperature in preparing the films, avoiding jarring and allowing the organisms to remain in sterile water for several days or weeks before making the films.

Our special thanks are due to Dr. V. A. Moore and the instructors in bacteriology for the courtesies extended, as well as for the direct assistance given in carrying on this work.

SPECIAL ARTICLES

ADDRESS TO THE MEMBERS OF THE PHILADELPHIA PEDIATRIC SOCIETY, AT ITS EIGHTH ANNUAL MEETING, JANUARY 12, 1904.¹

BY

D. J. M. MILLER, M.D.,
of Philadelphia.

The year just completed, the seventh in the life of our young and vigorous society, differs in no wise from its predecessors in the record of instructive and interesting papers and cases presented and well-attended meetings; indeed, in the matter of attendance, we compare very favorably with other medical societies. With a membership of 208, we have had an average attendance of 25, or about 12%. But the actual attendance has, I am sure, been larger, many having failed to register their names on entering the hall; so it can fairly be assumed that fully 30 have usually been present at the meetings. The Pathological Society, with 334 members, has an attendance of 42, or 12.5%; the County Medical, with 900 members, an attendance of 40 to 60, or from 4.4% to 6.6%. Because other societies, however, have about the same attendance as ours is no reason that our meetings should not be larger. Surely it ought to be an easy matter to get 40 or 50 together, once a month, in a society as young and active as this, whose object is the study of a subject as broad and fascinating as pediatrics, a specialty which includes every branch of medicine, and is so catholic as to have been well called the specialty of the general practitioner.

I have often thought that the cases and papers presented at our meetings should be more representative of the society as a whole. In looking over the work of 1903, I find that the 49 cases and papers presented were contributed by 33 members (i. e., 13 contributed papers or cases more than once). This leaves 175 who were unmindful of the injunction of Francis Bacon that "Every man is a debtor to his profession . . . and ought of duty to be a help thereunto." I am sure you will agree with me that there is room for improvement here. I know that some are deterred by modesty, others by the belief that unless a case is especially rare or interesting it would be but boring the society to report it, others again by the claims and opportunities of a busy life, and still others, I fear, by inertia. But none of these excuses seems valid. There is hardly one of us who does not occasionally see cases or has used methods of treatment that would not interest and help his or her fellow members, nor very few who could not snatch a few moments now and then to write a brief report or prepare an elaborate paper.

Another way to add to the attractiveness of our meetings, would be the personal invitation, by presenters of papers and cases, to men especially skilled in the subject they are to report, to take part in the discussion—the discussions being often as valuable and interesting, sometimes more so, than the papers themselves. Members themselves, too, might enter more into the discussions, for we must not forget that one of the chief benefits we derive from this and all medical societies is from the different points of view with which almost every subject is looked at by different minds.

All of us have observed that on the evenings when many patients are shown there is usually a larger attendance than at meetings devoted to papers alone. It has occurred to me that it would be well to act upon this fact, and I would suggest to your Executive Committee the advisability of setting apart one or more evenings in the year exclusively to the exhibition of patients. Such "clinical evenings," as they are called, are a peculiar feature of the Harveian Society of London, and many, if not the majority, of the meetings of the English Society for the Study of Disease in Children seems to be of this character. How attractive and instructive the exhibition of patients can be made is well shown by the meeting in December last, when 4 out of the 5 items on the program were the presentation of patients, 3 of whom were the extremely interesting ones shown by Dr. Griffith.

As an additional means of maintaining the interest in the society's meetings, I would also recommend to the consideration of the Executive Committee the Symposium. I can only recall two such meetings: The one on heart disease and the one on vaccination, both of which were due, I believe, to the indefatigable zeal of the revered and lamented Packard, who was always a firm believer in the value of this form of meetings, and so successful in organizing them.

I do not mean to imply by these remarks that our meetings are not attractive—indeed, they are always extremely so. I merely wish to insist that our attendance is hardly proportionate to our membership, and to point out how we can make the meetings more interesting, and thus draw out a larger attendance.

While dwelling upon the matter of attendance I cannot refrain from expressing the wish that our women members would participate more actively in the proceedings of the society. According to the register, only five women were present at the meetings of the year just closed, and but two presented papers; one in conjunction with another member, and one alone. More, however, I am sure, were present than the register indicated, many having failed to put down their names. Notwithstanding this, I feel that more women should take part in the proceedings of a society devoted to a branch of medicine in which they are, or are supposed to be, particularly interested.

As to the character of the material presented during the past year, while there have been few, if any, papers of eminent scientific nature or showing painstaking and laborious research, the clinical and practical aspect of pediatrics has been most excellently represented. Our proceedings compare very favorably with the recently published third volume of the transactions of the English Society for the Study of Disease in Children. Indeed, although the volume just mentioned contains the records of 70 papers and cases, neither in the manner in which they are presented, nor for practical and clinical value, are they in any way superior to those contributed to this society. For our work, too, we need not apologize when placed alongside that of the American Pediatric Society. Comparisons, I am well aware, are odious, yet I must mention among the papers read during the year as noteworthy and interesting contributions to pediatric knowledge, those on the nature and treatment of recurrent vomiting, on amaurotic family idiocy, on aneurysm of the aorta in early life, and on subphrenic abscess and typhoid perforation in children. But we must not rest complacently upon the excellence of what we have achieved; that which we and our predecessors have done in the past should act only as a stimulus for renewed efforts on our part in the future. We need more carefully prepared papers; not only those displaying painstaking research, but also those of a practical and clinical character, especially such as are devoted to treatment. There has always been a dearth of papers of this character, from the natural diffidence, I suppose, that every one has of expressing views on a subject about which there are always so many and diverse opinions as that of therapeutics. Yet the treatment of disease is the physician's chief *raison d'être*, and is to him ever a topic of perennial interest. I would suggest to the many specialists who are members of this society, that their associates would be very grateful if they would more frequently give to them their experiences in the treatment (and diagnosis, too), of the affections in which they are especially interested. Others, also, might occasionally report to the society methods of treatment in which they have been successful. I have no doubt that there is not one of us, however experienced or skilful, who would not at some time or other learn something useful if papers of this character were more often read.

You will learn this evening from the treasurer's report that this society suffers from an *embarras de richesse*, in that the balances of each year since the organization of the society have accumulated into a handsome surplus. What disposition should be made of this money has for some time agitated the minds of many of us—whether we should expend it in some useful way or permit it to accumulate. If we decide upon the former course (and I see no good reason why we should adhere to the latter), several plans suggest themselves whereby the money

¹Seventh Presidential address.

might be profitably used: One is to establish a pediatric library in the College of Physicians to which all our members might have access; a second is to create an entertainment fund; a third to institute an annual or biannual prize essay on some pediatric subject; and, lastly, to publish our transactions. I confess that the latter appeals most strongly to me. Any one who has examined the handsome and interesting volume of transactions just published by the English Society for the Study of Disease in Children cannot avoid the wish that our proceedings were in an equally attractive and accessible form. And, if only we could afford it, there is no good reason why they should not be. Our material, as I have already shown, is as valuable as that of other societies devoted to pediatrics, and it is desirable from every point of view that this society's influence should be extended, as it surely would be, by a well-edited volume of transactions. The profession would thus learn what we are doing, and our work would be in a form permanently and readily accessible to all interested in the diseases of children. For these reasons, it seems to me, that we could not better use this surplus than by issuing such a volume; either by spending the whole of it, or by using only a portion, or in some other way, to be decided upon, after thorough investigation, by a special committee. To which end I would suggest that a resolution be offered referring the whole matter to the careful consideration of the Executive Committee.

It is an interesting coincidence that it was just seven years ago tonight—on January 12, 1897—that this society held its first meeting; a preliminary meeting, it is true, had been held at the residence of Dr. Griffith early in December, 1896; but the first regular meeting and the first election of officers occurred on the date first mentioned.

I well remember that a prominent clinician spoke to me at the time in a most disparaging way of the undertaking, partly on the ground that there were already too many medical societies, but especially for the reason that there was no place in medicine for a special department limited to children's diseases, the speaker maintaining that the diseases of children differed in no wise from the diseases of adults, and with the exception of infant feeding, which he said could easily be mastered in a short time, there was no sufficient cause for regarding pediatrics as a special branch of medicine. Curiously enough, shortly after this conversation there appeared in a well-known medical journal an editorial with the same purport.

How mistaken the first portion of this criticism was, the seven prosperous years of this society bear convincing witness, and as to the latter part, the need of especial study and experience in diagnosing and treating the diseases of early life will be better appreciated, as soon as it is recognized that while there are very few affections confined to children alone, the manifestations of disease in infancy and childhood differ very materially from those in adult life and old age. This difference is well shown, in the case of one disease, by Dr. Cheadle in his monograph on the manifestations of the rheumatic state in childhood. Those, he says, who, in diagnosing rheumatism in childhood, have in mind the adult type of articular rheumatism, will frequently fail to recognize many of the symptoms, which in early life are undoubtedly due to the rheumatic poison. Another instance is the frequency of abdominal pain in the pneumonias of children, causing the diagnosis of gastritis, gastric fever or appendicitis to be made, when the actual seat of disease is in the lung. In fact, one whose experience is limited to the pathology, symptoms, and prognosis of the pneumonias of mature life will often find himself far astray if he depends upon such knowledge for the recognition of the same disease at an earlier age. Other instances, too numerous to mention, of the specific manner in which disease manifests itself in early life, and which makes the recognition of the ailments of the young so difficult at times, to those not familiar with sick children, will doubtless occur to you all.

But the purpose of this society needs no vindication at my hands. Pediatrics is a well-established and important branch of medicine, although still in its infancy, for the "anatomic and physiologic" peculiarities of infancy and childhood, the pathology and bacteriology of disease at this period, offer numerous wide and inviting fields for especial study, in which, although

there has been much good work, much more remains to be done. Among the many problems awaiting solution may be mentioned the nature of the status lymphaticus, especially in connection with enlarged thymus and sudden death in infants; the cause, prevention and treatment of many of the specific infectious diseases; the nature of the acute and chronic arthritic affections of childhood and their relation to purpura, erythema, tonsillitis, endocarditis, and chorea, besides many important questions connected with the nutrition and feeding of infants, upon which the last word has not yet been spoken.

How much the especial study of pediatrics has led to a more intelligent understanding of the nature and treatment of the diseases of early life will, perhaps, be better appreciated when we compare, for a brief space, our position today with what it was in the past.¹ (And if I refer more especially to infant feeding, it is because of its interest and intimate connection with the development of pediatrics.) In one of the earlier English treatises on the diseases of infants (that of W. Harris, first published in Latin, in 1689²) the author attributes all the symptoms of infants to an all-prevailing acid (a conception due probably to the custom of the age, a custom not yet extinct, of feeding babies from the hour of their birth with bread and other farinaceous foods). Hence the most valuable medicines were antacids and absorbents, such as crab's eyes and claws, oyster shells, coral and pearls; the more expensive, the more efficacious. As the humoral pathology held sway, almost all treatment was of an eliminative nature. Thus puking, purging, blistering and bleeding, even in tender infants, were the accepted forms of practice. A baby of 6 or 10 months with thrush must have found the struggle for existence especially difficult when he was first poked with antimonial wine (12 drops to 20 drops), then purged with 15 gr. of rhubarb or senna, or 6 gr. of calomel; and, if the fever was high, bled to the amount of 3 oz. Yet such was the accepted practice. Dr. Harris, however, protested against some of the therapeutics of his day; for he stated that "bleeding is unnecessary in any disease of infants, except in convulsions, chin-coughs and fevers attended with violent fits of coughing." And again, "opiates are contrary to the nature of children, except in obstinate vomitings, especially if it is joined with dreadful and continued gripings." His views on difficult dentition, even at this late date, claim many followers; for he remarked that "of all the disorders of infants there is none that produces so many grievous symptoms as the laborious breeding of the teeth."

In speaking of prognosis, one author makes two statements which are equally true today: One, that "from the middle of July to the middle of September the epidemic watery gripes are so rife that more children die of the disease in one month than three or four at another time of the year;" the other, that "the cure of disease depends often upon the nurse, whether she is obedient to your instructions or relies upon her own wisdom." Artificial feeding is not referred to, but it sounds familiar to read that many mothers refuse to suckle their offspring, "because of frequent visits, fine clothes, theaters, or the devoting the greater part of the night to their beloved cards." An evidence that human nature was much the same then as it is now.

Dr. George Armstrong, who wrote about 1767,³ believing that most of the complaints of infancy were due "to activity of the glandular secretions and the stagnation of their slimy contents in the stomach and bowels," employed emetics, in the form of antimony, for almost every ill that infantile flesh is heir to. But if parents sometimes objected to such treatment as too harsh, he stated that in one disease (the watery gripes) he had fallen upon a method of treatment that often succeeded well, namely, the use of purgatives followed by anodynes, a practice which we today still find of great value. This pediatricist goes quite fully into the question of dry nursing, and recommends a pap made of bread boiled in water and sweetened with sugar. He recommends mixing with this pap, cows' or asses' milk as often as possible, and, now and then, some of it alone to drink. If the milk sours on the stomach, broth of

¹ In the review that follows only English writers are referred to.

² A Treatise on the Acute Diseases of Infants, Translated into English by John Martyn, London, 1742.

³ An Account of the Diseases Most Incident to Children, New Edition, London, 1783.

either chicken, veal, or mutton is advised in place of the milk. Milk, you will observe, was regarded as a rather dangerous food. Feeding by spoon he preferred to the horn, because the latter "induces loose bowels and compels the use of too thin a food." The horn was the common cow's horn, on to the smaller end of which was fastened "two bits of parchment, shaped like the finger of a glove, and stitched together in such a manner that food poured into the horn could be sucked through the stitches."

Michael Underwood's treatise, written about 1785¹, is really an excellent manual on the diseases of children, and, although his conceptions of the nature of infantile diseases are much the same as those of his predecessors, his treatment is more natural and less harsh. He deprecates the indiscriminate use of antimonial wine, and protests against the universal practice of giving newborn infants bread and like forms of food. For infants deprived of the breast he advises cows' milk with a little jelly of hartshorne shavings (to correct its natural acescency²), diluted with a little water, if very rich. For very young infants he recommends that the milk be boiled.

It is remarkable that 17 years after this, in 1811, a non-medical writer, who styles herself "an American Matron,"³ in a little work entitled "The Maternal Physician," containing much excellent advice, states that "milk is the only proper substitute for the breast," and that "if infants were never suffered to take any other food many of their distressing disorders would be avoided."

In 1825 the first American work devoted to the diseases of children was published by Dr. Dewees of this city⁴. In the descriptions of the symptoms and, occasionally, of the etiology of disease, and in prognosis, this book leaves little to be desired. The treatment by drugs is still harsh and crude, but the directions for the hygienic management of sick and well children are excellent. Cholera infantum, for instance, is attributed to atmospheric heat, dentition and improper food. Change of air is recommended as the best treatment, and regimen more important than medicines. The suggestion to give teaspoonful doses, every 15 minutes, of hot black coffee for the gastric irritability and general prostration, seems to me, to be worthy of imitation. It is interesting to note that scarlet fever and measles are not regarded as contagious, but epidemic in nature, and that he opposes tracheotomy in croup "on the ground that it can do no more than the spontaneous expulsion of the membrane, which is rarely followed by permanent relief." As already stated, the portion of Dewees' treatise devoted to the dietetic and hygienic management of infants and children is so excellent that it would serve well as a reliable nursery guide at the present day. The rules for the artificial feeding of infants show remarkable advances over previous authors. Farinaceous substances are condemned, and a mixture of milk ($\frac{3}{4}$), water ($\frac{1}{4}$) and sugar is strongly recommended. After the eruption of the first one or two teeth, the addition of thin gruels is advised. Food is to be administered in a bottle fitted with a sponge or a prepared heifer's teat. Most explicit are his directions for the cleansing of the bottles, nipple and every utensil employed in the preparation of the food and the care of the milk.

From the time of Dewees down to the appearance of the first editions of the treatises of John F. Meigs and Charles West, in 1848, we note but little advancement in the domain of pediatrics. In Meig's work, however, we remark the first attempt to modify cows' milk so as to make it resemble human milk in the recommendation of his wellknown mixture of cream, milk, and arrow-root or gelatin water, a mixture still occupying a prominent place in the prescribing manual of the Children's Hospital of Philadelphia. To a member of this society, his son, is due the credit of further elaborating this idea and laying the foundations of the modern method of percentage feeding.

From the publication of the works of Meigs and West the progress in pediatrics has been rapid, and since 1880, so mar-

¹ A Treatise on the Disorders of Infants, First American Edition, 1798.

² Meaning acidity.

³ The Maternal Physician, by an American Matron, New York, 1811.

⁴ W. F. Dewees, Treatise on the Physical and Medical Treatment of Children, Phila., 1825.

velous and so numerous have been the advances that it would be impossible in a single evening to consider them even partially. It should be a source of congratulation, also, that these onward steps have been more in the direction of the supreme aim of medicine; namely, the prevention of disease and the saving of life, than in almost any other branch of our art, save, perhaps, the brilliant achievements of modern surgery. The discovery of diphtheria antitoxin and intubation, the recognition and proper treatment of congenital pyloric stenosis and the advances in artificial infant feeding may justly be regarded as distinctly life-saving measures.

Indeed, so successful and so safe has the artificial feeding of infants become that I believe it has given rise to a real danger, in that we are apt, in the fascination of calculating percentages and adjusting our mixtures to the ever-varying needs of the infant's nutrition, to forget that the best food for the baby is its mother's milk. Trite as the remark may appear, the proper food for the infant is that fluid which flows from the human breast, and our aim should be not to improve artificial feeding, but to encourage breast feeding, and to discover methods to modify human milk with the same zeal with which we have studied the modification of that of the cow.

Members of the Pediatric Society, we have "a goodly heritage." Let us see to it that this precious thing which we have received does not languish in our hands. Let us press onward in the advancement of our special branch of medicine, charged as it is with a mission so important to the welfare of the race as the strengthening and healing of little children, the fathers and mothers of tomorrow.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

April 30, 1904. [Vol. XLII, No. 18.]

1. Cesarean Section for Placenta Prævia. JOHN B. DEEVER.
2. Surgical Observations in the Philippines. J. M. BANISTER.
3. A Clinical Study of Bacillus Dysenteriae in Boston and Vicinity. ROBERT W. HASTINGS.
4. The Panama Canal and Oral Hygiene. EUGENE S. TALBOT.
5. Routine Method of Detecting and Differentiating Reducing Agents Found in the Urine. W. G. DOERN.
6. A Case of Circular Insanity Studied from Clinical, Differential and Forensic Standpoints. (Continued.) RICHARD DEWEY.
7. A Case of Parasitic Hemoptysis or Infection with Distoma Westminsteri. A. D. MACKENZIE.
8. Illegitimacy an Economic Problem. JAMES E. DAVIS.
9. Enormous Mixed Tumor of the Parotid Region Reaching to the Clavicle and Weighing About Seven Pounds: Operation: Recovery. W. W. KEEN.

1.—Cesarean Section for Placenta Prævia.—J. B. Deaver gives the mortality of other methods of treatment as about 11% for the mother and 5% to 10% for the child. In 24 cases of cesarean section collected from literature the mortality was, respectively, 20.8% and 66.6%. In view, therefore, of these figures it is not a method to be unreservedly recommended, but should be confined to those whose cervix is with difficulty dilatable, whose birth canal is rather contracted, when immediate extraction of the fetus is necessary, and when further hemorrhage would almost certainly kill either mother or child, or both. In a private house, without skilled assistance, version and extraction would be the better treatment. Mortality, both for mother and child, has been greater when the operation was undertaken before the fetus was viable, showing that the early stage of pregnancy is more unfavorable for the mother. [H.M.]

2.—Surgical Observations in the Philippines.—J. M. Banister finds that aseptic results will just as surely follow aseptic methods in the Philippines as in the United States. Should infection occur, blame the technic and not the climate. Successful attainment of the object for which operation has been undertaken will follow careful and skilful surgery in the Philippines with the same regularity as at home. Convalescence is rapid and satisfactory. Mortality is not increased by the climate unless the patient is the victim of some other serious disease. [H.M.]

3.—Bacillus Dysenteriae in Boston and Vicinity.—R. W. Hastings reports a study of 28 hospital cases, in which there were found 23 of the Harris variety, 3 of the Shiga, and 2 of both. The local pathologic lesions have proved to be thick-

ened intestinal walls, with prominent, injected, sometimes ulcerated follicles, and a coating of thick glairy mucus. Two patients were breast-fed. In most the food lacked even ordinary care in its method of preparation. Of the severe cases there were 13 deaths, 5 recoveries, and 2 unrelieved, both of the latter dying outside the hospital. The writer can draw no positive conclusion from experience with the serum used. No harm was done. He believes in another year a stronger serum which will then be available, may be more efficient. [H.M.]

4.—The Panama Canal and Oral Hygiene.—E. S. Talbot believes intestinal gingivitis will extensively prevail during work on the Panama Canal. Its pathology and etiology are at bottom the same as scurvy. It is caused by change of climate and food. The excretory organs do not adjust themselves to the new environment, and intestinal fermentation and autointoxication result. The largest number of cases occur between 21 and 30. In the American army mostly young men are enlisted. There is no part of the West in which the disease is so prevalent as in the Northwest. [H.M.]

5.—Detecting and Differentiating Reducing Agents.—W. G. Doern points out the frequent source of error in diagnosis in accepting a positive reaction without confirmation. The objections to Trommer's test for sugar are that if the two solutions are not used in proper proportion a precipitate will form; a large quantity of urine is required; increasing liability of error from uric acid, creatinin and the phosphates precipitated by the KOH. The test is not delicate without boiling and when boiled becomes oversensitive. Fehling's solution is more convenient but less stable. Haines' solution is stable. The copper and bismuth tests are reliable negative tests, but a positive test must be confirmed. With Haines' test a certain technic must be exactly followed. Bismuth solutions are not reduced by the alkaptons and serve to differentiate them from other reducing agents. The fermentation test serves to differentiate lactose, glycuronic acid, hippuric acid, the alkaptons, and the pentoses, which do not ferment, from levulose and dextrose. If the completely fermented urine should still reduce the copper solution it indicates glycuronic acid or alkaptons. Phenylhydrazin test is good but the technic is complicated. Pentoses may be recognized by the orcin test. Alkaptons are recognized by the characteristic organized alkali test. We can differentiate dextrose from levulose by a polariscope examination. [H.M.]

7.—Parasitic Hemoptysis.—A. D. Mackenzie reports a case in which the ova of the distoma were finally found in the sputa; the first observed on this continent in man, though it has been noted in three instances in animals. The reasons for considering that separate species have been described are as yet insufficient. There is every reason to believe the case here reported was infected in Japan. The disease is endemic in Okayama. *Distoma* or *Paragonimus westermanii* is responsible for both pulmonary and cerebral disease. Cysts are the chief anatomic change. Those in the lungs are usually on the upper lobes and near the surface, where they may form brownish or darker projections. Their size is about that of the tip of the little finger. When they contain parasites there is a viscid, brownish-gray fluid, and the lining is rough, ragged or wrinkled. They rarely contain more than a single worm in man. Their firm walls measure a millimeter, and are formed by the tissues of the host. A bronchitis is set up with a mucopurulent hemorrhagic exudation as well as various forms of pneumonia, depending on the stage of the infection and on repeated infection. The nodules forming about the ova are said to simulate chalicosis. [H.M.]

8.—Illegitimacy an Economic Problem.—J. E. Davis uses the term to designate a vice in which is the implication of a child, a mother, a father, the relatives, friends, and community. The statistics in this country are very incomplete. The chief causative factors are insufficient instruction in the phenomena of sexual life, particularly of girls; incontinency on the part of the male, combined with the passive submission of the woman, with mutual passion prevailing; faulty guardianship; seduction under promise of marriage, lack of means to establish a home and other impediments to marriage; the general servility of women and aversion to marriage on the part of males, and a prevailing notion that hard work is disgraceful and that

good clothes are a necessity; the remoter causes of heredity and environment. The preventive measures, educational, moral, and religious, fail for want of direct and specific application. The sexual nature should be plainly outlined by personal interviews, and confidences secured. In answer to questions sent to physicians and philanthropists 75% favor secrecy as to the individuals involved. The best interests of the child should decide the question of secrecy or publicity. Should publicity compel the father to do his duty, secrecy would be an injustice. When the woman's parents are dead or worthless or would cast off their erring child, or when the father of the child is worthless, absolute secrecy should be imperative to avoid disgrace and destruction of incentive to right living, injury to the future of the child and to society. [H.M.]

9.—Enormous Mixed Tumor of the Parotid Region.—W. W. Keen reports a case of interest from the slow and later rapid growth, the enormous size (seven pounds in weight), the age of the patient (65 years), and the fact that he was able to dissect it away from important structures, especially the blood-vessels of the neck, and the very happy recovery of the patient with simply a scar and paralysis of the right seventh nerve. The diagnosis was myxochondrolymphangiendthelioma. [H.M.]

Boston Medical and Surgical Journal.

April 21, 1904. [Vol. CL, No. 16.]

1. Introductory Lecture at University Bellevue Hospital Medical College. BEVERLEY ROBINSON.
2. Resection of Nasal Septum with Report of 15 Cases. LEON E. WHITE.
3. Some Clinical Observations on Care of Septic Wounds. ARTHUR L. CHUTE.

2.—Resection of the Nasal Septum.—Leon E. White reports 15 cases, and describes in detail the operation. The latter consists briefly in cocainizing the convex aspect of the septum and later the concave, making a straight vertical incision in the nasal mucous membrane at the anterior extremity of the convexity, dissecting off the mucous membrane, puncturing through the cartilage, but not through the mucous membrane of the opposite side and biting away in piece-meal the edge of the cartilage thus freed. With another special instrument carried through the opening made in the cartilage, he pushes away the mucous membrane of the opposite side, thus clearing the cartilage so that as much as is necessary may be nipped away in successive pieces by a specially devised forceps. Illustrations of the special instrument accompany the article with directions as to treatment. The advantages of this method are enumerated as follows: (1) There is accuracy, the work being done under the eye of the operator. As every part of the deflected portion can be seen, and then removed, the position of the septum will be uniformly good. In no other operation is there such a certainty as to the result; (2) splints do not have to be worn—these at the best are a great nuisance to both operator and patient; (3) rapidity of recovery—three or four weeks, as against six or eight by other methods; (4) lack of pain due largely to the absence of traumatism; (5) short after-treatment; (6) freedom from sepsis; (7) free respiration 48 hours after the operation; (8) it is available for either bony or cartilaginous deflections; (9) it creates the utmost possible space by not only straightening the septum but by reducing its thickness to that of the two layers of the mucosa; (10) the lumen of the concave side is never lessened. [A.B.C.]

3.—Clinical Observations on the Cure of Septic Wounds.—Arthur L. Chute writes at some length upon this subject, and concludes as follows: Dry sterile gauze dressings are far preferable for the dressing of septic wounds, because they, by their greater power of absorption, most efficiently drain the wound, and by their slight mechanical irritation and comparative dryness make the granulations more active and allow us to take full advantage of nature's reparative power, while moist dressings and antiseptic baths and irrigating fluids have a depressing effect on the granulations; moist dressings are, however, indicated when one cannot obtain sterile dressings or cannot depend on the aseptic skill of the persons who are to apply the dressings. "Antiseptic poultices" are not to be preferred to sterile dressings, and there is at times a danger in

their use; in case irrigating fluids are necessary, when from some unusual reason we are unable to make a wound of such shape that it can be properly dressed, sterile salt solution should be the irrigating fluid used. One should avoid hydrogen peroxid, since in partially closed cavities or loose tissues its gas production may make it a spreader of infection; the use of dry sterile gauze meets the indications in the routine treatment of the great majority of septic wounds better than any other material. [A.B.C.]

Medical Record.

April 30, 1904. [Vol. 65, No. 18.]

1. Some Observations on the Surgery of the Common Duct of the Liver. WILLIAM J. MAYO.
2. Appendicitis in Children. JOHN W. BRANNAN.
3. Uric Acid and Its Relation to the Clinical Manifestations of Gout and Lithemia. EGBERT LE FEVRE.
4. Insufficiencia Pylori. MARK I. KNAPP.
5. Hemorrhage after Tonsillotomy: Its General Consideration. H. JARECKY.

1.—Surgery of the Common Ducts of the Liver.—

William J. Mayo says, given an infected gallbladder containing stone which causes mechanical irritation and we have the most favorable condition for bacterial excursions into the common duct, and should this be accompanied by calculi which fail to pass the duodenal orifices we have all the conditions favorable for development of cholangitis, pancreatitis, etc. At least 90% of all the cases of common duct disease upon which we are called to operate arise in this way. If the cystic duct is closed mechanically, either by stone, kink, or stricture, a diseased gallbladder results, which should be removed. The key to the diagnosis of this condition is found in the fact that the gallbladder contains no bile, cholecystectomy is easily performed from below upward, the cystic duct and vessels are caught with forceps while a second forceps on the gallbladder side prevents leakage and enables division of the cystic duct and vessels. The gallbladder can then be readily separated from below upward without hemorrhage or trouble. If the gallbladder contains bile we have an entirely different condition to deal with. Free communication through an open cystic duct means a possible infection of the common duct, and if the infection is at all marked provision must be made for bile drainage to the surface. This is best accomplished by a cholecystostomy, which not only drains the gallbladder, cystic duct or common duct, but the pancreatic duct as well, particularly if a stone be lodged in the ampulla of Vater. Interesting illustrations accompany the article. [A.B.C.]

2.—Appendicitis in Children.—

John W. Brannan reports a case in detail occurring in a boy of 6 years. He then discusses the literature on the subject and calls attention to the relatively few cases which have been reported. When we have the classic symptoms of sudden and severe pain in the right iliac fossa which localized tenderness and vomiting, there is not much doubt with what we have to deal. But all writers agree that these symptoms, with the exception of vomiting, are much less constant in children than in adults, especially the localization of the pain and tenderness at the site of the appendix. According to Deaver, the pain is referred to this region in 54% of all cases, as the attack progresses, though in the beginning it is usually placed in the umbilical or epigastric regions. The location of the tenderness is much more to be depended upon, being an objective rather than a subjective symptom. As stated by Churchill, more importance is to be attached to what children *look* than to what they *say*. In six Bellevue cases in which the history was obtained, there was tenderness in the right iliac fossa in all, whereas pain was referred to that region in only three. When a tumor is present or a resisting mass is felt, or there is rigidity of the right rectus muscle with flexure of the right thigh, there can be no further room for doubt. [A.B.C.]

3.—Uric Acid, Gout, and Lithemia.—

E. Le Fevre says: In order to explain the relation of uric acid to the affections, it is necessary to have more definite knowledge on (1) the conditions which increase endogenous nucleoproteids from increased tissue metabolism; (2) all the forms in which nucleoproteids are introduced with the food; (3) the power of the tissues to decompose the purin bases into uric acid or still further change

them into urea or some form beyond uric acid; (4) the effect of the purin bases or the products intermediate between them and uric acid, on physiologic and pathologic processes; (5) the factors that cause its accumulation in the tissue in the form of urate of sodium, and the production of the gouty condition; (6) the factors that prevent elimination of uric acid in normal amounts; (7) the factors that cause separation of uric acid from the urine in kidney and bladder. In meats the nucleoproteids are the only source of uric acid. The fermented liquors introduce xanthin bases and also produce endogenous uric acid from tissue-change. With an outdoor life and free muscular exercise immense quantities of animal food and even alcohol can be taken without causing a corresponding increase in the uric acid secretion, and this same mode of life is frequently sufficient to remove the symptoms of lithemia. More than 50% of all cases showing these symptoms give a family history of gout. [H.M.]

4.—**Insufficiencia Pylori.**—Mark I. Knapp's remarks are based on an experience with over 50 consecutive cases. Normally, one hour after a Ewald's test-meal, the healthy stomach should yield from 30 cc. to 50 cc. of chyme, the solid part of which should be well pulverized and the fluid part thin. Insufficiencia pylori is the condition in which nothing, or possibly only 1 cc. or 2 cc. of chyme are aspirated an hour after the test-meal, and this is because the pylorus either does not close at any time or does so insufficiently for a shorter period than is normal. If the condition is not attended by too severe complications, prognosis is excellent, no matter how old the patient or how long the disease has existed. In treatment the etiology must be kept in mind, alcoholism and the gulping down of food should be interdicted; mastication must, at all times, be complete; loss of teeth should be supplanted by artificial ones; all cereals and vegetables should be well boiled and eaten in the form of puree; meats should be cut into very small pieces or ground before being eaten. The dietetic treatment is of chief importance. The object is not to introduce any acid food nor food which develops gases. What the patients complain of is due to faulty intestinal digestion. And, usually, the patients do not seek medical advice before the intestinal functions are interfered with. Insufficiencia pylori cannot be diagnosed without a test-meal—possibly, several test-meal examinations, one to follow the other one day after the other. Absence of chyme one hour after the test-breakfast or at most 1 cc. or 2 cc. of coarse particles is the diagnostic criterion. [A.B.C.]

5.—**Hemorrhage after Tonsillotomy.**—H. Jarecky says a review of the past 61 years places the number of reported post-operative hemorrhages after tonsillotomy at 175, with two reported deaths. The causes of the bleeding are (1) hemophilia, (2) fibroid tonsils, (3) laceration of the bloodvessels, (4) anomalous arteries, (5) wounding of the anterior pillars, (6) ulceration. These cases are discussed at length. He reports in detail the history of a girl, aged 27, operated upon under a general anesthesia. There was severe after-bleeding and two days' strings of clot were found hanging in the pharynx. These were removed and again on the sixth and eighth days there was bleeding, which was evidently venous in character. The patient made a good recovery. His conclusions are: (1) That troublesome hemorrhages occur in children; (2) they happen very frequently in adults, in proportion to the number operated upon; (3) in case of bleeding, use a good light and clean the parts to ascertain the cause; (4) anesthetize or use morphin, if necessary, to quiet the patient; (5) never operate without being prepared to cope with a hemorrhage. [A.B.C.]

New York Medical Journal.

April 23, 1904. [Vol. LXXIX, No. 17.]

1. Sclerosis and Ossification of Veins. CARL BECK.
2. The Treatment Following the Bloodless Reduction of Congenital Hip Dislocation. DEXTER D. ASHLEY and FREDERICH MUELLER.
3. The Limitations of Chemistry in Infant Feeding. HENRY DWIGHT CHAPIN.
4. Some General Considerations on the Treatment of Typhoid Fever. MORRIS MANGES.
5. The Contagiousness of Pneumonia. ROBERT N. WILLSON.
6. The Tendency to Tuberculosis. JOHN B. HUBER.
7. My Experience with Phototherapy: A Preliminary Report. JULIUS ROSENBERG.
8. The Soules Hospital Method of Burying the Stumps of the Appendix and Mesosigmoid in Appendicectomy. THOMAS E. SOULES.

1.—Sclerosis and Ossification of Veins.—Carl Beck has made skiagraphic examinations of the thrombi in dilated veins, and says that whenever the röntgen rays show the presence of osseous degeneration, it is obvious that the much favored methods of using laced stockings, elastic bandages, injections into the circumvascular tissues or ignipuncture, are not only futile, but directly dangerous efforts; the only procedure which guarantees recovery being extirpation. The diagnosis of the presence of osseous degeneration cannot be made by palpation, the indurated areas not appearing different from simple fibrous convolutions. Thus the röntgen rays are the only means to secure anatomic evidence before operation. [C.A.O.]

2.—Congenital Hip Dislocation.—The article presented by D. D. Ashley and Frederick Mueller deals exclusively with the treatment following the bloodless reduction of congenital hip dislocation. A part of the after-treatment, the stretching of the flexors which have been rendered too short by the reduction and the extreme abduction, is best performed while the patient is still under the influence of the anesthetic. Immediately following the operation, the child is put to bed and the pelvis is kept elevated by a pillow placed under the hips, since in this position the pressure of the borders of the cast against the abdomen and against the inner condyle of the knee is reduced to insignificance. This latter point calls for special attention, because decubitis is very likely to develop at the knee if the cast is not abundantly padded and its borders very well everted. Some form of opium may be necessary during the first three nights. In some patients, usually where an overextension in primary position was necessary, an edema of the whole lower part of the leg may develop, due to an interference with the venous circulation. This edema may disappear readily if the leg is bandaged with a flannel binder. If the swelling persists, it is well to look to the spica. At first the walking exercises consist in placing the child in the upright position and teaching him to maintain his equilibrium. After two or three days of these exercises, attempts at walking are begun. In a few weeks the child walks around without any aid, and appears only slightly hampered by the cast. [C.A.O.]

3.—Chemistry in Infant Feeding.—H. D. Chapin says that as no absolutely exact constituents are necessary, chemic analyses of food are only of general value in establishing the range of safety in feeding. He says the successful feeder is the one who gets the infant to taking some suitable food and then adjusts the ingredients so that they are in sufficient quantity to carry on the normal chemic changes that take place in the body and allow storage of tissue other than fat, and at the same time produce proper functional development. He does not disparage chemic analysis of food, but shows that food chemistry has limitations in practical feeding; also that the chemic teachings of a few years ago are not the same as those of today. [C.A.O.]

4.—The Treatment of Typhoid Fever.—In discussing the diet in these cases, Morris Manges calls attention to the importance of keeping the mouth moist and the tongue and fauces clean. Large quantities of water should be drunk. The use of quinin has been of decided value in the hands of the author. No immediate effect is noted, but the general course on the following day is distinctly better. When quinin cannot be given by mouth, the subcutaneous use of the quinin and urea bichlorid in eight-grain doses offers a very reliable substitute. Manges does not hesitate to give castor-oil late in the disease, when he is not satisfied that the bowel has been properly cleared by high oil enemata. A method of arresting prolonged temperatures is the administration of large doses of quinin, 20 gr. to 25 gr. every afternoon for 2 or 3 days. The effect of these massive doses is often very prompt. There is no objection to the rational use of salol, the various bismuth salts, etc. He believes, however, that far better results are obtained by simpler means; these include (1) the early use of calomel, one or more times; (2) the systematic use of hydrochloric acid; (3) daily enemata to wash out the lower bowel, and finally, the prevention of undue intestinal distention. He uses alcohol only when it is needed as a stimulant; and when the patellar reflexes are exaggerated in typhoid fever he never uses strychnin. [C.A.O.]

5.—Contagiousness of Pneumonia.—R. N. Willson reports a series of cases of acute croupous pneumonia which

undoubtedly presents an instance of direct contagion. The three cases of identical infection occurred within one week in the same house, and among three intimate associates. Two other cases are reported which strikingly evidence the same probability. The chill in the second case occurred 11 days after that of the first. [C.A.O.]

8.—Appendicectomy.—T. E. Soules gives in detail with illustrations the Soules Hospital method of burying the stumps of the appendix and mesoappendix. The mesoappendix is tied off at or about its center in sections varying from one to four, usually according to length; each succeeding ligature being made to include some fibers of the preceding. The mesoappendix is then cut down to its base, the adherent mesentery is dissected from the appendix and removed, and a circular incision made through the peritoneal envelope, and carefully peeled off throughout its entire length to, or very near, its colonic junction, where a fine silk ligature is thrown around the denuded base of the appendix. Another ligature is applied about a quarter of an inch externally to this, and the cut made between the two; the appendix is then removed. The glove finger of peritoneum is then turned back and slit along the line of former mesenteric attachment, and spread out, making a flat membrane equal in extent to the circumference and length of the excised appendix; this is then made to cover the appendicular stump, together with the bare ends of the mesocecocolic stumps; and with edges turned in. [C.A.O.]

Medical News.

April 30, 1904. [Vol. 84, No. 18.]

1. The Symptomatology, Differential Diagnosis and Course of Bronchopneumonia in Children. MATTHIAS NICOLL, JR.
2. The Pathology of Lobar and Bronchopneumonia in Infants and Children. DAVID BOVAIRD, JR.
3. Treatment of Bronchopneumonia in Children. W. P. NORTHRUP.
4. The Behavior of the Costal Arch in Diseases of the Abdominal Organs and Its Importance as a Diagnostic Symptom. ELLSWORTH ELIOT, JR.
5. A New Method for Transillumination of the Stomach by Means of Fluorescent Media: The Value of Fluorescin with a Research into Its Properties. ROBERT COLEMAN KEMP.
6. The Scope of Physical Economics: An Inquiry into the Possibilities of Enhancing Human Efficiency through Physical Education. J. MADISON TAYLOR.

1.—Bronchopneumonia in Children.—M. Nicoll, Jr., describes this as essentially a disease of the poor and unfortunate. The germ is so omnipresent we must seek an explanation of the affection in the character of the tissues. The causative factors in the so-called primary cases are unhygienic conditions and neglect of disease of the upper air passages. It occurs at all seasons; 70% are under two years of age. There is no disease more irregular in its course and uncertain in its outcome. Diagnosis is based on the acute onset in primary, the aggravation of all symptoms in secondary cases; in primary cases on the changed demeanor of the child and evidence of toxemia; fever continues over 36 hours, with increase of respiration and pulse, disturbance of respiration-pulse ratio; the presence of fine rales and occasionally a change in respiratory sounds. Cough is not an essential. Disturbance of pulse-respiration ratio occurs in several other diseases, but is rarely long-continued in them. Fluid in the chest usually occurs as a complication of pneumonia. Slow respiration differentiates laryngeal stenosis and meningitis. In malaria with bronchitis, blood-examination must be relied on in doubtful cases. [H.M.]

2.—Pathology of Pneumonia in Children.—D. Bovaird, Jr., has found at autopsies bronchopneumonia in 40% and lobar pneumonia in 2% of the cases. The latter is infrequent in the autopsy-room, because rarely fatal. He has never seen the stage of simple congestion, only red or gray hepatization. As a rule a whole lobe or several are involved, but partial consolidation is commoner in children than in adults. Apart from the area involved, appearances are the same. The amount of pleurisy varies greatly. In some cases a yellowish cut surface suggests the caseous pneumonia of adults. True caseous pneumonia is very rare in infancy. Small abscesses or gangrene may occur. The serous membranes, including pericardium, meninges, and peritoneum are often inflamed. Three types or stages of bronchopneumonia exist, bilateral and generally symmetric. In the first, on section, the greater portion of the lung is normal, but

about the smaller bronchi there are rings of deep congestion. The bronchi are full of exudate containing epithelium, bacteria and leukocytes, their walls being infiltrated with the latter, and the contiguous air cells contain fibrin and debris. In the second stage there are areas of consolidation throughout the lung, appreciable to touch. The third stage is known as pseudolobar pneumonia, in which the previously disseminated areas merge, the whole lobe becoming solid. It lacks the granular look of lobar pneumonia, and is generally mottled dark red and gray. Abscesses and gangrene may also occur here. With involvement of the larger part of a lobe there is usually pleurisy. Empyema is more frequently associated with bronchopneumonia than it is with lobar pneumonia or tuberculosis. The pneumococcus is the prevailing organism in both affections. [H.M.]

3.—Treatment of Bronchopneumonia in Children.—

W. P. Northrup advises castor-oil to clear the field; fresh air, cool and flowing, the room temperature being regulated inversely to that of the child; the feet must always be warm and the head cool. There should be plenty of water used inside and out, the temperature being indicated by that of the child. There should be quiet and rest and undisturbed sleep, avoidance of gas by correct feeding, and high, hot salines if necessary. No coaltar products should be given. The heart should be stimulated by fresh air, hot foot-baths, relief of tympanites and crowding whisky and strychnin. To kill the baby put the crib in the corner with a canopy over it, steam kettle, gas stove (leaky tubing), room at 80° F., many gas jets burning, friends in the room, also the dog, chest tightly enveloped in waistcoat poultice, windows blanketed, doors shut. If these do not do, give coaltar antipyretics and wait. [H.M.]

4.—Behavior of the Costal Arch in Diseases of the Abdominal Organs.—

Ellsworth Eliot completes his article in the present number with a report of 23 cases illustrative of the points under discussion and concludes, in part, as follows: (1) That the symptom of costal resistance may always be elicited in the acute and subacute inflammatory processes of the contiguous underlying organs. In chronic inflammation of these same organs it is present irregularly; (2) the degree of resistance is in direct ratio to the intensity of the inflammatory process; (3) the increase of costal resistance is most marked in that segment of the costal arch which is closely situated to the original point of infection; (4) its value as a diagnostic symptom is greatest in pathologic conditions invading the upper half of the abdominal cavity; (5) the presence of asymmetry in the elastic recoil is very much less frequently observed than asymmetric increase in the costal resistance; (6) with subsidence of the inflammatory process, the costal resistance again returns to its normal condition; (7) the presence of this symptom is valuable not only in facilitating accurate diagnosis, but in serving as a useful guide to incision; (8) proper and skilful technic in determining the presence or absence of this symptom may be easily acquired, and therefore, the application of the symptom may be utilized by the general practitioner. [A.B.C.]

5.—Transillumination of the Stomach by Means of

Fluorescent Media.—Robert Coleman concludes an interesting article, as follows: There are certain interesting problems that suggest themselves from this work: 1. The use of a radioactive solution in the fluorescent medium for stomach transillumination, since Morton demonstrates that a radioactive solution increases fluorescence. 2. The radioactive solution in the fluorescent medium might itself give us a picture of the stomach in the dark-room, by use of the fluoroscope alone. 3. The possibilities of thus photographing the stomach either with or without the accessory of the röntgen ray apparatus by using the radioactive solution with fluorescence internally; fluorescein combines well with a normal saline and soda solution. 4. The possible value of the nonirritant fluorescein solution in the bladder, for the purpose of improving the scope of cystoscopy and an investigation as to whether such a solution would enable us to detect minute ulcers, or fissures in the bladder, just as in the cornea. [A.B.C.]

6.—Enhancing Human Efficiency through Physical

Education.—J. Madison Taylor, in an interesting article, states the objects to be obtained are to acquire elasticity of

tissues, and a capacity to relax. To acquire normal attitudes it is absolutely essential that symmetric elasticity of the tissues be first secured. Relaxation being gained, or fully appreciated, he gives directions as to how (1) to acquire normal attitudes; (2) to overcome contractures; (3) to attain full flexibility of the muscles by which alone their competence is established; (4) to acquire accuracy in movements, etc. It is desirable also to secure (5) full capacity for extension, first passive, and later active, by which the tendons are stretched to their uttermost and through this, much improvement is possible; (6) full respiratory capacity; the basis of oxygenation in lungs as well as muscles (7) circulatory capacity, the heart and great veins need development; a long story and attainable through automatic movements repeated to the limit; (8) capacity for muscular endurance, by repetition of automatic simple acts or varied movements; (9) muscle building, and (10) a combination of muscle-building, accuracy, endurance, full muscular competence of limbs and heart from such means as fencing, wrestling, boxing or other dual contests. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Hemorrhagic Type of Typhoid Fever.—Of this rare form Samohrd¹ reports five cases. The severe hemorrhages are apparently vicarious, and occur in the third or fourth week of the disease. In the first case there was profuse epistaxis. The second seemed almost hemophilic; a great outpouring took place from the ears, nose, and gingival surfaces, to which was soon added hematemesis, hemoptysis enterorrhagia, and bleeding from the urethra. The third case was one of hemic leakage through the urethral mucosa—not severe. In the two remaining cases the hemorrhages were limited to epistaxis and cutaneous leakage. One patient alone died—the fourth. At necropsy were found numerous slight intramuscular hemorrhages; there was a hemorrhagic infiltration of the mesenteric glands, and of the kidneys, bladder, and other viscera. The bacillus of Eberth was recoverable from all these hemorrhagic deposits, but no other morbid microorganism. It seems, then, that this variety of enteric fever is not due to a mixed infection, secondarily, or to an enterogenic septicemia. The author suggests the possibility of a more than commonly virulent species of the bacillus, which seemed to bring about a fatty degeneration of the venules and arterioles, which could predispose to the hemorrhages. [T.H.E.]

Gastrosuccorhea and Tetanic Attacks Occurring with Chronic Ulcer of the Stomach.—J. Kaufmann² regards gastrosuccorhea, or the presence in the fasting stomach of gastric juice, as a symptom instead of a disease. Motor insufficiency is of paramount importance in causing the condition but gastritis may cause and always aggravates it. The symptom-complex known as Reichmann's disease should be regarded as a symptom of gastric ulcer. Whenever a patient suffers from gastric pains that come on regularly after meals and especially at night, with or without vomiting, the presence of acid fluid even in small quantities in the fasting stomach indicates ulcer of that organ. As a rule in cases that develop gastrosuccorhea the ulcer is situated near the pylorus and causes mechanical obstruction, generally by spasm of the pylorus. Treatment of the condition should consist in freeing the stomach of its stagnating contents and at the same time applying methods commonly used in combating gastric ulcer. In cases which do not yield to methodical internal treatment, operative interference should do away with the hindrance at the pylorus. Kaufmann details at length the history of a case that bears out his contention regarding the nature of the condition under discussion. This patient also suffered from attacks of gastric tetany which Kaufmann believes are due to the great loss of fluid by vomiting or lavage; the system is also deprived at the same time of large amounts of chlorides which probably exerts an effect. [A.G.E.]

¹ Il Policlino, Rome, No. 21, 1901.

² American Journal of the Medical Sciences, April, 1901.

GENERAL SURGERY

A. B. CRAIG MARTIN B. TINKER C. A. ORR

REVIEW OF LITERATURE

Hygienic Surgery.—F. K. Etlinger¹ advocates the application of the principles and details of the sanatorium treatment of tuberculosis in the handling of surgical affections. The greatest safeguard against reinfection in any condition is light, well-ventilated rooms that are kept scrupulously clean. For improving the general condition of the patient, air, food, and exercise are to be considered. Etlinger maintains that in both operative and nonoperative surgery very little attention is paid to maintaining and improving the general condition of the body; certainly no attempt has been made to apply the principles of scientific hygiene generally in every surgical case. It is customary to keep hospital wards and private sickrooms quite inadequately ventilated; in the matter of food the tendency is to give too little nourishment, and even that of the invalid kind, when in many cases plenty of solid food is urgently required; the employment of massage or regulated exercises is frequently neglected. Special emphasis is put upon the damaging effect of stuffy operating rooms, where the patient has to breathe the anesthetic and in addition the foul air of a close room containing several other persons. These rooms should be well ventilated, necessary means for keeping the patient warm being supplied. [A.G.E.]

Operation for Gastroenterostomy.—John Rogers² summarizes the literature on the subject, and reported five cases operated upon. Among these there was one death three weeks after operation from an ascending urinary infection. The others resulted entirely satisfactory. They represented cancer, atonic stomach, ulcer, chronic gastritis, and probable ulcer with hepatic cirrhosis, and benign stenosis of the pylorus. This operation is undeniably suited for benign and malignant stenosis of the pylorus and for ulcer and dilation of the stomach. Gastroduodenostomy is physiologically better, and when possible should be given the preference. One of the most frequent of the bad results in gastroenterostomy is contraction of the fistula and recurrence of the symptoms. To prevent this Mayo recommends a pursestring suture about the pylorus. Rogers states that plication by infolding of the anterior stomach wall at this point would be simpler, and should be equally effective. [A.B.C.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Yeast Therapy for Gonorrhea in Women.—Otto Abraham³ states as the result of experiments upon four kinds of microorganisms with yeast, that the vitality of the gonococcus was destroyed in six hours, of streptococcus in 32 hours, and of staphylococcus in 40 hours. Under clinical conditions the result is modified and the time is considerably increased, yet in 27 cases of cervical catarrh put under yeast treatment, a complete cure was secured in 20 cases. Abraham considers it very improbable that the yeast cells can cause an endometritis or increased inflammation since microscopic examination of vaginal secretions after an application of yeast has shown that the yeast cells lose their virulence after a very short period. [W.K.]

Puerperal Eclampsia.—H. H. Arthur⁴ reports a case that presented some unusual phenomena. The patient was a primipara of 23, pregnancy normal until the ninth month. Edema, headache, nausea, and ocular disturbance then appeared, and the urine contained $\frac{1}{2}\%$ of albumin. Under the use of diuretics and exclusion of meat diet, the urine became normal and continued so until labor. Delivery was without incident, but one hour after, convulsions began, and lasted for 12 hours, during which time 18 seizures occurred; during this time the patient was practically comatose. Specimens

of urine obtained every few hours during the attack never showed more albumin than had been present before labor. The urine became normal the day following the convulsions. Severe pain referable to the liver was felt during the latter part of pregnancy, this disappearing about the same time as did the albumin. Arthur believes that the phenomena in this case justify the conclusion that the liver was more affected than were the kidneys, and hence a causative factor in the eclampsia. [A.G.E.]

Exohysteropexy According to Kocher in Enucleation of Myoma and also in Treatment of Prolapse.—J. Lauper¹ advocates Kocher's method of exohysteropexy for the following advantages: 1. The prompt appearance and much easier control of any after hemorrhage in contrast with the method in which the stump is deeply buried. 2. The greater certainty of an aseptic course especially in cases of hematoma or necrosis of the stump. 3. The smaller danger of the entrance of any complication in the return of the menses soon after the operation. 4. The greater ease of the operation and of the control of the hemorrhage. 5. The greater certainty of the procedure and the least mutilation of the aged; important also in the treatment of prolapse is the absolute ease in executing the operation. [W.K.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Hepatic Extract in Atrophic Cirrhosis of the Liver.—Creguy² reports the case of a man of 58 suffering from symptoms of atrophic cirrhosis of the liver with marked obstructive signs. The heart and kidneys seemed normal. During a period of eight months he was tapped 12 times, and at each tapping from 8 liters to 10 liters of fluid were removed. During this time he was kept on milk diet, and was given potassium iodid, sodium iodid, digitalis, and other diuretics at different times; laxatives also were given without influencing the condition in the least. He then placed the patient on milk diet, potassium nitrate, $\frac{1}{2}$ gm. ($7\frac{1}{2}$ gr.) and hepatic extract 1 gm. (15 gr.). The symptoms soon began to disappear, and shortly the patient was entirely well. [E.L.]

Treatment of Serous Effusions.—James Barr³ reports that in a female suffering from pleural effusion, the cavity was tapped a number of times and varying quantities of fluid were withdrawn; after the fifth tapping he injected a dram of adrenalin chlorid solution, 1 to 1,000, into the cavity, after which there was no further secretion of an annoying character. Since then he has used this treatment in a number of analogous instances, invariably with success. The quantity injected in each case has been 1 dram. He has likewise extended the treatment to ascites. In one instance this fluid was injected after evacuation of fluid due to hepatic cirrhosis, and, while it did not prevent recurrence, it is asserted that the rapidity of recurrence was much diminished. On several occasions he has injected 3 drams of the adrenalin solution into the peritoneal cavity with good effect. He has also injected the fluid into the pericardial sac in a patient suffering from pericarditis with effusions. After tapping the pericardium and withdrawing 20 ounces of fluid, 40 minims of adrenalin solution was injected into the pericardial sac. The patient passed into shock, showing that too great an amount had been injected. Stimulants were used, the patient was aroused, and very little fluid reaccumulated in the sac. [A.B.C.]

A Danger of Adrenalin.—After the addition of adrenalin to solutions used for obtaining local anesthesia, Neugebauer⁴ saw gangrene several times in the infiltrated cutaneous portions; elderly people were especially liable to this. The gangrene was not due to adrenalin diabetes, as none of the patients presented symptoms of this disease. He cautions against the use of adrenalin in old people. [E.L.]

¹ The Practitioner, April, 1904.² Annals of Surgery, April, 1904.³ Zentralblatt für Gynäkologie, February 26, 1904.⁴ Maryland Medical Journal, April, 1904.¹ Deutsche medizinische Wochenschrift, April 7, 1904.² Bulletin Général de Thérapeutique, February 29, 1904, Vol. cxlvii, No. 8.³ British Medical Journal, March 19, 1904.⁴ Zentralblatt für Chirurgie, xxx, No. 51.

American Medicine

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The demand for reciprocity, so energetic a year or two ago, seems to have become strangely silent. Was the abuse and its reform an imagined one, and if not, why has the profession become so indifferent to the fact that its own members, who have the State licensing in their hands, have done practically nothing to bring about actual reciprocity? There is no question that the States, individually, have the entire power in their hands, and that the Federal Government has no jurisdiction in the matter. And yet there is but one State, Illinois, if we are not in error, which does actually reciprocate. There is absolutely nothing in the Illinois law which empowers the Board to accept a license issued by another Board in place of an examination, and yet for three years the Board, according to resolution has done so, and today stands ready to carry out the practice in the case of applicants from other States which *practically* have the same requirements as the Illinois Board. The just proviso is made that other Boards will recognize the certificates of the Illinois Board. This puts the matter on a just and equitable basis and brings home to the profession the onus of responsibility. If, therefore, you really wish for real reciprocity, you have only to demand its practice by your own State Board. We publish in another column a tabulation of the laws of the different States, compiled by the Illinois Board. Further particulars may be obtained as to the details of licensure from the pamphlet issued by the Board.

Abolish the term "diphtheritic sore throat," at least until it is really demonstrated to be diphtheric. Before the proof has been made, the condition is diphtheria or it is not. The gross appearance of the throat does not determine the nature of the disease, whether it is a simple tonsillitis, etc., or true diphtheria. The differential diagnosis is therefore imperative, and the only way to make it is by the bacteriologic method. And the moment the doubt exists, the sooner the laboratory test is made the better both for patient and doctor. The practitioner may not have either the time or the ability to make these tests, and especially without the least delay. Hence the need of the public or private laboratory and experts to whom the swab may be sent with the greatest expedition. Hence again the utility of the telephone which is now permeating even remote country districts. Do physicians always make prompt use of

express companies, and other means of forwarding the swabs, and of the telephone agencies? Do they always have in their pockets the addresses of laboratories, and have they the plans etc., fixed for ordering fresh antitoxin? That excellent institution, the New Hampshire Board of Health, in its latest Bulletin, cites an illustrative case: There were several cases of mild sore throat in a family in the State. After a few days a physician was called in and pronounced the disease tonsillitis, but finally took a swab and sent it to the State Laboratory of Hygiene. A diagnosis was made by smear, and information telephoned to the physician within an hour that the case was diphtheric. Two hours later the physician telephoned that the child was dead.

Tuberculosis in Street Cleaners.—If the report is true that a third of the street sweepers of New York have contracted tuberculosis during the last five years, it is an added demonstration of the truth of medical theory and practice which should bring conviction to the common mind. It may help to make the work of the anti-tuberculosis workers easier and bring about the reform of present abuses quicker. The sweepers are examined before entering upon their work and declared free from organic disease. If, therefore, within so few years a third of the entire number become infected, it is a striking demonstration of the value of the crusade that has been waged against the sources and carriers of the infection, the spitters, the unclean, the carelessness of the diseased, etc. It may also help to do away with our present stupid and dangerous method of cleaning American streets, which is, in brief, to stir the infectious dust up as thoroughly as possible and make the greatest possible number of people breathe it and rebreathe it. Even if the taxpayers' lives and health are of no value, pity should be taken upon the poor street cleaners.

Poisoning by wood alcohol is increasing. The cheapness of this alcohol is caused by the fact that there is no revenue tax upon it, and it costs only about 50 cents per gallon, instead of \$2.60. This makes the unscrupulous manufacturer use it instead of grain alcohol in flavoring and medicinal extracts. Some essences of Jamaica ginger, peppermint, and lemon contain as much as 75% of wood alcohol. In the last eight years there have been over 50 deaths caused by it, and doubtless this

is only a small part of the total number. Beside the deaths and other injuries, such as gastric disease, etc., from this source, an especially disastrous result is amblyopia, which not seldom ends in absolute blindness; at least 36 cases have been reported within a few years. Eight of these injuries followed the inhalation of wood alcohol fumes while shellacking or painting in vats or closed rooms. It has been found that wood alcohol is only partially oxidized in the body, and that its administration leads to the formation of a highly toxic acid (formic acid), and probably also formaldehyd. This is an interesting illustration of the fact that the body may convert one poison into another, which is far more powerful than the one that was ingested. It is a question if there is any effective way of preventing these calamities except that of putting a revenue tax upon this product equal to that upon grain alcohol.

$E = 0.831 \sqrt[10]{0.831} = 0.831 \times 0.985 = 0.8185 \times 100 = 81.85\%$.—We suspect that these mysterious symbols and figures will have but little significance to many readers, even of *American Medicine*. They may be taken, however, as of serious and scientific import, and, moreover, of medical value. The question of damages for injuries is one that comes up in every court of law, and medical men are called in to estimate the financial ratings which should be made of loss of earning power due to accidents. In the testimonies given great differences of opinions arise. The formulas above represent Dr. E. E. Holt's method of reaching definiteness and scientific accuracy in the estimates. He takes a specific instance, that of a physician, driving over an unsafe bridge, who sustained various injuries, chiefly affecting the eyes, and in holding the town responsible, the aim is to establish the amount of damages. The problem is widened, as stated by Magnus, in his "Visual Economics" (translated by Dr. H. V. Würdeman) and Dr. Holt seeks by similar mathematic methods in extending it to all injuries of the body, with a consequent lessening of the earning capacity, united with computations of the length of remaining life, etc. In the formula cited, E = the doctor's earning capacity. The reader is referred to Dr. Holt's interesting and valuable article published in the *Journal of Medicine and Science*, for April, 1904. Put in a simpler form the illustrative case works itself out thus:

$E = 81.85$ the total remaining earning ability of the doctor, \$40,000 is the sum it was determined the doctor would have earned in the remaining 16 years of his life had he not been injured, and 81.85% of it is \$32,740. Subtracting this from \$40,000 and \$7,260 is obtained, the damage to the doctor's earning ability, carried over a period of 16 years. If this sum is divided by 16, \$453.75 is obtained as a yearly payment for the period of 16 years. But the doctor was laid up four months for which he should at least receive a third of a year's earning, namely, \$833.33, and his other expenses were \$166.67, which added to \$833.33 makes \$1,000, which should be added to the \$5,437.26, making \$6,437.26 that should be paid the doctor by the town for the total damages, loss of time, and expenses in consequence of the injury he received.

The Adulteration of Foods.—The New Hampshire State Board of Health continues its capable work in analyzing the foodstuffs offered to the citizens of the

States. Its latest report thus tabulates the recent results:

Articles examined.	Number found to be of good quality.	Number adulterated or varying from the legal standard.	Total articles examined.	Percentage of adulteration.
Butter.....	3	0	3	0.0
Canned fruits, jellies and jams.....	24	39	63	61.9
Canned goods, miscellaneous products.....	25	5	30	16.7
Chocolate, cocoa and coffee.....	8	0	8	0.0
Honey.....	12	8	20	40.0
Lard.....	2	2	4	50.0
Lemon extract.....	8	21	29	72.4
Maple syrup.....	8	11	19	58.0
Milk.....	11	14	25	56.0
Molasses.....	2	0	2	0.0
Olive oil.....	5	2	7	28.6
Sausage.....	1	8	9	88.8
Spices.....	20	4	24	16.7
Tomato ketchup.....	4	8	12	66.6
Vanilla extracts.....	2	5	7	71.4
Vinegar.....	5	7	12	58.3
Miscellaneous food products.....	11	5	16	31.2
Totals.....	151	139	290	47.9

Of the 290 articles examined, 139 were adulterated, or varied from the legal standard. This is equivalent to an adulteration of 47.9%. It must be remembered, however, that in collecting samples for analysis, care was taken to collect articles of a suspicious character. Therefore, the extent of adulteration of all food products is not shown by this figure, and is represented by a much smaller percentage. Nor must it be overlooked that although so many of the adulterants were perhaps more or less harmless, the fact does not lessen the crime. It is a little disconcerting to know that four-fifths of the maple sugar and syrup sold in the markets is wholly or in part fraudulent. The moral is, Beware of bulk spices, tomato ketchups, "cider vinegar," jellies, jams, etc. The remote effects of saccharin on the system may be bad, and much of the sweetening is by this drug. Another aspect of the question is presented by this excerpt:

A recent addition is a "pie filling," which is sold largely to the baker trade. It is similar to the imitation butters and jams in appearance and composition, and consists of a mixture of apple juice, starch, butter, eggs, glucose, and a small amount of pulp or grated rind of the fruit represented. This product is found on our markets labeled "Lemon Preserves," and is a typical illustration of misrepresentation.

The thoughtlessness of city consultants sometimes causes harm and ill will. A careless word, or gesture—even a silence, may unintentionally reflect upon the distant colleague. And we all know how quick patients or their friends are to perceive the slur and to carry it, perhaps magnify it, to the detriment of the local physician. Such an instance, names not reported to us, has been sent us, which illustrates the point. Our correspondent writes:

It very often happens that a man being in a distant city on business will consult a surgeon or physician there about a patient he is interested in at home. Usually the consultant is honest enough to say he cannot give an opinion on a case he has not seen unless he at least has a history of the case from the physician in charge, and even then he would give it without many conditions; but hardly a month passes in which there do not occur instances such as I have recited. The quacks who treat disease by mail orders are right *sometimes*, but a real doctor ought never to be guilty of such a thing, because even the greatest are most *likely* to be wrong.

Of course, there is the element of doubt as to the patient having correctly reported the consultant, but in this case a letter of protest was sent to the consulting physician, part of which was as follows (we omit the details of the case because of want of space):

Dear Doctor.—Mr. Z. N., of this city, whose wife I operated upon some weeks ago for gallstones, has just told me that he gave you a history of the case, and that you said, "without a moment's hesitation," that there was another stone there (where he did not say). I frankly told him that you had no right in the interest of truth and justice, to give an opinion reflecting upon the opinion of another surgeon, with no more data before you than the history of the case written by a layman. Such an opinion, of course, is worth very little, even in the way of a fee, and I care nothing for it, but hoping it may prevent you thoughtlessly injuring some other innocent doctor in the confidence of his patient, I take the trouble to give you a history of this case. . . . With the case continuously under my care and observation (even when you were being consulted about it), I feel that I am in a better position to give an opinion about the probability of the presence of another stone than you could be at that distance, with a garbled report by a layman before you and giving your opinion "without a moment's hesitation." Such thoughtless or careless actions on the part of our great surgeons not only do great harm to often blameless country surgeons, but often tarnish the reputations for infallibility held by the great surgeons and lessen the confidence of patients in surgery generally. Omitting your name, I am sending a copy of this to *American Medicine*, because I think the subject should be discussed.

Eddyism, Conflagrations, and Insurance Underwriters.—It is the simplest logic that if no disease or matter exists but only the thought of disease and matter, then there can be no Chicago or Baltimore fires. Undoubtedly the reason why the fires at Moscow and Chicago were so terrible was because Mrs. Eddy had not been there to teach the true nature of burning. Not deterred by this a Baltimore eddyite explains why the recent fire in that city was so bad, and why it was not worse. It is a pity that 80 blocks were burned before the eddyites of the nation were sufficiently united and strong in "thought throwing," to prevent the calamity, but when, as one, they all "threw thought" there were saved two large banks "which owe their escape from serious damage" to the "mental protests" of the "condition of mind" hurlers of thought against the fire. The interviewed eddyite says: "Many of the Christian Science doctors throughout the city gathered their pupils around them and instructed them in working against the misfortune. These prayers were continued throughout the fire," thus saving property and preventing loss of life. "Instead of throwing water we threw thought on the fire." Why do not the insurance companies employ the thought-throwing "doctors," and thus save the hundreds of millions of dollars they are losing by such a double, and doubly sad "condition of mind?" Here is a new opening for the financially astute and successful Mother Mary Baker Patterson Glover, etc.

"They shan't cut you up in the hospital," was the promise of the melodramatic wife to her murderer husband. To both the ignominy of the crime of murder was far less than that of being "dissected by the doctors." This old prejudice, as all physicians know, is still intensely alive, and often frustrates the action of the

law and of medical teaching institutions in securing dissection material. Of paupers just dead there rise up "relatives" who were unknown and indifferent before death, but who now are much concerned that their poor cousin shall have "a decent burial," and "shan't be cut up in the hospital." It is a strange evidence of the living on of old superstitions, and of the illogical feeling that respect is due to the dead who were anything but respected in life. In truth, of course, Dr. Wilder's "useful dead" applies to the modern dissection-room material, and there is certainly no less an honorable end there than by means of the worms and roots of trees in ordinary burial.

"How to Have a Male Heir."—The comic papers have had much fun with the shall-it-be-a-girl-or-a-boy question, consequent upon the learned and unlearned investigations of the pseudoscientific. The grocer has been represented as having a large assortment of "sugar and spice and all things nice," but entirely out of "snips and snails and puppy-dogs' tails." It has been left to American ingenuity to devise a method of supplying the latter articles, or of "advice" to replace them, and to turn the mysterious knowledge to money-making uses. The "trained nurse" has found a new role—as medical adviser, in fact, plainly not as grammarian; and a circular sent out to anxious husbands—not to wives, be it noticed—reads as follows:

If you have no son to perpetuate your "name," inherit your estates and fortunes, why not consult Mrs. ————, a "world wide" experienced trained nurse. She is middleaged, has two handsome sons (gentlemen now), it does not take her 20 minutes to convince her "listener" of the surety of having his hopes realized; a "son" born, and leaves the value of this positive secret to the "father's" generosity; and, as it rests entirely with him, she objects to consult with any mother.

Prior to the birth of Mr. Grover Cleveland's third daughter (who he named after me, Marion during his last presidency at the White House), I assured Mr. Grover Cleveland that the expected "new arrival" would also be a girl, and to his annoyance and great vexation, it was; but since he graciously and so willingly accepted my wonderful never-failing experience, two sons have since been born, to his great delight, and he has ceased further reproach to his amiable wife.

A Mr. C. C. Osgood (friend of Ex-mayor VanWyck), hearing of Mrs. ——— skill and wonderful "secret" to Mr. Grover Cleveland, enclosed his check to her of \$1,000; Mrs. Osgood previously had six girls, but has since presented him with four sons.

Of two millionaire brothers, one sometimes dies in an almshouse, the result being the different usage they both give their money or not "knowing how."

Likewise, a gardener does not plant an onion seed and then expect a potato to grow from it.

The race is not in danger of extermination, because all gentlemen will hardly consult Mrs. ———, and the inexorable law of nature will persist in the cases of the foolish nonconsultants. But why the prejudice against onions?

De Profundis.—A correspondent sends the following communication, which, from its mixture of religion and therapeutics seems of interest. An appended note says that the signer of the prayer (written, note well, and sent out to be read, by whom?) is the promoter of

the New York osteotherapy bill introduced at Albany by Mr. Fitzgerald.

A PRAYER (VOICE) FROM THE TOMBS.

O Lord, I thank thee for the steady evolution since the time of thy only son, Jesus Christ, who was crucified for the same thing that mortals are only put in foul prisons now, (namely for the laying on of hands to heal the sick, a science which we call massage, or osteotherapy.)

O Lord we pray thee to give us strength, vitality and intelligence, and above all upright judges, to see that this noble calling is not kept back from the many sufferers, craving for this NOBLE and only harmless treatment. O Lord, we pray thee to forgive our prosecutors, who not satisfied with throwing us in vile, foul, dangers, circulate untruthful stories, going even so far as to lie about our nationality and profession with malicious intent. O Lord, have mercy on our prosecutors for their evil intention, when they call me a Norwegian sailor, something which I am not; though if I were I might be as good a man, and do much good in the healing art, like thy Apostle, the fisherman did without poisoning the human system with drugs, O Lord have mercy on them, awaken them to the fact that the cause of humanity lays deeper than with just dollars and cents, and teach them to do something for humanity sake, teach them O Lord not to rejoice in the Sin they commit by what they think my suffering, as thou O Lord art to great, to let me consider this suffering.

I thank thee O Lord for this well earned rest; and pray thee O Lord to keep me healthy in Body and Mind, so that after this short or long rest as thou wilt it, I may resume the good work for which thou hast chosen me.

Amen.

This prayer was offered up by Dr. C. Conrad (while a prisoner) at the Methodist prison workers meeting on Sunday April the 17th at the 4th floor in the west side courthouse.

C. CONRAD.

EDITORIAL ECHOES

GENERAL DEATH-RATES PER THOUSAND LIVING, IN DIFFERENT COUNTRIES.

Twenty-five years' average (1876-1900) and in 1901.

	England and Wales.	Scotland.	Ireland.	Denmark.	Norway.	Sweden.	Austria.	Hungary.	Switzerland.	Germany.	Holland.	Belgium.	France.	Spain.	Italy.
Average in 25 years (1876-1900).....	16.9	19.2	18.2	18.3	16.6	17.0	28.6	32.3	20.6	24.2	20.3	20.1	21.9	30.3	26.5
1901.....	19.1	17.9	17.8	15.8	14.9	16.0	24.2	25.4	18.0	20.7	17.2	17.1	20.1	27.6	22.0

The highest death-rate in any year was 37.4 per thousand in Hungary in 1878, and the lowest was 14.9 in Norway in 1901.

DEATH-RATES PER MILLION LIVING, FROM DIFFERENT INFECTIOUS DISEASES AND FROM CANCER.

In England and London in 1901, and in Germany and in Berlin, Paris, Hamburg, and Munich in 1900.

Diseases.	1901. England.	1901. London.	1900. Germany.	1900. Berlin.	1901. Paris.	1900. Hamburg.	1900. Munich.
Smallpox.....	10	5	9	0	105	0	0
Measles.....	276	434	228	279	351	142	838
Scarlet fever.....	133	113	242	325	76	129	10
Whoopingcough.....	313	355	342	197	81	146	102
Diphtheria.....	275	285	381	284	134	163	224
Cerebrospinal meningitis.....	2	4	5	3	.....	.....	.....
Typhoid fever.....	155	116	111	66	891	33	54
Diarrheal diseases.....	924	862	3,381	3,268	1,137	2,475	6,189
Puerperal fever.....	64	48	51	58	.....	75	40
Pneumonia.....	1,147	1,333	1,384	1,413	1,790	1,206	262
Phthisis Pul.....	1,264	1,642	2,023	2,373	4,154	2,020	3,170
Cancer.....	842	939	710	1,092	1,151	1,190	1,190

[S. W. Abbott, *Boston Med. and Surg. Journal.*]

AMERICAN NEWS AND NOTES

GENERAL.

Could not Accept the Bequest.—The Navy Department recently had occasion to construe article 1166 of the Navy Regulations, which prohibits attendants in naval hospitals accepting gifts and bequests from patients. In the present case, an enlisted man, a patient in a naval hospital, made a will a few days before his death in which he made bequests to two naval hospital apprentices who had been in attendance upon him. The department decided that under the regulations such bequests could not be accepted.

Miscellaneous.—The American Urological Association has issued its preliminary program for the annual meeting which will be held in Atlantic City, June 8 and 9, 1904.—New York: A tablet in memory of the late Dr. Egbert Guernsey was unveiled in the Metropolitan Hospital on Blackwell's Island recently.—Philadelphia: Professor Dr. Albert Hoffa (University of Berlin), the guest of the Alumni Association, will hold an orthopedic clinic at the Jefferson Medical College Hospital, on Thursday, May 26, 1904, at 11 a.m.

Red Cross Reorganization.—The Red Cross investigating committee has prepared a plan for the reorganization of the American National Red Cross, its control by a governing body of 18, of whom the president shall appoint 6, and the auditing of its accounts by the auditor for the War Department. The plan has the approval of Miss Barton, the counsel for the Red Cross, and the lawyers representing the remonstrants. A new charter, prepared by ex-Secretary Foster on the motion of Senator Proctor, and drawn in accord with the views of the remonstrants, will be secured from Congress at the earliest opportunity, and in the meantime it is expected that the affairs of the society will pass under the control of a board of trustees, to be the mutual selection of both parties to the existing controversy.

Do Criminals Reform?—An official connected with a reformatory movement was recently quoted as saying that not more than 3% of criminals were reformed. This statement called forth the comment from a man long identified with the attempt to set discharged prisoners on their feet that anyone who was so hopeless about the possibility of reform, and who took so dark a view of the work was hardly the man to be concerned in it. Further discussion has brought into light the wonderful results obtained by Mrs. Ballington Booth and the Salvation Army. In May, 1896, Mrs. Booth called for the first volunteers, and 26 men were enrolled in Sing Sing under the white banner of the Volunteers' Prisoners' League. The number is now 24,000. Places of refuge, which are appropriately called Hope Halls, are maintained with wideopen doors ready to receive discharged prisoners, where they may stay until they can get the courage and the opportunity to start life anew. The statistics relating to the prisoners are rather remarkable. It appears that 75% of the former convicts have gone to work for a living, abjuring entirely criminal pursuits; 20% are classed as doubtful, while 5% have returned to their former haunts and habits.

Milk Reduced to Powder.—To prepare milk in such a way that microbes cannot breed in it has been the aim of the inventors of a new milk powder. The process removes all the water from milk by the application of heat, and converts it into a light yellow flaky powder, which can instantly be reconverted into something almost indistinguishable from fresh milk by the addition of water. All bacteria are killed in the process. After 400 separate examinations it was possible to say that the powder is absolutely sterile when it comes from the drying machine. Being sterile and dry it will, of course, keep indefinitely, provided that no germs are allowed access to it. The role of the town dairy may be at an end soon, if factories are established which can supply a year's milk supply by post at a moment's notice. As for Arctic explorers, armies in the field, ocean liners, and so forth, I fancy they will not be sorry to have their milk in a form which takes up practically no space, and which keeps indefinitely. There is one serious criticism which the writer makes. The process of boiling or sterilizing milk leads to the destruction of what is called its "antiscorbutic property," and children suffer in consequence. If the dried milk retains this principle, then its success is assured, but the writer does not feel satisfied that this is certain as yet.

Medicolegal.—An exchange commenting on this subject says: In trials for murder the point has sometimes been raised by the defense that death had not resulted from the wound inflicted by the accused, but from the subsequent surgical treatment, and that this should be considered in mitigation of the crime. We have the converse of this view in the case of the woman who stuck a knife into a man's heart and has been in jail awaiting the result of his injuries. By all the laws of probability the man ought to have died. The wound was of a kind generally recognized as fatal. But the surgeons got hold of him and sewed up his heart, and in due time he recovered. Thereupon the woman was discharged from custody, and the

man, in the exuberance of his delight, declares that she shall not be prosecuted. Some curious questions, moral, ethical and legal, are raised by this extraordinary occurrence. How far was the degree of guilt or innocence which attached to the woman's act affected by the degree of perfection which surgery has attained? A few years ago a man so wounded would surely have died, and the person who inflicted the wound would have been convicted of manslaughter at least. Now the surgeons, by a rare chance, save his life, and as nobody is the worse off, no penalty is incurred. Are we to regard science as the handmaid of crime; or, on the contrary, as helping to abolish crime? And suppose the surgeons had failed, who would have been responsible?

EASTERN STATES.

Boston and the Milk Question.—In the new milk regulation, just issued, the Boston Board of Health places the limit on the number of bugs that a person should swallow with a glass of milk at about 100,000,000. Occasionally the milk inspectors will sample the milk in stores, restaurants, bakeries, and shops to count the organisms, and if they find an excess will prosecute for violation of the rules. The new article in the rules provides that no person shall bring into Boston for the purpose of sale any milk which contains more than 500,000 bacteria per cubic centimeter, or which has a temperature higher than 50°. This amount is selected for convenience in examination, and represents about 80,000,000 to 100,000,000 in an ordinary glass of milk. This regulation will have the effect of inducing farmers to keep their stables clean and well ventilated, because if the milk remains warm a long time and foreign substances come into it, the bacteria increase at an enormous rate; kept down at 50° the growth of bacteria is checked. The regulations require, also, that the milk in stores, restaurants, bakeries, and on the market shall be kept in cool inspected refrigerators, no can to be kept on the outside longer than while the sale is being made.—[*Boston Transcript*.]

NEW YORK.

Boston's View of It.—By vetoing the bill to substitute medical examiners for coroners in New York, Mayor McClellan retains an ancient system that Boston long ago decided was out of date. "It is an innovation on a time-honored system," says his honor, "and so far seems mere experiment. It is urged that certain abuses have crept into the present system; but the purpose of the proponents of this measure is not to remedy the abuses, but to destroy the system. An institution which is the growth of a thousand years should not be destroyed unless it is proved that its substitute is more useful and will stand the test of time as well." He fails to mention, however, how much longer trial than a thousand years he thinks an institution of government must have before it is proved, or how many centuries a step forward should have been taken by other cities before New York dare attempt it.—[*Boston Transcript*.]

To Abolish Sweatshops.—The governor of New York State has signed the tenement house law amendments. The articles whose manufacture is prohibited without a license are made to include aprons, pocketbooks, slippers, paper boxes, and bags. Instead of a license being required for the apartments of each individual family in a tenement, the tenement house itself is licensed. This will greatly reduce the number of licenses, and will enable the State Department of Labor to inspect tenement houses to see that work is not going on without a license; to stop work in apartments where there is contagious disease, and to make semi-annual inspections of licensed tenement houses to see that proper sanitary standards are maintained. A house once licensed will stay licensed if kept in a proper condition, even though its ownership should change hands a number of times. All manufacturing is limited to the members of the family residing in each apartment, thus preventing sweatshops in tenements.

Mayor McClellan's Veto of the Coroner Bill.—The better newspapers of New York City, together with the Board of Health, the local fraternity and public-spirited citizens in general, seem to be at one in their condemnation of Mayor McClellan's veto to the coroner bill. The *New York Post*, commenting on this subject editorially, says a difference of opinion about the merits of the bill to abolish coroners is one of the surprising discoveries of Mayor McClellan. So far as we are able to observe, lawyers, physicians, and intelligent citizens unite in favoring the bill, but the coroners naturally hold a different view. Even a coroner, low as he may stand in the official scale, is a human being. He takes no more pleasure in being abolished for the sake of a good cause than the anglerworm in being impaled for the sake of a fisherman's sport. Seriously, however, Mayor McClellan has made a mistake in yielding to the clamor of the coroners and their friends. The agitation for doing away with this absurd office has been carried on for several years. The necessary legislation has been duly proposed in successive sessions, but for one reason or another has failed of passage. Finally, after much effort, the Legislature of 1904 acted, but its good work has been frustrated by an unwise veto.

PHILADELPHIA, PENNSYLVANIA, ETC.

To Fight Pulmonary Tuberculosis.—An investigation of conditions favorable to the spread of pulmonary tuberculosis is to be undertaken by committees appointed by the Pennsylvania Society for the Prevention of Tuberculosis and reports thereon published as a basis for an appeal to the city authorities to abate the evils where they may be within their jurisdiction. Street cars and street cleaning are to be among the first subjects taken up. The president of the society said at the annual meeting recently, that the recommendation to the Department of Public Safety last year that the streets be cleaned only between 1 and 5 o'clock a.m., as is done in European cities, had been referred to the Bureau of Street Cleaning, but nothing further has been heard of it. He said the present method of sweeping the streets, especially if they are not sprinkled, fills the air with pulverized poison that constitutes a never ending danger to health.

Old and Honored Practitioner.—The oldest living graduate of the Jefferson Medical College, of Philadelphia, is Dr. Jacob L. Ziegler, of Mount Joy, Pa., who is 81 years old, and who has practiced medicine for 60 years. In spite of his years, Dr. Ziegler is still in active practice, and makes daily rounds to see his patients, who declare that his medicines are just as potent as ever and his hand as steady. Dr. Ziegler is a member of the Lancaster County Medical Society, and has twice been its president. He also holds membership in the Pathological Society of Philadelphia, the American Medical Association, the Lancaster Historical Society and the Pennsylvania Historical Society. Graduated from Jefferson in 1844 with the degree of M.D., he was honored in 1880 by Lafayette College with the degree of A.M. He is the oldest living member of the Donegal Presbyterian Church, having been affiliated with it since 1840.

Philadelphia Clinics and Demonstrations.—Complimentary to the members of the American Medical Association for the week preceding and the week following the Atlantic City session.

Clinics and Demonstrations at the Jefferson Medical College and Hospital, Tenth and Walnut Streets.

TUESDAY, MAY 31.—Brick, J. Coles, rectal clinic, 9.30 to 10.30 a.m., hospital amphitheater; Roe, W. J., oral clinic, 11 a.m. to 12.30 p.m., hospital amphitheater; Stewart, Francis T., surgical clinic, 2.30 to 4 p.m., hospital amphitheater.

WEDNESDAY, JUNE 1.—Jones, W. S., laryngologic clinic, 10 to 11 a.m., hospital amphitheater; Bland, P. Brooke, pathology of certain pelvic organs with lantern demonstrations, 11 a.m. to 1 p.m., college building; Montgomery, E. E., gynecologic clinic, 1 to 3 p.m., hospital amphitheater; Coplin, W. M., L., insects and lower animals as carriers of contagion, 4 p.m., college lecture-room.

THURSDAY, JUNE 2.—Pathologic and histologic laboratories. Demonstrations by Drs. Ellis and Radasch, 9.30 to 11 a.m., college building; DaCosta, J. C., recent advances in diagnosis by examination of the blood, 11 a.m. to 12 m., hospital amphitheater; Cohen, S. S., clinical lecture illustrating recent advances in medical jurisprudence, 12 to 1 p.m., hospital amphitheater; Horvitz, Orville, genitourinary clinic, 2 to 3.30 p.m., hospital amphitheater; Davis, Edward P., modern obstetric surgery, 4 p.m., maternity building, 224 S. Seventh street.

FRIDAY, JUNE 3.—Bacteriologic laboratory. Demonstrations by Dr. Rosenberger, 9 to 10.30 a.m., college building; Kyle, D. Braden, laryngologic clinic, 10.30 to 11.30 a.m., hospital amphitheater; Brubaker, A. P., demonstrations in physiologic laboratory, 11.30 a.m. to 1 p.m., college building; Spencer, Geo. W., surgical clinic, 1 to 2.30 p.m., hospital amphitheater; Graham, E. E., typhoid fever in infancy and early childhood, 3 to 4 p.m., college building; Hansell, Howard F., ophthalmologic clinic, 4 p.m., hospital amphitheater.

SATURDAY, JUNE 4.—Brubaker, A. P., demonstrations in physiologic laboratory, 9 to 10 a.m., college building; DaCosta, J. C., gynecologic clinic, 10 a.m. to 12 m., hospital amphitheater; Hearn, W. Joseph, surgical clinic, 1.30 to 3.30 p.m., hospital amphitheater; Davis, Edward P., the preventive treatment of eclampsia, 4 p.m., maternity building, 224 S. Seventh street.

MONDAY, JUNE 5.—Wilson, H. A., and Professor Hoffa of Berlin, orthopedic clinic, 9.30 a.m. to 12 m., hospital amphitheater; Keen, W. W., surgical clinic, 1 to 3.30 p.m., hospital amphitheater; Fisher, John M., gynecologic clinic, 4 p.m., hospital amphitheater; Hansell, Howard F., ophthalmologic clinic, 4 p.m., Philadelphia Hospital, Thirty-fourth and Spruce streets.

SATURDAY, JUNE 11.—Fisher, John M., 9 to 10 a.m.; Montgomery, E. E., 10 to 11 a.m.; DaCosta, J. C., 11 a.m. to 12 m., gynecologic clinics, hospital amphitheater.

MONDAY, JUNE 13.—Pathologic and histologic laboratories. Demonstrations by Drs. Ellis and Radasch, 9 to 10 a.m., college building; Rugh, J. T., treatment of ankylosed joints, 10 to 11.30 a.m., hospital amphitheater; Dercum, F. X., neurologic clinic, 12 to 1 p.m., hospital amphitheater; Stelwagon, Henry W., dermatologic clinic, 1 to 2 p.m., college building; Metheny, S. A. S., röntgen ray demonstrations, 3 to 4 p.m., hospital amphitheater; Roe, W. J., oral clinic, 4.30 to 5.30 p.m., hospital amphitheater.

TUESDAY, JUNE 14.—Brubaker, A. P., demonstrations in physiologic laboratory, 9 to 11 a.m., college building; Cohen, S. S., medical clinic, 11 a.m. to 12 m., hospital amphitheater; Brick, J. Coles, rectal clinic, 12 to 1 p.m., hospital amphitheater; Spencer, Geo. W., surgical clinic, 2 to 3 p.m., hospital amphitheater; Stewart, Francis T., surgical clinic, 3 to 4 p.m., hospital amphitheater; Hansell, Howard F., demonstrations of the changes in the fundus of eye in Bright's disease, 4 to 6 p.m., Philadelphia Hospital, Thirty-fourth and Spruce streets.

University of Pennsylvania Clinics and Demonstrations at the University Hospital, Thirty-sixth and Spruce Streets.

FRIDAY, JUNE 3.—Edsall, demonstrations of the methods employed in the analysis of the gastric contents, 11 a.m., medical amphitheater; Steele, diagnosis and treatment of diseases of the stomach, 12 m., medical amphitheater; Russell, exhibition of cases of heart disease with special reference to myocarditis, 1 p.m., medical amphitheater; luncheon, University Hospital, 2 p.m.; Randall, stereopticon demon-

stration of the clinical anatomy of the tympanic cavity, 3 p.m., medical amphitheater.

SATURDAY, JUNE 4.—*Smith, A. J.*, demonstrations of autopsy technic and of pathologic specimens, 10 a.m. to 12 m., medical hall; *Tyson*, medical clinic, 12 m., medical amphitheater; *Anspach*, demonstrations of a series of natural color preparations illustrating the value of routine histologic examination of gynecologic specimens, 1 p.m., gynecologic amphitheater, University Hospital; luncheon, University Hospital, 2 p.m.; *Clark*, gynecologic clinic, 3 p.m., gynecologic amphitheater.

MONDAY, JUNE 6.—*Muller*, pathology of the pancreas, 10 a.m., University Hospital; *Edsall*, diagnosis and treatment of diseases of liver, 11 a.m., medical amphitheater; *Young*, the surgery of paralysis, 12 m., orthopedic amphitheater; *Mills*, some of the newer aspects and methods of cerebral localization, 1 p.m., medical amphitheater; luncheon, University Hospital, 2 p.m.; *Spiller*, tumors of the brain, 3 p.m., surgical amphitheater; *Frazier*, surgery of brain tumors, 4 p.m., surgical amphitheater. NOTE: Subject of lectures by *Drs. Mills, Spiller and Frazier* will be brain tumors. Each lecturer will discuss or demonstrate a different phase of the subject, so that there will be no repetition.

FRIDAY, JUNE 10.—Opening exercises of the new medical laboratories, 4 p.m.

SATURDAY, JUNE 11.—*Altis*, congenital dislocation of the hip. A demonstration on the cadaver, in which both hips will be simultaneously dislocated by a force simulating routine contractions, with brief remarks on the etiology, diagnosis and treatment, 9 to 11 a.m.; *Willard*, treatment of congenital dislocation of the hip, 11 a.m., orthopedic amphitheater. *Professor A. Hoffa* of Berlin, will be in attendance during this hour. Clinics will close in time for those who so desire to take the 1.20 train for Washington to witness the unveiling of the Rush monument.

MONDAY, JUNE 13.—*Evans*, serum diagnosis of typhoid and other infectious fevers, the precipitins and their medicolegal value, 10 a.m., University Hospital; *Sailer*, application of the röntgen ray in the diagnosis of thoracic diseases, 11 a.m., University Hospital; *Stengel*, practical demonstrations of methods used in the diagnosis and treatment of valvular heart disease and arteriosclerosis, 12 m., clinical amphitheater; *Hirst*, plastic and abdominal surgery for complications and consequences of childbirth, 1 p.m., maternity amphitheater; luncheon, University Hospital, 2 p.m.; *deSchweinitz*, ophthalmologic clinic, with special references to ocular traumatism, 3 p.m., gynecologic amphitheater; *Shumway*, lantern demonstration on the embryology of the eye, 4 p.m., University Hospital.

TUESDAY, JUNE 14.—*Stanton*, demonstration and application of the methods of determining blood-pressure, 10 a.m., medical amphitheater; *Griffith*, pediatric clinic, 11 a.m., medical amphitheater; *Musser*, medical clinic, 12 m., surgical amphitheater; *Martin*, surgical clinic, 1 p.m., surgical amphitheater; luncheon, University Hospital, 2 p.m.; *Piersol*, demonstrations of monstrosities, 3 p.m., medical hall; *Pancoast*, the relative results obtained with the röntgen ray and radium in the treatment of carcinoma and other lesions, 4 p.m., surgical amphitheater.

Clinics at the Medico-Chirurgical Hospital, Cherry Street, Seventeenth to Eighteenth Street.

THURSDAY, JUNE 2.—*Mann, James P.*, orthopedic clinic, 11 a.m. to 12 m.; *Christian, H. M.*, genitourinary clinic, 12 m. to 1 p.m.; *Gleason, Edward B.*, otologic clinic, 3 p.m. to 4 p.m.

FRIDAY, JUNE 3.—*Rodman, William L.*, surgical clinic, 10 a.m. to 11 a.m.; *Shoemaker, John V.*, dermatologic clinic, 11 a.m. to 12 m.; *Anders, James M.*, medical clinic, 12 m. to 1 p.m.; *Mann, James P.*, orthopedic clinic, 3 p.m. to 4 p.m.

SATURDAY, JUNE 4.—*Ashton, W. Easterly*, gynecologic clinic, 10 a.m. to 11 a.m.; *La Place, Ernest*, surgical clinic, 11 a.m. to 12 m.; *Boyd, George M.*, obstetric clinic, 12 m. to 1 p.m.; *Rodman, William L.*, surgical clinic, 3 p.m. to 4 p.m.

MONDAY, JUNE 6.—*Pearce, F. Savary*, neurologic clinic, 10 a.m. to 11 a.m.; *Haehnlen, W. Frank*, obstetric clinic, 11 a.m. to 12 m.; *Fox, L. Webster*, ophthalmologic clinic, 12 m. to 1 p.m.; *Daland, Judson*, medical clinic, 3 p.m. to 4 p.m.

SATURDAY, JUNE 11.—*Pearce, F. Savary*, neurologic clinic, 9 a.m. to 10 a.m.; *Ashton, W. Easterly*, gynecologic clinic, 10 a.m. to 11 a.m.; *Anders, James M.*, medical clinic, 11 a.m. to 12 m.

MONDAY, JUNE 13.—*Shoemaker, John V.*, applied therapeutics clinic, 10 a.m. to 11 a.m.; *Haehnlen, W. Frank*, obstetric clinic, 11 a.m. to 12 m.; *Cleveland, Arthur H.*, laryngologic clinic, 12 m. to 1 p.m.; *Daland, Judson*, medical clinic, 3 p.m. to 4 p.m.

TUESDAY, JUNE 14.—*Hollopeter, W. C.*, pediatric clinic, 10 a.m. to 11 a.m.; *La Place, Ernest*, surgical clinic, 11 a.m. to 12 m.; *Fox, L. Webster*, ophthalmologic clinic, 12 m., to 1 p.m.; *Boyd, George M.*, obstetric clinic, 3 p.m. to 4 p.m.

Polyclinic Hospital Clinics, Lombard Street, above Eighteenth.

MONDAY, MAY 30.—*McKee*, pediatrics clinic, 10 a.m.; *Stewart*, surgical clinic, 10 a.m.; *Vansant*, nose and throat clinic, 11 a.m.; *Goepf*, medical clinic, 12 m.; *Schamberg*, dermatology, 12 m.; *Packard*, ear clinic, 1 p.m.; *Watson*, nose and throat clinic, 2 p.m.; *Ashton*, medical clinic, 2 p.m.; *Christian*, genitourinary clinic, 5 p.m.; *Roberts*, surgical clinic, 5 p.m.

TUESDAY, MAY 31.—*Hamill*, pediatrics clinic, 10 a.m.; *Baldy*, gynecologic clinic, 10 a.m.; *Steinbach*, surgical clinic, 11 a.m.; *Gibb*, nose and throat clinic, 11 a.m.; *Eshner*, medical clinic, 12 m.; *Schamberg*, dermatology, 12 m.; *Stout*, ear clinic, 1 p.m.; *Baer*, gynecologic clinic, 2 p.m.; *Young*, orthopedic clinic, 2 p.m.; *Freeman*, nose and throat clinic, 2 p.m.; *Sailer*, diseases of stomach, 2 p.m.; *Makuen*, defects of speech, 2 p.m.; *Slocum*, gynecologic clinic, 5 p.m.; *Riesman*, medical clinic, 5 p.m.

WEDNESDAY, JUNE 1.—*McKee*, pediatrics clinic, 10 a.m.; *Baldy*, gynecologic clinic, 10 a.m.; *Vansant*, nose and throat clinic, 11 a.m.; *Goepf*, medical clinic, 12 m.; *Schamberg*, dermatology, 12 m.; *Packard*, ear clinic, 1 p.m.; *Watson*, nose and throat clinic, 2 p.m.; *Ashton*, medical clinic, 2 p.m.; *Spiller*, neurology, 3 p.m.; *Christian*, genitourinary clinic, 4 p.m.

THURSDAY, JUNE 2.—*Hamill*, pediatrics, 10 a.m.; *Adler*, rectal diseases, 11 a.m.; *Gibb*, nose and throat, 11 a.m.; *Eshner*, medical clinic, 12 m.; *Schamberg*, dermatology, 12 m.; *Stout*, ear clinic, 1 p.m.; *Young*, orthopedic clinic, 2 p.m.; *Sailer*, diseases of stomach, 2 p.m.; *Freeman*, nose and throat, 2 p.m.; *Makuen*, defects of speech, 2 p.m.; *Spiller*, neurology, 3 p.m.; *Riesman*, medical clinic, 5 p.m.

FRIDAY, JUNE 3.—*McKee*, pediatrics, 10 a.m.; *Stewart*, surgical clinic, 10 a.m.; *Vansant*, nose and throat, 11 a.m.; *Goepf*, medical clinic, 12 m.; *Schamberg*, dermatology, 12 m.; *Packard*, ear clinic, 1

p.m.; *Baer*, gynecologic clinic, 2 p.m.; *Watson*, nose and throat clinic, 2 p.m.; *Ashton*, medical clinic, 2 p.m.; *Spiller*, neurology, 3 p.m.; *Christian*, genitourinary, 4 p.m.; *Slocum*, gynecologic clinic, 5 p.m.

SATURDAY, JUNE 4.—*Hamill*, pediatrics, 10 a.m.; *Steinbach*, surgical clinic, 11 a.m.; *Gibb*, nose and throat, 11 a.m.; *Eshner*, medical clinic, 12 m.; *Schamberg*, dermatology, 12 m.; *Stout*, ear clinic, 1 p.m.; *Freeman*, nose and throat, 2 p.m.; *Sailer*, diseases of stomach, 2 p.m.; *Young*, orthopedic clinic, 2 p.m.; *Makuen*, defects of speech, 2 p.m.; *Spiller*, neurology, 3 p.m.; *Riesman*, medical clinic, 5 p.m.

Lectures at the Philadelphia Hospital, Thirty-fourth and Pine Streets.

SATURDAY, JUNE 4.—*Haehnlen, W. F.*, 9 a.m.; *Allyn, H. B.*, 10 a.m.

MONDAY, JUNE 6.—*Stengel, A.*, 10 a.m.; *Cryer, M. H.*, 11 a.m.; *Hansell, H. F.*, 4 p.m.

SATURDAY, JUNE 11.—*Peck, E. L.*, 9 a.m.; *Riesman, David*, 10 a.m.; *Martin, Edward*, 11 a.m.

MONDAY, JUNE 13.—*Spiller, Wm. G.*, 10 a.m.; *Marshall, G. M.*, 11 a.m.; *Potts, C. S.*, 3 p.m.; *Hansell, H. F.*, 4 p.m.

Surgical Clinics at the German Hospital, Girard and Corinthian Avenues.

Deaver, June 1, 2, 4 and 14, 1 to 5 p.m.

Surgical Clinics at the Pennsylvania Hospital, Eighth and Spruce Streets.

Harte, June 4, 6 and 11, 11 a.m.

SOUTHERN STATES.

War against the Mosquito.—According to the New Orleans *Picayune* it appears that Dr. Quitman Kohnke, health officer in New Orleans, has persistently advocated in his home city that another means should be employed to prevent the breeding of mosquitos, holding that the municipality should employ a corps of persons to engage in the warfare, using kerosene on all surface water. It seems that New Orleans failed to hear the advice of Dr. Kohnke until San Antonio, Texas, responded to the call, and in consequence of lectures in that town by Dr. Kohnke, a brigade of school children has been employed to place kerosene in all the pools of stagnant water in the vicinity. New Orleans has now awakened from her lethargy and is following the example of San Antonio.

Baltimore would Prevent Grim Harvest of the "Glorious Fourth."—With figures compiled by a Baltimore physician, relating to Fourth of July casualties in the United States in 1903, a councilman has introduced in the city council of that city an ordinance which prohibits the manufacture, sale or use of fireworks within the boundaries of Baltimore city. According to Dr. Randolph, there were just 4,458 casualties on the last glorious Fourth. The measure provides that "no person shall cast, throw, or fire any squib, rocket, cracker, torpedo, grenade or other explosive preparation within the city limits," and that "every person, for every such offense, shall forfeit and pay a sum not exceeding \$25." A similar penalty is provided for the manufacture of such explosives. According to the physician the casualties last Fourth of July were as follows:

Deaths from wounds.....	60
Deaths from tetanus, resulting from wounds.....	415
Number of persons made totally blind.....	10
Number of persons who lost one eye.....	75
Number of persons who lost hands, arms or legs.....	54
Number of persons who lost one or more fingers.....	174
Number of painful minor accidents.....	3,670
Total.....	4,458

The American loss at Bunker Hill was 449.

WESTERN STATES.

Quarantine of Mexico.—The passenger and freight traffic of the railroads in Mexico which lead to the three border points of Texas is paralyzed as the result of the strict enforcement of the order of Dr. George Tabor, Texas State Health Officer, requiring that all persons who desire to enter the United States via Texas shall remain in quarantine detention at either Nuevo Laredo, Ciudad Porfirio Diaz or Juarez five days, no matter from what place or part in Mexico they come. Under this order the whole of Mexico is classed as infected with yellow fever. The Mexican Government authorities say that Vera Cruz is the only place in that country where the disease exists.

Deathrate in Chicago.—The Bulletin of Chicago's Health Department for the week ended April 30 says: In 1897 the rate was 18.84 per 1,000 of the population; in 1901 it was 14.64, and in 1902 it was 15.83. For the previous 10 years the average annual rate had been 17.31. The 2,486 deaths reported during the month up to the close of office hours April 30 represent an annual rate of 15.68 per 1,000—or 9.4% lower than the average. As has been the case since the first of the year, the reduction of deaths is almost entirely among children under 5 years of age, of whom 225, or nearly 30%, fewer died than in April, 1903. In fact, the first 4 months of 1904 have established a record for low mortality from the contagious diseases of childhood. Diseases of adult life show the following increased mortality as compared with 1903: Apoplexy, 22.6%; Bright's disease, 16%; cancer, 10%; pulmonary tuberculosis, 9.1%; heart disease, 3.3%; pneumonia, 3.7%.

A TABULAR OUTLINE OF THE STATE AND TERRITORIAL LAWS AND REGULATIONS IN FORCE IN MARCH, 1904.

Admit to practise on presentation of a recognized diploma.	Require an examination.		Examine nongraduates in medicine.	Empowered to recognize certificates of other Boards.	Permit the practice of physicians from other States in consultation.	Empowered to issue temporary licenses.	Osteopathy legalized.
	Diploma necessary.	Diploma not necessary.					
Alaska ¹ Colorado Indian Territory ⁴ Indiana ^{5, 12} Iowa ⁵ Kansas ⁷ Kentucky ²⁴ Maryland ¹⁰ Michigan ^{5, 11} Missouri ¹³ Nebraska ⁸ Nevada ² New Hampshire ¹⁶ New Mexico New York ¹⁸ Philippines ¹⁵ Porto Rico ⁵ Virginia ⁵ Wisconsin ⁵ Wyoming	Arizona California Connecticut Delaware Dist. of Columbia Florida Georgia Idaho Illinois Indian Territory ⁴ Indiana Iowa Kentucky ²⁵ Louisiana Maine Maryland Michigan Minnesota ² Montana Nebraska Nevada ¹⁴ New Hampshire New Jersey New York North Carolina Ohio Oklahoma ¹⁶ Oregon Pennsylvania ¹⁷ Philippines ¹⁵ Rhode Island Tennessee Texas ³ West Virginia	Alabama Arkansas Hawaii Indian Territory ⁴ Kansas ⁸ Maryland ¹¹ Massachusetts Mississippi Missouri Nevada ¹⁵ New Hampshire 15 17 North Carolina ⁸ North Dakota ⁸ Ohio ¹⁷ Oklahoma ¹⁶ Oregon Pennsylvania ¹⁷ Philippines ¹⁵ Rhode Island Tennessee Texas ³ West Virginia	Alabama Arkansas Colorado Hawaii Indian Territory ⁴ Illinois ³ Indiana Iowa Kansas ⁸ Maine Maryland Michigan Montana Nebraska New Hampshire New Jersey New Mexico New York Ohio Oregon Pennsylvania South Carolina South Dakota Texas Virginia Vermont Washington Wisconsin	California Connecticut Delaware Dist. of Columbia Illinois ³ Indiana Iowa Kansas Maine Maryland Michigan Montana Nebraska New Hampshire New Jersey New Mexico New York Ohio Oregon Pennsylvania South Carolina South Dakota Texas Virginia Vermont Washington Wisconsin	California Connecticut Delaware Dist. of Columbia Georgia Idaho Indiana ⁴ Kansas Kentucky Louisiana Maine Maryland Massachusetts Michigan Minnesota Mississippi Montana New Hampshire New Jersey New York North Carolina North Dakota Ohio Oklahoma Pennsylvania Philippines Porto Rico Rhode Island South Carolina South Dakota Tennessee Texas Virginia Vermont Wisconsin Wyoming	Arkansas Colorado Florida Indiana Kansas Louisiana Montana North Carolina South Carolina Tennessee Texas Virginia	Arizona Arkansas California Connecticut Indiana Iowa Kansas Kentucky Michigan Minnesota Missouri Montana Nebraska New Mexico North Carolina North Dakota Ohio Oklahoma South Carolina South Dakota Tennessee Vermont Virginia Wisconsin
License graduates of colleges without examination.	New Hampshire New Jersey New York North Carolina Ohio Oklahoma Pennsylvania Philippines Porto Rico ¹⁵ South Carolina South Dakota Utah Vermont Virginia Washington Wisconsin Wyoming ²¹		West Virginia	Empowered to accept licenses of other States or countries in lieu of a diploma.	California Kansas ⁹ Maryland ¹⁰ New Hampshire North Carolina Ohio Pennsylvania	Connecticut Dist. of Columbia Illinois Kansas Kentucky ²² Maine Massachusetts Mississippi ²² New Hampshire New Jersey New York ²² North Carolina ²² Rhode Island ²² South Dakota Tennessee Texas	Mental and spiritual healers exempted.
Indiana ¹² Kentucky ²⁰ Michigan ¹¹ Missouri ¹³ New Hampshire ¹⁶						Connecticut Dist. of Columbia Illinois Kansas Kentucky ²² Maine Massachusetts Mississippi ²² New Hampshire New Jersey New York ²² North Carolina ²² Rhode Island ²² South Dakota Tennessee Texas	Osteopaths exempted.

¹ No law.² Graduates of foreign colleges excepted.³ By resolution of Board.⁴ Each nation has its own laws.⁵ Supplemented by an accepted State license.⁶ Licensed physicians on border of neighboring State permitted to attend bonafide calls in State.⁷ Discretionary with Board.⁸ Applicant must show evidence of college attendance.⁹ In lieu of an examination.¹⁰ Physicians in the District of Columbia.¹¹ Students registered in Michigan colleges on January 1, 1903.¹² Matriculates of Indiana colleges prior to January 1, 1901.¹³ Matriculates of Missouri colleges prior to March 13, 1901.¹⁴ Graduates of foreign colleges.¹⁵ Certain persons only.¹⁶ Certain matriculates of New Hampshire colleges.¹⁷ If licensed to practise in some foreign country.¹⁸ Certain matriculates of New York colleges.¹⁹ Of a foreign country.²⁰ Of nonrecognized colleges.²¹ Decision of Supreme Court.²² Certain students in college on April 11, 1902.²³ Until June 15, 1904.²⁴ After June 15, 1904.²⁵ Present matriculates.

[Compiled by the Illinois State Board of Health.]

CANADA.

Contract Medical Practice.—A correspondent from Sherbrooke, Province of Quebec, sends us the copy of an agreement which has been adopted at a meeting of the Sherbrooke City Medical Society and signed by every regular practitioner in Sherbrooke and Lennoxville, on January 15, 1901. *Agreement.*

—We, the undersigned regular medical practitioners of the cities of Sherbrooke and Lennoxville, Quebec, do hereby agree that, in future we shall not accept any position as physician or surgeon to any benevolent, fraternal, or medical aid association. Also, we shall not attend any member of such association at rates less than those allowed by the tariff adopted by the District of St. Francis Medical Association. We further agree to resign any such position or positions which we may now hold, at the earliest possible date. This agreement shall not apply to contracts with railroad or mining corporations, or educational institutions, or to the accepting of the position of medical examiner to any such associations as previously mentioned. In the event of any medical practitioner entering into and retaining such contracts in the city of Sherbrooke or Lennoxville after having received due notice of the above agreement from the Sherbrooke Medical Society, we agree to refuse to hold professional intercourse with the said party so long as he shall retain such contracts.

FOREIGN NEWS AND NOTES

GENERAL.

Miscellaneous.—The French Government in Algeria proposes to establish a woman doctor in every village where the native population is large enough, the native women being prevented by their social customs from consulting men physicians. In Algiers a dispensary has already been opened for women.

Suicide in Germany.—Official figures recently published by the German Statistical Office, in reference to suicides in the German empire, are by no means of a satisfactory nature. They show a steady increase in the number of persons who have made away with themselves since 1900. A little more than 20 persons in every 100,000 inhabitants killed themselves in that year. In 1901 the proportion rose to 20.8, and in 1902 to 21.4. The percentage of suicides was lower in agricultural than in industrial districts. Of every 100,000 persons in Berlin, 31 committed suicide during 1902; in Saxony 33; in Hamburg more than 37. Eighty percent of the total number of suicides was men. A curious and unpleasant feature of the case is the number of young married couples who have destroyed themselves together, especially in Berlin.

Physical Deterioration.—An exchange says that the physical deterioration of the British people still occupies some of the attention of a Parliamentary committee. Many causes have been alleged for this condition, from the use of soap and the cold bath to alcoholic excesses and the consumption of too much meat. The committee now proposes to measure and weigh every person in the land in order to determine in the future whether the tendency has been continuously toward a decline of stature and strength. Also it is proposed to adopt the American system of instruction in the primary schools as to the deleterious effects of alcohol and tobacco on mind and body. That there is still a diversity of opinion among experts as to the effects of alcohol and tobacco (in moderate quantities) on the system has not deterred the Americans from adopting textbooks which made the most positive affirmations on this subject. Many men of science vehemently oppose the doctrines of these public school textbooks. The English will start with the same firm belief that both tobacco and alcohol are every where and always bad. They confidently expect to find that the children of smokers and drinkers fall below the average stature and intelligence of the children of total abstainers. The results of investigation may confirm their opinions, but it is just as well to be prepared for a disappointment.

The Increase of Quackery in Foreign Countries.—An exchange says: Two Berlin girls of the "backfisch" class, seeking to improve their complexion, went to a local "face doctor." "Take the eggs of frogs, dry them, powder them, and dissolve in spring water, drawn when the moon is full," prescribed the "doctor." The girls did so, and applied the fluid to their faces twice a day. Their parents were forced to take them to an oculist, their eyes having become so inflamed by the concoctions as to produce temporary blindness. This is only one of many other instances in which quacks have wrought ruin through their messes, and the German police have begun a systematic campaign against quacks and quack medicines. The police estimate that in ten years the population has increased 58%, regular medical men 76%, and quacks 1,567%. There are more women quacks than men. The most prosperous of these were two washerwomen and one milliner. Nearly 30% of the men cited to appear at the police bureau had been in prison; of the women, 15%. More than 100 samples of quack medicines were analyzed by the police, and over 80% contained elements of absolutely no medicinal value.

Spotted Fever.—Spotted fever, or spotted typhus, is frequently described as famine or war typhus, because the disease has repeatedly developed and spread in times of famine among the starving population, or in time of war among the troops weakened by privations and hardships. In Germany, during the current century, the disease has in an epidemic form especially visited upper Silesia and east Prussia; it has also been observed in other parts of the empire, notably in certain districts of central Germany. The illness runs its course with high fever, and is distinguished by a rash which appears after the first days of sickness and resembles the rash of measles, but is less diffuse and usually spares the face. The consciousness of the patient is nearly always clouded. The fever lasts about two weeks in favorable cases, yet a sixth or a seventh of the persons attacked succumb to the disease. Sometimes complicating diseases subsequently prove fatal. Spotted fever is one of the most communicable diseases. The contagious matter can both be transferred from the sick to the healthy, and be introduced by inanimate objects. The disease is most frequently spread by roving persons, peddlers, beggars, etc. Its dissemination is to be resisted by isolation of patients and disinfection.—[*Public Health and Marine-Hospital Service.*]

OBITUARIES.

Roberts Bartholow, eminent physician and professor emeritus of materia medica in Jefferson Medical College, May 10, at his home in Philadelphia. Dr. Bartholow was born in New Windsor, Carroll county, Md., on November 28, 1831. He was graduated in arts from Calvert College, and received his degree in medicine from the University of Maryland in 1852. In 1857 he entered the regular army as a surgeon and served in that capacity until 1864, when he resigned to become a professor of theory and practice of medicine in the Ohio Medical College, Cincinnati. He was later elected dean of that institution and remained there until 1879, when he resigned to come to Jefferson Medical College, as professor of materia medica and therapeutics. In 1885 Dr. Bartholow was chosen dean of the institution, but he resigned, in 1886, to resume his work as a professor. He continued in that capacity until 1893, when he was made professor emeritus. After that, and until a short time before his death, he practised his profession. He was the author of several medical books, among the best known being "Hypodermic Medication," "Treatise on Therapeutics and Materia Medica," and "Practice of Medicine," which was translated into Japanese at Tokio. He was a member of the American Philosophical Society and an honorary member of the Royal Medical Society of Edinburgh and the Société Médico Pratiques de Paris.

William Barton Hopkins, a wellknown physician of Philadelphia, May 4, after an illness of less than 48 hours. He was surgeon to the Pennsylvania Hospital and to the Orthopedic Hospital and Infirmary of Nervous Diseases, and was for years surgeon to the Episcopal Hospital. He published many valuable articles, and his book on fractures has been widely read. Dr. Hopkins was a member of the Rittenhouse, Country, New York Yacht, Corinthian Yacht and several medical clubs. He was graduated from the University of Pennsylvania in 1874.

Benjamin F. Dodson, at his home in Berlin, Wis., April 12, after a prolonged illness, aged 72; a graduate of the Cincinnati College of Medicine and Surgery in 1853; member of the American Medical Association, Wisconsin State Medical Society, and Green Lake County Medical Society. He was a pioneer practitioner and highly esteemed.

Edward E. Jenkins, from malignant disease, at his home in Palatka, Fla., April 18; a graduate of the Medical College of the State of South Carolina in 1853; a member of the American Medical Association, and one of the most esteemed physicians of Florida.

Orisa W. Gould, well known for her philanthropic and missionary work, especially among the poor on the East side, at her home in New York, May 3, aged 43. She was a graduate of the Woman's Medical College of New York.

Charlotte Blake Brown, of San Francisco, at the Alder Sanato-

rium, in that city, April 19, aged 57; a graduate of the Woman's Medical College of Philadelphia in 1874, and for 30 years a practitioner in San Francisco.

Henry M. Cox, from pneumonia, at his home in New York City, April 25; a graduate of the College of Physicians and Surgeons in 1871, and medical inspector in the Department of Health for the past 20 years.

Thomas John Chew, from apoplexy, at his home in Washington, D. C., May 2, aged 58; a graduate from the University of Princeton, and in medicine from the University of Maryland.

Edward A. Hight, of Kokomo, Ind., at Hope Hospital, Fort Wayne, Ind., April 15, after an operation for gallstone; a graduate of the Eclectic Medical Institute, Cincinnati, in 1898.

Isaac T. Wilson, from pneumonia, at his home in Quincy, Ill., April 24, aged 78; a graduate of New York University in 1851, and the oldest physician in his home city.

Edward L. Trudeau, Jr., from pneumonia, at his home in New York City, May 3, aged 31; a graduate of the College of Physicians and Surgeons, New York City, in 1900.

George E. Talbert, at his home in Beaver Dam, Wis., April 16, aged 75. He was surgeon of the Fourteenth Wisconsin Volunteer Infantry during the Civil war.

Thomas E. Barry, of New York City, in Utica, N. Y., April 26, from septicemia following an autopsy wound; a graduate of the University of New York in 1897.

John J. Smith, from chronic bronchitis, at his home in Yonkers, N. Y., April 20, aged 38; a graduate of the College of Physicians and Surgeons, New York, in 1889.

Fred. Van Akeren, at his home in Elgin, Ill., April 26, supposedly from an overdose of morphin; a graduate of the University of Würzburg, Germany, in 1888.

James L. Perryman, at his home in Belleville, Ill., April 22, aged 73; a graduate of the medical department of the University of Missouri, St. Louis, in 1854.

David D. Thomas, for 50 years a practitioner in Louisville, in Dallas, Texas, April 21, aged 80; a graduate of the University of Louisville in 1849.

John Moore, from pneumonia, at his home in Lakeville, Ind., April 23, aged 67; a member of St. Joseph County (Ind.) Medical Society.

John S. Poole, from influenza, at his home in Pooleville, Md., April 23, aged 40; a graduate of the University of Maryland, Baltimore, in 1887.

Guilford W. McCray, from apoplexy, at his home in Buffalo, N. Y., April 18, aged 73; a graduate of Castleton (Vt.) Medical College in 1857.

J. K. Herman, at his home in Kossuth, Miss., April 16, aged 60; a graduate of Washington University School of Medicine, Baltimore in 1869.

John B. Mahoney, from Bright's disease, at his home in Medford, Mass., April 20, aged 42; a graduate of Harvard Medical School in 1887.

Ernest W. Salter, from pneumonia, of Stronghurst, Ill., at Bayonne, N. J., April 23, aged 34; a graduate of Belleville Medical College in 1892.

E. H. S. Hutchinson, from pneumonia, at his home in New York City, April 13, aged 44; a graduate of Bellevue Medical College in 1881.

Theo. Bange, from diabetes, at his home in Cincinnati, April 18, aged 45; a graduate of Miami Medical College, Cincinnati, in 1881.

Ezra H. Ferris, at his home in Champaign, Ill., April 10, aged 82; a graduate of the Military College of Ohio, Cincinnati, in 1846.

James W. Montgomery, at his home in Paoli, Ind., April 19; a graduate of Hospital College of Medicine, Louisville, in 1884.

Franz Hugo Krebs, at his home in Boston, April 22, aged 80; a graduate of the Harvard University Medical School, in 1850.

Isaac P. Alger, from apoplexy, at his home in Cold Water, Branch county, Mich., aged 83.

A. Vandeventer, by suicide, at Fulton, Mo., April 17, aged 60.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 7, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	Los Angeles.....Apr. 8-23.....	23	6
Colorado:	Denver.....Feb. 27-Apr. 16.....	5	
Delaware:	Wilmington.....Apr. 23-30.....		1
Dist. of Columbia:	Washington.....Apr. 23-30.....	8	
Illinois:	Chicago.....Apr. 23-30.....	5	
	Covington.....Apr. 23-30.....	4	
Kentucky:	Louisville.....Apr. 14-28.....	4	
Louisiana:	New Orleans.....Apr. 16-30.....	11	
		Four imported.	

Maryland:	Baltimore	Apr. 23-30	1
Michigan:	Detroit	Apr. 23-30	8
	97 localities	Apr. 16-23	Present.
Nebraska:	Omaha	Apr. 23-30	4
	South Omaha	Apr. 16-23	1
			Imported.
New Hampshire:	Manchester	Apr. 23-30	2
New Jersey:	Camden	Apr. 23-30	1
New York:	Niagara Falls	Mar. 5-12	3
Ohio:	Cincinnati	Apr. 15-28	14
	Cleveland	Apr. 22-28	1
	Dayton	Apr. 23-30	3
	Toledo	Apr. 23-30	2
Pennsylvania:	Johnstown	Apr. 23-30	4
			One imported.
	Philadelphia	Apr. 23-30	23
	Pittsburg	Apr. 23-30	8
	Titusville	Apr. 16-30	23
South Carolina:	Charleston	Apr. 16-30	6
Tennessee:	Memphis	Apr. 23-30	27
	Nashville	Apr. 23-30	6
Wisconsin:	Milwaukee	Apr. 23-30	13

SMALLPOX—INSULAR.

Philippine Islands:	Manila	Mar. 5-12	1
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SMALLPOX—FOREIGN.

Austria:	Prague	Apr. 8-16	13
Belgium:	Antwerp	Apr. 2-16	44
	Brussels	Apr. 9-16	20
Brazil:	Bahia	Apr. 2-9	1
Colombia:	Barranquilla	Apr. 11-17	3
France:	Paris	Apr. 8-16	22
Great Britain:	Dundee	Mar. 26-Apr. 16	6
	Edinburgh	Apr. 8-16	5
	Glasgow	Apr. 15-22	43
	Hull	Apr. 8-16	6
	Leeds	Apr. 8-23	6
	Leith	Apr. 8-16	3
	London	Apr. 2-16	62*
	Manchester	Apr. 8-16	4
	Newcastle-on-Tyne	Apr. 8-16	11
	Nottingham	Apr. 8-16	6
	Sheffield	Apr. 8-16	6
	South Shields	Apr. 8-16	5
India:	Bombay	Mar. 30-Apr. 5	24
	Karachi	Mar. 28-Apr. 3	12
Italy:	Catania	Apr. 14-21	1
Japan:	Nagasaki	Mar. 21-31	4
Java:	Batavia	Feb. 7-Mar. 18	35
Malta:		Mar. 26-Apr. 2	1
Mexico:	Mexico	Apr. 10-17	3
	Tampico	Apr. 16-23	1
	Torreón	Apr. 17-23	14
Netherlands:	Amsterdam	Apr. 9-23	2
Russia:	Moscow	Mar. 26-Apr. 9	13
	St. Petersburg	Apr. 2-9	11
Turkey:	Beirut	Apr. 2-16	Present.

YELLOW FEVER.

Colombia:	Barranquilla	Apr. 11-17	1
Costa Rica:	Alajuela	To Apr. 24	11
Ecuador:	Guayaquil	Mar. 26-Apr. 2	7
Mexico:	Merida	Apr. 17-23	1

CHOLERA—INSULAR.

Philippine Islands:	Provinces	Mar. 5-12	22
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CHOLERA—FOREIGN.

India:	Madras	Mar. 26-Apr. 1	2
Turkey:	Bagdad	Mar. 5-12	16
	Bassora	Mar. 5-12	7

PLAGUE—INSULAR.

Philippine Islands:	Manila	Mar. 6-12	3
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PLAGUE—FOREIGN.

Australia:	Cairns	To Mar. 22	9
Egypt:		Mar. 26-Apr. 2	62
India:	Bombay	Mar. 29-Apr. 5	43
	Karachi	Mar. 27-Apr. 3	1135
			360

Changes in the Medical Corps of the U. S. Army for the week ended May 7, 1904:

FOSTER, DOUGLAS E., contract dental surgeon, is granted leave for two months, to take effect June 1.

CHENAY, ARTHUR A., sergeant first class, transport Sheridan, now at San Francisco, Cal., is relieved from further duty aboard that vessel and will report to the medical superintendent, army transport service, San Francisco, for duty in his office, and to relieve Sergeant First Class Nelson A. Hoberg. Sergeant First Class Hoberg will report on the transport Sheridan for duty aboard that vessel.

LOMMEL, NICOLAS, sergeant first class, Columbus Barracks, will report to the commanding officer, Second Battery, Third Infantry, at that post, to accompany that regiment to Alaska, and the headquarters, band, Companies A, B, and C to Fort William H. Seward. Upon arrival at Fort Seward he will report to the commanding officer for duty at that post.

ANDERSON, E. A., contract surgeon, is granted leave for two months, to take effect upon his arrival at his home, Devil's Lake, N. D.

* Week ended April 2, 1904, 42 cases, 3 deaths. Erroneously reported in previous report.

GOSMAN, First Lieutenant GEORGE H. R., assistant surgeon, is granted leave for three months, from about June 1, with permission to go beyond sea.

EBLE, CHARLES F., sergeant first class, Fort Thomas, will report to the commanding officer, Third Infantry, at that post, to accompany that regiment to Alaska. Upon arrival at Alaska, he will report to the commanding officer, Camp Skagway, for duty at that camp.

WOOD, RICHARD A., sergeant first class, Camp Skagway, Alaska, upon expiration of furlough authorized April 5, will report by letter for further orders.

MAUS, Lieutenant-Colonel LOUIS M., deputy surgeon-general, leave granted on surgeon's certificate May 5, is extended one month on surgeon's certificate.

OLIVER, ROBERT T., contract examining and supervising dental surgeon, is relieved from duty in the Philippines Division, to take effect about October 17, and will then proceed to San Francisco, Cal., and report by telegraph for further orders.

LONG, CHARLES J., contract dental surgeon, is relieved from further duty in the Philippines Division, to take effect about September 17, and will then avail himself of the leave granted him December 30.

The following named contract dental surgeons are relieved from duty in the Philippines Division, to take effect on or about the dates set opposite their respective names, and will then report to the commanding general of that division for transportation to San Francisco, Cal., on the first available transport sailing from Manila, and upon arrival at San Francisco will report by telegraph to the military secretary for further orders: S. Davis Boak, July 1, 1904; Clarence E. Lauderdale, July 1; Hugo C. Rietz, July 1; Ralph W. Deddel, July 1; William H. Ware, July 1; Franklin F. Wing, July 1; George L. Mason, August 17; Jean O. Whinnery, August 17; F. Homer Wolven, September 6.

SHELLENBERGER, JAMES E., contract surgeon, will proceed to Leon Springs, Texas, for duty, relieving First Lieutenant William P. Banta, assistant surgeon.

BANTA, First Lieutenant WILLIAM P., assistant surgeon, upon being relieved from duty at the target camp at Leon Springs, Texas, will proceed to Kerrville, Tex., and report at the artillery camp at that place for duty.

STONE, RANDALL C., contract surgeon, leave granted March 23 is extended one month.

APEL, Major AARON H., surgeon, will report to Brigadier-General John F. Weston, commissary general, president of an Army Retiring Board at the War Department, for examination by the Board.

SNARR, SAMUEL S., sergeant first class, is relieved from further duty in the Philippines Division and will proceed to San Francisco, Cal., reporting to the commanding general, department of California, and by letter to the military secretary of the Army for further orders.

DUBES, WARREN E., sergeant first class, Fort McPherson, will proceed to Fort Clark to relieve Sergeant First Class Ernest Jenks. Sergeant First Class Jenks will proceed to Fort McPherson for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended May 6, 1904:

HULL, H. F., assistant surgeon, ordered to the Naval Hospital, Naval Training Station, Newport, R. I.—April 29.

WICKES, G. L., assistant surgeon, ordered to the Naval Hospital, Philadelphia, Pa.—April 29.

BROWN, H. L., assistant surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the Lancaster—April 29.

LANGHORNE, C. D., passed assistant surgeon, ordered to continue on duty on the Monongahela at the Naval Station, Guantanamo, Cuba—May 4.

WHEELER, L. H., MAY, H. A., BELKNAP, J. L., and FLINT, J., assistant surgeons, appointed assistant surgeons with the rank of lieutenant junior grade, from April 22, 1904—May 4.

Changes in the Public Health and Marine-Hospital Service for the week ended May 5, 1904:

PETTUS, W. J., assistant surgeon-general, leave of absence for seven days granted by Bureau letter of April 25, 1904, amended so as to be for three days from April 26—April 29, 1904.

SAWTELLE, H. W., surgeon, granted leave of absence for five days from May 6—May 4, 1904.

STONER, G. W., surgeon, five days' leave of absence from April 29, 1904, under paragraph 189 of the regulations.

CARTER, H. R., surgeon, to report at Washington, D. C.—April 29, 1904.

CARMICHAEL, D. A., surgeon, granted leave of absence for fifteen days from May 12—May 4, 1904.

YOUNG, G. B., passed assistant surgeon, two days' leave of absence from April 29, 1904, under paragraph 189 of the regulations.

McMULLEN, JOHN, passed assistant surgeon, granted leave of absence, on account of sickness, for seven days from April 21, 1904, under paragraph 191 of the regulations. Granted extension of leave of absence, on account of sickness, for ten days from April 28—April 29, 1904.

BURKHALTER, J. T., assistant surgeon, granted leave of absence for four days from May 4—May 8, 1904.

BOGGESS, J. S., assistant surgeon, to proceed to Newport News, Va., for special temporary duty—April 2, 1904.

SALMON, T. W., assistant surgeon, relieved from duty at Stapleton, N. Y., and directed to proceed to Philadelphia, Pa., and report to medical officer in command, for duty and assignment to quarters—May 3, 1904.

STILES, C. W., zoologist, to proceed to Missoula, Mont., for special temporary duty—May 2, 1904.

BIERMAN, C. H., pharmacist, granted leave of absence for eight days from May 26—May 4, 1904.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

SORE THROATS WHICH PRESENT SYMPTOMS AND PHYSICAL SIGNS OF DIPHTHERIA.

BY

A. E. BLACKBURN, M.D.,
of Philadelphia.

I know of no condition in which quick and accurate judgment on the part of the physician is more needed than the sore throats which present many of the symptoms and physical signs resembling diphtheria.

We have all frequently seen one or both tonsils covered with a grayish-white tenacious membrane, swollen and red fauces, and large cervical glands, altered voice, and fever. We have also seen patients with all these symptoms, except that there is no membrane present. I have lately had three cases similar to the former description, two were true diphtheria, the other staphylococcic infection.

The more experience one has the more uncertain one becomes when having to decide in a given case. We have all experienced the fallacy of relying at all times on the general symptoms and appearance of the throat.

When in doubt, err on the safe side, even though we may be somewhat compromised in the sight of some of our patients by subjecting them, or some member of their family, to the unnecessary physical inconvenience and expense of using antitoxin in instances in which the culture did not show true diphtheria. Such positions as these are very embarrassing, and we must rely on the culture for a definite diagnosis. If we wait for a report from the Board of Health, much valuable time is lost and the chances of recovery sometimes are decidedly diminished.

Under present circumstances one is exceedingly fortunate to receive from the Board of Health a report under 36 to 48 hours. I think it would be a good plan if the profession could adopt methods whereby a report could be obtained more promptly. With our modern means of communication, the report should be received in from 15 to 20 hours after the culture is taken, and then we could safely wait for this report before giving antitoxin.

This is merely a suggestion, but the following will illustrate the difficulty:

CASE I.—R. P., a lad of 12, after two days' indisposition, developed fever, prostration, and sore throat. When first seen at 8.30 p.m. his temperature was 101°; his throat was greatly swollen, and there was a grayish-yellow exudate on the right tonsil. The following morning his temperature was 101° and the membrane had spread to the other tonsil, practically covering both. The cervical glands beneath the angle of the jaw on both sides were enlarged and hard; there was great difficulty in speaking and breathing, and a very offensive odor. Clinically, this was true diphtheria, and yet repeated cultures showed a pure growth of staphylococci. If I had been compelled to wait for a report from the Board of Health I would surely have injected antitoxin.

CASE II.—The patient, who was a maid in the Presbyterian Hospital, became sick at a time when diphtheria was present among the inmates. She had fever, prostration, and an intensely injected throat; deglutition was very painful, but there was no membrane. Repeated cultures showed diphtheria bacilli present. The cultures became negative some time after the symptoms disappeared.

The next case was so instructive to me that I will give a detailed report:

CASE III.—M. D., a probationer of ten days from the interior of the State, had not passed her physical examination for the training school. A nurse in training, with whom she had been intimately associated, had been sent to the isolation ward two days previously with diphtheria. On May 23, 1901, at 9 a.m., she complained of sore throat and malaise; her temperature was 100°, pulse 100, respirations 24. Examination showed a violently red throat, with a grayish-yellow patch covering the right tonsil.

Owing to the existing circumstances, she was sent to the isolation ward at once, and 2,500 units of antitoxin given. A culture was immediately taken, which showed a pure growth of streptococci, as did a culture on each of the two following days. By the fourth day the membrane had quite disappeared, but as the fever and other general symptoms were worse, she was sent, after an antiseptic bath, to the private floor.

The temperature remained irregularly remittent and intermittent throughout the disease, varying from 96.2° to 105.2°. Accompanying this irregular temperature there occurred series of chills, chilly sensations, and sweats at irregular days and hours, numbering ten in all. Numerous tonsillar abscesses developed, first on one tonsil and then on the other; these had to be freely drained. During this time the patient was very sick, nausea and vomiting were of frequent occurrence, and it was with the greatest difficulty that she was able to take sufficient nourishment. Emaciation and anemia were progressive and marked.

The blood-examination showed four negative reactions (Widal); these were made on the sixth, ninth, twelfth, and sixteenth days of the disease. Repeated examinations for the malarial organism were also negative. On the twelfth day of the disease the blood showed hemoglobin, 52%; red blood-cells, 4,020,000; leukocytes, 14,400. On the twenty-fifth day of the disease, hemoglobin, 43%; red blood-cells, 3,440,000; leukocytes, 8,600. On the thirty-fifth day, hemoglobin, 45%; red blood-cells, 2,500,000; leukocytes, 4,500.

The quantity of urine was always low, varying from 14 oz. to 35 oz. in 24 hours. A few days it was over 40 oz. The specific gravity varied from 1.012 to 1.026. Albumin in moderate amounts was present in 29 consecutive examinations, 7 of these showing granular casts. Whether or not albumin was present before this illness we do not know, for, as before stated, the patient had not yet been admitted to the training school. She finally recovered.

These cases illustrate the difficulty of an early decision between diphtheria and other infections of the throat by clinical means. In numerous instances it is perfectly easy by the symptoms and appearance of the throat to be absolutely certain of the diagnosis, but there are other instances in which it is absolutely impossible to differentiate without the culture. The profession and laity would be relieved of great inconveniences if arrangements were completed whereby cultures sent to the Board of Health were more promptly reported.

THE PROBLEM OF IODIDS, NOT POTASSIUM IODID.

BY

RANDOLPH BRUNSON, M.D.,
of Chicago.

To the Editor of *American Medicine*:—Concerning the internal administration of potassium iodid, I would say that my experience in giving iodids while practising at Hot Springs, led me to stop the administration of potassium iodid several years ago. My reason for doing this was that I frequently noticed what I thought to be an idiosyncrasy for potassium iodid in many patients, so I consulted a professional friend whose experience extended over many years and he suggested that I try sodium iodid and the result would be different. Since that time I have not prescribed potassium iodid, but have given pounds of sodium iodid with markedly few instances of stomach intolerance of the drug. From my deductions it is patent to me that the intolerance was not caused by the iodine but by the potassium salts. The usual minimum dose prescribed is 1.25 cc. (20 m.) of a saturated solution in a glassful of water three times daily, one half hour after meals. This dose can be increased .3 cc. (5 m.) daily up to 24.64 cc. (400 m.) three times daily if desired or to the point of iodism. During the administration of the heroic doses the patient is instructed to drink copiously of water. I believe it essential to give large doses of iodids to obtain the best results, as they are very rapidly eliminated from the system and we cannot get the best effects by giving small doses. In this connection I will say that the administration of some form of mercury is usually necessary in conjunction with the iodids in those old, tertiary manifestations of syphilis, as well as in the secondary period, if we wish to obtain the desired results.

Quarantine Problems.—The officials of the Superior Board of Health of Mexico City say that the quarantine problems lie wholly in the hands of the Texas authorities. Dr. Tabor may send as many inspectors into the Mexican republic as he chooses, and they will be courteously received and will also receive assistance on the part of the Mexican authorities everywhere. These inspectors accomplish quite as much as if they were officially recognized. The quarantine matter has been taken up by the Foreign Relations Department of Mexico and the State Department at Washington.

ORIGINAL ARTICLES

CARCINOMA OF THE ESOPHAGUS.*

BY

W. M. L. COPLIN, M.D.,
of Philadelphia.

Professor of Pathology, Jefferson Medical College.

Tumors of the esophagus are not of common occurrence. Of the benign neoplasms, fibroma is the most frequent; it may be in the submucosa, interstitial or polypoid. Rarely the polypoid or pedunculated fibroma is so situated that it may be vomited or regurgitated into the pharynx and give rise to symptoms of suffocation, relieved by swallowing. Rokitsky¹ reported a smooth, lobulated fibroma 7 in. long and 2½ in. wide. Sarkisoff² reports a fibroma of the esophagus that underwent necrosis and was vomited; the patient recovered. He thinks the tumor was located near the sixth dorsal vertebra. A few cases of myoma, lipoma and adenoma of the esophagus have been recorded. Such tumors, however, are very rare.

Howard³ reports a primary sarcoma of the esophagus with metastases to the cardiac end of stomach. In individuals under 25, sarcoma is more common than cancer. It usually involves the lower third of the organ. Of the 12 reported cases of sarcoma of the esophagus, most were in males; 9 of the 12 were in the lower half of the organ; the tumor usually surrounds the lumen, but in 3 cases it was pedunculated or polypoid.

There were symptoms of obstruction in 11 of the 12 cases; perforation or involvement of respiratory organs occurred in 4. All varieties of sarcoma except angiosarcoma have been reported; 25% are of the round-cell variety. Metastases were present in 5 of the 12 cases and in 2 the metastases were widespread. Sarcoma of the esophagus runs a more rapid course than cancer. Since the publication of Howard's paper, v. Eicken⁴ has reported a spindle-cell sarcoma of the esophagus.

Carcinoma of the esophagus is usually regarded as rare even when compared with cancer of other parts of the body. Of 7,290 cases of cancer collected by Williams, 2,669 were in men and of these 5.3% were primary in the esophagus. Of 4,628 cases of cancer in women, the primary lesion was in the esophagus in 0.7% (35). Kraus⁵ does not think cancer of the esophagus so rare as usually is held; he gives the esophagus about the fifth place among the organs in which carcinoma occurs. Tanchon⁶ in 9,118 cases of cancer, found 13 of the esophagus and 2,303 of the stomach.

Although a disease of advanced life, it is not unknown in the young; Heiman⁷ recorded a case in a patient of 19, Stewart⁸ in a patient of 23, and Harris⁹ in a man aged 21. Most patients have passed 40, and 35% of them are between 50 and 60. The great preponderance of patients is males; of 772 cases of esophageal cancer collated by Kraus, 584 were in males; but 12 of Butlin's¹⁰ 59 patients were women; Rolleston¹¹ states that of 55 cases of carcinoma of the esophagus collected by Wilson from the postmortem books of St. George's Hospital, 8 were in women, and of 510 cases gathered by Newmann, 108 were in women; women are attacked earlier in life (about forty-fourth year) than men (about fifty-fourth year) (Butlin); of Emanuel's 6 cases, 5 were in men between 51 and 55 years and 1 in a woman, aged 33.

The exciting cause of cancer of the esophagus, like cancer in general, is as yet not known. Many predisposing factors have been given more or less importance, some of them clearly more than they deserve. In this article it is not my purpose to include cancer of the esophagus resulting from metastasis or direct extension,

but mention should be made of those rare cases of esophageal carcinoma resulting from involvement of the organ by tumors arising in the pharynx, tongue or stomach. That trauma or irritation of some kind may have something to do with the development of esophageal cancer is indicated by the fact that such growths are most frequent where the organ is most exposed to insults from bodies during their transmission through its lumen. Zenker¹² thinks it may depend on chemie, thermal, or mechanical irritation. All writers lay some stress on alcohol as a possible cause. Körner¹³, Voelcker¹⁴ and Leberts¹⁵ suggest that it is favored by the mechanical irritation resulting from enlarged periesophageal or peribronchial glands. Ritter¹⁶ thinks an esophageal diverticulum may constitute a point from which cancer can arise. Henoch¹⁷, Kraus¹⁸, Deininger and others attribute a certain influence to hot foods or bolting large boluses. Wendland¹⁹, Fritsche²⁰ and others have implicated hot or cold draughts. Ritter²¹ thinks a traction diverticulum may constitute a point of lessened resistance in which carcinoma may arise. It is easy to appreciate that any pouch or "silent area" in which food could lodge or other irritants prolong their action, might be similarly disposed. Leberts found a plum seed in a carcinoma and suggests that such foreign bodies may be causes. Röpke²² reports an esophageal carcinoma developing out of a scar. Wolf²³ reports two cases of carcinoma of the esophagus associated with spondylitis deformans, and briefly records a third case observed by Orth, and states that Schmorl knew of two additional cases.

With regard to location, authorities are not agreed. J. Solis-Cohen²⁴ does not think that any particular division of the esophagus is especially prone to the disease. Recklinghausen taught that cancer of the esophagus was most common where the organ is crossed by the left bronchus. Similar views were held by Virchow²⁵, Harrison Allen²⁶, Zenker²⁷, and Klebs, Rindfleisch, König and some other textbook writers. In 901 cases collated by Kraus 44 involved more than one part of the organ; 397 were in the lower third, 302 in the middle and 158 in the upper third. Von Hacker in 131 cases found 13 in the neck region, 53 in the neighborhood of the bronchial bifurcation, 36 in the hiatus and 29 at the cardia, making the numbers for the various thirds, from above downward, 13, 53 and 65, respectively. Butlin observes that if the esophagus be divided into upper and lower halves the tumors will be fairly equally distributed in the two parts. In Newmann's²⁸ 445 cases, 227 involved the upper part of the esophagus; 120 were situated in the lower and 98 in the middle third. According to Gross²⁹ the most frequent site is behind the larynx; Osler³⁰ says the upper third, and Pepper³¹ in order of frequency, names the region of the cardia, bronchial crossing, and cricoid area; Zenker and v. Ziemssen agree with Kraus and v. Hacker.

With regard to the type of cancer all records show that squamous-cell epithelioma is by far the most frequent; other types of carcinoma of the esophagus are exceedingly rare. Butlin's cases consisted of 54 squamous-cell, 3 scirrhus, 1 medullary and 1 colloid. The colloid spoken of by Butlin, and one observed by Eppinger³² are exceptional. The adenocarcinomas are usually at or near the cardia; they may be extensions from primary growths in the stomach or possibly some of them arise from ectopia of gastric glandular elements abnormally placed in the lower part of the esophagus. Of the origin of esophageal cancer from glands in the mucosa too little is known to justify any sweeping deductions.

Anatomically cancers of the esophagus assume many forms. Papillary growths, irregular projections, polypoid masses that may or may not be lobulated, bossed or fissured, infiltration of the wall of the tube tending to encircle, but rarely doing so, and irregular linear masses which may or may not ulcerate, constitute the most

* From the Laboratories of the Jefferson Medical College Hospital, and the Philadelphia Hospital. Read before the Philadelphia Pathological Society, April 14, 1904.

common forms. Kraus cites cases in which all but a few centimeters of the tube were involved; in other cases, as in the one reported in this paper, large nodular masses develop attached to the esophageal wall by relatively narrow stalks; this type ulcerates slowly. It may give rise to marked obstruction that disappears with the advent of necrosis even before destructive ulceration approaches the esophageal wall. This misleading clinical phenomenon is particularly remarked upon by Arnold.³⁵ Ulceration was absent in but 5 of 54 in Butlin's series and in 3 of the 55 St. George's Hospital cases. Isolated patches of ulceration occur. In types not taking on this polypoid character or having assumed that form and later by necrosis lost the external projection and finally invaded the esophageal wall, stenosis may be brought about by infiltration or, what is more common, the coincident increase in fibrous tissue associated with contraction may narrow the tube. As a result of the obstructive lesion there is commonly an initial hypertrophy of the esophageal musculature sooner or later followed by wasting and dilation. The more or less relaxed organ may assume a spindle form but usually the cavity created by gradual distention is largest just above, but not immediately at, the obstruction and from this point of maximum width progressively narrows to approximately the normal size at the upper limit of the organ. Of course the lower the tumor and, other things being equal, the slower stenosis develops, the more capacious the sac may be. In some instances fluids and solids may accumulate in such quantity that the consequent regurgitation appears, from necessity, to be a true vomiting of gastric contents. Such dilation may occur without demonstrable stenosis at autopsy, but, as Rolleston indicates, the differences between functional obstruction and demonstrable anatomic narrowing may be quite marked.

Some of the complicating anatomic changes are of great clinical interest. Cancer of the esophagus tends to involve the peribronchial and mediastinal lymph-nodes, the gastric glands, the air passages and adjacent blood-vessels and lungs, the thyroid and, less frequently, the pleura, pericardium and heart. When the lung is penetrated Rolleston observes that it is usually the right organ that is involved.

Treves³⁴ reports a case of carcinoma of the lower end of the esophagus involving nearly the whole length of the lesser curvature, the patient surviving a gastrostomy (at which time the diagnosis based on symptoms was verified) for 2 years and 11 months. Fütterer³⁵ reports a case in which cancer of the stomach depended upon transplantation from a growth in the esophagus. He collected six similar cases from literature. Kraske has reported two instances of cancer of the rectum with transplantation below. When the esophagus is perforated by the growth, the trachea may be involved; in Zenker's 120 cases of perforation the air passages were affected in 70; in 26 one bronchus, and in 21 the trachea was entered; in 17 the right lung and in 6 the left lung was affected. In Homan's³⁶ case there was an external opening and also perforation of the trachea.

Adenot and Cadet³⁷ report cancer of the esophagus with esophagotracheal fistula and gaseous distention of the stomach by air, thought to have passed through the trachea into the esophagus, and in that way into the stomach. Gastrostomy was done, at which time the stomach was found distended, and the organ filled and emptied during respiration in such a way as to render the operation more difficult. Three centimeters above the tracheal bifurcation exactly in the median line posteriorly, there was a mammillated projection into the trachea that contained an opening communicating with the esophagus. Sirot³⁸ has been able to collect 68 cases of esophagotracheal fistula. Adenot and Cadet do not state whether these were all cancerous or not and the original paper has not been available for examination. Since the publication of Sirot's thesis a number of cases

has been reported; the complication is not infrequent. In nearly all cases of cancer of the esophagus in which the stomach has been observed, at operation or autopsy, the organ is small, retracted, hidden under the liver, difficult to find, and, at operation, surgeons have opened the colon instead. Adenot and Cadet think that in their case during inspiration, air passed through the fistula into the esophagus, and in expiration it was forced onward into the stomach where it accumulated. They therefore hold that when a tracheoesophageal or bronchoesophageal fistula is suspected, the stomach should be percussed with care, to determine if there is any undue distention of the organ caused by aerophagy. Cade and Revol³⁹ and a few other observers have reported cases in which esophagotracheal fistulas secondary to cancer of the esophagus were entirely latent.

Ross⁴⁰ reports a cancer of the esophagus involving the vertebrae and producing paraplegia.

Bureau⁴¹ reports a cancer of the esophagus, adherent to the left auricle in which was a nodule, the size of a pea, situated just under the endocardium. There was a stenosing growth of the esophagus with ulceration and perforation into the middle lobe of the right lung. The sputum was fetid, and a pleural effusion amounting to 500 cc. was present. The patient had vomited some blood on one occasion. The muscle fibers of the heart were atrophied and infiltrated by cancer cells; the left pulmonary vein and the pneumogastric were compressed by the growth which was an epidermoid cancer. Tachycardia (160) was present.

McKendrick⁴² records an epithelioma of the upper part of the esophagus with involvement of the pneumogastric, and including both recurrent laryngeal nerves; the symptoms—slight dysphagia, dyspnea, stridor, cough, and aphonia—indicated aneurysm of the aorta. Kuckein⁴³ reports two similar cases, both diagnosed as aortic aneurysm and in both expansile shadows by the röntgen ray were produced, due to the pressure of the filling aorta upon the tumor.

Saundby and Hewetson⁴⁴ report an extensive carcinoma of the esophagus occurring in a man aged 50. He had been ill two years. There were enlarged glands in the neck and around the aorta, the latter involving both vagi and the recurrent laryngeal nerves; edema of the lungs, consolidation, and secondary deposits at the base were also present. The upper part of the esophagus for six inches was involved in a sloughing malignant growth, which projected into the lumen and bound the esophagus to the trachea, which at one point was perforated. The growth extended from the first ring of the trachea to two inches below the bifurcation—a distance of six inches. The lumen of the esophagus between these points was three times the normal size; there was no stricture at any point. The growth extended completely around the esophagus and over points involved the whole thickness of the wall. The broncholympathic glands were affected. The trachea was compressed, and a button-like mass extended into the left bronchus. The pneumogastric nerves were involved on each side just behind the bronchi. The growth was a spheroidal-cell carcinoma; cell nests were absent in both primary and secondary growths. The difficulty in swallowing depended not upon stenosis, but involvement of the musculature of the esophagus. Fluid gravitated into the stomach better than solids; hence the appearance of stenosis. The sudden attacks of vomiting appeared to depend upon involvement of the pneumogastric nerves.

The tendency of such tumors, when located in appropriate regions, to involve, usually by inclusion, any adjacent nerves may account for the occurrence of bradycardia or tachycardia, both of which have been observed repeatedly. Compression of a degree sufficient to stimulate the pneumogastric would slow the heart and stimulation of the fibers coming from the inferior cervical sympathetic ganglion would accelerate, and possibly in these facts may be found a satisfactory explanation for

the occasional tachycardia and bradycardia. The latter was present in Arnold's case, the pulse, for two months, ranging between 50 and 60.

Carcinoma of the gullet may be latent; Hödlmoser⁴⁵ reports two such cases. In both dysphagia was absent, and there were no esophageal symptoms. Unilateral paralysis of the recurrent laryngeal nerve was the most marked symptom. Some enlargement of the subclavicular glands was present, and in one case the tumor was attached to a tuberculous gland.

Emanuel⁴⁶ records six cases of cancer of the esophagus without obstruction. In two of his six cases infiltration and perforation of the trachea occurred; in three the left bronchus was perforated; in one case the growth was low and penetrated the lung. Cough or other respiratory disturbance coming on immediately after swallowing should be regarded as a symptom of laryngeal or bronchial involvement.

Dickinson⁴⁷ reports a case in which penetration of the subclavian artery occurred; S. Jones⁴⁸ records an instance of perforation of the intercostal arteries with fatal hemorrhage. Taylor⁴⁹ has been able to collect nine cases of ulceration into the aorta or its branches.

With regard to the life expectancy in these cases, much depends upon the intervention of the surgeon, who may, by gastrostomy, prolong life. Rolleston states that most patients die within a year of the appearance of symptoms, that carcinoma of the upper part of the esophagus is more rapidly fatal than when the lower third is involved, and scirrhous carcinoma progresses less rapidly than the squamous-cell variety. The last statement is not in harmony with our knowledge of the two varieties of cancer when occurring elsewhere. Pepper's observation that metastasis is less frequent than in carcinoma of other organs is correct, if we exclude certain feebly malignant epitheliomas involving the skin.

Diagnosticians will find no little difficulty in differentiating esophageal malignant stenosis from other forms of narrowing, and these difficulties will not be lessened by the findings of Soupault,⁵⁰ who records four cases in which the symptoms resembled stricture of the esophagus, but were due to atrophic retraction of the stomach, small retracted organs being found at autopsy; four similar cases are found in literature. Von Cackovic⁵¹ reports two cases of total contraction or shrinking of the stomach. In such cases the symptoms and even the results of instrumental examination may closely resemble stenosis, and hence carcinoma of the esophagus.

With regard to the treatment little can be said. Radical operative procedures directed to the neoplasm have proved disastrous, but gastrostomy or other palliative undertaking usually is regarded as most valuable. Recently Exner⁵² has treated esophageal cancer by the use of a tube of radium attached to the end of an esophageal bougie; the capsule containing the radium should have the diameter of a No. 16 bougie. He reports three cases, in all of which there was lessened stenosis, but as this may result from sloughing independently of any so-called resorptive action, the observation offers at present no conclusive evidence of specific benefit.

The following is a brief summary of the postmortem findings in a case of carcinoma of the esophagus coming to autopsy in the Philadelphia Hospital. The patient was under the care of Dr. Thomas G. Ashton, who will report the clinical details elsewhere:

H. McG., Men's Medical Ward. Patient, male, white, 63 years, native of Ireland. Admitted August 27, 1903; died January 26, 1904; autopsy held January 26, 1904.

Pathologic Diagnosis.—1. Visceroptosis. 2. Chronic adhesive pleuritis (sinistra). 3. Healed-in pulmonary tuberculosis. 4. Atrophy of heart. 5. Arteriosclerosis. 6. Chronic interstitial nephritis. 7. "Polypus" of esophagus. 8. Catarrhal gastritis. 9. Atrophy of liver. 10. Meckel's diverticulum.

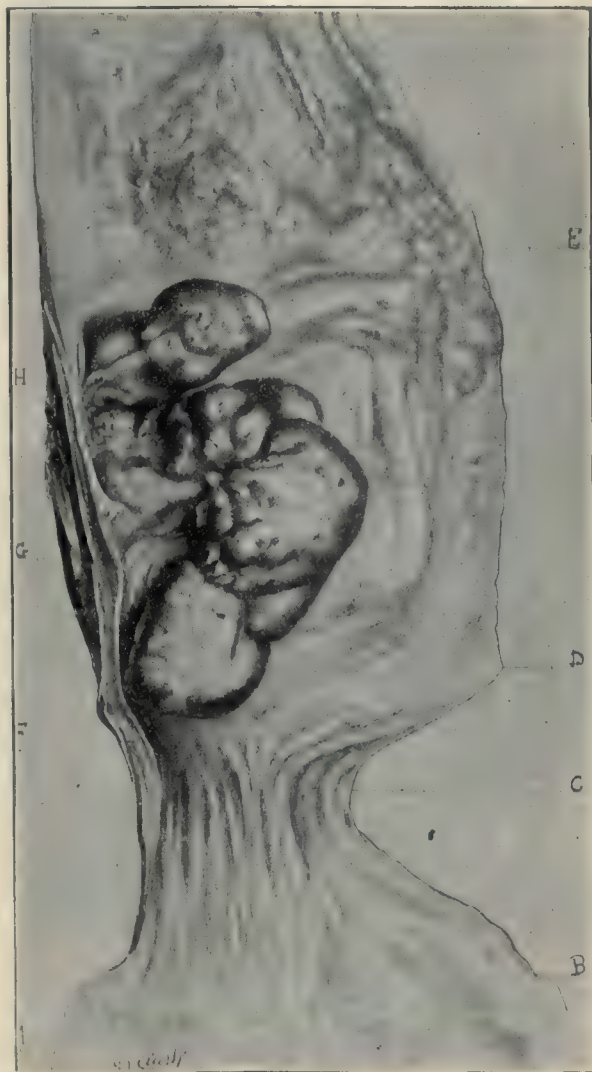
Body is that of an emaciated, aged male; marked atrophy of the muscles; scaphoid abdomen; over acromial end of both scapulas are endosseous nodes irregular and plate-like extending downward along the spines. Subcutaneous fat is scanty, almost wanting. Musculature pale, flabby, wasted.

Abdomen, marked visceroptosis; all of the small intestine lying in the pelvis, transverse colon on brim of pelvis. Duodenum just under umbilicus. Liver also prolapsed. Stomach nearly vertical.

Thoracic cavity. Left pleura uniformly adherent with old firm, fibrous adhesions. Right pleura adherent only at the base posteriorly.

Pericardium contains 100 cc. of clear, straw-colored fluid. Serosa normal. Subepicardial fat is gelatiniform.

Right ventricle contains small quantities of coagulum. Right auricle capacious and distended with clots. Left side empty. Auriculoventricular orifice on right side dilated, admits four fingers and thumb. Valves of right side normal. Marked thickening of mitral leaflets. Atheroma of valve



Squamous-cell carcinoma of the esophagus of the polypoid type. A, cardia of stomach. B to C, cardia of esophagus. C, hiatus esophagi. D to E, area of maximum dilation of the esophagus; from E upward the organ gradually diminishes in size. F, wall of esophagus. G to H, pedicle of tumor by which are attached the projecting bosses of the new growth; at the base there appears to be but slight infiltration beneath the submucosa, although the esophageal wall is slightly thickened. The line F, G, H is near the midline posteriorly from which the tumor has arisen.

bases. Aortic leaflets slightly stiff; no marked valve lesions. Coronary arteries tortuous, typical pipestems at places. Atrium of left coronary artery stenosed. Myocardium brownish, firm, contains small grayish areas. Heart weighs 250 gm. Aorta atheromatous.

Lungs: Both organs show same changes; a few old cretaceous areas 0.25 cm. by 0.5 cm. in diameter. Similar changes in peribronchial glands. Bronchi normal. Larynx and trachea show no gross lesions. Left lung weighs 500 gm.; right lung weighs 520 gm.

Spleen normal in size and color; slightly fibrous; contains numerous cretaceous nodules 2 mm. to 5 mm. in diameter. Parenchyma slightly edematous and somewhat congested. Malpighian bodies rather inconspicuous. Weight, 120 gm.

Left adrenal slightly enlarged; contains many small cretaceous tubercles. Left kidney: Cortex narrow, firm, capsule adherent, surface granular, resists incision, considerably congested, but not small in size.

Pelvis and ureters normal. Right adrenal and kidney in condition similar to the left. Right kidney weighs 150 gm.; left, 160 gm.

Bladder contracted and empty. Middle lobe of prostate slightly enlarged. Internal and external genitals normal.

Duodenum normal. Biliary passages patulous. Gallbladder distended with 250 cc. of rather thick bile, containing considerable biliary sand.

Liver slightly fibrous; capsule thickened; adhesions around gallbladder. Organ rather soft and flabby, but resists incision. Weight, 1,570 gm.

Esophagus: On opening pericardium a fusiform mass is recognized presenting on posterior wall. Pericardial surface smooth and movable over mass. No evidence of pressure on bronchi, though slightly adherent to both trunks; aorta free. On removal of chest viscera the fusiform enlargement of esophagus is better seen. It begins 2.5 cm. above the cardia, attains a maximum width of 4.5 cm. at a point 10 cm. higher. The esophagus incised on its anterior surface. Four centimeters above the cardia is found an irregular polypoid mass made up of numerous bosses, and extending in the axis of the esophagus 9.5 cm. The point of attachment of lower end (pedicle), however, is 5.5 cm. from the cardia, and extends upward 6 cm. This pedicle seems to be about 2.5 cm. in width, its accurate width cannot be determined without mutilation of the specimen. The new growth is composed of bosses varying in size from 4 mm. to 5 mm. in diameter, to larger mass 5 cm. in maximum diameter. (See illustration.) At the upper end is an ovoid, almost free polypoid mass, 2.5 cm. by 1.5 cm., intensely congested, and at one point shows beginning necrosis. The esophagus at the cardia measures 4 cm. in circumference; 2 cm. above this point (hiatus oesophagi) is a slight constriction, measuring 3 cm. in circumference. Just over the mass the esophagus seems to be widest, measuring 9.5 cm. in circumference. Just above mass, 12 cm. from cardia, the esophagus measures 8 cm. in circumference, from which point it gradually narrows to what seems to be normal lumen (4 cm. in circumference) 22 cm. above cardia. The esophageal wall seems fairly thick, but rather irregularly so, 0.25 cm. in thickness at the cardia, 0.4 cm. thick just over the tumor, 0.2 cm. in thickness at the upper end.

Stomach is contracted, particularly at the pyloric end; contains a small quantity of grumous material. Mucosa intensely hyperemic, at points almost necrotic. These changes most marked in the pyloric area. Summits of the rugae pointed and slightly eroded. Mucosa obscured by superimposed mucus.

Intestine: One hundred and eighty centimeters above the ileocecal valve is a bifid Meckel diverticulum. It is 6 cm. in length, arises from free margin of intestine, has a diameter of 1 cm.; 2 cm. from its origin it divides into two small sacs resembling the letter "Y." Its mucosa is normal, overlying serosa is somewhat thickened, otherwise intestine is normal. Large arterial trunks show considerable atheroma.

With the exception of a marked arterial sclerosis, there is no noteworthy lesion of other organs.

Histologic examination of properly prepared sections shows that the growth is a typical epidermoid cancer, a squamous-cell epithelioma with marked keratinization of the cell nests and a richly cellular stroma. A tumor possessing such a structure must be of very low order of malignancy, resembling in its architecture the least malignant of the labial epitheliomas.

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IS THE EPILEPTIC ATTACK EXPLOSIVE IN CHARACTER?

BY

J. W. WHERRY, M.D.,

of Clarinda, Iowa.

Assistant Physician Clarinda State Hospital, Clarinda, Iowa.

One feature, that of unconsciousness, has not received the attention it deserves in our considerations of the symptom-complex, known as the epileptic attack. Associated, as it is, with characteristics so much more striking in their manifestations, it has been frequently lost sight of, and, in some instances, entirely forgotten. The convulsion, while only secondary in point of time, is so startling in the manner of its presentation, that it not only challenges the attention of the observer, but usually receives it.

It is true, that in describing the epileptic attack the unconsciousness, the fall, the cry, and the convulsion, are all mentioned as constituent elements, but many textbook writers are seemingly disposed to attach little value to any of these except the convulsion, if, indeed, they do not make all other features completely subservient, and refer to the entire epileptic attack as a *convulsion*.

To speak of the epileptic attack as a convulsion is not objectionable in a general way, if this loose and imperfect manner of expression does not eventually lead to loose and imperfect ideas regarding the real nature of the epileptic attack. That the latter has not only been referred to as a convulsion, but that it has been believed in many instances to be nothing *but* a convulsion is, I fear, too true. Our attention has been directed exclusively to the convulsion; investigation and research have been along the line of determining, if possible, the nature and origin of the convulsion; and treatment has been restricted to those drugs best calculated to prevent the convulsion, until we are almost ready to believe that epilepsy is only a synonym for convulsion, and that the epileptic attack is merely a series of incoordinated movements.

Epilepsy is not simply a matter of muscular contractions. The epileptic attack is a complete and harmonious entity, but it is an entity made up of two separate and distinct elements, viz., unconsciousness, and convulsive movements; each existing as the result of a mutual cause, and neither bearing a more intimate relation to the other than that of fever to the chill which it follows. The chill of malaria does not cause the subsequent fever, nor does the fever precipitate or initiate the chill. The same infection that causes the chill causes the fever, and it produces each at its proper time and in its regular order; and, likewise, the causative factor back of the epileptic attack produces the unconsciousness and the convulsion, and it produces them each at its proper time and in its regular order.

The importance of this condition of unconsciousness preceding the convulsion has not always been fully realized. Our knowledge of its existence, even, is some-

what wavering and uncertain. We know that at some time during the attack unconsciousness supervenes, but statements vary regarding the time of its beginning. Landon Carter Gray says: "The typical attack of epilepsy consists of a sharp cry, an *instantaneous* loss of consciousness, in which the patient falls heavily, and the rapid supervention of tonic and then of clonic convulsions." This would lead us to believe that the loss of consciousness was not only instantaneous, but that it occurred subsequent to the cry, thus placing it after the beginning of the convulsion, so far as position in time is concerned, if, as some believe, the cry is caused by the forcible ejection of air from the lungs by the tonic convulsion.

Most definitions of epilepsy refer to the loss of consciousness as being very sudden or instantaneous, but I believe this error arises from the fact that it is difficult to detect the loss of consciousness until it is complete. When the patient falls the evidence of unconsciousness is unmistakable, and this being the first, and, possibly, only intimation of its presence, it is very naturally regarded as having occurred instantaneously. The cry, or the fall, is practically the beginning of an attack so far as the observer is concerned. But because these are the first things to attract our attention are we to conclude that nothing has gone before? Shall we say that because the fall was the first evidence of loss of consciousness, that therefore this loss of consciousness could not have been slow and progressive, but must necessarily have been as sudden and precipitous as the fall itself? On the contrary, I have every reason to believe that the onset of unconsciousness is usually much slower than we think, and that the beginning of the loss of consciousness antedates considerably the beginning of the convulsion. The difficulty is to prove this. The very nature of the situation precludes extensive demonstration. Watching a patient continuously hour after hour, while hoping and praying that an attack may occur, so that preconvulsive observations may be made, is a tedious and wearying process, and one not likely to be indulged in to any great extent. Consequently, it is only by the merest chance that light is shed upon these obscure points, and so impossible is it to obtain it except by accident, that its existence, even in a limited degree, is not to be ignored.

Not long since I had my attention called to this matter. A patient had an epileptic attack while writing a letter, and the beginning and gradual loss of consciousness can be easily traced in the writing.

This patient, a female, aged 26, has had epilepsy 14 years. She was well-formed, of good muscular development, bright and intelligent at one time, but there is considerable dementia now present. She had written one page of her letter and the illustration given herewith is from the top of the second page. Her writing on the first page is uniform with the first three or four sentences in the illustration.

The point to which I wish to call attention is the length of time which evidently elapsed between the first noticeable indication of mental confusion, and the supervention of total unconsciousness. It is interesting also to note how gradually and progressively the unconsciousness deepened, and yet the nurse sitting beside her holding the bottle of ink did not notice anything particularly unusual about her until she fell from the chair. The attack was a typical one, as all this patient's attacks were, and the fall, the cry, and the convulsion, occurred in their regular order and with the degree of severity usually observed in her case. She was subject to attacks about every third day, and since this letter was written I have been present at the beginning of attacks a number of times but have never been able to notice anything unusual in her behavior until she fell.

This letter has been preserved as it fell from her hands.

Since my attention has been called to the matter, however, I have observed indications of mental confusion deepening into unconsciousness in several epileptics just prior to the convulsion. One patient picks away aimlessly at her clothing; another unbuttons and buttons her dress; another attempts to unlace her shoes; another claps her hands; while another, not now in the hospital, would run the length of the hall, upsetting

everything and everybody in her way, thus furnishing a good illustration of the *epilepsia cursiva* of Bootius.

Gowers¹ says: "I have known a patient always to turn around and retrace his steps, and another would spring up and jump about the room a few seconds immediately before an attack." Many such instances have been noticed by various observers, but why say these coordinated, but meaningless, movements occur before

I have to say this is a nice day, I have to say
the birds are singing. I have to say I hope
you go to chapel every Sunday and hear about
Jesus. I have to say we went out walking today,
we went out walking today, out walking today,
outside went outside we I have to say we
walking outside walking I have to say
say I have to say we walked
we walked we walked we walked
we walked we walked we walked we walked

the attack? Are they not more properly a part of the attack? Do they not indicate, obviously, the gradual loss of consciousness, which is doubtless present in all cases of epilepsy, even though, as in the case illustrated, there is no visible evidence except as secured by accident?

This initial stage of gradually increasing loss of consciousness gives rise to peculiar and confused sensations, to which the name aura has been given. This aura is probably present in practically every case of true epilepsy, though it is impossible to know the real facts in the case, but authors, in describing this phenomenon, base its presence or absence, not on the real facts of its existence, but on whether or not the patient has any recollection of it after the attack. If the sensations experienced during this period are remembered, and the patient gives expression to them after the seizure, they are referred to as an aura, but it is readily seen that, in other cases, the complete obliteration, during the period of total unconsciousness, of all power to recall these sensations subsequently does not necessarily preclude their existence.

I append another illustration to show that the epileptic attack is not explosive in character, and that the phenomenon of unconsciousness exists previously to, and independently of, the convulsion. If the unconsciousness is due solely to the explosive character of the convulsion, then there could be no loss of consciousness until after the convulsion had been initiated. If, in other words, the epileptic attack is due to the explosion of motor nerve-cells alone what, then, causes the unconsciousness? Or, if all the phenomena attending the epileptic attack be due to this motor cell explosion, how could there be any evidences of mental confusion, or approaching unconsciousness, or, indeed, of any loss of consciousness until after the cry? To build up a theory of epilepsy on the evidence of motor cells alone is to build neither wisely nor well, for the truth remains that unconsciousness occurs in advance of the convulsion, and this fact means much more than appears on the surface.

The following is taken from the *Journal of Insanity*, Vol. xxx :

A young printer employed in this city is an epileptic, and frequently has a fit while composing, which results in making "pi" of what he has in his "stick." A short time since he had one of his attacks, but fortunately the matter was preserved, and a proof taken as follows:

The annual meeting of the County Convention of Young

Men's'n's Chri Ctiisrshian years days associations, was asholcia-cation, afforited for the fter cas chere choredess:—

For the purpose of comparison, I append the sentence as it should have been set up, and as it finally appeared in the paper:

The annual meeting of the County Convention of Young Men's Christian Associations, was held at Westborough, yesterday. Officers for the ensuing year were chosen as follows:

This is interesting as showing the time that elapsed, and especially the number of movements that were executed between the beginning of the disturbance and the entire loss of consciousness.

Anyone who is at all familiar with the process of setting type will recognize that the placing of the individual letters composing the above extract in the "stick," and afterward justifying them, as was apparently done in this case, would require some time under the most favorable circumstances. Taking into consideration the fact that the gradually increasing mental condition would necessarily diminish the speed, we can get a fair idea of the length of time involved. Notice also that while setting the words, "The annual meeting of the County Convention of Young Men's," his mind appears to have been clear and his ideas connected, and even from this point on there is a continuous thread of fact running through all his confusion, as may be seen by comparison with the paragraph as it should be, though the thread dwindles to the merest filament as it approaches complete unconsciousness.

The disposition to look upon the fall, or the "initial cry," or, in the absence of either, the tonic convulsion, as the real beginning of the attack, has led us to regard the explosive theory of epilepsy with more or less favor. In fact, the convulsion itself has, by its very nature, riveted the attention until it has succeeded in attaching to itself a degree of importance out of all proportion to its weight and position in this symptom-complex. It has been regarded as the one original and primal symptom of the epileptic condition, all other symptoms being merely incidental thereto, or, at best, holding only the subservient relation of offspring to parent. The narrowing of the glottis at the moment when air is expelled from the chest by the tonic convulsion is said to produce the epileptic cry; but when this principle is carried further, and it is said that the convulsive contraction of the muscles of the extremities causes the fall, and the explosion of motor energy in the brain, at the beginning of the convulsion, produces the unconsciousness, then it becomes evident that the convulsion has been unduly exalted to the position of a prime cause, instead of being regarded as a later manifestation of the same original cause which produces the unconsciousness.

The condition of unconsciousness and the convulsion bear no closer relation to each other than that they are both the result of an identical elemental cause, each representing a stage in the epileptic attack. That the unconsciousness precedes the convulsion must, I believe, be conceded. Both the convulsion and the loss of consciousness must occur to produce the true and, as I hold, the only epileptic attack. Consequently, investigations prosecuted for the purpose of discovering the prime cause of epilepsy must ever keep this fact in view. The investigator who looks only for the source of the unconsciousness will fall far short of the end he seeks, and he who singles his eye exclusively to the origin of the convulsion will be doomed to disappointment; while he who believes that the unconsciousness and the convulsion are identical, that they are the same thing, one and indissoluble, that they may occur at one time in the form of unconsciousness, and at another time in the semblance of a convulsion, or, indeed, if he believes that the diagnosis of an epileptic attack can be safely based upon the existence of either, neither, or both of these conditions, then is he indeed entangled.

If this be true, then it must be allowed that in a typical epileptic attack the original cause must be of such a nature as not only to produce unconsciousness, but also to occasion a convulsion. Anesthetics, alcohol, opium, and other toxic drugs may cause unconsciousness

without convulsive movements. Irritation of the cortex will produce convulsive movements, but these are not necessarily accompanied by unconsciousness. Hence the cause of the epileptic attack need not be looked for in these or similar sources. The production, or the occurrence of a convulsion, without partial or complete loss of consciousness, would not be an epileptic attack, any more than the involuntary muscular contraction of a malarial chill, or the convulsive shivering due to exposure to cold, or the muscular spasm of tetany, or any other spasmodic contraction of the muscles would be epilepsy. Nor, on the other hand, would unconsciousness, even though accompanied by a cry, a fall, and possibly, biting of the tongue, be properly called epilepsy in the absence of any convulsion.

It is true that we are frequently asked to consider epilepsy as a momentary loss of consciousness; as a loss of consciousness in varying degrees without convulsion; as a convulsion in varying degrees without loss of consciousness; as a maniacal manifestation without loss of consciousness and without convulsion; and all of the foregoing in an unlimited number of varieties, but the wisdom of so doing may be seriously doubted. Most diseases, when well understood, present a pretty definite picture, and I am of the opinion that the numerous and, apparently, contradictory forms of epilepsy as now given are only an evidence of our lack of knowledge on the subject, and the establishment of so many varieties may be regarded as merely an indication of the manner in which we are reaching out for the truth.

The treatment of epilepsy must ever remain unsatisfactory so long as it is directed exclusively toward the convulsion, or, for that matter, exclusively toward the unconsciousness, or exclusively toward any other single symptom of the epileptic condition. Antispasmodics may be effective when used simply for the purpose of counteracting purely convulsive causes. Bromids may act very satisfactorily when used as a sedative in the presence of cortical irritation alone, but in epilepsy cortical irritation does not stand alone; it is only half the story. It is not a simple convulsive cause that we wish to attack. If this were all, its accomplishment would be a matter of comparative ease. It is a cause that produces a convulsion, but that is not all; it is a cause that produces unconsciousness and a convulsion. Here is the key to the situation: Keeping in mind the fact that the onset of the epileptic attack is not dynamic or explosive, and that the prime cause of epilepsy is an element, toxic, infectious, or what you will, possessing a double characteristic: (1) to produce unconsciousness; (2) to cause convulsions; and then remembering that treatment, to be effective, must be directed toward those causes only which possess within themselves these two qualities.

A large number of drugs will cause convulsions, when administered in toxic doses, and, likewise, many poisons will produce unconsciousness; but there seems to be very few which cause both unconsciousness and convulsions, especially with the unconsciousness preceding the convulsion. Camphor, belladonna, strychnin, digitalin, aconitin, physostigma, codein, picrotoxin and cocain, all induce convulsions when given in large doses, but there is no unconsciousness. Morphin, nitroglycerin, chloral, chloroform and ether, produce unconsciousness, but no convulsion follows, while the administration of hydrocyanic acid, or carbonic oxid, gives rise to both unconsciousness and convulsions.

It is more than likely that the drugs or toxins causing convulsions do so as a rule by direct and irritating action upon the nerve cells; while those drugs or toxins producing a condition of unconsciousness do so by interference with the oxidizing processes in the blood, or with the supply of blood itself. Camphor, belladonna, strychnin, digitalin, aconitin, physostigma, codein, picrotoxin, cocain, and other purely convulsive drugs produce no known changes in the blood, merely using it

as a vehicle; but, on the contrary, the drugs causing unconsciousness, such as morphin, nitroglycerin, chloral, hydrocyanic acid, and carbonic oxid, all produce noticeable blood alterations.

In Brunton's *Materia Medica* I find this statement: "I found that after the exhibition of opium the vessels of the submaxillary gland no longer dilated, but on the contrary contracted, on stimulation of the chorda tympani, and that the blood which issued from the gland was not of a bright arterial hue, but was very dark, and flowed drop by drop." Also this: "Hydrocyanic acid appears also to form a compound with hemoglobin, which is much less stable than that of carbonic oxid." This hydrocyanic acid compound, while less stable than that of CO hemoglobin, is shown to be much more stable than that of methemoglobin, and appears to occupy a position between these two. Like CO hemoglobin it is sufficiently stable to resist the action of any reducing substances originating during the asphyxial convulsion which follows the administration of this drug, and is consequently very deadly in its nature. Brunton says of nitroglycerin: "It diminishes the oxidizing power of the blood and communicates to it a chocolate color," and the production of unconsciousness is doubtless due to this diminished oxygenation.

Chloral has a similar effect upon the blood and its chief value as a hypnotic depends upon its power to lessen oxidation in the brain. Indeed, one important symptom in poisoning by chloral is that the bodily temperature falls steadily and rapidly, and this, too, "when the animal is wrapped in cotton wool, or is put in a warm place."

Carbonic oxid locks up the oxygen in oxyhemoglobin and forms CO hemoglobin, which is a stable compound. Animals poisoned by CO therefore die of asphyxia, the internal respiration being arrested, and the blood remains for a long time of a florid color. "Reducing substances accumulate rapidly during the process of asphyxia but CO hemoglobin, being a stable compound, remains unaffected by these."

There is little doubt that all cases of unconsciousness, except those resulting from trauma or injury, may with safety be regarded as the result of an insufficient supply of oxygen in the brain, either as the result of vasomotor disturbances, as in syncope; from the loss of blood, as in hemorrhage; or from the changes which affect the supply, or the serviceableness, of the oxygen in the blood, occasioned by the introduction of poisonous drugs or toxins into that fluid. If this be true it must follow then that if a toxin does cause the epileptic attack, it must be a toxin possessing both narcotic and convulsive qualities, as neither of these alone would suffice. In other words, it must have an irritating effect on the motor nerves and also produce the necessary blood changes, if, indeed, these changes in the blood are not in themselves sufficient to produce both the unconsciousness and the convulsion.

Bartholow, in his "*Materia Medica*," says, while speaking of the physiologic action of pulsatilla: "Dilated pupils, hebetude of mind, stupor, coma, and convulsions are cerebral symptoms which occur after a lethal dose has been administered. These cerebral effects may be due to a primary action of pulsatilla on the brain, or to the carbonic acid poisoning and the anemia. When the action of the heart and the respiration are very feeble, carbonic acid accumulates in the blood, and an extreme degree of cerebral anemia ensues. Coma, convulsions, and insensibility, are natural effects of these causes." The active element in the production of coma, and convulsions, however, is not so much the accumulation of carbonic acid and the cerebral anemia in themselves, as it is the absence of oxygen, which the accumulation of carbonic acid and the anemia so clearly indicate.

Just how many causes possess these two qualities of producing unconsciousness and convulsion I do not

know, but the one internal cause which in itself will precipitate an ideal epileptic attack, so far as the loss of consciousness, the fall, the cry, and the convulsions are concerned, is the sudden and complete absence of oxygen in the brain, and this, too, no matter how this sudden and complete absence may occur. In my earlier studies I was under the impression that this absence of oxygen in the brain might occur by reason of a vasomotor spasm preventing the flow of blood to the brain. I was led to this conclusion more particularly because I had noticed that a vasomotor spasm did occur at the beginning of the tonic convulsion, and I had not then learned that the unconsciousness and the convulsion were not so nearly simultaneous in point of time as they appeared.

Later investigation has led me to conclude that the vasomotor spasm I had observed was probably a portion of the general tonic convulsion, in which practically every muscle of the body is at least momentarily involved. Further research continues, however, to fortify the theory of asphyxia and to demonstrate the possibility, at least, that the epileptic attack is caused by a loss of oxygen in the brain, and that this loss of oxygen may not be due to vasomotor spasm, but to the destruction of oxygen in the blood cells, or what is still more probable, to the locking up of the oxygen in the form of methemoglobin, thus making it practically unavailable, and producing a condition of complete asphyxia.

The oxygen in oxyhemoglobin can be readily replaced by other gases, or it may be altered in various ways by the introduction of drugs. Carbonic oxid forms with oxyhemoglobin CO hemoglobin, a stable compound, which neither takes up oxygen from the lungs nor gives off oxygen to the tissues. Those poisoned by CO, therefore, die of asphyxia, with attending convulsions. Hydrocyanic acid also forms a compound with hemoglobin, but this is much less stable than that of carbonic oxid.

Methemoglobin is a condition of the blood whereby the oxygen is locked up, or associated so intimately with the hemoglobin as to render it useless for purposes of internal respiration. This compound is not so stable, however, as CO hemoglobin, and the distinguishing peculiarity of methemoglobin is that, while it produces convulsions, it is itself reduced during the asphyxial convulsion and is again converted into oxyhemoglobin upon the reestablishment of respiration. Brunton says: "As the oxygen in methemoglobin is more firmly combined than in oxyhemoglobin the former, when at all pronounced, will cause symptoms of asphyxia; but its action differs from that of CO hemoglobin in one very important particular, viz., that it is altered by asphyxia, while that of carbonic oxid is not. Reducing substances are constantly present in the blood and tissues, and these accumulate to a greater extent during the process of asphyxia. Carbonic oxid hemoglobin, being a stable compound, remains unaffected by these, and the blood continues to circulate unchanged. But methemoglobin becomes reduced by these substances and forms the normal reduced hemoglobin ordinarily present in venous blood. When this reaches the lungs it again takes up oxygen, forming arterial blood, by which the internal respiration is again restored."

Theoretically, this subject of methemoglobin is intensely interesting, for under no other circumstances would we find the whole situation so favorable to the production of just such a condition as exists during the epileptic attack. If the toxin eliminated at this time, which may be referred to as the "cause" of epilepsy, were such as actually to destroy the oxygen then in the blood, the epileptic attack, by its very nature, would only tend to increase the difficulty by preventing respiration, and restoration, if, indeed, it occurred at all, would be a long, slow, and tedious process. If this epileptic toxin, however, simply converts oxyhemoglobin into methemoglobin, not by destroying the oxygen, but by destroying its usefulness only, until by virtue of a

physiologic process, represented by a condition of unconsciousness and a convulsion, this oxygen is again restored to its original integrity, the outlook is very different; especially when the methemoglobinic condition in itself works out its own salvation by precipitating the asphyxial convulsion, by virtue of which the oxygen is released from its bondage and the blood cell resumes its normal condition, until such time as the whole process is to be repeated.

Given a toxin that will convert the oxyhemoglobin in the blood into methemoglobin, and the problem is solved, for from that moment the process of reconstruction is identical with that of the epileptic attack. The methemoglobinic condition renders the oxygen useless, and the result is asphyxia. This asphyxia is introduced by more or less sudden unconsciousness, followed by convulsions. The result of these convulsions is the production of a largely increased amount of reducing substances in the blood and tissues. The effect of these reducing substances is to convert the methemoglobin into reduced hemoglobin, and in this process the locked-up oxygen is released. The situation is thus relieved, and respiration is gradually reestablished. The reduced hemoglobin as it reaches the lungs again takes up all the available oxygen, and this process, if complete and thorough, necessarily restores the patient to his usual condition between attacks.

If, however, the process is not thorough, the restoration will be incomplete; or if the epileptic toxin persists, and each reconstructive period is met by a fresh supply of the poison, the process will be repeated over and over again until the vital processes are exhausted and death ensues. Brunton, in speaking of methemoglobin and the manner of its reduction by means of the asphyxial convulsion, says: "Thus, unless new supplies of the poison are constantly added to the blood, the asphyxia occasioned quickly passes away." He further says:

"Certain drugs when administered to animals or taken by man produce convulsions. The muscular actions which occur in these convulsive movements may be produced by irritation of the motor centers in the spinal cord, the motor centers in the medulla oblongata and pons varolii, or cerebral cortex. These centers may be irritated directly by the action of the drug upon them, or they may be stimulated indirectly by the drug causing the blood in them to become venous through its action on the respiratory or circulatory organs, (or by changes in the blood itself). Convulsions of this sort, although caused by the administration of a poison, are really asphyxial, and are similar in character to those produced by suffocation. * * * Experiments to ascertain whether convulsions are asphyxial or not may be conveniently made upon fowls, for the venous or arterial condition of the blood is readily ascertained by the color of the comb. Thus, in fowls killed by cobra poison, the convulsions come on at the moment the comb becomes livid, and when artificial respiration is begun the convulsions disappear as the comb again regains its normal color."

It has been demonstrated in several instances that this methemoglobinic condition can be produced by the use of drugs, but the question of most interest to us is, whether or not there is any possibility of such a causative element being generated within the body. Is it possible that some active poison, or some half-formed product of metabolism is generated, which is able to convert oxyhemoglobin into methemoglobin and thus precipitate the epileptic attack?

In all nervous disorders heredity must be reckoned with, and this is true in epilepsy. Whether or not heredity plays so important a role as has been ascribed to it by its most valiant supporters is an open question. True it is that heredity can transmit a predisposition to nervous instability, and in this way facilitate the occurrence of convulsive movements, but convulsive movements are only a portion of the epileptic attack. The

convulsion is preceded by unconsciousness, and if unconsciousness precedes the convulsion it must necessarily find its origin elsewhere than in the convulsion. Consequently, while heredity may hand down nervous characteristics which predispose toward the convulsion, it would be difficult to believe that heredity could hand down characteristics predisposing toward unconsciousness, the first symptomatic step in the epileptic attack. If the condition of unconsciousness requires a definite cause, aside from any heredity, for its manifestation, is it unreasonable to believe that the convulsion, the second step in the attack, might also be the result of a definite cause acting independently of heredity? If hereditary influences are present at all is it not more than likely that they manifest themselves along the line of certain perverted functions which give rise to this possible epileptic toxin? Personally I am led to believe that back of the epileptic attack is a toxic condition which, if present in some individuals, not epileptics, would give rise to a symptom-complex identical with that found in epilepsy; and that heredity is indicated in the functional perversion which leads to the production of the prime cause, rather than in the resultant unconsciousness and convulsion.

Investigation, then, for the future should not be devoted exclusively to the convulsive feature of the epileptic attack, as it has been in the past, for when the discovery of the cause of the unconsciousness has been successfully accomplished, the cause of the convulsion will, in all probability, be found to be identical.

A CONTRIBUTION TO THE PHYSIOLOGIC STUDY OF THE NORMOBLASTS.

BY

JULIO F. ARTEAGA, M.D.,
of Havana, Cuba.

From the Laboratory of "Las Animas" Hospital, Havana, Cuba.

Hematologists have studied pretty thoroughly all the elements of the blood, but they have drawn their conclusions in the majority of instances from the study of abnormal blood. It is my purpose to devote some time and thought to the elucidation of the origin and fate of an element of the blood from the standpoint of physiology.

It has been stated repeatedly that nucleated red cells are, when present, abnormal constituents of circulating blood of mammals except the camel.¹ Furthermore, it has been asserted, that only in diseased conditions do we find erythroblasts in the blood-forming organs of the body. Of course, we are all acquainted with the presence of normoblasts and megaloblasts in diseases attended with impoverishment of blood, as in leukemia, chlorosis, pernicious anemias, etc.; but for the same reason that there is such a reaction in the activity of the blood-forming organs, in order to replace the loss of blood-elements, is it not proper to suppose that similar phenomena are going on physiologically, to replace the loss of cellular elements of the blood? That there is such a loss is beyond dispute, first because the blood is a tissue—"a fluid tissue"—and as such, subject to katabolic changes; and second, because all the pigments of the body have their origin in the hemoglobin of the red blood cells. Therefore, if we admit that there is a constant loss of red cells, we must conclude that there is a corresponding building up of new red cells in order to replace those destroyed.

Where and how are the red cells built? Are they originated as such, or are they the descendants of other cells?

It is an accepted theory among many physiologists that the normal red cells of the blood have had, like all other cells of the body, at some time of their individual existence, a nucleus. Some authorities claim that there

are certain organs of the body, which produce normoblasts, and others, nonnucleated red cells; that the spleen is an example of the former, and the liver of the latter. Again, it is claimed,¹ that many red cells which seem to be nonnucleated do have a nucleus, but that on account of the highly colored stroma of the cell it can not be made out, because its index of refraction is almost identical with that of other parts of the cells, and one must have either a well-trained eye to see it unstained, or else resort to staining. It is remarkable that an investigator like Virchow² should deny the cellular nature of the red cell, because of the absence of a nucleus. This is evidently unfair, especially so, when he himself admits that all cells are subject to modifications, even the loss of their nuclei. Indeed, he cites as an example of this the superficial cells of the epidermis, which, on losing the nucleus, die and by desquamation become separated from the body. In other words denucleation may be considered a transitional stage between life and death, and if this is true of the dermal epithelium it should not be less true of the normoblasts.

There are reasons that lead one to believe that the normoblasts are the ancestors of the nonnucleated red cells, although their presence in the normal circulating blood is difficult and unlikely to be made out, as will be explained later on, but this does not alter the fact that they are in the body, at least for weeks and months after birth.

The fact that fetal blood contains both kinds of red cells (nucleated and nonnucleated), seems to confirm this belief.

By actual experiments, I have been able to observe a preponderance of nucleated red cells, over the nonnucleated ones, during the earlier months of intrauterine life, and this preponderance progressively diminishes in the course of embryonic development. Likewise, in the blood of the newborn, there is an abundance of the nucleated variety (but less than in intrauterine life), and as the newborn becomes older, day by day one notices a numerical diminution of normoblasts and a corresponding increase in the number of nonnucleated red cells. If one considers that the liver is an organ whose function during intrauterine life is limited to the production of normoblasts, and that in extrauterine life its hematopoietic function ceases, and it then becomes engaged in the destruction of nonnucleated red cells, and other functions, we may be able to solve this problem.

The newborn needs biliary secretion, which is not available previous to birth; the biliary salts are the results of hepatic functions, and many authors claim that the chemic combination of the salts with certain elements of the blood, brings about the destruction of the red cells, and then by oxidation converts the hemoglobin into hematin and hematin, which is convertible into bilirubin and other pigments. In other words, until the liver has reached its complete development, it can not perform its physiologic functions, but during that period it is a blood-forming organ, whose activity in this respect diminishes directly in proportion to its development. Hence, I believe that the liver in the newborn is not only a nonproducer of normoblasts, and of the nonnucleated red cells, but that it is just the opposite, a destroyer of all those elements.

My experience in regard to the spleen as a blood-forming organ has been rather limited, but my results added to those of others go far in backing my belief, that the spleen is at all ages a hematopoietic organ. The constant presence (in my experiments) of normoblasts in the splenic blood of different animals (dogs, cats, rats, and human beings), is my chief argument for this assertion. Furthermore, splenectomies have shown that the spleen is an important organ in the regeneration of the blood. In Deriouginsky's case,³ for instance, the red cells diminished permanently from 4,700,000 to 4,500,000, but the hemoglobin, although falling at first to 70%, at

the end of a year, it rose again to 98%, probably because other organs compensated for the loss of coloring matter.

It is needless to attempt to show that bone marrow originates normoblasts at any age of the individual, for it has been proved repeatedly.

The claim for the lymphatic glands, so far as hematopoiesis of red cells is concerned, lacks confirmation.

The normoblastic crisis in the blood of anemic patients means a regenerative activity of the blood, and as the patient improves, the normoblasts decrease in number. Really what happens is, that the organism becomes aware of the deficiency of red cells, and sets to work to repair the loss by producing normoblasts, and as the normal number of red cells is obtained, ceases to produce so many normoblasts. But the production goes on, though in smaller degree, in order to replace the nonnucleated red cells, which are constantly destroyed by the liver in its production of bile pigments.

From the foregoing statements I feel justified in saying, that the spleen and the bone marrow are constantly producing normoblasts, but to the human eye this is made evident only when there is considerable loss of red cells, as in anemic conditions.

Naturally, the next question that presents itself is in regard to the denucleation of the normoblast previous to its advent as a normal nonnucleated red cell. I must confess, that in my experiments I have not gone deeply into this matter, and consequently I am unable to state whether karyolysis or karyorrhexis takes place, or whether Ehrlich⁴ is right in saying that the normoblast expels its nucleus, while the megaloblast gets rid of it by degeneration. Cabot⁵ says that at times the nucleus may be seen during expulsion, and may be lobulated, rounded, star-shaped, or in karyokinesis. In some of my preparations (Tables I and III) I have observed similar changes.

My opinion is, that the nucleus during extrauterine life is less resistant, more short-lived, than during embryonic life. Also, that before the red cell leaves the bone marrow or the spleen, it loses the nucleus, and that is why we do not see it in the general circulation, except in very active hematopoiesis, when a few of them escape—the so-called "normoblastic or blood crisis."

A few words as to the technic I have employed in my experiments: By glancing over the tables it will be noticed that I have limited my experiments to dogs, cats, and human beings. Williams⁶ has already experimented with oxen and hogs, and I thought it would be interesting to study the blood of some other mammals in the same manner. I have followed Williams' technic with slight modifications, but was more fortunate, because the autopsies on my animals were made either immediately or shortly after their deaths. As soon as the viscera (liver and spleen) were taken from the body I carefully washed them in running water, avoiding all contamination. Then I cut a piece from each and passed the cut surface over several slides, allowing the preparations to dry, and then proceeded to fix them for one or two minutes with the following formula (Williams'):

Mercuric chlorid.....	78 gm.
Sodium chlorid.....	28 gm.
Distilled water.....	80 cc.
Dissolve and filter.	

At first, I tried alcohol and ether fixation, also heat, but the foregoing method seems to me the best.

The preparations were colored either with Plascencia's* or Romanowsky's stain, but my preference was for a 5% aqueous solution of "hämalaun" (dry) for 30 minutes or less. This was followed by a thorough washing in distilled water, and counterstained with eosin 3% for 2 minutes. Lastly, a final washing and drying.

No coverslide was necessary in examining the preparations by this last method, and in using the immersion lens no damage was done the preparations by coming in contact with the oil.

*Plascencia's stain consists of a saturated aqueous solution of toluidin and eosin 1%.

The objects of all these steps are evident to those acquainted with hematologic examinations. Alterations in the shape, size and color of the cellular constituents of the blood, and all sources of errors are less liable to occur with the foregoing technic. Besides, this

alterations have reference to the spreading of the blood, its fixation, its staining and its microscopic examination. All these points must be borne in mind, lest we mistake certain cells and foreign bodies for nucleated red cells. And again, as Cabot³ has shown, there are normoblasts

TABLE I.—DOGS.

No. of experiment.	Autopsy date.	Cause of death.	Age.	Blood from	Time between autopsy and fixation.	Fixation.	Stain.	Results. (+ Positive. — Negative.)
1	December 12, 1903.	Chloroform.	Adult.	Spleen.	10 minutes.	Heat. Williams' formula. Alcohol and ether. Williams' formula.	Plasencia's. " " Romanowsky's Hämalaun and eosin Plasencia's. Hämalaun and eosin.	+ Very few. — (?) Defective preparation. + Nucleus stains very deeply. + A few, but not typical.
	" "	" "	" "	" "	" "	" "	" "	—
	" "	" "	" "	Liver.	" "	" "	" "	—
	" "	" "	" "	" "	" "	" "	" "	—
2	December 26, 1903.	" "	2 days.	Spleen.	" "	" "	Plasencia's. Hämalaun and eosin.	+ (?) Defective preparation. + Reticulated nuclei; some in karyokinesis.
	" "	" "	" "	" "	" "	" "	" "	—
	" "	" "	" "	Liver.	" "	" "	" "	+ Both typical and atypical; some in karyokinesis; also some megaloblasts.
3	January 21, 1904.	Traumatism.	2 months.	Heart. Spleen.	" "	" "	" "	—
	" "	" "	" "	" "	" "	" "	" "	+ But not very typical.
	" "	" "	" "	Liver.	" "	" "	" "	—
	" "	" "	" "	Heart.	" "	" "	" "	—

TABLE II.—CATS.

No. of experiment.	Autopsy date.	Cause of death.	Age.	Blood from	Time between autopsy and fixation.	Fixation.	Stain.	Results. (+ Positive. — Negative.)
1	December 20, 1903	Chloroform.	2 days.	Spleen.	10 minutes.	Williams' formula.	Hämalaun and eosin.	+ Nucleus very dark.
	" "	" "	" "	Liver.	" "	" "	" "	+ Also megaloblasts.
2	January 11, 1904.	Traumatism.	2 months.	Spleen.	" "	" "	Plasencia's. Hämalaun and eosin.	+ Few normoblasts; one or two atypical ones.
	" "	" "	" "	" "	" "	" "	Plasencia's.	Preparation spoiled.
	" "	" "	" "	Liver.	" "	" "	" "	—
	" "	" "	" "	" "	" "	" "	Hämalaun and eosin	—
	" "	" "	" "	Heart.	" "	" "	" "	—
3	February 29, 1904	" "	Adult.	Spleen.	" "	" "	Plasencia's. Hämalaun and eosin.	+ One in each preparation.
	" "	" "	" "	" "	" "	" "	" "	—
	" "	" "	" "	Liver.	" "	" "	" "	—
	" "	" "	" "	Heart.	" "	" "	" "	—

TABLE III.—HUMAN BEINGS.

No. of experiment.	Autopsy date.	Cause of death.	Age.	Blood from	Time between autopsy and fixation.	Fixation.	Stain.	Results. (+ Positive. — Negative.)
1	December 19, 1903.	Maceration.	9 months. Embryonic life.	Spleen.	2 hours.	Williams' formula.	Hämalaun and eosin.	+ Red cells coalesce; a few distinct with nucleus deeply stained.
	" "	" "	" "	Liver.	" "	" "	Plasencia's.	+ Nucleus stains light blue; rest of the cell greenish.
	" "	" "	" "	" "	" "	" "	Hämalaun and eosin.	+ Nucleus stains blue, and the cell red.
2	December 28, 1903	Premature birth.	8 months. Embryonic life.	Spleen.	" "	" "	Plasencia's.	+ (?)
	" "	" "	" "	" "	" "	" "	" "	—
	" "	" "	" "	" "	" "	" "	Hämalaun and eosin.	+ Also megaloblasts; nucleus in karyokinesis.
	" "	" "	" "	Liver.	" "	" "	" "	+ Nucleus reticulated; some lobulated.
3	" "	" "	" "	Spleen.	" "	" "	" "	+ Also megaloblasts; karyokinesis.
	" "	" "	" "	" "	" "	" "	" "	—
4	January 21, 1904.	Suppurative meningitis.	6 months.	Liver. Spleen.	10 minutes.	" "	" "	+ Only one in each preparation.
	" "	" "	" "	" "	" "	" "	" "	—
	" "	" "	" "	Liver.	" "	" "	" "	—
	" "	" "	" "	Heart.	" "	" "	" "	—

stain has the advantage of coloring the nucleus permanently.

The alterations referred to may be natural or artificial; the former may be due to physical or chemic agencies, such as temperature, moisture, presence of some chemic substance on the slide, etc.; the artificial

and megaloblasts, which may be fixed and stained abnormally, and thus assume different shapes and colors.

It must be remembered that the histologic elements of the blood in recently born animals, are so sensitive, that as Hayem⁷ says, they may become altered on coming in contact with the air, etc.

The size and position of the nucleus in relation to that of the cell, does not help us much in determining whether we are looking at a normoblast or not. The nucleus is usually centrally situated, and it is 4 to 5 microns or over half the size of the cell itself. I have found some of them however, in various stages of karyokinesis, and occupying any portion of the cell. A comparison of the stroma of the supposed nucleated red cell, with the nonnucleated, is perhaps, the only positive test. An identity in the color warrants us in considering it normoblast.

As a rule, the nucleus stains rather deeply, on account of a condensation of the nuclear chromatin.

A summary of my experiments is given in the accompanying tables.

My results, therefore, agree with some of the authorities quoted, and seem to support the views I have expressed in this work, as to the origin and fate of the normoblast, and its relation to the spleen and the liver.*

Further research is necessary, however, before we can say positively that the normoblasts are normally present in splenic blood of adult mammals and absent in hepatic blood of the same animals.

My thanks are due to Drs. Guiteras and Lebreto, and Messrs. Taylor and Gros, of this hospital, for valuable aid in the preparation of this work.

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THE PUERPERA: HER CARE AND COMFORT DURING CONVALESCENCE, PARTICULARLY THE PREVENTION OF VISCERAL PROLAPSE.†

BY

A. ERNEST GALLANT, M.D.,

of New York City.

Professor of Gynecology, New York School of Clinical Medicine; Assistant Gynecologist, Roosevelt Hospital, Out-patient Department, etc.

As parturition is, or should be the climax of a woman's life, how comes it that the sequels thereof so often leave her in a state of semiinvalidism, for the relief of which she must apply to the gastrologist, gynecologist, or other specialist?

Assuming that we have conducted the labor on strictly "aseptic" principles,¹ and have delivered the child with proper care, with minimum damage to the parturient canal; or, repaired unavoidable damage, administered ergot, nourishment, secured sleep, adjusted the binder, douchaged the breasts, zealously watched the lochia, bandaged intelligently, noted the fundus descend into the pelvis, and permitted the patient to get up the ninth to the fourteenth day; after all this care and solicitation, have we, as obstetricians, done all that can be done to render the puerperium a period of rest and recuperation from which the woman will arise a stronger and happier being, thoroughly capable of nourishing and caring for the infant so recently committed to her care? Or is it owing to our "sins of omission" that the "gynecologist reaps what the obstetrician has sown," and the dread of childbearing arises, which so many women offer as an excuse for their sin of prevention and abortion?

As a rule, when the attending physician has directed the care of the mother in carrying out the foregoing details, unless something unusual intervenes, he will

* Since the foregoing was written, I have found one or two normoblasts in the splenic blood of an adult rat, having failed to find them in its hepatic blood.

† Read before the Medical Association of the Greater City of New York, December 14, 1903.

permit her to get out of bed on or soon after the ninth day, and too often tell her, without examination, that she is all right, and leave her to find out later what having a baby can do, or rather undo, so far as her general health is concerned as compared with her condition before labor.

Why does the woman on first getting out of bed suffer from vertigo, muscular soreness and weakness, inability to walk, and why does she remain a semi-invalid for weeks and months after getting out of bed? Later on, why does she suffer backache, sacral pain, inability to walk or exercise, and fail to enjoy life as was her former habit?

A thoughtful consideration of these symptoms and examination of the patient will demonstrate that she is suffering from (1) actual muscular weakness (atrophy) due to nonuse while confined to bed; (2) well-marked abdominal distention with ptosis of several of the viscera; and (3) uterine displacement with or without a torn or lax perineal floor.

It is to these three points in the care of the puerpera that I wish especially to direct attention.

Posture Postpartum and Uterine Displacement.—After labor the uterus and its ligaments undergo retrogressive changes which eventually reduce it to natural size and position. Unfortunately this does not always take place, for we often find the uterus displaced; later causing backache, dysmenorrhea, menorrhagia, metrorrhagia, miscarriage, etc. How does displacement occur and in what way can we prevent such a distressing result?

To my mind the chief, if not the only factor in the production of postpartum displacement is the faulty position of the woman during her stay in bed. When in the dorsal posture, the heavy uterus falls backward to one or other side of the promontory, and as that organ diminishes in size, of its own weight it is carried downward along the anterior sacral wall (compare Figs. 1, 2, 3); at the same time the ligaments (broad, round, and uterosacral) are shortening, not as they ought to be in order to hold the uterus forward on the bladder, but in such a way as to accommodate their length to the faulty position of the uterus and thus support it in a faulty way.

Postpartum Tamponade.—For the prevention of this undesirable result it is our custom to insist that the puerperal woman must lie, not upon her back, but always upon the right or left side or upon the abdomen, in order to throw the fundus forward against the anterior pelvic wall and thereby compel it to involute in its normal position, that the ligaments may shorten to correspond and afford proper support when the woman gets about again. In most cases we have deemed it necessary after the uterus has descended to the level of the pelvic brim, to elevate the cervix by tamponing the vagina with sterile gauze tampons, changed every 24 or 48 hours, until the uterus has returned to its normal size and maintains its natural position. If the patient suffered from displacement previous to pregnancy, this plan can be put into practice as the best means of preventing

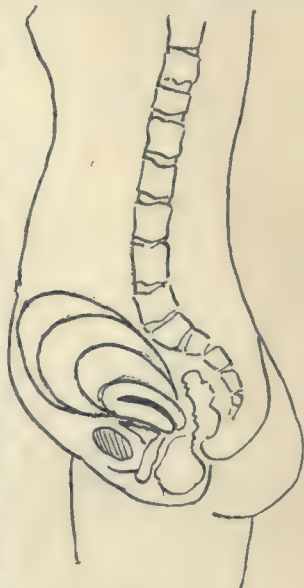


Fig. 1.

Figs. 1, 2, 3.—Postpartum posture in the production of uterine displacements.

Fig. 1.—When erect, the uterus falls forward toward the symphysis and involutes with fundus on the bladder, normal relation.

a recurrence, but it will be advisable after using the gauze tampons for two or three weeks to insert a well-fitting pessary² to be worn for three to six months or longer.

Muscular Soreness After Labor.—If a man, unaccustomed to laborious effort, were called upon to exert himself to the extent involved in bringing forth a child, we would not question his truthfulness if he complained of being sore and tired for a few days after, and would no doubt, prescribe rest and massage for his relief. Yet,

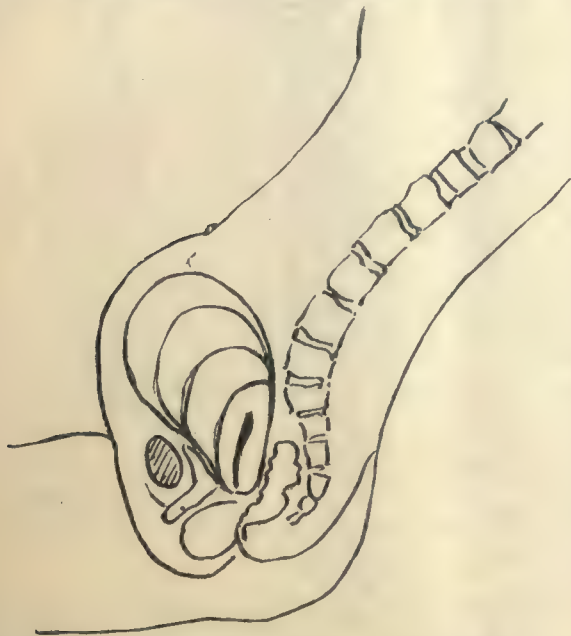


Fig. 2.—When reclining or sitting, the uterus as it enters the pelvis is forced backward against the sacrum, retroversion.

how few women, postpartum receive the same consideration and care.

Muscular Weakness.—It is a well-recognized fact that if a healthy individual be kept in bed for three or more days she will rapidly lose muscular tone and strength, which will require twice as long to regain; yet how few obstetricians and operators look at this matter from this standpoint, and endeavor to get their patients out of bed at an early date. It is a pleasure to learn that so prom-



Fig. 3.—When lying on the back, the uterus of its own weight drops against the sacrum, and contracts in retroversion. N. B.—When the woman lies upon her abdomen or on the right or left side, the uterus falls forward with its fundus over the bladder, as in Fig. 1, involution takes place in normal anteversion.

inent a surgeon as Kocher is a firm believer in the quick restoration to general, guarded activity as a means of local recovery after aseptic surgical work. It will doubtless excite wonderment among the long-term surgeons to learn that Kocher, almost without exception, sends his patients home on the seventh day after operations for hernia and goiter.³ When I was an interne at the Sloane Maternity Hospital, we noted by daily abdominal palpation the height of the fundus uteri, and

whenever that organ had contracted well within the pelvis, whether on the fifth, sixth or seventh days, or later, the patient was permitted to get out of bed; and up to the time of leaving the hospital no ill effects



Fig. 4.

Fig. 5.

Fig. 6.

Contour of anterior abdominal wall: Normal vs. visceral ptoses. Case 2.—Actual lead-tape outlines. Fig. 4.—Normal, standing, without clothes. Fig. 5.—Abnormal, standing, without clothes. Fig. 6.—Abnormal, standing, with waistband tied. X, shows point of greatest flattening. Z, shows point of greatest protrusion.

were noted, rather the contrary, the earlier out of bed the less weakness and the sooner would the woman regain her former strength.

Abdominal Distention.—The overdistention of the abdominal cavity by the pregnant uterus stretches its muscular and fibrous structures to such an extent that after the uterus has emptied itself the abdominal wall is left very lax and must undergo a process of involution not unlike the uterus, but handicapped, in that its structures do not shorten as readily, and that the intraabdominal pressure strongly tends to prevent its return to its former capacity. Among the every-day manifestations of subinvolution we find a bulging or protrusion of the abdomen from the symphysis to the umbilicus (Figs. 4, 5, 6, 8, Z), and wellmarked epigastric flattening from the latter point up to the xiphoid extremity of the sternum (Figs. 5, 6, 7, X). This abdominal relaxation if neglected will, within a few months, result in a stretching of the visceral attachments with prolapse of the abdominal organs first described by Glénard under the term "enteroptosis;" it involves most commonly the stomach, large and small intestines, and kidneys, but rarely the liver and spleen. Glénard advised the examiner to stand behind the patient, clasp his hands across the abdomen, just above the pubis; exert pressure in an upward and backward direction, thereby lifting the lax abdomen and its contents, and by this means convey to the patient a grateful sense of support and comfort; and at the same time establish the

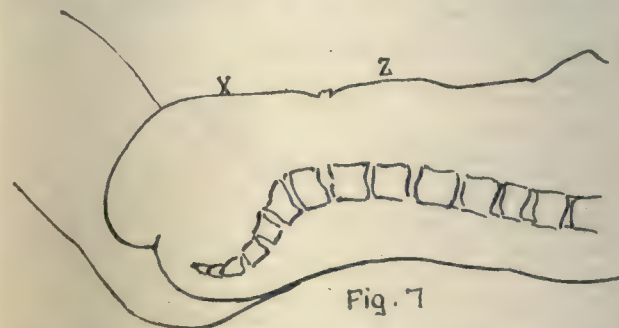


Fig. 7

Fig. 7.—Lying on back, viscera gravitate upward, abdomen flattened below umbilicus, more prominent above umbilicus, and bulging sidewise.

diagnosis of enteroptosis. This condition, as a sequel to childbed, will induce a state of chronic invalidism pitiful to behold; and the institution of vigorous measures for its prevention is one of our most solemn duties.

Prophylactic Treatment: Massage and Exercises.—During the past five years it has been my custom in obstetric cases to secure the services of a skilled masseuse, or instruct the nurse in charge how to carry out the following prophylactic measures: (a) Beginning the same evening, or shortly after the initial sleep, the body and limbs are thoroughly massaged for half an hour; this is followed by a weak, alcohol-water bath. This removes muscular soreness, stimulates hemic and lymphatic circulation, and quiets a nervous patient to such an extent that she often falls asleep while the operator is still at work. The general massage is repeated, once daily, on the second and third days. On the fourth, fifth, and sixth days, in addition to the massage, the patient is treated to passive motions of all the extremities, and enjoys it thoroughly. As the uterus diminishes in size, especial attention is given to kneading of the abdomen, with the object of promoting contraction and stimulating peristalsis and digestion. On the seventh day and thereafter active, resistant exercises

are begun, and the patient directed to raise the trunk to the vertical plane, unaided by the elbows; next to lift the legs in the same direction; then turn over upon the abdomen and alternately raise the shoulders and legs;

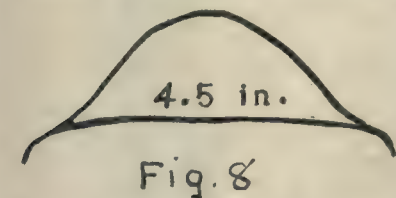


Fig. 8.—Transverse outline, between anterior superior spines (standing).

all with the idea of strengthening the abdominal and dorsal muscles, and reducing the abdominal cavity to its former dimensions. At all times, other than when exercising, the abdomen must be tightly held by a strong muslin binder (Fig. 9, photo), secured in place by perineal straps. If this binder is properly applied and kept in place, it will prevent the accumulation of gas and overdistention of the intestines. If this plan has been faithfully carried out, about the seventh day the patient is measured for one of my specially designed corsets, the measuring, fitting and putting on being accomplished while she is lying upon her back (Fig. 10).

The dorsal posture causes the viscera to gravitate toward the diaphragm, and when the corset is put on while in the semiopisthotonos position, the viscera are held in place and cannot descend, abdominal relaxation and prolapse are prevented, and owing to the peculiar construction of the corset, the stomach and kidneys are supported in their normal relation. Movable kidney cannot occur, and if prolapsed before pregnancy, the wearing of the corset will support it and prevent a recurrence of symptoms referable thereto.

Culisthenics.—As soon as the patient is feeling strong, usually by the seventh day she is instructed in light exercises, such as swinging the arms and legs; when out of bed she swings, sways and flexes the whole body at the hips. It is not necessary to enumerate details of a long series of cases, but for illustration I will outline two which show what can be accomplished by proper care of the puerperal woman and later in life.

CASE I.—Mrs. K., a physician's wife, II-para. Labor began 8 a.m., November 13, 1902, and pains recurred every two minutes, full and strong. At 9 a.m., head in brim, transversely, unflexed, occiput to the left. Digital pressure on forehead caused the occiput to engage and head to flex. With the next pain the head dropped down to the perineum, and was delivered between pains, with slight splitting of the seat of a former laceration. The girl weighed 7 pounds. Labor was completed within two hours after the first pain. After a liberal drink of whisky and 1 dr. of ergot the patient slept soundly. On awakening, a tight abdominal binder was applied and worn continuously while in bed and the two weeks following. Milk and soft diet was given every three hours. On the evening of November 15, she was given:

Extract of hydrastis.....	8.75 cc. (1 dr.)
Fluid extract of cascara.....	8.75 cc. (1 dr.)
Aromatic syrup of rhubarb sufficient to make 15 cc. (½ oz.)	

and the bowels moved nicely the next day. Shortly after the initial sleep she was massaged from head to foot, especial attention being paid to the lumbar region; this relieved the muscular soreness and proved very refreshing. This was repeated daily, and after the third day active and passive motions were carried out. From the eighth day she was drilled in the calisthenic exercises as outlined, and she thoroughly enjoyed them, so much so that she willingly continued to practise daily after getting out of bed. The uterus was reduced to within the pelvis by the seventh day and the vagina packed with sterile gauze, changed every other day for two weeks, when her husband reported the uterus in good position, and that his wife had gotten out of bed in remarkably good condition, was doing splendidly, and for this reason she had neglected to secure the special corset, which on account of previous abdominal laxness I had advised her to put on; but she delayed doing so until six weeks after confinement and was then very much surprised at the marked degree of support and comfort it afforded her. Six months later she informed me that she cannot wear any other style of corset and is free from backache and abdominal weight.

CASE II.—Glénard's Disease in Multipara. Mrs. E. H., aged 50, has had five children, the youngest aged 20; had one miscarriage 13 years ago; menopause, April, 1902. She is a thin, frail woman, much under weight, and complains of pain in the abdomen and back, especially on walking, and inability to do her housework, however light. She is very nervous, easily exhausted, appetite good, bowels move daily.

Examination of abdomen shows outlines (Figs. 5 and 6). Palpation discloses right kidney below the waist line. On percussion, the lower border of the stomach lies near the pelvic brim, with absence of gastric note above the umbilicus. A diagnosis was made of Glénard's disease, due to abdominal relaxation.

Treatment.—April 5, 1903, she was fitted with the special corset.

December 1. She has worn the same corset continuously, and ever since putting it on has been improving in health and strength; can walk, wash, iron, and do her housework without fatigue. Has gained nine pounds, and her whole appearance, especially her face, indicates a decided improvement. She has ordered a new corset, which was fitted by me December 11.

Results.—From the standpoint of an up-to-date obstetrician, it is the duty of all engaged in this line of work to devote more time and careful attention to the local and general condition of the puerperal woman, in order that she may arise from the puerperal bed in every respect a healthy individual, and not a subject for repair at the hands of the gynecologist or other specialist.

In order to accomplish this laudable purpose, it is necessary that following labor, she secure proper rest and

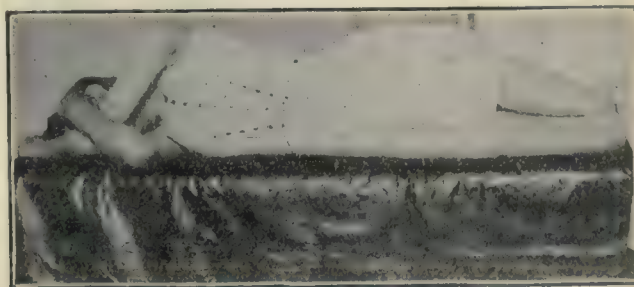


Fig. 9.—Obstetric Binder, as applied at the Sloane Maternity Hospital, New York.

food; that the bowels act freely; that by insisting on the lateral or abdominal posture, avoiding the dorsal position, we encourage the uterus to contract in its normal relation to the bladder; and after the first week by the use of tampons, overcome any tendency to uterine displacement, or prevent its recurrence, if present before pregnancy; and continue the good effect by inserting a pessary, to be worn until assured that the uterus will remain in its proper position.

For the relief of soreness, stiffness, and after-weakness, loss of muscular tone and strength while confined in bed, the prevention of abdominal laxness and subsequent visceral prolapse, the patient must receive general massage for the first three days, massage with passive and active motions the fourth, fifth, and sixth days, and be taught suitable exercises for strengthening the muscles

of the abdomen, back, and extremities during the succeeding days in bed, and practise daily after she is permitted to get out of bed.

The relaxed condition of the abdominal wall demands the constant wearing of a snugly fitting abdominal binder, held in position by perineal straps, as long as confined in bed; to be followed when out of bed by a specially fitted corset, put on while in the dorsal position, and worn continuously when not lying down.

After practising the foregoing plan for several years, it gives me pleasure to assure my confreres that by these



Fig. 10.—Semiprithotonos posture; woman lying on bed, hips raised, causing viscera to gravitate toward the diaphragm, when fastening corset, for the prevention of visceral ptosis after confinement.

means the puerperal period can be converted into a period of pleasant rest and recuperation; uterine involution takes place more quickly, more completely, and in a normal position within the pelvis; abdominal relaxation, visceral ptoses, and pendulous abdomen can be prevented; the patient can get up out of bed without vertigo, distressing weakness and helplessness, can walk about in comfort and without assistance; and with a properly fitting pessary and a properly constructed corset will have good health, nurse her child with good healthy breast milk, and most important of all, will look back on the labor and puerperal period with pleasure and pride, and anticipate future pregnancy without the horror and anguish with which her women friends have so earnestly endeavored to imbue her mind.

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FURTHER EXPERIENCES WITH INTRATRACHEAL MEDICATION.*

BY

P. S. DONNELLAN, M.D.,
of Philadelphia.

Laryngologist to St. Agnes' Hospital.

Intratracheal medication is by no means a novel procedure in the treatment of diseases of the respiratory organs, and has occupied the attention of those who have made a special study of these affections during the past 50 years. In 1855 we find that Dr. Horace Green, of New York,¹ injected a solution of silver nitrate into the larynx by means of a rubber tube, a proceeding which was unanimously condemned by the New York Academy of Medicine at the time. Nothing further was heard of this therapeutic measure until two years later,

when Bennett, of Edinburgh,² reported encouraging results in a series of cases of pulmonary tuberculosis in which he used intratracheal medication—the temperature was reduced and a general gain in health was reported in each instance.

Jarrige³ has recorded favorable results from intratracheal medication in cases of pulmonary disease, especially when complicated with fetid and copious expectoration. Similar observations are reported by Stewart,⁴ Clerc,⁵ Botey,⁶ Anderson,⁷ Brancaccio,⁸ Desroches,⁹ and Thompson,¹⁰ for the details of which I refer you to their original articles. Campbell¹¹ has given intratracheal medication an exhaustive trial in a series of cases comprising asthma, bronchitis, bronchorrhea, pulmonary tuberculosis, hemoptysis, and abscess of the lungs. He injected medications into the trachea over 4,000 times with almost invariably beneficial results, even in the inevitably fatal cases of pulmonary tuberculosis; relief from cough, pain, and expectoration was experienced.

McKinney¹² reports uniformly satisfactory results from intratracheal medication in a series of cases ranging from simple bronchitis to early pulmonary tuberculosis.

I have been interested in the subject of intratracheal medication for several years, and reported in a paper read before the Section of Otology and Laryngology of the College of Physicians, of Philadelphia, December 18, 1901, a series of cases of acute and chronic respiratory diseases in which treatment by this method was followed. It seemed to me a much more rational and satisfactory way of dealing with this class of cases than the usual plan of medication by the stomach, which only too frequently disordered the digestion without relieving the pulmonary condition. This is especially true of pulmonary tuberculosis, in which it is of the utmost importance that the strength of the patient be maintained by perfect digestion and assimilation.

In my earlier experiences with intratracheal medication, I used the Muir syringe, but I found that the wide barrel of this instrument obscured the line of vision and that the canula could not be guided into the trachea with certainty. After a series of experiments, I found that an annealed glass syringe with a barrel of two drams capacity, and fitted with an asbestos plunger, was the most practical instrument. The piston of the syringe has a glass ring for the thumb, and to the barrel is attached a revolving metal collar with rings for the insertion of the middle and index fingers of the right hand—a device of much value in steadying the instrument during its use. To the syringe is attached by a screw-thread, a canula of nickel-plated metal; it is bent at a right angle, and has an olive-pointed closed tip, with four fine lateral openings near the end—an advantage over the open tip, which discharged the injection too freely, producing paroxysmal coughing. The entire instrument can be readily sterilized by boiling (see Fig.).

In giving an intratracheal injection the technic I have employed is as follows: The larynx is first anesthetized with a 4% solution of cocain; the syringe is then charged



* Presented at the annual meeting of the Eastern Section of the American Laryngological, Rhinological, and Otological Society, Fall River, Mass., January 30, 1904.

with the selected medication, previously heated to about 102° F., two drams being the amount employed. The patient is instructed to protrude the tongue and to hold its tip in a napkin, while the operator, guided by the laryngeal mirror, inserts the tip of the canula between the vocal cords and, while the patient takes a deep inspiration, the injection is slowly discharged into the trachea. Care must be taken that the fluid does not enter the esophagus instead of the trachea; that the injection is given during inspiration only, and that the tip of the canula is not allowed to touch the fauces, the base of the tongue or the epiglottis.

If these details are faithfully carried out the patient does not experience any unpleasant after-effects, but on the contrary, is impressed with the beneficial results obtained by the injection, which can be felt for several hours over the entire pulmonary area. In many instances I have detected the odor of the medication in the patient's breath 12 hours after the injection was given and have been able to demonstrate to the satisfaction of the patient and the attending physician the presence of the injected fluid in a pulmonary cavity of a tuberculous patient.

In suitable cases the expectoration is diminished, not only in quantity but in viscosity—the latter result being very marked—the heavy, nummular masses of mucopus being replaced by frothy mucus in which the tubercle bacilli are less numerous and are occasionally absent. The injections are given at first daily and then at lengthening intervals as the patient improves.

The vehicles I have found most satisfactory for the injections are any of the fluid petroleum oils. Pure olive oil or distilled glycerin is also excellent for the purpose. Added to these, the medications found most serviceable are creasote, menthol, guaiacol, camphor or chloretone, in 1% to 4% solutions either singly or in combination—the medicament being varied to suit the individual case and other drugs added according to the indications present; thus, when irritable cough was a prominent symptom 8 mg. ($\frac{1}{2}$ gr.) of codein or morphin was added with advantage. Or, when fetid bronchitis was present, 32 mg. ($\frac{1}{2}$ gr.) of iodoform or of potassium permanganate was found to be a useful addition to each injection.

The following brief notes from my case records will indicate a few of the types of cases in which I have found intratracheal medication of service.

CASE I.—H. R., aged 49, male; consulted me in October, 1900, giving a history of constant cough with mucopurulent expectoration, and gradual loss of flesh and strength for about a year previously. His family history was negative as regards tuberculosis. Physical examination revealed abundant moist rales in the larger tubes with prolonged expiration over the entire pulmonary area, but no impaired resonance. His laryngeal mucous membrane was intensely hyperemic and somewhat swollen and his vocal cords were congested. Tubercle bacilli were found in his sputum in large numbers by different competent observers. He had a daily evening rise of temperature about 101°, and a morning subnormal remission. A diagnosis of diffuse pulmonary tuberculosis was made and, as the patient was a man of ample means and abundant common sense, he was frankly told of his condition so as to insure his cooperation in the proposed treatment. He was placed in the best possible hygienic environment, living an open-air life in the suburbs of Philadelphia, and his strength was maintained by generous diet and tonics. He was given a daily intratracheal injection of 7.5 cc. (2 dr.) of a 1% solution of creasote with 2% of menthol in olive oil. At the end of two weeks he began to notice that his cough was decidedly less, that his expectoration had diminished and that his evening temperature rarely exceeded 99.4°. The injections were then given on alternate days for a month and later at weekly intervals for three months. The patient steadily improved in every way and after his return in September, 1901, from a Mediterranean trip, careful examination showed his chest free from rales and his respiratory murmur normal. His expectoration consisted of a frothy mucus from which tubercle bacilli were absent. This patient has continued to improve steadily and is today practically well because of his excellent care of himself. He has not needed any intratracheal treatment for the past three years.

Careful physical examination of his chest in January of this year shows no abnormal conditions. His sputum continues free from tubercle bacilli.

CASE II.—A male, aged 32. Seen in September, 1903, with Dr. John H. Musser, of Philadelphia, who has kindly given me permission to report the case. This patient was far advanced in pulmonary tuberculosis with a large cavity at each apex and extensive tuberculous involvement of his larynx. He expectorated large quantities of mucopus after violent paroxysms of coughing. The prognosis was extremely grave, but it was decided to try the effect of intratracheal medication with the object of making his expectoration less tenacious and of easing his cough. A daily intratracheal injection of 4% creasote-menthol in olive oil was given; to each injection was added .065 gm. (1 gr.) of orthoform. An interesting point in this case was that the presence of the injection in the cavity could be felt by the patient immediately after it was given. Its effect on the character of the expectoration and on the violence of the cough was most gratifying. In a few days his cough disappeared and the expectoration changed from heavy, nummular masses of mucopus to a thin, frothy, mucus-like saliva. This was all we could expect in such a hopeless case.

CASE III.—W. D., male, aged 14. Three years previous to my seeing him in March, 1901, he had measles, complicated by catarrhal bronchitis, which gradually became chronic, with persistent cough and profuse fetid, yellowish expectoration, which resisted all forms of medication by the stomach.

He was given a daily intratracheal injection of 7.5 cc. (2 dr.) of a 2% menthol olive-oil solution, to which was added .13 gm. (2 gr.) of iodoform. At the end of two weeks marked improvement was noticed. The injections were then given every third day for a month and resulted in complete recovery. The cough and expectoration disappeared and a gain of 15 lbs. in weight was noted. I examined this boy in December last and found him in perfect health.

CASE IV.—M. B., female, aged 32. The patient was kindly referred to me by Dr. Joseph O'Malley, of Philadelphia, in September, 1901, with a history of having had paroxysmal attacks of asthma for the previous 18 years. The attacks occurred on an average about six times each year and each lasted about two weeks, although one attack just previous to the first time I saw her lasted about six weeks and was very severe. As no reflex cause of asthma could be discovered in her nose, heart or kidneys, and as there was no history of uterine or ovarian disorder, I considered the case one of true bronchial asthma, with a distinct hereditary history—her mother, her maternal uncle and one brother having suffered from the disease. She was given a daily intratracheal injection of 2% menthol in olive oil. After the second injection, the paroxysms became less violent and in two weeks they ceased altogether. I have kept this patient under observation during the past 2½ years. She has had only two slight paroxysms of asthma in that time, and each was promptly cut short by an intratracheal injection.

CASE V.—M. T., aged 43, female, for many years has been troubled with a hacking cough, which is always worse in cold weather, and has resisted all forms of internal medication. When seen by me for the first time in February, 1901, I found she had a subglottic laryngitis, the hyperemia extending down the trachea as far as could be seen with the laryngeal mirror. Physical examination of her chest revealed nothing abnormal except some moist rales in the larger tubes. Her expectoration, which was slight, consisted of frothy mucus from which tubercle bacilli were absent. I considered the case one of chronic catarrhal cough resulting from subglottic laryngitis and tracheitis. She was given a daily intratracheal injection of 2% menthol in olive oil for a week. Immediate improvement resulted, and the injections were then given every third day for two weeks, at the end of which time it was noticed that the cough had entirely disappeared. She had a slight return of the cough six months later, but it was promptly controlled by an intratracheal injection, and it has not troubled her since that time.

CASE VI.—H. L., aged 70, kindly referred to me in October, 1902, by Dr. John H. Musser, of Philadelphia, with the following history: For the past three years he has had cough with bronchitis and severe paroxysms of asthma which at first occurred on an average of one a month, but now are of almost daily occurrence. He had no family history of asthma. Dr. Musser found extensive emphysema of both lungs with some diffused bronchitis. A daily intratracheal injection of 4% menthol in olive oil was given with gratifying results. The asthmatic attacks were promptly controlled, and the patient expressed himself free from any discomfort in breathing.

He left for his home in the West one month later, and three months afterward he reported to me by mail that he had had no recurrence of the asthmatic attacks.

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THE CORRECT TECHNIC FOR PACKING THE URETHRA, IN GONORRHEA, GLEET AND STRICTURE; TWO NEW INSTRUMENTS.

BY

S. T. RUCKER, M.D.,

of Chattanooga, Tenn.

About 15 months ago, I announced to the profession, my method of treating gonorrhea, gleet and stricture, by packing the urethra with a medicated dressing. Since that time I have been more firmly convinced of the virtue of this method of treatment. Besides the uniform good results I have obtained in my own practice, I have been much gratified by receiving many favorable comments from physicians who are equally successful.

It is my purpose in this paper (1) to state as clearly as possible the procedure usually followed in my own practice, and which has proved the most satisfactory; (2) to describe an improved instrument for applying the treatment; (3) to describe a new urethral sound, that I believe to be superior to the ordinary steel sound.

When a patient presents himself for treatment, he is carefully examined to ascertain whether the case is acute or chronic, anterior or posterior gonorrhea, and what complications, if any, exist. This being determined, the patient is made to void the urine, then the urethra is irrigated with a hot solution of potassium permanganate, about 1 to 4,000, (plain water as hot as can be borne may do as well). To lubricate the packer it is dipped in a bottle of the solution used on the dressing, after which the penis is grasped with the fingers of one hand and the packer slowly and carefully introduced into the urethra with the other hand, the patient standing. It is passed back about 4 inches in anterior gonorrhea and back into the prostate gland in posterior gonorrhea and prostatic troubles. Force is never used in introducing the packer. The urethra is then lightly packed with a soft spun cotton cord, saturated with the following solution:

Ichthyol	} of each	3 gm. (40 gr.)
Resorcin		
Balsam Peru	. . . . .	15 cc. (4 dr.)
Sufficient quantity of castor-oil to make	. . . . .	120 cc. (4 oz.)

The instrument is gradually withdrawn from the urethra as the dressing is fed through (see Fig. 1), and when it emerges from the meatus the dressing is clipped with scissors, leaving about a quarter inch on the outside of the meatus. A small piece of lint is placed over the head of the penis, and treatment is complete.

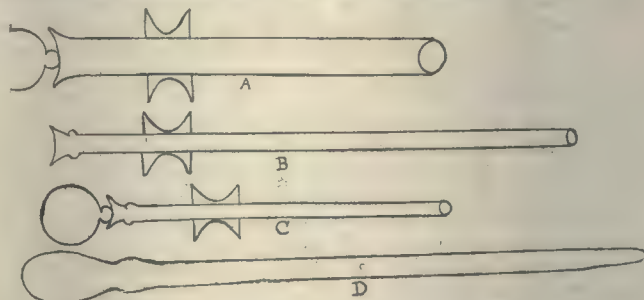
The patient is instructed to go as long as possible before urinating, when the dressing is removed by ballooning the urethra with urine, which floats it out, or it may be removed by taking it between the fingers and making gentle traction. The average patient will go 5 to 8 hours before urinating, without much discomfort. The urethra may be packed at 8 p.m. or 9 p.m., and the patient will retain the dressing all night. Ordinarily I pack the urethra once a day until the discharge ceases, then every other day for 10 days or 2 weeks. In some aggravated cases it is best to pack morning and evening until the discharge ceases. In acute gonorrhea the discharge will stop in 2 to 5 days. Singularly enough, old obstinate, chronic cases yield more promptly than the acute form. In fact, brilliant results are sometimes obtained in this class of cases, the morning drop often disappearing after 1 or 2 applications of the dressing. I have not yet ascertained how soon treatment may be discontinued after cessation of discharge. It is a safe routine to continue treatment every 2 to 3 days for 2 weeks, to keep in touch with the patients and see there is no return of the trouble. In chronic gonorrhea and gleet it is better to pass a sound 2 or 3 times a week prior to packing the urethra. In treating stricture the urethra must first be dilated or divulsed before introducing the dressing. The dressing will allay irritation

following instrumentation, keep the stricture relaxed and overcome the tendency to contract. The physician who is not accustomed to manipulating the urethra and not familiar with the working of the packer may be disappointed in his first attempts at urethral packing. Much less should he expect good results if his technic is so faulty as to cause the urethra to bleed, give excessive pain to the patient, or if the urethra is packed too tight, or instruments are left lying on dusty tables without even being cleaned.

A packer should be selected that can be easily inserted in any part of the urethra, without injury to the mucous membrane. It must first be oiled and then introduced slowly and gently. The dressing must be well saturated with the oil solution and placed lightly in the urethra, when it will cause no discomfort and practically no irritation. The instrument must be washed in soap and water and sterilized after using.

In hospital practice or a large genitourinary practice, in which many patients pass before the physicians at one sitting, great care is necessary to prevent reinfecting a patient, in whom the discharge has ceased, by using a soiled instrument which has just been withdrawn from the penis of a patient with recent gonorrhea taking his first treatments.

With a correct diagnosis and a careful technic in applying this method of treatment, I see no reason why a physician should fail to relieve promptly almost any case of gonorrhea or gleet. The treatment is based on a simple and rational principle. It keeps the walls of the urethra separated, provides for drainage, if any, and



keeps a medicated dressing in constant contact with the affected surface.

The cuts (Nos. 2 to 5) illustrate the improvement I have made in two instruments for urethral work. One of them is a urethral packer, the other a urethral sound. Both are made of glass. The packer, however, is made in different sizes and lengths and can be used as a general gauze carrier, in packing any cavity of the body. Being made of glass, these instruments possess none of the objectionable features of the steel instruments. They can be quickly cleaned and sterilized; they are always smooth, are easily inserted and not liable to injure the mucous surface. Then glass does not look so formidable to patients as the steel instrument and they will submit quicker to its use. The efficiency and durability of both packer and sound will depend largely on the kind of glass they are made of, which should be of the toughest flint glass and without flaw. Both packer and sound can be made with graduated scale to measure depth of insertion. I will not give a detailed description of the packer, as the profession is already familiar with the mechanism of the common gauze carrier and my special design for urethral work; the mechanism of the glass instrument is the same. Fig. 2 shows the glass packer made for use in the urethra or uterus. It is 9 inches long, 7 inches from finger groove to point, size 21 Fr. The barrel is made straight, with point of distal end round and smooth, which facilitates introduction. Two inches from proximal end is a groove for index and second finger.

The piston or feeder is made of steel with forked

point. I have found that a curve to a urethral packer is absolutely useless. A straight instrument can be readily passed into the prostate gland as far back as is necessary to pack the urethra—hence the curve is left off.

Fig. 3 is 6 in. long, 4 in. from finger-groove to point, size 18 Fr. It is for packing the nares, gunshot or stab wounds, and very small urethras.

Fig. 4 is 6 in. long, 4 in. from finger-groove to point, $\frac{1}{2}$ in. in diameter, and is for packing the rectum and vagina. Either sterile gauze strips or a soft spun cotton cord may be used in the packer. The cotton cord is better for urethral work. Fig. 4 will carry gauze 6 in. to 10 in. wide. One of the chief features of the glass



packer is that it can be manipulated with ease in any cavity, and the packing will not clog or hang in the barrel. This is a distinct advantage over any other instrument of the kind.

Fig. 5 shows the urethral sound made of glass, after the pattern of the ordinary steel sound. The sizes run from a 15 to a 32 Fr. scale, and the instrument is straight or curved.

At first thought one may think it dangerous to introduce a glass instrument in the urethra, for fear of being broken off, but if the instrument is made of the toughest glass, without flaw, and reasonable care be exercised in using, the danger of breaking will be extremely small.

Marines Contract Malarial Fever.—Malarial fever has appeared to such an extent in the battalion of marines stationed at the Guantanamo naval base that the Navy Department has ordered that the battalion be removed to the League Island Navy Yard. None of the cases is serious, the naval officers say, but it was deemed wise to take the marines away before the Cuban summer begins. The lack of proper quarters and modern sanitary arrangements is regarded as the cause of the sickness. When these have been installed another battalion will be sent to Guantanamo. Reports to marine headquarters show that the 450 marines on the Isthmus of Panama are in first-class shape. Only 12 men are on the sick list and their complaints are of a minor character.

SPECIAL ARTICLES

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

Proceedings Reported by the Secretary.

BY

WILLIAM J. GIES, PH.D.,
of New York.

The sixth regular meeting of the Society for Experimental Biology and Medicine was held on the evening of April 20, in the bacteriologic laboratory of the department of pathology of Columbia University, at the College of Physicians and Surgeons. Dr. S. J. Meltzer presided,

MEMBERS PRESENT.—Burton-Opitz, Calkins, Gies, Hiss, Hunt, Jackson, Lee, Levene, Lush, Meltzer, Murlin, Norris, Park, Richards, Wadsworth, Wallace, Wilson, Yatsu.

MEMBERS ELECTED.—J. J. Abel, E. G. Conklin, A. R. Cushny, C. B. Davenport, W. H. Howell, L. B. Mendel, T. H. Morgan, F. G. Novy, W. T. Porter, L. B. Stookey, W. H. Welch.

CONSTITUTIONAL AMENDMENT.—The following amendment was added to the constitution by unanimous vote: "Each nonresident member shall be required to present in person, at least once every two years, a communication containing the results of an experimental investigation, or to send to the president within that time, such a communication for presentation at a regular meeting of the society."

ELIGIBILITY TO MEMBERSHIP.—Many inquiries regarding admission to membership in the society have recently been addressed to the secretary. It seems desirable to state publicly that only *active investigators* in biology or medicine are eligible to membership. The constitution of the society provides for *automatic forfeiture of membership* by any who may cease to be "active investigators, *by experimental methods*, in biology or medicine." Visitors are welcomed to the meetings.

The following reports were made:

ABSTRACTS¹ OF REPORTS ON ORIGINAL INVESTIGATIONS.

"On the secretion of human bile:" P. A. LEVENE, MELVIN, MICHAILEWSKI.

The bile was obtained from a patient with a biliary fistula. The patient had been operated upon for gallstones, and was in comparatively good health at the time of the experiment.

Attention was directed to (1) the influence of diet on the quantity of bile secreted in 24 hours, (2) the permeability of the biliary ducts for certain substances like methylene-blue and sodium salicylate, (3) the influence of these substances and of some salts and acids on the secretion, and (4) on the nature of so-called "bile mucin."

The quantities of bile secreted under different conditions, together with other data, are briefly summarized below:

Diet and dosage.	Volume—24 hours. Centimeters.	Total solids. Percent.	Organic matter. Percent.	Ash. Percent.
Mixed diet	780	1.57	0.76	0.82
Animal diet.....	785	1.88	0.60	1.08
Milk diet.....	845	1.61	0.56	1.05
Vegetable diet.....	835	1.64	0.80	0.84
Sodium carbonate.....	461	1.62	0.71	0.92
Hydrochloric acid.....	461	1.53	1.08	0.45
Calcium chlorid.....	687	1.63	0.56	1.08
Sodium salicylate.....	642	1.40	0.42	0.98
Methylene-blue.....	864	1.53	0.52	1.04

For methylene-blue and sodium salicylate the bile ducts proved less permeable than the kidneys. There was observed a marked increase in secretion after subcutaneous injections of methylene-blue. The "mucin" was found to be a phosphorized proteid, but no purin bases could be detected in its molecule.

"Experiments with certain nitriles and their antidotes:" REID HUNT.

Experiments (carried out in the laboratory of Professor

¹The authors of the reports have furnished the abstracts. The secretary has made only a few abbreviations and minor alterations in them.

Ehrlich) on the toxicity of a number of nitriles, and the antidotal action of certain sulfur compounds toward them, were described. Most of the nitriles studied are poisonous in virtue of the HCN which is split off in the body; in the case of some of the nitriles of the aromatic series and of certain amino nitriles, the molecules themselves seem to be poisonous. Although each of nearly all of the compound studied is capable of splitting off one molecule of HCN, it was found that the toxicity of the various compounds differed greatly. The toxicity depends in general upon the ease with which the HCN is split off; in some cases this seems to bear a relation to the ease with which the residue united to the CN group is oxidized in the body. Benzonitrile, containing the group C_6H_5 , which is oxidized with difficulty in the body, is scarcely more poisonous than phenol. Acetonitrile, also containing a group, CH_3 , which is oxidized with difficulty, is also but slightly toxic. Propionitrile and formaldehydcyanhydrin, which contain easily oxidizable groups, C_2H_5 and CH_2OH , are very poisonous.

The toxicity of the molecules of a few nitriles is greater than that of HCN itself, although the latter was the only toxic agent involved. Thus the molecule of chloralcyanhydrin, $CCl_3CH(OH)CN$, is nearly twice as toxic as that of HCN. The probable explanation of this is that the chloral residue with which the CN is in combination causes the compound to be distributed especially to the central nervous system; the HCN is thus split off in greater concentration in these important organs than is the case after the administration of a compound which is distributed more uniformly to important and unimportant organs. Through the application of this principle it may be possible to modify the distribution in the body of a remedial agent, so that the active principle may be present in especially great concentration in the organs which it is desired to affect. It was suggested that the powerful action of nitroglycerin upon the blood-vessels may be explained on a similar hypothesis. The view of Hay, that the dilation of the bloodvessels caused by nitroglycerin is due to the formation in the body of nitrites from this body, has been generally accepted (although the objection has been made that it requires 200 times as much sodium nitrite to produce a given effect as of nitroglycerin). This criticism may be met by the hypothesis that the glycerin residue of the nitroglycerin causes this compound to be distributed especially to the arterial walls, and that the nitrite will be formed in greatest concentration at the point where it exerts its action.

The work of Heymans and Masdin on the antagonistic action of sodium thiosulfate toward certain nitriles was extended to many new cyanogen compounds. In addition to the thiosulfate, several other compounds, containing a sulfur atom which is easily split off, were tested (the sulfur unites in the body to form a little poisonous sulfocyanate). The most efficient of these new sulfur compounds were thialdin, carbo-thialdin, and potassium xanthogenate. Great differences in the extent of the antidotal action of these bodies toward the various nitriles were noted. Thus thialdin protected against nitriles toward which potassium xanthogenate was without action; toward other nitriles potassium xanthogenate was the more efficacious. Many of these differences can be easily explained on the hypothesis that the various nitriles and sulfur compounds are differently distributed in the body. Unless both the sulfur compound and the nitrile reach the same cells, and unless the conditions in these cells are favorable for the formation of the sulfocyanate, no neutralization will take place.

Especially interesting are the experiments on the antidotal action of alcohol toward certain nitriles. It was found that small doses of alcohol protected an animal against three to five times the fatal dose of acetonitrile and formaldehydcyanhydrin, and that after otherwise fatal doses of these substances, the animal recovered if small doses of alcohol were given. It was suggested that the explanation for this action may be that, because it is easily oxidized, alcohol consumed the oxygen usually available for the oxidation of the CH_3 and CH_2OH groups of these compounds, and for the consequent liberation of the HCN. Support for this hypothesis was found in the fact that dextrose (another easily oxidizable substance) also protects against acetonitrile.

This seems to be the first case in which alcohol has been clearly shown to have an antidotal action toward a poison. It

was suggested that alcohol may have an analogous action in certain pathologic conditions, in which physicians have long claimed a beneficial result from its use. Toward HCN itself, and several other nitriles, alcohol has no antidotal action; in fact, in some cases the toxicity of the nitrile was increased by it.

"Toxicity of certain quinin derivatives:" REID HUNT.

In one of the side chains of the quinin molecule there is, according to the commonly accepted view, a vinyl group— $CH=CH_2$. As the toxicity of many compounds (e. g., neurin and allyl alcohol), is chiefly due to the presence of such a group, experiments were made (in Professor Ehrlich's laboratory) to determine whether this is the case with quinin. A number of derivatives in which the vinyl union was broken by the addition of H (Hydroquinin), or of O and OH (Oxyhydroquinin), or of H and Cl (Hydrochlorquinin), were tested as to their toxicity upon various mammals and certain infusoria. The experiments showed that the presence of the vinyl group in quinin is without special significance as far as toxicity is concerned, the first two of the new compounds being about as poisonous as quinin itself. The results of the experiments with hydrochlorquinin are of special interest; these showed that the addition of H and Cl decreases the toxicity for mammals, while increasing it for infusoria. Thus the amount of hydrochlorquinin required to kill mice was two and a half times as much as that of quinin, while the former substance is distinctly more poisonous to certain infusoria than the latter. It is possible that hydrochlorquinin (or similar compounds) will be found to be more effective in the treatment of malaria than is quinin, and further work along these lines may result in the discovery of quinin derivatives which will be of value in certain diseases, caused by protozoa, in which quinin is of little value. Further experiments are in progress.

"Report on the metabolism of a case of diabetes mellitus:"

A. R. MANDEL and GRAHAM LUSK.

The case was a young man, whose urine contained no albumin, little ammonia, only a small amount of acetone, and no β -oxybutyric acid. All these symptoms are said to justify a favorable prognosis. The patient was put on three different diets for three successive periods: Diet I.—Rich cream, oatmeal, meat, eggs, butter. Diet II.—Same as I, with 100 grams of levulose. Diet III.—Rich cream, meat, and eggs. The oatmeal was used on account of the favorable results obtained by von Noorden.

Diet III was practically a meat-fat diet. Upon this diet the polyuria decreased and the sugar fell from 8% to 4%, both of which phenomena would be favorably interpreted by the clinician. But on calculating the ratio between sugar and nitrogen in the urine (after deducting the sugar bed in the cream), the relation between the two was found to be 3.65 gm. of dextrose to 1 gm. of nitrogen, as follows:

1904.	Dextrose, grams.	Nitrogen, grams.	D. N.
March 2.....	82.7	23.0	3.60:1
March 3.....	87.1	23.8	3.65:1
March 4.....	100.7	27.5	3.66:1

It will be noticed that the sugar and nitrogen rise and fall together. The amount of fat fed varied, but did not affect the ratio. The sugar production is therefore parallel to the proteid metabolism. Since 1 gm. of urinary nitrogen represents the destruction of 6.25 gr. of proteid we can calculate the sugar production from proteid. This D:N ratio is the same as that obtained in our laboratory in phlorhizinized dogs. It has also been obtained by others in the human subject, but has been falsely interpreted as indicating the production of sugar from fat. It represents the maximum output of sugar from proteid and a complete intolerance for carbohydrates. It is probably the most grievous prognostic sign in diabetes.

A calculation shows that the carbohydrates in the oatmeal and levulose were nearly quantitatively eliminated in the urine when the patient was under the influence of Diets I and II.

The patient rapidly lost in weight and died in coma five weeks after the completion of the above investigation.

"Antihemolytic properties of the serum of nephrectomized rabbits." S. J. MELTZER and WILLIAM SALANT.

In studying the properties of the blood of nephrectomized rabbits it was found that bullock's serum, which is distinctly hemolytic for normal rabbit's serum, was less so for the red cells of nephrectomized rabbits. It was found, further, that the serum of nephrectomized rabbits contains a distinct antihemolytic element which is destroyed by heating for an hour at 58° C. On the other hand the "washed" red cells of nephrectomized rabbit's blood are at least no more resistant to the hemolytic influence of bullock's serum than the red cells of normal rabbit's blood.

"On the influence of suprarenal extract upon absorption and elimination, with demonstration." S. J. MELTZER and JOHN AUER.

In a series of experiments it was found that a previous intravenous injection of adrenalin will make a rabbit resistant to a surely fatal dose of strychnin. (Such an experiment was demonstrated to the society.) In experiments with subcutaneous injections of fluorescein it was also found that in the animal which had previously received injections of adrenalin, the greenish-yellow color of the conjunctiva, mucous membranes, and skin appeared much later than in the control animal. Both results might be due to delayed absorption or delayed transudation, or to both. In further studies with subcutaneous injections of fluorescein it was found that the color entered the blood later and in diminished quantity in the adrenalin animal than in the control. Among other observations, it was noted that the kidneys of the control animal were more intensely colored than those of the adrenalin animal. The same difference was found when equal quantities of the stain were injected directly into the blood stream. The lesser coloration of the kidney is therefore due to the diminished elimination by the kidneys in the adrenalin animal. Other related problems are still under consideration. But the reported series of experiments already justify the conclusions that suprarenal extract delays absorption as well as elimination.

The starting point for the investigation was the hypothesis, stated by Dr. Meltzer in another publication, that since capillary endotheliums possess irritability and contractility, their pores are surrounded by rings of contractile protoplasm which act like sphincters upon them, thus increasing and decreasing the permeability of the endotheliums. The explanation for the observed facts is now offered that suprarenal extract, which causes contraction of the smooth muscle-fibers of the arterioles, causes also an increase of the contractility of the endotheliums, diminishing thereby their permeability, and thus reducing their powers of absorption and elimination.

REVIEW.

"Mendel's law." E. B. WILSON. A review of the more important facts in Mendel's observations, together with a statement of some of the deductions to be drawn from them.

Chance for All.—A correspondent sends us a letter from a so-called college in Detroit, which is self explanatory.

Doctor, Being Fin. Sec. of above, from March 1st I desire to inform you we are just now Issuing Honay Degrees to some of our best U. S. &c. Prof. and men up in standing. Knowing of your medical standing and profession if you are of the Desire and looking for LL. D., in Harness, write me Early when I will send you a "Rekord of data" for filling out for the board to pass on, the only exence \$10 for Issue of Same. Waiting a kind reply

I am Dear Doctor

Yours Very Respectfully

E. M. LL. D.

Fin Sec.,

Tramps and Smallpox.—An exchange states that sooner or later legislation will have to settle the question of vagrancy, if only in relation to its malign influence in the spread of communicable diseases. That particular danger has been shown over and over again to exist in the case of smallpox, a disease which, as a rule, can be readily tracked to its original lair. An important contribution to the literature of the subject has recently been made by Dr. Armstrong, the well known Medical Officer of Health for Newcastle-on-Tyne. His communication takes the form of a report based on inquiries addressed to local authorities throughout the kingdom. The answers show that out of 111 districts invaded by smallpox, the disease was introduced in more than 50% by the agency of tramps.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

May 7, 1904. [Vol. XLII, No. 19.]

1. Laboratory Aids in Clinical Diagnosis. C. E. RUTH and A. S. RIDER.
2. A Case of Circular Insanity Studied from Clinical, Differential and Forensic Standpoints. (Concluded.) RICHARD DEWEY.
3. Some Graphic Observations on Ankle-clonus. AUGUSTUS A. ESHNER.
4. Medical Education and Preliminary Requirements. GEORGE H. SIMMONS.
5. Multiple Loose Bodies in the Knee-joint. JOHN PRENTISS LORD.
6. What Should Be the Physician's Position in the Body Politic? H. BERT ELLIS.

1.—Laboratory Aids in Clinical Diagnosis.—C. E. Ruth and A. S. Rider list a long number of diseases in which the laboratory frequently affords a means of exact diagnosis, and yet it is not employed by the average general practitioner. He is too busy; thinks it won't pay, or lacks the taste or opportunity to become skilled in technic. The solution of the problem lies in cooperation. One member of the community can fit a laboratory and become proficient in technic. His neighbors can either share the expense and go there to make their examinations, or what is better perhaps for both, have one with time and taste, do the work for all. The State may eventually place laboratories at the disposal of the general profession outside of cities, but meanwhile the latter must depend on their own efforts to obtain laboratory aid. [H.M.]

2.—Circular Insanity.—R. Dewey reports a case at great length. It is a psychosis with alternating periods of exaltation and depression with normal intervals between. The only question in this case is whether the various cycles could be merely phases associated with paresis. The cases of general paralysis are few in which complete manic depressive cycles occur for three or four years with strict regularity to the number of four or five; in which mental power and brilliancy are retained with accurate memory for recent and remote events with logical cogency, sharp discernment, concentration, and sustained attention. It is of its very essence that a blurring of perceptions and conceptions is present, the will is weak, the delusions inconsistent. In the depressive state there is more confusion and stupidity and hypochondria, less retardation, anxiety, and discomfort. The moral deterioration of this case, change in disposition, and increased irritability might be common to either. The characteristic symptoms of general paralysis were lacking—fibrillary tremors of facial muscles and tongue, speech defects, immobile pupils, implication of cranial nerves, convulsive, spasmodic, or paralytic phenomena, heightened deep reflexes. Evidence of syphilis was lacking. [H.M.]

3.—Graphic Observations of Ankle-clonus.—A. A. Eshner presents a number of observations showing a not inconsiderable variation in the frequency of the movement obtained under different conditions, between 5.8 and 8 to the second. In a healthy person it was from 7 to 7.6 in the second; in a case of hemiplegia it averaged 6.9, in myelitis 6.4 to 8, another case 6 to 8; in compression myelitis 6.2 to 6.7; lateral sclerosis 5.8 to 6.9; and in a case of probable porencephaly 7 to 7.3. In some cases reenforcement was distinctly evident, being appreciable to the examining hand and indicated in the tracings. The failure to demonstrate this with greater constancy might be due to the check by the examining hand or the elastic band used. Ankle-clonus cannot be induced in the usual manner in the healthy, and the movement excited by supporting the weight of the body on the ball of the foot requires in some degree the consent, if not the cooperation of the individual. It is therefore wanting in the significance of true clonus. [H.M.]

4.—Medical Education and Preliminary Requirements.—G. H. Simmons gives statistics showing overcrowding in the profession and the lack of uniformity in the curriculums of medical colleges and in the time and preliminary requirements. After July 1, 1905, the 68 colleges holding membership in the Association of American Medical Colleges must either withdraw or demand as a minimum requirement for matriculation either a diploma from a four-year high or normal school, a bachelor's degree from an approved college or university, or an examination in branches which are specified. Many schools are

not living up to what they claim. In all countries except this, qualifications are passed on by those not connected with the teaching institution. The high school does not provide sufficient mastery of the sciences, while the four years' college course is excessive. The ideal preliminary education is the high school course, followed by two years of electives in a college of liberal arts, devoted to work more or less bearing on, but not necessarily fundamental to, the medical course. This will be demanded by all progressive schools in a few years. [H.M.]

5.—Loose Bodies in the Knee-joint.—J. P. Lord reports a case in which an incision was made as for Volkmann resection. The patella was sawed transversely, the lateral and crucial ligaments divided. Much effort was required to dislodge some of the bodies behind the crucial ligaments, curved scissors being used. Others required scissors on account of pediculated villous attachments. No precedent for this procedure could be found in literature. It has the disadvantage of precluding early resort to manipulation so necessary in restoring function, without the result of separating the delicate union before it is sufficiently strong to withstand forced flexion, but it facilitates extraction, insuring the success of the operation. The loose bodies were evidently developed from hypertrophied villi. [H.M.]

6.—The Physician's Position in the Body Politic.—H. B. Ellis thinks for a physician to neglect personal attention to civic and political problems is selfish and unjustifiable. He should endeavor to raise the standard of health, education, art, and honesty in the region in which he resides. His membership on school boards is an undoubted advantage to the public. The medical inspector should be directly under the school board and not under the Board of Health as the latter reports only about one-seventh of the cases of contagious disease. Every school, college, and university should have competent teachers for a carefully developed course in hygiene. Except in a few States it is impossible for health officers to obtain any preparation for their work except such as they themselves elect. Dealing with disease is more complicated than dealing with crime; 50% of theologic and 20% of law students have an academic degree, while this is the case with only 7% of medical students. The more thorough the doctor's training the better fitted will he be to assume civic obligations. The general average of education has increased faster than the standard in our own profession. Organization is another essential to proper advancement and political recognition. [H.M.]

Boston Medical and Surgical Journal.

April 28, 1904. [Vol. CL, No. 17.]

1. Herter Lectures. Lecture I: Mutual Relations between Toxin and Antitoxin. Abstract. Lecture II: Physical Chemistry vs. Biology in Doctrines of Immunity. Abstract. Lecture III: Cytotoxins and Cytotoxic Immunity. Abstract. PROF. PAUL EHRLICH.
2. Treatment of Prostatic Hypertrophy. Surgical Anatomy of Prostate, L. R. G. CRANDON; Gross Pathology and Mechanism of Prostatic Obstruction, ARTHUR L. CHUTE; Choice of Operation for Prostatic Hypertrophy, F. S. WATSON; Results of Operations upon Prostate, Massachusetts General Hospital, from January 1, 1892, to July 1, 1893, HUGH CABOT; Use of Cystoscope in Determining what Operation is Advisable in Prostatic Hypertrophy, F. C. BALCH; A Brief Review of Present Status of Treatment of Enlarged Prostate, ARTHUR TRACY CABOT; Prostatectomy, Spinal Anesthesia, F. B. LUND.

1.—Herter Lectures.—Mutual Relation between Toxin and Antitoxin.—In lecture I Ehrlich's conclusions are substantially that the immunization industry which has for its aim the production of serums of highest potency, has made marked progress. Serums of much higher antitoxic value than have hitherto been obtained will be the result. The knowledge that the immunity reaction is reduced by too highly toxic treatment of the animals is spreading. An effort is being made to restrict this immune reaction to tissues of slight vital importance (connective tissue) and to protect vital organs from injury. In this direction are the methods of immunization with toxin and antitoxin injected separately or after admixture. Thus an apparently neutralized toxin may cause antitoxin production. This is due to the presence of ultratoxoids. Progress in the production of curative serums is to be expected only when it becomes possible to obtain antitoxins of greater avidity than those now procured. **Physical Chemistry vs.**

Biology in the Doctrine of Immunity.—In lecture II Ehrlich deals with the physicochemic investigations of Arrhenius and Madsen concerning the application of physical chemistry to the study of toxins and antitoxins. Their belief that tetanolyisin is a uniform substance possessing only a weak affinity to its antitoxin and that its neutralization occurs in accordance with the law of Guldberg and Waage. He protests against the attempt of these authors to claim exclusive priority in the development of these questions. The path of biologic investigation—the method of partial neutralization of toxins—followed by them was first opened and by long years of work developed by Ehrlich. **Cytotoxins and Cytotoxic Immunity.**—In lecture III Ehrlich deals with: 1. The controversy over alexins. These, formerly supposed to be simple units, correspond to a very great number of different agglutinins and amboceptors. These normal substances, destructive to the cell, may arise homologically (for example, the collysins), or heterologously (cholera amboceptors in the goat; trypanosomacides of human serum). An aim of therapeutics should be the obtaining in serum not only of complements but especially of the powerfully curative amboceptors of normal organs. 2. Alterations in the receptor apparatus of the blood-corpuscles and their relations to the isolymins. R. Koch's studies of isolymins in coast fever. 3. Determination of philogenetic relationship. Uhlenhuth's and Wassermann's blood test. 4. Relationship between the virulence of bacteria, the receptor apparatus, and the development of immunity (Welch, Walker, Hamburger, Pfeiffer, Wassermann). 5. Practical results from the production of bactericidal serums. [A.B.C.]

2.—Treatment of Prostatic Hypertrophy.—In this symposium papers were presented by L. R. G. Crandon, Arthur L. Chute, F. S. Watson, Hugh Cabot, F. C. Balch, Arthur Tracy Cabot, and F. B. Lund. That by Watson is of special interest, since it deals with the different methods of procedure for the relief of prostatic obstruction and presents results. In 2,678 cases collected from literature wherein some means of relief had to be afforded to the patient, there was a total mortality of 247. In 530 cases of perineal prostatectomy there was an operative mortality of 33, or 6.2%; in 243 suprapubic operations the operative mortality was 22, or 11.3%; and in 1,164 Bottini operations the same was 69, or 6.3%. The following are the contraindications to the employment of the Bottini operation: (1) Inability to obtain a good cystoscopic view of the bladder beforehand; (2) contracted thick-walled bladder; (3) large middle lobe extending far up into the bladder; (4) inability to enter the bladder with the instrument. There is but one obstacle to the performance of the perineal operations. It is the same as 3 under the Bottini operation. That operation is to be preferred which accomplishes the object with the least destruction of tissues, and with the greatest safety to the patient. These ends are best attained by the perineal operations, when done in accordance with their best technic. This is not to say that it is the only operation which should be used. On the contrary, both the suprapubic and the Bottini have a well-defined place. The former is the operation to be preferred in cases in which a very large middle lobe makes the perineal operations especially difficult. The Bottini operation is to be preferred to either of the others if the patient's condition is such as to expose him to the danger of shock or postoperative pulmonary complications. [A.B.C.]

Medical Record.

May 7, 1904. [Vol. 65, No. 19.]

1. The Physiologic Function of Menstruation and the Part Played Therein by the Fallopian Tubes. J. RIDDLE GOFFE.
2. Gallstones in the Common Duct. A. H. CORDIER.
3. Dentigerous Cysts. CHARLES GREENE CUMSTON.
4. A Case of Recurring Membranous Stomatitis, Associated with Erythema Exudativum Multiforme (Hebra). LOUIS E. BLAIR.
5. The Hospital Car, Its Equipment, Uses and Importance. WILLIAM W. SANFORD.
6. The Prevention of Disease. JOHN B. HUBER.
7. The Syrian Climates. HANNA MIKAIL RAHMI.

1.—Part Played by the Tubes in Menstruation.—J. R. Goffe says the dominant factor in menstruation is the ovary and ovulation. From the ovary, or its sympathetic nerve

ganglions in the pelvis and abdomen, there springs the impulse for the reproduction of the species. Menstruation is a retrograde process, the result of a failure of fertilization of the ovum, and the tubal mucous membrane, as well as the endometrium, participates in the process. In support of the view that the tubal mucous membrane participates in the process of menstruation he cites two cases, in the first of which, after the removal of the uterus with one tube and ovary, the left tube and ovary being left in situ, the patient experienced the usual phenomena of menstruation with a slight blood-stained discharge from the vagina lasting for a day or two. Subsequent investigation proved that the discharge came from the tube, the proximal end of which had been drawn down by the gauze in its extraction and had become incarcerated in the vaginal scar. Fearing the possibility of tubal pregnancy he applied stick caustic deep in the opening of the tube until he induced granulation and closure. The second case was similar except that the tube projected fully a quarter of an inch into the vagina and he actually saw the drops of blood issue from the tube, convincing proof that the tube performed the function of menstruation. As in the other case the vaginal opening of the tube was permanently closed through applications of caustic. [W.K.]

2.—Gallstone in the Common Duct.—A. H. Cordier discusses this subject in relation to the tendency of stone to lodge in the common duct, the inflammatory phenomena attending this condition, and the infectious process arising. In regard to operation, he states that he has seen half a pint of muddy-looking bile-stained fluid escape from the common duct into the peritoneal cavity at the time of the operation, but in no case has there been evidence of peritonitis. He relies upon gauze drainage to conduct the escaping bile to outside dressings. Bacteriologic examinations have revealed the colon bacillus in most of the cases at the time of operation. Many cases with latent common duct stones are diagnosed as gastric ulcer, gastralgia, or cancer of pylorus. The injury to the pancreas from gallstones is often of such a character as to retard recovery after the cause has been removed. Interstitial pancreatitis of the duodenal end of the pancreas and pancreatic stone formation and cancer are the most frequent changes induced in this organ. [A.B.O.]

3.—Dentigerous Cysts.—Charles G. Cumston reports several cases, and entering into the pathology of this condition states that Magitot considered every cystic production lined with a membrane and situated in the interior of the jaws as a maxillary cyst. These cysts usually contain a fluid contents varying in nature from one case to another; they may be thin and fluid, or on the other hand, quite thick and pasty. Every cystic production arising spontaneously in the maxilla usually originates from a tooth. Cysts developing spontaneously he termed progenous cysts, and in contrast to these, those developing around a foreign body he termed perigenous cysts. To these two forms which develop in the bone substance he adds a third type, to which he applied the name of neogenous cysts, which develop outside the osseous tissue. Most of the textbooks on surgery are very deficient in explaining the pathology of these cysts, and even commit gruesome errors in their statements. It is an unimpeachable fact that one tissue can only reproduce itself, and consequently epithelium can only be derived from epithelium, and it is also well known that the lining membrane of these cysts is always epithelial and never composed of granulation tissue. [A.B.C.]

4.—Recurring Membranous Stomatitis with Erythema Exudativum Multiforme.—L. E. Blair reports a case of hebra coming primarily or in a freak manner on the mucous membrane of the mouth and contiguous parts followed in severe attacks by the skin eruption. He brings together the different views of writers to show the confusion which exists in the etiology and clinical picture of this disease. In his case the stomatitis existed from four to 10 days before the skin disturbance. Cases which show desquamation are exceedingly rare. In this case the peeling was severe especially on face, hands, feet and abdomen. Eight months later coppery discoloration and scars marked the site of eruptions. Red blotches of new skin are also apparent on violent exercise. [H.M.]

New York Medical Journal.

April 30, 1904. [Vol. LXXIX, No. 18.]

1. Accuracy in Röntgen Ray Diagnosis. RUSSELL H. BOGGS.
2. Actinic Sunlight in the Treatment of Pulmonary Tuberculosis. J. W. KIME.
3. Epigastric Hernia. CHARLES GREENE CUMSTON.
4. A Plea for the Earlier Diagnosis of Uterine Cancer. F. H. MAIER.
5. Professional Relations, Mutual and Public: A Presidential Address. JOHN H. NEAL.
6. The Hopkins-Folin Method for the Determination of Uric Acid in Urine. W. E. DREYFUS.

2.—Actinic sunlight in the treatment of pulmonary tuberculosis is the subject discussed by J. W. Kime. He believes that the best source of light for use in the treatment of disease. In the treatment of lupus, superficial ulcers, and other chronic skin affections, he uses a lens 15 cm. (6 in.) in diameter, hollow, and backed with blue glass, all so mounted that it may be adjusted to any position. Application of the light is made for an hour or more each day, depending upon the nature of the case. He says the results are such that he does not wish for instruments more complex or complicated or more costly. With a beam of sunshine one foot square falling into the office the instrument is ready for use. In the treatment of pulmonary tuberculosis the light is obtained in the following manner: A concave reflector, three feet in diameter, overlaid with blue glass, focuses a strong blue light upon the surface of the chest, made bare, for two hours each day. Patients thus treated, using, of course, in addition all other adjuvants of known value in the treatment of tuberculosis, respond more quickly. Kime says he is convinced that but few cases in their earlier stages may not be permanently arrested, and that cases, even far advanced, almost immediately begin to show improvement. [C.A.O.]

3.—Epigastric Hernia.—C. G. Cumston reports several cases in detail. Two cases were without doubt the result of a subperitoneal lipoma; two are good illustrations of a preformed defect in the fibrous tissue of the linea alba, one the result of traumatism, and another the result of pregnancy. Cumston says from the cases reported in literature, as well as of those which have come under his personal observation, it would appear fair to assume that the prognosis of epigastric hernia is quite favorable if the disease is discovered in time, and if proper treatment is immediately instituted. The use of the truss is of little value, although by this means suffering may be averted to a certain extent. As in all hernias, the proper way to deal with the epigastric variety is by radical operation. [C.A.O.]

4.—Uterine Cancer.—F. H. Maier says the statistics of the representative gynecologic clinics show that the mortality from carcinoma of the uterus has undergone, and is still undergoing, a relative reduction. This reduction is chiefly the result of the increasing number of cases that are brought to timely operation, and is influenced largely by two highly important factors: (a) The physician; (b) the patient. 1. The earlier a positive diagnosis is made, the better the opportunity for timely operative intervention. The presence or absence of any one of the classic subjective symptoms pointing to carcinoma of the uterus should be utterly disregarded, and the diagnosis based upon objective examinations only. The patient should be impressed with the risk she runs, wherever there is suspicion of malignant disease, in failing to submit to the necessary pelvic examination, as well as with the grave nature of some cases of rapidly advancing carcinoma, which occur in the absence of symptoms indicative to the patient of such a condition. The popular fallacies that "pain" is the most significant symptom, and that pudendal hemorrhage is always physiologic, especially when associated with the menopause, must be dispelled. 2. In the present state of our knowledge of the predisposing and contributing causes of carcinoma of the uterus, we can conservatively accept, in the absence of a more tangible explanation, the view that trauma is often responsible for at least the propagation if not the cause of the disease. 3. The fact that women suffering from the so-called condition of "cancerophobia," are comparatively free from the disease should be regarded not altogether in the light of a coincidence, but rather the relation between this immunity and the constant medical surveillance which the patient is under, should

be considered. 4. In as far as the healthy uterus is less liable to undergo progressive malignant changes, a highly important element in prophylaxis should be to keep the uterine mucosa in as normal condition as possible, and under no circumstances to neglect lacerations, inflammation, and erosions, especially during the menopause. [C.A.O.]

Medical News.

May 7, 1904. [Vol. 84, No. 19.]

1. The Diastolic Murmur in Diagnosis. AUSTIN W. HOLLIS.
2. The Influence of Bovine Tuberculosis on Human Health. MAZYCK P. RAVENEL.
3. Clinical Aspect of Chronic Myocarditis. JOHN W. BELL.
4. Acute Appendicitis and Its Medical Treatment. G. N. BEST.
5. Summary of an Experimental Research Into the Use of Alcohol, Nitroglycerin and Amyl Nitrite in Shock and Collapse, with Illustrative Protocols. GEORGE CRILE.

1.—**Diastolic Murmur in Diagnosis.**—A. W. Hollis discusses in detail the murmurs produced by aortic and pulmonary insufficiency, persistent ductus arteriosus, aneurysms, mitral stenosis, cardiorespiratory influences, pericardial and pleuro-pericardial. The study of the diastolic presents more difficulties than of the systolic murmur. In its usual form it is simple and clear and its mere time and quality reveal the diagnosis, but no murmur can be more elusive in its site and intensity while the possibilities of its character are so numerous that they defy description as well as diagnosis. He records a number of cases illustrating some of the difficulties. [H.M.]

2.—**Influence of Bovine Tuberculosis on Human Health.**—M. P. Ravenel believes in the intercommunicability of human and bovine tuberculosis. The pathogenic action of bovine bacilli in man is shown in laboratory and postmortem inoculations. These prove that the bovine bacillus grows in the human body under the most unfavorable circumstances, producing typical lesions, and that its pathogenic power is as great as the human bacillus under identical circumstances. If we required the same strict methods of examination as to human as we do as to bovine sources of infection in man we would find that the belief that sputum is the general infecting material is supported by very little experimental and no exact clinical evidence. Koch has set up a standard of accuracy which he does not honor himself. Infection through the alimentary canal is not only by way of the intestines, but through the tonsils and upper digestive tract. It has been demonstrated that tubercle bacilli can easily penetrate healthy mucous membrane without leaving any trace. Infected chyle is thrown into the circulation very near the heart, from which it passes at once to the lungs, and disease in the latter from it might seem primary. Numerous observations prove the tonsils may be a port of entry. A commission doing its best to sustain Koch, has had to acknowledge that 25% of the children examined by it show lesions due to bovine infection. Whether the number be large or small, it is our duty to guard against milk from tuberculous cattle. [H.M.]

3.—**Clinical Aspect of Chronic Myocarditis.**—J. W. Bell includes under myocarditis any morbid changes manifesting themselves clinically, the result largely of fibroid or fatty changes in persons at or beyond midlife previously free from valvular disease. Alcohol, tobacco, coffee, gout, syphilis, coronary disease, general arterial fibrosis, chronic renal disease, endo and pericarditis, anemia, phosphorus, etc., are among the causes. Death may occur without symptoms or physical signs. Breathlessness, vertigo, headache, precordial distress, palpitation, and later angina are the common symptoms. The pulse is irregular and sometimes intermittent. Asthma may develop. The impulse in the nipple-line is diffuse. The area of dulness increased, the first sound short and feeble with variable accentuation of the second sound. Early diagnosis is based largely on the state of the vessels and symptoms rather than on evidence of heart changes. Every cause of irritation should be removed. Nutrition should be stimulated by diet, exercise, and regular habits with tonic drugs. In the majority of cases, rest in bed is indicated for the first few weeks. [H.M.]

4.—**Medical vs. Surgical Treatment of Acute Appendicitis.**—G. N. Best discusses this subject from the standpoint of the modern doctor. As a general rule, it is better for the physician, and safer for the patient, to have the appendix removed in

the early stages of the disease. However, operative measures are not always possible nor permissible, in which case medical treatment must be resorted to. Frequently patients will refuse a surgical operation, and in country districts, even when they consent, it frequently happens that a hospital is too far distant and the environment of the patient too uninviting to resort to surgical measures, except as a last procedure. The advocacy on the part of some surgeons that the appendix should be removed in every case so soon as the disease is recognized cannot be accepted by the writer. The mortality of appendicitis under medical treatment is approximately somewhere between 10% and 15%; Dennis places the mortality under surgical treatment at 4%. From this the writer dissents and places it somewhere between 5% and 12%. In medical treatment a thorough evacuation of the bowels is most essential for this purpose; broken doses of calomel, followed by a saline, are best; deodorized tincture of opium internally, with hot or cold applications over the painful region, should be used. Since 30% of patients having one attack of appendicitis have one or more subsequent attacks, the interval operation should be recommended in case operation is not done in the primary attack. [A.B.C.]

5.—**Experimental Research in the use of Alcohol, Nitroglycerin and Amyl Nitrite in Shock and Collapse.**—George Crile gives the results of these experiments, with illustrative protocols. *Alcohol.*—In the experiments the immediate effect of intravenous administration was usually a decline in the blood-pressure. In the majority a compensatory rise followed; in some no change in this respect was noted; in but few was there a rise in the blood-pressure. The average height of pulse-wave was increased. There was no evidence that the heart beat more forcibly. In animals reduced to varying degrees of surgical shock the usual effect of an average dose of alcohol was the production of further depression; in smaller doses but little effect was noted, while in larger doses a more marked decline often occurred. *Nitroglycerin and Amyl Nitrite.*—The immediate effect of nitroglycerin and amyl nitrite upon the pulse was an increase in its volume and a decrease in frequency. The immediate effect upon the respiration varied. The immediate effect upon the blood-pressure in almost every instance was a fall. The decline was usually rapid. A rise in the blood-pressure was rarely observed. In the latter it was but temporary and usually followed by a fall. Compensation usually took place in a few minutes. Each time the doses were repeated the effects were almost as marked as the preceding time, even when the repetitions were at short intervals. Most of the animals tolerated very large repeated doses; excessive doses produced convulsions and respiratory failure. In the experiments in which the animal was in deep shock and the blood-pressure gradually falling, there was no evidence to show any decrease in the rapidity of the decline. On the contrary, as nearly as could be estimated, nitroglycerin distinctly increased the rapidity of the decline. The effect of amyl nitrite was in every respect similar to that of nitroglycerin. In many instances the heart beat irregularly after the injection. On the whole, nitroglycerin and amyl nitrite increased shock. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Metabolism in Fever.—P. Linser and J. Schmid¹ had the opportunity of making experiments in two cases of universal ichthyosis, in which an increase of the surrounding temperature produced a rise in the body temperature, without sweat secretion. They found that if the body temperature did not exceed 39° C., proteid decomposition did not take place. The latter occurred regularly when the temperature reached 40° or over. Hence, in patients with febrile diseases, having a temperature below 39° to 40°, the nitrogenous decomposition must be wholly due to the infection or intoxication, and not to the rise of temperature, as heretofore assumed. In artificial hyperthermia the administration of carbohydrates did not reduce the nitrogenous destruction to the same extent as during a state of

¹ Deut. Arch. f. Klin. Med., Bd. lxxix, p. 514.

normal temperature. The excretion of purin nitrogen, ammonia, amidoacid nitrogen, and phosphoric acid was increased. Sugar, acetone, diacetic acid, and betaoxybutyric acid albumin were not found in the urine. During a moderate rise in temperature there was a slight increase in the volume of respired air, a considerable (100%) increase in the consumption of oxygen, and a smaller (40%) increase in the production of carbon dioxide. The respiratory quotient was thus diminished. [B.K.]

Recent Cancer Mortality in the Thames Valley.—

Alexander Urquhart¹ presents a series of tables made up of statistics relative to the incidence and mortality of cancer in different parts of England. He states that these statistics justify the conclusions that the Thames Valley is still associated with a relatively high mortality from cancer. All the districts immediately bordering on the river show a rate in the decade 1891-1900 above the average rate for the whole of England, the excess varying from .15% to 2.53%. This uniform high rate along both banks of the river suggests that there may be a connection between the river floods and cancer. If we presume that cancer is a parasitic disease, the drying vegetation on the river banks, after the floods have subsided, may form a favoring nidus for the growth of the parasite. The fact that the majority of the riparian districts show a higher cancer mortality than others seems to support this probable view of parasitic infection. This, however, does not explain the cause of the increase of cancer which is everywhere apparent, but, given the other unknown predisposing factors which lower the vitality of the human organisms to an unresistant degree, we may have along the banks of the river a more or less constant manufacture of the noxious substances ready to attack the already weakened host. He asserts that his facts and figures, taken as a whole, are not only inconsistent with the parasitic theory, but they seem to accord more nearly with the latter hypothesis. [A.B.C.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Carcinoma of the Colon.—H. S. Clogg² bases a most admirable paper upon an analysis of 25 consecutive cases of carcinoma of the colon. The location was: Cecal region, 8; hepatic region, 3; splenic region, 6; sigmoid flexure and upper rectum, 8. The condition is essentially chronic, but acute symptoms may be present when first seen by the surgeon; in 10 cases complete obstruction was present and in 6 cases suppuration had occurred. Regarding diagnosis, Clogg emphasizes the importance of continued pain in the abdomen or slight constipation, associated with decline in health, in persons with no previous abdominal trouble, whose bowels have previously been regular and whose appetite and digestion appear to be in good order. Diarrhea was not noticed in any of the cases and hemorrhage from the rectum occurred in only two. From the findings in these cases, Clogg lays more stress upon glandular involvement than upon dissemination by the blood though the latter is usually claimed to be the great barrier to removal of malignant neoplasms of the colon; glands are usually infiltrated when symptoms are severe enough to bring patients for treatment. A careful operative and postmortem study of the regional glands involved leads to these suggestions for securing them: 1. In cecal growths some inches of ileum with its mesentery should be removed in addition to the greater part of the ascending colon. 2. For growths in the region of the hepatic or splenic flexures, the corresponding halves of the transverse colon and mesocolon should be removed. 3. In rectosigmoid growths practically the whole of the mesosigmoid is to be removed though this means the sacrifice of nearly the whole loop of bowel and, in the majority of cases, an artificial anus. [A.G.E.]

Reflex Disturbances Associated with Adherent Prepuce.—Robert³ T. Simon states that within the last few years he has seen three cases in which the symptoms were due to

adherent prepuce or a narrow urethral meatus, and in none of these cases was there reason to associate the symptoms with any trouble connected with the genital apparatus, and in each instance the diagnosis was made by exclusion. The first was a child of 18 months which suddenly became unable to walk. He dragged one leg and complained of pain in the hip; incipient hip disease was suspected, but this was ruled out. As a last resort the prepuce was examined, found adherent; when the child was circumcised recovery was immediate and complete. The second was that of a boy of 14, who complained of obstinate and severe intestinal colic. Being unrelieved by any form of medication adopted, examination revealed an adherent prepuce which, being relieved, all symptoms disappeared. The third was a boy of 3, who would wake up at night screaming with abdominal pain. Treatment failed until an adherent prepuce and a narrowed meatus were found. These conditions were treated surgically and complete relief was afforded. [A.B.C.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPELMAN

E. LINDAUER

REVIEW OF LITERATURE

Treatment of Smallpox by Red Light.—Herbert Peck¹ reports the results of this treatment in 85 cases in three hospitals. There were two deaths, one of an unvaccinated child of 7, giving a mortality among unvaccinated patients of 8.3%; the other was of a debilitated tramp of 50, giving a mortality among vaccinated patients of 1.3%. Disfigurement was less than usual, and the character of the rash was apparently modified for the better. Delirium was, if anything, less frequent than under ordinary treatment. The number of cases is small, but Peck is sure that the results point to the advisability of a more extended trial of the treatment. An accompanying table shows the number of vaccination marks, the age of the patients, the character of the rash, and comparisons with other statistics. [A.G.E.]

Serum Therapy in Scarlatina.—Escherich,² of Vienna, has prepared a serum from streptococci derived from scarlatinous patients, horses being the medium of preparation. In 100 cases he reports a reduction of mortality to half. In spite of its certain value, the serum is of no use to combat local infections, and the secondary septicemia. [T.H.E.]

PATHOLOGY.

J. EDWIN SWEET

EDITORIAL COMMENT

The Etiology and Pathology of Smallpox.—About one year ago the announcement from the Pathologic Laboratory of the Harvard Medical School of the discovery of intracellular and intranuclear bodies in the lesions of smallpox, which bodies were probably to be looked upon as the specific cause of the disease, excited the most widespread interest. This interest can now be satisfied by the study of a collective report of the work of Dr. Councilman and his collaborators, in the February number of *The Journal of Medical Research*. The report fills an unusually large number, comprising about 350 pages, illustrated by numerous microphotographs and drawings. One naturally turns first to the "epicrisis," by Dr. Councilman, the summary of the results obtained and of the discoverer's own views of the entire study. The reader will be impressed by the remarkably modest, sober, and objective manner in which this summary is written. The first paragraph contains the main result of the work: "In the early stage of the specific lesions of the skin and mucous membranes in smallpox, bodies are found which vary in form, structure, and size. We regard these bodies as the parasites causing the disease. They occur within the epithelial cells, within the nuclei, and free. The forms within the nuclei are subsequent

¹ British Medical Journal, April 9, 1904.

² The Practitioner, April, 1904.

³ British Med. Jour., March 12, 1904.

¹ Public Health, April, 1904.

² La Escuela de Med., Mexico, March 31, 1904.

to those which develop within the cytoplasm. They are present in the greatest numbers in cases of the greatest severity and rapidity of course. They do not occur as isolated structures, but one form follows another by gradual transitions, forming a cycle which corresponds with the cycle of development of living things. In the different cases the same forms are found at the same period of the disease. The bodies increase rapidly in the lesions, and the lesion increases in extent by continuous infection of adjoining epithelial cells. The same forms are found in corresponding situations in the lesions of different cases." Several pages are then devoted to the differences between these bodies and the similar products of protoplasmic and nuclear degenerations. This differentiation may be difficult, but distinctive differences do occur which prove that these bodies are neither degeneration products nor artefacts. The absolute proof that they are living bodies has not yet been produced, but the evidence of growth can only lead to the conclusion that they are alive. It is impossible to cultivate the parasite on artificial media, and Koch's postulates cannot be fulfilled; this is also true of other diseases, but the etiologic factor in these diseases is accepted. The inoculation experiments in the ape are very conclusive. Councilman believes that the parasite shows two cycles of development, one represented by the cytoplasmic forms, the other by the intranuclear bodies. In vaccinia, both of the rabbit and the calf, only the cytoplasmic forms are encountered; in variola of man and the monkey, both forms are found. The intranuclear cycle is probably a sexual one. The mode of infection, the character and peculiarities of the eruption, and the role played by bacteria are discussed, and the epicrisis closes with two statements of general practical interest: "The most important and immediate practical result of the work should be the testing of the quality of vaccine virus by rabbit inoculation. As a means of diagnosis in obscure cases of variola, rabbit inoculation may be of great importance." "Smallpox can, but probably never will be, wholly eradicated. The chief obstacle which stands in the way of its eradication is an inability to recognize facts, and to make the proper deductions from them, which seems to be associated with certain orders of mind. The facts with regard to the production of smallpox immunity by vaccinia are perfectly established. The order of mind which leads to their denial will probably never disappear from the human race."

REVIEW OF LITERATURE

The Life-history of Cytoryctes Variolæ, Guarnieri.¹—The details of this study by Dr. G. N. Calkins are of too technical a nature to be reviewed at length here. The study of Councilman's preparations has led Calkins to place the parasite among the myxosporidia. He has further worked out a life-cycle of the sporozoon, which can only be followed satisfactorily with the aid of the diagrammatic scheme. There can be no objection, as Councilman says, to this cycle, yet it seems fair to question the basis for such a detailed life-history. The question of the mode of infection, and the possible role of a secondary host, together with the mode of transmission in the final host, is still entirely unsettled, and so long as these points are undecided, it would appear impossible to construct a true life-cycle for any organism.

The Pathologic Anatomy and Histology of Variola.¹—W. T. Councilman, G. B. Magrath, and W. R. Brinckerhoff. A study of material obtained from 54 autopsies, 37 of which were uncomplicated variola vera, 2 variola vera with hemorrhage, 2 variola vera—abortive, and 6 variola vera with complications; 2 were cases of variola pustulosa hemorrhagica, and 2 of purpura variolosa. The findings are described in detail, under the head of the following organs: Skin, mucous membranes, lungs, liver, spleen, lymph-nodes, bone marrow, testicles and ovaries, kidneys, adrenal glands, pancreas, heart and

arteries. The conclusions from this study cover four pages; possibly the most interesting are that the specific lesion, due to the presence of a parasite peculiar to the disease, is a focal degeneration of stratified epithelium, vacuolar in character, and accompanied by serous exudation and the formation of a reticulum; the occurrence of these lesions is sharply limited to the stratified epithelium of the skin and of the mucous membranes of the soft palate, the pharynx, and the esophagus. Beside the specific lesions, those of undetermined specificity and those due to bacteria may be distinguished. The paper concludes with a discussion of the literature with reference to protozoa and cell inclusions in vaccinia and variola.

On the Occurrence of Cytoryctes Variolæ, Guarnieri, in the Skin of the Monkey Inoculated with Variola Virus.¹—G. B. Magrath and W. R. Brinckerhoff. A study of 12 lesions from six monkeys experimentally inoculated; nine of these were local lesions, three were from animals in which a general exanthem developed. In these experimental lesions structures were found within the epithelial cells which are identical in form and staining reactions with the bodies found in the lesions of smallpox in man.

The Etiology and Pathology of Vaccinia.¹—E. E. Tuzzer. Among the conclusions we note: Cell inclusions of a definite and constant morphology and specific to vaccinia have been found in a large number of experimental vaccinations of rabbits and calves. Inclusions identical in every respect can be produced in the cornea of the rabbit by inoculation of human variola virus. These bodies do not represent cell degenerations, and they cannot be produced by any other process.

On Experimental Variola in the Monkey.¹—G. B. Magrath and W. R. Brinckerhoff. A study of the general reaction, the lesions of the skin, and the leukocytes in variola inoculata of the monkey. The disease follows a typical course with fever, and a polymorphonuclear, followed by a mononuclear leukocytosis. The disease produced in the monkey by inoculation with variola virus is not identical with variola vera in man; it agrees with variola inoculata in man. The lesions contain the specific parasite in the epithelial cells of the skin and the hair follicles. Successful inoculation confers immunity.

The Leukocyte Reaction in Variola.¹—G. B. Magrath, W. R. Brinckerhoff, and I. R. Bancroft. A greater or less degree of leukocytosis is found in all cases of variola. It is characterized by an increase in the mononuclear cell types, though minor variations are due to fluctuations in the absolute number of polymorphonuclear neutrophils. In fatal cases the leukocyte count may be high in the early stage of the eruption, but from then until death steadily falls.

The Infectiousness of the Blood in Variola.¹—G. B. Magrath and W. R. Brinckerhoff. Undetermined bodies were found in the blood of variola patients, in the blood of inoculated monkeys, but also in the blood of healthy men. They are possibly degeneration products. The blood of variola patients does not produce a variolous keratitis, when inoculated upon the cornea of the rabbit.

On the Infectiousness of the Late Stage of the Skin Lesion in Variola.¹—W. R. Brinckerhoff. The contagium is demonstrable in the variola disc, or crust. By appropriate treatment a product can be obtained from the disc in which the contagium is demonstrable, but which is free from bacteria. The contagium does not appear to multiply in fresh rabbit serum or in filtered eye fluid of calves.

The Central Nervous System in Variola.¹—E. E. Southard. The only finding in the nervous system which can be regarded as an essential part of variola is the hemorrhagic tendency sometimes seen in the cortex and cord in variola hemorrhagica. The most constant clinical finding is delirium, which is to be regarded as the delirium of exhaustion.

A Clinical and Experimental Study of the Bacteriolytic Complement of the Blood-serum in Variola.¹—R. L. Thompson. The results corroborate the work of Longcope² on the bacteriolytic complement in other diseases. In variola there is a diminution of complement in the early stages of the disease, followed by a return to normal, unless a secondary

¹ Journal of Medical Research, February, 1904.

² Univ. of Penna. Med. Bull., November, 1902.

¹ Journal of Medical Research, February, 1904.

infection supervenes, when the complement content continues to diminish.

The report concludes with a paper by I. R. Bancroft, "Clinical Observations on Variola."

The So-called Superior Cardia Glands of the Esophagus.—A. Ruckert¹ reviews the literature upon these glandular structures of the esophagus, and describes four instances in older persons, and six cases in the newborn. He concludes that these upper cardia glands are not normal in the human being, and the name is therefore not justifiable. The glandular erosions of the esophagus are due to a disturbance of fetal development. They are a ready cause for the formation of cysts.

The Cerebrospinal Fluid in Tabes.—G. Milian² finds a marked lymphocytosis of the cerebrospinal fluid in 11 of 18 cases of tabes. Mercury has no influence upon it.

Pathogenesis, Prognosis and Therapy of Tabes.—A. Belugou and M. Faure³ find a history of syphilis in 77% of 1,960 cases of tabes. The time between infection and the beginning of tabes varied from a few years to more than 20 years. The writers incline to the opinion that tabes can occur apart from syphilis, and in syphilis it is probably the injurious action of other conditions of life which have affected the nervous system, to which conditions such individuals are more exposed.

Alcoholism and Degeneration.—G. von Bunge⁴ has collected statistics bearing upon the question of why more than half of all the women in the cities of central Europe are not able to nurse their children for nine months or a year. The details of the statistics, covering 1,629 cases, must be referred to in the original. The principal conclusions are that chronic alcoholism of the father is the chief cause of the daughter's inability to nurse her child; and parallel with this inability are other symptoms of hereditary degeneration, especially an increased susceptibility to tuberculosis, nervous diseases, and psychoses. Another symptom of degeneration accompanying the insufficiency of the mammary glands is caries of the teeth. An interesting fact pointed out by v. Bunge is the relatively large number of cases where the eldest of the daughters of habitual drunkards are able to nurse their children, while the younger daughters are not. The possibility suggests itself that the father has gradually undermined his health, and at the time of the begetting of his younger daughters was not in condition to produce normal reproductive elements.

The Blood in General Paralysis and Tabes.—M. Klippel and E. Lefas⁵ find in general no change in the elements of the blood in cases of progressive paralysis. An increase of the neutrophilic leukocytes and later also of the lymphocytes was noted. An interesting observation is the occurrence of numerous nucleated erythrocytes.

Experimental Studies of Syphilis.—Second memoir:⁶ Metchnikoff and Roux⁷ described in a previous paper two successful inoculation experiments into chimpanzees, to which is to be added one by Lassar.⁸ In 12 further experiments with *Macacus* monkeys, Metchnikoff and Roux succeeded in only four cases. These four cases presented slight lesions, such as those described by Nicolle.⁹ The writers are endeavoring to obtain an attenuation of the syphilitic virus by passing it through the *Macacus* species, and eventually other species still less susceptible. The experiments with chimpanzees prove without doubt that the species is susceptible to syphilis, and consequently can be of great service in studying the disease.

Islands of the Mucous Membrane of the Stomach and Glands Similar to the Lower Esophageal Cardia Glands in the Highest Part of the Esophagus.—H. Schridde¹ has studied these islands of tissue by means of their macroscopic staining reaction in a Müller formalin solution, in which the epithelium of the stomach shows a deep brown color, contrasting strongly with the light yellow color of the

esophageal membrane. He concludes that the esophagus is originally lined with an epithelium of entodermal origin, which is later replaced by an ectodermal membrane growing downward from the mouth cavity. These islands represent remains of the original lining membrane.

The Cerebrospinal Fluid in the Secondary Stage of Syphilis.—P. Ravaut¹ found in 26 female patients suffering from papulous exanthema or the pigmented form a considerable increase of lymphocytes in the fluid; of 34 patients who showed no symptoms, or only roseola, only three showed a certain reaction of the meninges. The lymphocytosis does not have constant relation to any of the nervous symptoms but does seem related to the affection of the epidermis.

The Pathology of the Elastic Tissue of the Spleen.—B. Fischer² concludes from his study of 30 spleens that the elastic tissue of the spleen in diseased conditions can either remain passive or be directly destroyed, as in tuberculosis, etc.; in some cases the elastic tissue may disappear from the whole spleen, following extreme stretching of the tissue. A compensatory hypertrophy and simple hyperplasia may occur. A fibroelastic induration occurs in syphilis, etc. An hypertrophy of the elastic tissue surrounding the capillaries occurs frequently in leukemia.

Capsule Formation of *Diplococcus Pneumoniae* in Pure Culture.—M. H. Gordon³ calls attention to the well-known fact that the *diplococcus* of pneumonia grown in pure culture ordinarily does not reveal its capsule. He has lately discovered that the pneumococcus grown upon gelatin at 37° C. forms a capsule which is easily distinguished under the microscope. His directions for securing this result are essentially as follows: The gelatin used is 12% made as follows: One liter of distilled water to 1 lb. of minced beef; boil 30 minutes; filter; add 12% yellow-globe table gelatin; 1% peptone; $\frac{1}{2}$ % salt, make faintly alkaline with liquor potassæ; add white of egg and steam for 30 minutes; filter; pour into tubes; sterilize for 30 minutes on two successive days. A drop of the fluid gelatin culture is removed with a loop and is spread over a cover-glass; dried over the flame; allowed to stand in alcohol for a minute and then, without drying, transferred film downward to a watch-glass containing ordinary Ziehl's carbol fuchsin. The film is allowed to stain in the fuchsin for from a half to three minutes. The cover-glass is then dipped in a beaker of water and, after removal of the moisture, the preparation is mounted on a drop of water on a slide. On examining the specimen with an oil immersion, clearly outlined stain capsule can be seen around many of the diplococci. It is important only to dip the stain cover-glass lightly and rapidly into the beaker of water; if the specimen is washed until all excess of stain is removed the capsules are invisible. [A.B.C.]

Chemical Constitution of the Tubercle Bacillus.—W. Bulloch and J. J. R. Macleod⁴ have studied the chemical constitution of the tubercle bacillus and give in some detail the results obtained from a study of the acid-fast substance of that organism. Several kilograms of bacilli were used—the deposit obtained by filtering autoclaved cultures for the preparation of tuberculin. Their results are contrary to the usual belief that the acid-fast qualities of the bacillus are due to the presence of fat. Large percentages of fatty substances are obtained, but further examination shows that neither the fat nor fatty acids are acid-fast. A pure alcohol was also obtained, and this, when stained by carbol fuchsin, was found to remain unaltered after prolonged immersion in 50% nitric acid, in methyl alcohol and then in alcohol. From this the writers conclude that the acid-fastness and alcohol-fastness of the tubercle bacillus are due to the presence of an alcohol. [A.G.E.]

The Relation of Pathologic Conditions of the Choroid Plexuses to Mental Diseases.—G. Ashton⁵ has based his researches on 50 plexuses, 45 of which were from the insane. The most frequent changes he has found are (1) hyaline degeneration (29 cases) especially affecting the adventitia of the small

¹ Virchow's Archiv, 175, 1, 1904.

² Ann. de dermat. et de syphiligr. 1903, No. 7.

³ Revue de Med., 23, 1903, p. 603.

⁴ Virchow's Archiv, 175, 2, 1904.

⁵ Archives Génér. de Méd., 1903, No. 17.

⁶ El. Metchnikoff and Em. Roux, Ann. de l'Inst. Pasteur, 1904, No. 1.

⁷ Ann. de l'Inst. Pasteur, 1903, p. 809.

⁸ Berl. klin. Woch., 1903, No. 52, p. 1189.

⁹ Ann. de l'Inst. Pasteur, 1903, p. 636.

¹ Ann. de dermat. et de syphiligr. 1903, No. 7.

² Virchow's Archiv, 175, 1, 1904.

³ British Medical Journal, March 19, 1904.

⁴ Journal of Hygiene, January, 1904.

⁵ Medical Chronicle, November, 1903.

arteries, the endothelial cells lining the trabecular spaces and the connective tissue of the villi; (2) increase of fibrous tissue (20 cases); (3) cystic degeneration (17 cases). Mulberry bodies were present in seven cases. Newgrowths are rare, 1,500 postmortems showing none. Changes are most marked in general paralysis of the insane and senile dementia, less so in epileptic insanity, chronic mania, and chronic melancholia, and least in acute insanity. It is impossible to believe that these highly specialized masses of glandular substance, the actual size of which is rarely appreciated, and situated as they are in the very center of the cerebrospinal fluid can exist without having some effect upon the composition of this fluid, and so remotely upon the cells of the brain. As a secondary factor, aggravating the original morbid process in the brain, and retarding or preventing its arrest, these changes may have an influence of the most potent kind. [H.M.]

Etiologic Value of Eosinophiles in Bullous Dermatoses.—La Reed¹ claims that in a large number of these cases there exists an eosinophilia associated with elimination of eosinophiles by the skin. This symptom permits the classification of certain types, and constitutes an essential sign of a condition which should be distinguished as the true pemphigus type of Besnier-Brocq. Lesions of the hematopoietic organs may accompany this disease, and arthritis and osteomalacia may be observed in the foliaceous pemphigus. In those cases in which cutaneous or visceral suppuration is present the eosinophiles may disappear for the time being by reason, perhaps, of the weakness of the hematopoietic organs. La Reed believes that cutaneous eosinophilia is due to the eosinophilia of the blood, in explanation of which, however, he has nothing to offer. [J.H.W.R.]

Bacillus Fusiformis (Vincent-Miller).—G. Angelici² finds its occurrence in man and lower animals. Not growing well alone in culture media, it will live if cocci are added. Acetic acid favorably influences development, but sugars inhibit. *B. fusiformis* is the *B. hostilis* of Seitz. The writer is investigating its relation to various microorganisms with which it will exist and without which it will not; various gastric lesions and other morbid processes throughout the alimentary canal show the presence of *B. fusiformis*. [T.H.E.]

Coagulation of Blood.—This paper, by P. Morawitz,³ is a continuation of the studies reported in the last number of the same periodical. In these last experiments he shows that the blood-platelets contain large quantities of thrombogen. This substance has not yet been found with certainty in any other cellular elements; hence, the view is supported that the blood-platelets are not disintegration products of red or white corpuscles, but are distinct cellular elements. The presence of thrombogen in the platelets would thus account for the previous observations of the influence of large numbers of platelets on the rapidity of coagulation. It has also been observed that in extravascular coagulation of blood, small accumulations of blood-platelets form on the walls of the vessel. The white blood-corpuscles contain very little or no thrombogen. [B.K.]

Embolism of the Sylvian Artery Following Venous Thrombosis of the Leg in a Case of Patulous Foramen Ovale.—P. Hocheisen⁴ reports a case of the sort indicated by the title. The patient was a woman 61 years of age, who, as the autopsy showed, must have had a patulous foramen ovale all her life. She had never had cyanosis. The case is interesting on account of the fact that the embolus was situated in the right Sylvian artery. [D.R.]

Incomplete Coarctation of the Aorta.—G. R. Murray⁵ reports a case of this uncommon lesion that during life was diagnosed aneurysm of the thoracic aorta. The patient, a man of 48, was under observation for four years, previous to which he had suffered from shortness of breath for five years and cough for two years. During part of his stay in the hospital no pulsation could be felt in the abdominal aorta or the femorals. At autopsy the heart was found to be hypertrophied. The vessels arising from the arch of the aorta were much dilated and

had thickened walls. Immediately beyond the origin of the left subclavian artery the aorta was narrowed until it admitted only a body $\frac{1}{8}$ inch in diameter. The actual stricture was short, only $\frac{1}{2}$ inch in length. Beyond this the vessel rapidly expanded. On the proximal side of the stricture was a wide annular calcareous plate. [A.G.E.]

The Toxin of the Chancroid Bacillus.—In a preliminary report S. W. Sowinski¹ says that the diplo-bacillus of Ducrey is beyond doubt the specific cause of chancroid. Pure cultures of these bacilli produce chancroid in man and in animals (rabbits and guineapigs). The toxin of this diplo-bacillus produces local and general effects. Injected into the peritoneal cavity it causes suppuration and often death of the animal; injected beneath the skin, it leads to the formation of an abscess. Freezing of the toxin emulsion and subsequent thawing do not influence its toxic and pyogenic properties. The pyogenic activity is lessened by sterilization. The pus collections of the diplo-bacilli or their toxins have a spontaneous tendency to resolution. The bacilli die rapidly in the animal and human systems, hence they are seldom found in suppurating buboes. The latter cannot, however, be the product of the toxins alone, but the local presence of the diplo-bacillus is necessary to their formation. If the pus of a bubo is injected into animals, no local reaction takes place, owing to the absence of living bacilli, which, as already stated, die rapidly. [L.J.]

The Blood in Pulmonary Tuberculosis.—H. G. Pesel² finds the hemoglobin rate surprisingly high in all stages. Of the cases examined 85.7% had 70% or more hemoglobin. If the rate is low at first it will increase as the patient improves under treatment. The anemia of the tuberculous is frequently more apparent than real. The red cells are generally nearly or quite normal, sometimes abnormally numerous; 61.5% of the writer's cases numbered 5,000,000 or more. These numbers are obtained by the production of many immature and ill-formed corpuscles. Definite poikilocytotic forms were not found. In the majority of cases an increase in leukocytes is present at some stage. There is either a polymorphonuclear increase where the entrance of septic organisms has called forth resistance, or a basophile increase accompanying improvement under nitrogenous diet and hygienic surroundings. These forms may coexist, or the second may follow the first. On looking into each group he finds that when the leukocytes increased after treatment the initial count was not generally high. When they diminished the first count was fairly high in every case. This suggests that the leukocytes increase when their aid is needed and diminish when their protective work is done. The basophile reaction seems to be a useful indicator of progress. [H.M.]

The Agglutination of Staphylococci.—Klopstock and Bockenheimer³ have performed a series of experiments to determine the value of serums as a means of recognition between pathogenic and saprophytic staphylococci, with the following results: A serum produced with pathogenic cocci agglutinated not only the homologous genus, but also most other pathogenic varieties. Pathogenic staphylococci, which a specific serum agglutinated only slightly more than the normal serum of the same animal, are capable of producing a serum which agglutinates them and other pathogenic staphylococci easily. Saprophytic cocci are not agglutinated by a serum produced by pathogenic organisms and they can furnish serum which agglutinates them, but never pathogenic varieties in considerable dilution. Some saprophytic staphylococci do not produce any agglutinating serum. This shows the agglutinating method to be a useful means of differentiation between pathogenic and saprophytic staphylococci. Their method of experimentation is described in detail. They also found that only the pathogenic types were capable of producing hemolysins. The practical value of their experiments is pointed out by them. [B.L.]

Neoplastic Cells in the Blood.—M.M. Leper and Louste⁴ report a study of the blood of patients suffering from lymphadenoma, epithelioma, and sarcoma. From a puncture of the

¹ Journal Med. de Bruxelles, No. 46, 1903.

² Il Policlinico, Rome, February 20, 1904.

³ Deut. Arch. f. klin. Med., Bd. lxxix, p. 215.

⁴ Fortschr. d. Med., March 20, 1904.

⁵ The Practitioner, February, 1904.

¹ Russki Vrach, January 24, 1903.

² Medical Press and Circular, October 28, 1903.

³ Archiv für Klinische Chirurgie, 1904, lxxii, 325.

⁴ La Semaine Médicale, February 3, 1904.

finger, 20 drops of blood are obtained and put into 15 cc. of 1% acetic acid solution. This mixture is then centrifuged and the sediment examined. In a case of lymphadenoma were found lymphocytes undergoing karyokinesis and from three cases of sarcoma were obtained large sarcoma cells, the latter differing in no way from the cells obtained from the tumor itself. This sarcomatous cythemia will be of diagnostic value if found to be frequent in cases of sarcoma while if it is found only in cases where the tumor has become generalized it will largely determine the prognosis. The blood has been negative in all the cases of epithelioma studied by the writers. [A.G.E.]

Excretion of Soluble Proteids in the Feces.—A. Albu and A. Calvo¹ have examined the feces for albumoses and peptone in health and disease. In healthy breast-fed infants albumin is constantly found, in healthy older children only occasionally. In both classes it occurs constantly when there is intestinal disease. In adults these substances are never found in health, and only in part of the cases of intestinal disease. There are three possible sources for the albumin: (1) Undigested proteids from the food, rapidly excreted by the diarrhea; (2) diminution of the absorptive power of the intestine; (3) products of intestinal inflammation. [B.K.]

The Influence of Radium on Agglutination.—P. P. Jagn² publishes a preliminary report of his experiments with radium. His object was to test the effect of radium on the specific properties of blood-serum in disease. So far only the serum of typhoid fever was tested. In all, 19 experiments have been made, using the radium bromid. It was found: 1. After an exposure of the typhoid blood-serum to the radium salt, lasting two to three days, the serum loses its agglutinating properties entirely. 2. An exposure of shorter duration does not destroy the agglutinating power, though the latter undergoes a considerable reduction. These phenomena the author is inclined to attribute to the so-called B-rays. [L.J.]

The Blood in Epilepsy.—F. S. Pearce and L. N. Boston³ give the results of a study of the blood of epileptics and also the outcome of experiments on animals. The former show that there is in idiopathic epilepsy a fairly wellmarked chlorotic type of anemia. Leukocytosis was present in all but one of the cases, the highest count being 18,000. Differential count of leukocytes revealed nothing of striking interest, the polynuclears being reduced in three cases and myelocytes present in three. The red cells were approximately normal in numbers, showed a moderate degree of poikilocytosis, and, in three cases, punctate basophilia. The results, therefore, gave no conclusive evidence of change *per se* in the cells of the blood of epileptics. The injection into rabbits of the defibrinated blood of epileptics gave rise to blood changes which indicated that a profound toxemia was induced in the animals. No such changes were induced by the blood of healthy students. Marked leukocytosis was caused in some instances but, in contrast to the form observed in septic processes, the true polynuclears were reduced while the eosinophiles were greatly increased. The eosinophilia resembling that seen in persons suffering from parasitic diseases, would suggest more careful observation regarding the possible relation between epilepsy and parasitic infections. [A.G.E.]

Pathology of Latent Malarial Infections Observed at Autopsy.—Charles F. Craig⁴ reports a series of cases in which no parasites were observed in the blood and no symptoms of malaria were detected before death. During the last three years, at the U. S. Hospital in San Francisco there have been seven such cases, in which the autopsy showed latent malarial infection. Three of these had benign tertian infections and four estivoautumnal infections of the tertian type. He first makes reference to the tertian cases, and describes the autopsy findings in the spleen and liver; the spleen was enlarged and otherwise abnormal; microscopically the sinuses and capillaries showed the presence of numerous parasites, infected red cells and pigmented leukocytes. While the infected red cells were not so numerous as in acute infections, still they were plainly noticeable. All the parasites in a particular case were

in about the same stage of development, but it had happened that the patients died at such periods that the entire cycle of the tertian parasite within the body could be worked out from the examination of sections of spleen in the several cases. Microscopically the liver showed congestion, which was venous in character, and sections examined for infected red corpuscles revealed none that were infected. The pathology of the latent estivoautumnal infections was practically the same as in the tertian. The chief point illustrated is that the malarial parasite, either tertian or estivoautumnal may undergo its entire normal human life cycle within the spleen without producing the suspicion of malarial disease and without being found in the peripheral blood. [A.B.C.]

Observations on Phagocytosis and Leukolysis.—F. B. Bukoemski¹ experimented on animals by means of virulent streptococci injected into the peritoneal cavity. He found that phagocytosis of these virulent cocci was clearly pronounced at first, the leukocytes seizing the streptococci very actively. Toward the end of infection phagocytosis becomes weaker, although even after death the peritoneal exudate contains leukocytes which have ingested cocci. After the injection of streptococci a condition of leukopenia is noted in the exudate, and is due to the abundant precipitation of leukocytes on the abdominal organs. During the infection the leukocytes retain their normal appearance. Leukolysis could not be observed. When streptococci are introduced in large quantities they have a markedly destructive effect on the nuclei of the mesenteric endothelial cells. [L.J.]

Substances that Respond to the Test with Acetic Acid and Serve to Differentiate Serous Exudate from a Simple Transudate.—Fabio Rivalta² quotes from several journals, the question having come up first in 1895. A drop of serous exudate let fall into a solution of the acid gives a turbidity due to the presence of two forms of globulin: Euglobulin or paraglobulin, and pseudoglobulin, this containing phosphorus, on account of which it is affected in a different manner from nuclealbumin. In transudates, both the globulins may occur. But their quantities are too small to cause the precipitation in the test as applied. Hofmeister and Wallerstein have carried the separation further. [T.H.E.]

Cells with Eosinophile Granulations.—E. L. Opie³ has made a thorough study of these cells, both as to their normal formation and their occurrence in certain parasitic affections. He maintains that they are derived from large mononuclear cells with eosinophile granulations that are found in the bone marrow. These cells undergo mitotic division and become the eosinophiles found in the blood; eosinophile cells manufactured in the bone marrow reach the tissues by way of the blood-vessels. Opie's second paper gives the results of experiments in which *Trichina spiralis* was fed to guineapigs. He found an increase of the eosinophile cells in the blood comparable to that which accompanies human infection by that parasite. This increase becomes constant at the end of the second week after infection and reaches its maximum at the end of the third week; at this time embryonic trichinas are in process of transmission from the intestinal mucosa by way of the lymphatic vessels and the blood through the lungs to the muscular system. Characteristic changes in the bone marrow accompany the increase of eosinophile cells in the blood, the former being the seat of multiplication of these leukocytes. Before death the number of eosinophiles decreases and infection with a great number of trichinas causes a rapid diminution in those cells; the latter cases prove quickly fatal. [A.G.E.]

The Blood in Malignant Disease.—E. N. Cunliffe⁴ finds that the most constant and characteristic feature is the decrease in the amount of hemoglobin and in the hemoglobin index. Decrease in the number of red cells is usually met with in advanced cases or in those complicated by hemorrhage, but many early cases show no diminution. Leukocytosis is the general rule, but is frequently absent in early cases, and sometimes even in advanced ones. The main factors in causing

¹ Zeit. f. klin. Med., Bd. III, p. 96.

² Russki Vrach, December 6, 1903.

³ Medicine, February, 1904.

⁴ Journal of the Association of Military Surgeons, December, 1903.

¹ Russki Vrach, February 14, 1904.

² Il Policlinico (Rome), No. 6, 1904.

³ American Journal of the Medical Sciences, February and March, 1901.

⁴ Medical Chronicle, September, 1903.

leukocytosis are the occurrence of metastases, hemorrhage, cachexia, ulceration, and septic infection. Pyrexia has no apparent influence. The polymorphonuclear neutrophils are usually increased in number. The increase may take place in the absence of any leukocytosis and be a valuable sign of malignant disease. Abnormal cells, normoblasts and myelocytes, may be found in advanced cases. [H.M.]

Characteristics of Human Bile.—T. Kimura¹ has investigated the bile taken from the human gallbladder shortly after death. He finds its pigments to be variable in quantity, being low in tuberculosis and high in conditions of stagnation, such as heart disease. The specific gravity varies from 1.012 to 1.040, and the dry residuum from 2.68% to 20.63%. The relative viscosity varies widely, from 1.46 to 58.24. These factors are all greatly increased in cases of obstruction of the common bile duct. Urobilinogen is found regularly, urobilin very frequently; but both are wanting in cases of complete biliary obstruction, marked diarrhea, and in the newborn. This fact supports the enterogenous theory as to the formation of urobilin. Normal feces contain urobilin regularly, but it is wanting in cases of biliary obstruction. Meconium does not contain any. In a case of obstruction of the cystic duct, a hitherto undescribed brown pigment was found. [B.K.]

Influence of Radium upon Vegetable Organisms.—In view of the increasing interest in radium, the experiments of Dixon and Wigham² on the influence of radium upon vegetable organisms, are of importance. They found that upon seeds and algae the radium emanations had but slight effect. When bacterial cultures were exposed to the rays, however, the growth of the microorganisms was arrested within the area subjected to the emanations. This was not due to destruction of the bacteria in the sterile area, for they could be successfully transplanted to other media. [D.R.]

The Virulence of Human and Bovine Tubercle Bacilli for Guinea-pigs and Rabbits.—M. Dorset³ summarizes the work which has in part appeared in previous medical literature. The experiments are given in detail, a medium consisting of the mixed whites and yolks of hens' eggs being used for the isolation and propagation of all cultures. At least 10 human cultures, of varying virulence, were used. The comparative cultural characteristics and the animal findings are detailed. As a result, it is stated that the following general conclusions seem unavoidable: 1. Certain tubercle bacilli of human origin are indistinguishable either culturally, morphologically, or with regard to their virulence for rabbits and guinea-pigs from certain tubercle bacilli of bovine origin. 2. There is considerable variation in the virulence of human tubercle bacilli for rabbits and guinea-pigs. Dorset believes that in human and bovine tuberculosis we have to do with organisms differing usually in virulence, but between which there is no other essential distinction. He also states that until we know what influence a residence in the human body exerts upon bovine tubercle bacilli we cannot determine accurately the proportion of cases of human tuberculosis that result from infection from cattle. A more detailed study of tubercle bacilli derived from accidental inoculation of men with bovine virus is needed, and also further examination of bovine bacilli derived directly from cattle. [A.G.E.]

Behavior of the Large Mononuclear Leukocytes and the Transitional Forms in Carcinoma Ventriculi.—Kurpjuweit⁴ agrees with others, that the blood picture of carcinoma of the stomach is not uniform. From a study of 10 cases he concludes that the erythrocytes usually diminish in number, the hemoglobin even passing below normal. The leukocytes are usually increased. The relation of leukocytes to erythrocytes averages 1 to 366 instead of 1 to 666. Of mononuclear leukocytes the average percentage was 4.12, one case having as many as 10%, another only 1%. One case pursuing the ordinary course and showing the ordinary blood picture suddenly became worse; six hours before death the mononuclear leukocytes amounted to 33% of the total, the polynuclear to 35%.

the lymphocytes to 32%. The autopsy showed nothing extraordinary; the explanation brought forward is that considerable of the surface of the cancer broke down suddenly, toxins were formed, and changed the complex of the blood picture. [E.L.]

Traumatic Asphyxia.—H. H. Beach and Farrar Cobb¹ report that a man of 30 was caught and held by a moving elevator for three to five minutes; when released his face was black, and blood ran from the nose and mouth, and he was unconscious. The patient was revived, and on the second day, while the discoloration of the face and neck persisted, small portions of skin were removed for microscopic purposes, with a view to throw some light on the much disputed question of the etiology and minute pathology of this rare condition. The discoloration rapidly disappeared after the third day, and the patient recovered. The gross cause of this unusual clinical picture is a forcible compression of the chest extending over some minutes, accompanied by entire cessation of respiration. Knowledge of the pathology has heretofore been obtained from postmortem findings. Pressure asphyxia has been noted in persons pressed to death in struggling crowds. A report from Dr. Wright, who examined the specimens of skin, shows every section to be normal skin; there was no sign of blood in the tissue outside of the bloodvessels. This agreed with the provisional diagnosis, the authors regarding the discoloration as due to stasis from mechanical overdistention of the veins and capillaries, with or without paralysis from engorgement of or pressure on sympathetic nerves. Six other cases are collected and reported from the literature. [A.B.C.]

Cyodiagnostic Investigations of the Cerebrospinal Liquor.—Ernest Meyer² says his examination of 35 cases corroborate the views held by the French, that lymphocytes are present in the cerebrospinal fluid of chronic meningitis associated with organic disease. The absence of lymphocytes does not indicate that meningitis does not exist, but their presence is of great diagnostic value. Seventeen of his 35 were cases of functional disease, only one of which presented paralysis; in these series lymphocytes were absent. The aid that cyodiagnosis gives in differentiating functional from organic diseases needs no further elucidation; since many cases of paralysis develop slowly, Meyer believes the value of this method of diagnosis can be estimated only by repeated examinations. [J.F.]

The Pathology of Hemophilia.—W. A. Geier³ had occasion to make a thorough study of the blood and organs of a hemophiliac who died from the bleeding following an operation. As a result of his studies the author arrives at the conviction that the cause of hemophilia will be found in an abnormal condition of the blood, which contains cytoglobulin, a product of the destruction of the red cells and their nuclei. This destruction takes place in normal blood as well, but very slowly, and no excess of cytoglobulin is accumulated. In the hemophiliac this process is very rapid. A second important factor is the thinness of the vessel walls, their muscular poverty and inability to contract firmly. The frequency of bleeding into joints in hemophilia is explained by the liability of the joints to traumatic injuries, resulting in rupture of the friable vessels. [L.J.]

Congenital Absence of the Common Bile Duct.—G. D. Menzies⁴ cites the case of a female infant, apparently healthy at birth, in whom the skin and conjunctivas became yellow on the third day; the urine was bile-stained from birth. The feces were chalky white, but constipation was never present. The child thrived for five weeks, then became thin and asthenic and died at the age of five months without having developed special symptoms. Autopsy showed the internal organs to be bile-stained and the presence of several ounces of bile-stained fluid in the peritoneal cavity. The gallbladder was empty and unstained; the cystic duct ended in a culdesac; there was no common duct; the hepatic duct was dilated and full of bile. The liver was small, hard, dark-green in color and microscopically showed a moderate interlobular cirrhosis. [A.G.E.]

¹ Deut. Arch. f. klin. Med., Bd. lxxix, p. 274.

² Dublin Journal of Medical Science, March 1, 1904.

³ Bulletin No. 52, Part I, Bureau of Animal Industry, U. S. Department of Agriculture.

⁴ Deutsche medicinsche Wochenschrift, May 21, 1903.

¹ Annals of Surgery, April, 1904.

² Berliner klin. Wochenschrift, 1904, No. 5.

³ Medizinskoje Obozrenie, lxi, No. 1.

⁴ Australasian Medical Gazette, January 20, 1904.

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A great agency in the people's hygienic education is the sanitary bulletins and reports of city and State Boards of Health. According to the character of the individual men, or perhaps individual man, of these boards, will, of course, depend the character of these bulletins. Some will be scientific, and even ultrascientific, seeking only to stimulate original research and the sources which ultimately make and mold popular opinion. They have, to be sure, their place and proper function, but one cannot help being interested in those which aim directly at the education of the common people in sanitary affairs and health preservation. These should be widely distributed and it would be money saved if the local city, town, or State would appropriate the money to send the reports to every taxpayer in the district concerned. Such documents may well keep in mind the statistics and purely scientific aspects of reform, if mixed in judicious proportion with food better fitted for popular consumption—predigested as it were. It should not be forgotten that our scientific knowledge of preventive medicine is a long way in advance of the real possibility of lessening the deathrate, if the well-understood scientific laws were put in practice. Most commendable in the respect suggested is the admirable *Monthly Bulletin of the Indiana State Board of Health*. Every State should send such a monthly missionary tract to its householders.

Passenger Car Ventilation.—Who has not suffered from overheating, underheating, and ill ventilation of railway cars? It is strange that the abuse has been so long tolerated. The Pennsylvania Railroad Company, according to Dr. Charles B. Dudley, of Altoona, Pa., has grappled with the problem, and if there is not satisfaction on the part of the travelers in the future it will be their own fault, either in not complaining to the officers in charge of the installed ventilating devices, or to the higher officers of companies who have been negligent of the health of their patrons. The system of the Pennsylvania Company consists in taking air from the outside in through hoods covered with wire gauze to exclude coarse cinders, situated at diagonally opposite corners of the car, on what is known as the lower deck, near the top of the car. Thence the air passes through a vertical down-take through the floor to a space underneath the floor, which is bounded by the outside sill, the floor, the

first intermediate sill, and the false bottom. This space underneath the floor reaches the whole length of the car. From this space the air passes up through the floor, by means of slots in the floor, into the heater boxes; where the air is warmed by the radiators. From the heater boxes the air passes out through a proper tubular aperture, situated underneath each seat, into the main aisle, from which point it distributes itself throughout the car, and finally passes out of the car through ventilators situated along the center line of the upper deck, which ventilators are so arranged that when the car is in motion, or the wind blows across the top of the car, they produce a suction on the car, helping to exhaust the foul air. The amount of air taken through the car by the system when all the ventilators are open is about 60,000 cubic feet per hour, or approximately 1,000 cubic feet of fresh air per passenger. A passenger coach embraces about 4,000 cubic feet of space, so that the air in the car is changed 15 times an hour. Methods of compensating for differences when the car is in motion or still, have been devised. Have any other companies shown the enterprise of the Pennsylvania Company? The Pullman Company has not.

Superfluous Medical Societies.—Much has been written in recent years upon the excessive number of medical societies. The recent movement for the reorganization of medical societies has had a favorable effect in diminishing the chances for new societies. There yet exist, however, a number of organizations whose members should consider carefully as to whether the profession would not be much benefited by their extinction. There are also other societies that make a good showing on paper that have no members at all—that is, none that have paid dues or otherwise complied with the requirements of membership. These exist because the private gain of some one—usually a layman—is thereby favored. One society which nominally has a national scope has all its meeting expenses paid by a layman who owns the journal that publishes its transactions. Its meetings are attended by a handful, and a few papers are read. Officers are elected by those who pay no dues, the "slate" being fixed in advance by the layman who "pays the freight." Honored names are borrowed to head the list of officers, but their possessors are absent from the meetings. The official organ has a

large circulation of the mailing list sort—no subscriptions being paid. Its pages are filled with the articles read at the annual meetings and, in yet larger proportion, with paid-for "puffs" and "write-ups" of proprietaries that are advertised in its columns. Conducted in this way the journal is a "good thing" for its lay owner. One might be surprised at so many doctors lending themselves gratuitously for the profit of a layman, but in this case the loan was a forced one. The "members" of the society and the "subscribers" to the magazine, both were drafted from the ranks in almost all instances wholly without the knowledge of those levied on. The very impertinence of the scheme commands some admiration for the promoter. How much good might come from such talent properly directed! The practical result is the obvious conclusion that, as the "scheme" is no longer a secret, the nominal "members" should either forbid the unauthorized use of their names, or else attend the meeting and capture their own society. Having elected their own officers the members might then pay their own bills, decide where their papers shall be published, and put such checks about their "official organ" as will prevent its moral standing continuing to be a by-word among journalists, and among doctors.

A fallacy in the statistics of typhoid fever, and one well understood by physicians, is in the nonreporting of cases. The facts are so little understood by the laity and by some newspapers that the fallacy is supposed to consist in exaggeration. But, in fact, the fallacy is almost always in an underestimation of the number of cases. One cause of the misunderstanding is clearly set forth in a leader of our contemporary *The Cleveland Medical Journal*. In Cleveland the only cases of typhoid fever of which the Board of Health takes cognizance are those entered in the "contagious disease book," and none are so entered on the basis of blood sent to the city laboratory, whether the findings of the laboratory are positive or negative, but only upon the receipt of an independent report by the physician in charge of the case. In an investigation of this subject covering the months of January and February, it was noted that a number of physicians who were known to have had cases of typhoid fever during the period covered by the investigation had reported no cases to the Health Office. Other physicians volunteered the information that they had treated additional cases which they had not reported. Of 100 cases from which physicians sent blood to the city laboratory and received a report that the Widal was negative, 47 ran a typical typhoid course, but none were reported as typhoid fever. In January and February 184 specimens of blood from 178 to 180 patients were sent to the city laboratory; 43 of these, or 25%, had a positive Widal, but only 12 were reported as cases of typhoid fever. This indicates a total number of 31 cases of typhoid fever, as determined by the presence of the Widal reaction, which were not reported to the city, and a further number of 63 (47% of 135 patients for whom the Widal reaction was reported negative) who might justly be counted as having had typhoid fever from the further clinical course of the disease, or a

total of 94, being 15% of the 612 cases reported to the city in January and February as having the disease. The conservatism of physicians in reporting cases of typhoid fever is indicated by the fact that of 92 cases reported in January the subsequent course of the disease warranted the diagnosis, according to the statement of the attending physician in all but one case. The *Journal* says:

It is quite impossible to determine just how many cases of typhoid fever there are in the city at any time. In view of the failure on the part of physicians to report all of their cases it is undoubtedly true that the total number is decidedly larger than the number reported, even after making allowance for errors. From a comparison of the number of deaths from typhoid fever and the number of cases reported, and as well as from the facts given above, it seems unlikely that these reports have ever been more than half to two-thirds of the actual number of cases in the city.

"The Sanitary Condition of Guayaquil and Vicinity" is the title of an admirable study by Acting Assistant Surgeon Gruner in *Public Health Reports*. The certainty of the completion of the isthmian canal gives to Guayaquil a position, from a sanitary standpoint, not possessed a few years ago. The city becomes an important factor in all that concerns the sanitation of the canal zone. Its commercial importance, which brings it in frequent communication with the Isthmus, only 700 miles distant, is already great and with the opening of the canal will rank of first importance among the cities on the Pacific side of South America, among which it now ranks third, after Valparaiso and Callao. In Guayaquil, Dr. Gruner says that no mosquito screens are used in the hospitals, a fact that may excuse the editor of *Baedeker's Italy* for still advising that windows must be closed at night. The Board of Health of Guayaquil has almost no funds at its disposal; if it had power it would be reasonably prompt to undertake reforms of existing abuses. The vital statistics are comparatively worthless; only deaths are reported. If the preventable diseases were really prevented, the conditions would not be worse than in other tropical cities. As to what should be done, Dr. Gruner recommends the enactment and enforcement of rigid sanitary regulations; sewer the city; fill the low streets and lots; drain and fill the swamps at the city's edge; establish a quarantine station at the entrance to the Guayas River. The history of yellow fever in Ecuador proves conclusively that it is Guayaquil from which the infection spreads to the surrounding territory because of the intimate communication between these places. The same observation would hold in all other infections. Therefore to establish such a station is an essential part of any intelligent sanitary effort.

Pavilion F, Albany Hospital.—One year ago we had occasion to comment favorably on the results of the first year's work of the Department for Mental Diseases in the Albany Hospital. The second annual report¹ shows a continuance of the satisfactory conditions that obtained during the first year. The whole number of patients under treatment during the year was 171; of the 157 discharged,

¹Albany Medical Annals, May, 1904.

51 had recovered and 43 were improved. During the two years 65% of the discharged patients had recovered or were improved. The pavilion has been enlarged and now has 33 beds. In common with other departments of the hospital it has been opened to the students of the Albany Medical College for instruction in mental diseases. All nurses of the hospital are required to spend several weeks in the mental wards before their graduation and in addition are given lectures on the care of these patients. The department is no longer an experiment; it is a decided success. Authorities of general hospitals who are considering the advisability of setting aside a ward for the treatment of acute mental cases can do no better than study the statistics of Pavilion F. The two years of its existence have proved conclusively that a ward for mental diseases can be successfully and profitably maintained in a general hospital; we mean with profit to the patients, not necessarily from a financial standpoint. The authorities of the hospital are to be congratulated upon the fact that they have not only not sought but have declined any power which would put the Department for Mental Diseases on the footing of an institution for the insane. We trust that many institutions will shortly see their way clear to profit by this demonstration of the Albany Hospital.

The Water-supply of Cities.—The profession in Cleveland, and especially the alert editors and collaborators of the *Cleveland Medical Journal*, have shown an exemplary enterprise in arousing the attention of the cities about the Great Lakes as to the local water-supply. Studies like those of Dr. Handerson on Cleveland's water-supply should be made by those connected with the health bureaus of every city. The typhoid mortality of Cleveland has averaged nearly 50 per 100,000 of the city's population for the 30 years since the opening of the Health Office. These figures indicate how great has been the need of an improved water-supply for Cleveland. From the experience of other cities it is certain that an improvement of any account in the character of the municipal water shows at once in a diminution of the number of cases of and deaths from typhoid fever. It is, therefore, presumably true that the water from the new intake will give a lower typhoid mortality, and that conditions will be still better when the city mains and the new tunnel are thoroughly cleaned out. The *Cleveland Medical Journal* says:

While the exact character of the water at the new intake is unknown, a consideration of the typhoid mortalities of other cities along the Great Lakes may incline us to the opinion that a moderate pollution is to be expected at all times. Further, in the sand from the bottom of the lake near Cleveland it is probable that bacterial evidence of sewage pollution could be found if any search was made for it, since the colon bacillus has been isolated from similar sand taken from the lake near Buffalo at a point where contamination by Buffalo's sewage was considered impossible. The water from the new intake, therefore, may become dangerous in times of storm and flood. Ten or eleven of the 132 cities of the United States with a population of 30,000 or over take their drinking water from and deposit their sewage into the Great Lakes. Of these, Detroit, the ninth in the list, had the smallest average mortality in the years 1898 to 1901, 18 per 100,000; Milwaukee came next, the thirteenth on the list, with a mortality of 19; Buffalo is number

48 in the list, with a mortality of 27; Chicago, number 51, with 28; Cleveland, 83, with 39; Duluth, 120, with 65. If our suggestion is reasonable, that a typhoid mortality above 10 per 100,000 of the population of any municipality indicates a polluted water, then it would seem, on a consideration of these figures, that the burden of proof must lie with anyone who wishes to argue that Cleveland, even after the completion of the improvements planned, or, indeed, any other city taking its water from the Great Lakes, will have an unpolluted water-supply.

Stature and efficiency, at least of a military kind, is having new light thrown upon it by the events of the Russo-Japanese war. For several years there has been much newspaper and magazine discussion, with great bemoaning of the fact that the national stature, as shown in examinations of military recruits, has been deteriorating. In England, *e. g.*, the demands have been repeatedly reduced until even with the present minimal requirements it is possible to get volunteers only of the smallest men with the greatest difficulty. Even compulsory military service is seriously considered. But is it not, after all, a blunder—this admiration for mere size, and depreciation of the little man? All little men will certainly agree that it is so. But does not history and evolution prove it? Is not every step in the progress of civilization epitomized in the fact of the control of external mechanical forces by man's intelligence rather than the increase of his own bodily forces? Did anything come of the Prussian folly of regiments of seven footers? In the American Civil war the most enduring men and the best marchers were of small stature. A French count has left a legacy whereby under the supervision of the municipality of Rouen an institute for rearing giants is to be established. The trustees are to search the world for men and women of large stature, and are to pair them off in couples, place them in homes upon a farm, and allow them to breed like horses and cattle, expecting that the next generation will surpass them in stature and physical strength. Would these giants not be at a positive disadvantage in the national or social struggle for existence? The Russian peasant is certainly taller and of greater bulk than the Japanese. As our American philosopher puts it:

If I'm not so large as you
You are not so small as I,
And not half so spry.
Talents differ; . . .
If I cannot carry forests on my back,
Neither can you crack a nut.

Cure by "Operation Per Se."—Some time ago in one of our eastern hospitals a patient was "possessed" by the belief that he had a "worm in his leg." To be rid of the man's importunities, he was operated upon, and before his eyes a leech was extracted from the ailing spot. From the West now comes the (newspaper) story, possibly true, of another, also a hospital case, in which the inveterate belief in the existence of a tumor was removed by a feigned operation. Is the procedure wise and advisable? Of this one may venture a strong doubt. It seems to show more than a "phoria," a pronounced squint, one may say, toward the plan of treating, so ably advocated by Mother Mary Baker Patterson and the rest. Do such methods, in the long run, increase the

respect—or the disrespect—entertained by so many persons, of the medical profession, of hospitals, etc.?

The Witch Doctors of Pennsylvania.—Many would be surprised to learn that a very genuine and active relic of the belief in witchcraft still exists. "Hexerei" is today such a living nuisance throughout a number of counties of Pennsylvania that a determined effort, it is said, is to be made by the State Medical Board to uproot it. The duty has been too long postponed, and if it is thoroughly done there will be saved many lives and much suffering and expense on the part of the victims—often children—of this medieval superstition. Charms, incantations, doctors for milk-souring, and hocus-pocus of strange varieties, doctors and remedies for hysterics, colds, hemorrhages, pains, toothaches, whoopingcough, hair-growing and hair-destroying, for cuts, burns, wounds, sprains, etc., abound among these devotees and "pow-wow" curers. Their bible is an echo of middle age nonsense, of which these are samples:

To banish whoopingcough cut out three small bunches of hair from the crown of the head of a child that has never seen its father; sew this up in an unbleached rag and hang it around the person's neck.

If you burn a large frog to ashes and mix the ashes with water you will obtain an ointment that will, if put on the place covered with hair, destroy it and prevent it from growing again.

The medical men who have undertaken the cure of this disease deserve all encouragement and help.

The fear of being buried alive, one would have thought, should by this time have died out. The death of Miss Frances Power Cobbe demonstrates how vivid is that morbid solicitude. Her will directs her medical attendant to "sever the arteries of the neck and windpipe, nearly severing the head altogether," of her body, on pain of invalidating her will entirely. It should be noted that Miss Cobbe's demand in her will comes with an astonishing illogicality from one who has so bitterly opposed vivisection, and especially that of human beings. To "completely sever the arteries of the neck and windpipe" (why are the arteries of the windpipe so important? to avoid future talking?) and "nearly severing the head altogether" would have no significance if the subject were really dead. But if alive, is not that a bad form of vivisection? At one time mortuary chambers were established in Germany and elsewhere in which dead bodies were placed, a bell-rope being attached to the hand of each. No one has ever heard, or heard of, the bell being rung. There seem to be no well-authenticated and conclusively demonstrated instances of the actual burial of the living, although there are of course many of supposed death with subsequent resuscitation, prior to burial. The signs of life are now so well understood by all capable physicians that the danger of premature burial may be said not to exist if the laws pertaining to the subject in most civilized States are observed. None needs imitate Miss Cobbe, unless, like her, he has a predisposition to convictions as deep-seated as they are unfounded, and have also a theoretic suspicion, to use the softer word, of the honor and science of the medical profession.

BOOK REVIEWS

The Therapeutics of Mineral Springs and Climates.—By I. BURNEY YEO, M.D., F.R.C.P. W. T. Keener & Co., Chicago, 1904.

Dr. Yeo, as a practical therapist has no superior nor has any one a wider acquaintance with the important subject matter of this volume. His clear and concise style in writing is well known. From such a combination of qualities in the author we have the right to expect a good book and we are not disappointed. From the standpoint of the American physician, however, the book is incomplete, scanty attention being given to the excellent springs and resorts on this side of the Atlantic. A few of the more prominent ones are indeed mentioned and judiciously characterized, but for complete information on resorts near at home the American physician must look elsewhere. On the other hand the information given concerning European resorts is very satisfactory and the practical advice sound.

Diseases of the Skin: An Outline of the Principles and Practice of Dermatology.—By MALCOLM MORRIS. New edition. W. T. Keener & Co., Chicago, 1903.

In the present edition of Morris' wellknown manual of "Diseases of the Skin," a considerable amount of new text has been added descriptive of diseases not considered in previous editions, and the number of black-and-white illustrations has been more than doubled. Blastomycetic dermatitis, porokeratosis, parakeratosis variegata, and those tuberculous eruptions to which the French have given the name tuberculids, are among the most important of the new diseases described. It is somewhat difficult to decide just what is the author's position in regard to the parasitic origin of eczema since in one place we are told "The parasitic theory must therefore for the present be dismissed as 'not proved,'" while in another it is stated: "Eczema in a large proportion of cases is of parasitic origin." The employment of the Finsen treatment and the röntgen ray in lupus vulgaris is somewhat briefly considered and apparently without much enthusiasm; and tuberculin is still believed to have "a distinct place" in the treatment of this disease. This edition, except in a few comparatively unimportant particulars, is thoroughly up to date, and will be found a useful guide in the recognition and management of diseases of the skin.

The Medical Epitome Series: Organic and Physiologic Chemistry.—By ALEXIUS MCGILLAN, M.D. Lea Brothers & Co., Philadelphia and New York.

This book is really a companion volume to the one by the same author on Physics and Inorganic Chemistry. The first 174 pages are given to organic, the remaining 60 to physiologic chemistry. A list of questions is appended to each chapter. The same may be said of this as of the preceding volumes, brief but very well arranged, and furnishing a vast amount of information in small compass. The editor of the series has been exceedingly fortunate in his selection of authors.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Electricity. The Chemistry of Ether: A treatise generalizing a fundamental hypothesis applicable to Electricity, Chemistry, Physics, Physiology and Pathology; with chapters on General and Gynecologic Electrotherapeutics. Illustrated by 134 engravings and containing tabulations of Polar Differentiations and Current Comparisons.—By GEORGE ADAM, M.D., recently Professor of Therapeutics and Electrotherapeutics, College of Physicians and Surgeons, San Francisco, Cal. Price, \$4.50. Whitaker & Ray Co., San Francisco, Cal.

Immune Sera, Hemolysins, Cytotoxins, and Precipitins.—By PROF. A. WASSERMANN, M.D., University of Berlin: Authorized translation by CHARLES BOLDUAN, M.D. Cloth, \$1.00. John Wiley & Sons, New York, 1904.

Krankheiten und Ehe: Darstellung der Beziehungen zwischen Gesundheitsstörungen und Ehegemeinschaft.—Edited by PROF. DR. H. SENATOU and DR. MED. S. KAMENIR. New York: Rebman Company.

Simon's Clinical Diagnosis: A Manual of Diagnosis by Microscopic and Chemical Methods, for Students and Practitioners.—By CHARLES E. SIMON, M.D., late Assistant Resident Physician at Johns Hopkins Hospital, Baltimore. New (fifth) edition, thoroughly revised and much enlarged. Octavo, 695 pages, 150 engravings, 22 colored plates. Cloth, \$4.00 net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1904.

AMERICAN NEWS AND NOTES

GENERAL.

Requests to Charity.—New York: By the will of Solomon Loeb, a sum aggregating more than \$60,000 was left to various hospitals and charitable institutions; among others being the Montefiore Home, Mt. Sinai Hospital, Home for Aged and Infirm Hebrews, etc.—Baltimore: By the will of Mrs. Ellen M. Bolton, the Home for Incurables, of Baltimore, will eventually receive half, and possibly her entire estate, valued at \$25,000.

Miscellaneous.—Philadelphia: At a meeting of the Board of Trustees of Jefferson Medical College, May 16, the following clinical professors were elected full professors, with seats in the Faculty: Drs. Howard F. Hansell, W. Joseph Hearn, Henry W. Stelwagon, H. Augustus Wilson, Edwin E. Graham, Orville Horwitz, S. MacCuen Smith, D. Braden Kyle, Albert P. Brubaker, Solomon Solis Cohen. Dr. John H. Gibbon, surgeon at the Pennsylvania Hospital, was elected Associate Professor of Surgery; Dr. Randle C. Rosenberger, Assistant Professor of Bacteriology, and Dr. Aller G. Ellis, Associate in Pathology.—The annual commencement exercises of the Jefferson Medical College, of Philadelphia, will be held in the American Academy of Music, on Friday, May 27, 1904. The annual meeting of the Jefferson Alumni Association will be held at the Bellevue Hotel, Philadelphia, May 26, 1904. The annual banquet of the Association will be held immediately after the meeting, at which Dr. Albert Hoffa, Professor of Orthopedic Surgery in the University of Berlin, upon whom Jefferson College will confer the honorary degree of LL.D. at the commencement exercises, will be the guest of honor. Dr. J. L. Faure, surgeon to L'Hôpital Herold of Paris, who has been making a tour of the United States, will be in Philadelphia, May 23 and 24, as the guest of Drs. W. W. Keen and John G. Clark. Dr. Faure will give two clinics, one at the University Hospital, May 23, and one at the Jefferson Hospital, May 24. The Philadelphia Pediatric Society was addressed at its last meeting, May 10, by Dr. Roland G. Freeman, of New York. Subject: "The Feeding and Care of Children after the First Year." The University of Pennsylvania, on June 10, 1904, will hold dedicatory exercises at the opening of the laboratories of pathology, physiology and pharmacology.—New York State: Dr. Warren L. Babcock, Chief Surgeon of the State Soldiers' Home Hospital, at Bath, N. Y., has been selected by the Board of Trustees of Grace Hospital as superintendent of that institution, to succeed Dr. A. L. Putnam. He will assume his new duties about June 1. Dr. Abram Tucker Kerr has been elected to the chair of anatomy in the medical department of Cornell University, Ithaca, N. Y. Dr. Kerr received his medical degree in the University of Buffalo, in 1897, and was for a time acting professor of anatomy in the Buffalo Medical College and later was made assistant professor and demonstrator of anatomy in that institution. In 1900 he took charge of the work in anatomy at the Ithaca division of Cornell University, and he is now promoted to full professorship. Dr. William P. Spratling, Superintendent of the Craig Colony for Epileptics at Sonyea, near Rochester, N. Y., has been chosen superintendent of Bellevue and Allied Hospitals at a meeting of the Board of Trustees, vice Dr. William Mabon, who was recently appointed president of the State Commission in Lunacy.—New Mexico: The twenty-third annual session of the New Mexico Medical Society was held at Albuquerque, May 11, 1904.—Baltimore: Dr. Charles R. Bordin, Assistant Professor of Anatomy at the Johns Hopkins University, has accepted the chair of anatomy at the University of Wisconsin.

EASTERN STATES.

The Protozoan in the Cause of Disease.—The *Journal of Medical Research* publishes an article by Dr. James H. Wright, director of the Clinico-Pathological Laboratory at the Massachusetts General Hospital, on his asserted discovery of the protozoan causing the so-called aleppo boil. The cause of this disease has never been known, and its interest lies in its close relationship to the protozoa found in smallpox and in scarlet fever, both of which have been tentatively demonstrated by Boston men.

NEW YORK.

Libel Suit Decided in Favor of Criminologist.—Arthur MacDonald, formerly criminologist at Washington, in a libel suit against the New York *Sun*, was allowed by the jury in the Supreme Court of Brooklyn, \$20,000 damages.

Street Sweepers to Undergo Physical Examination.—The Medical Examiners of the Street Cleaning Department have been instructed to make a physical examination of the 5,000 sweepers and drivers employed by the city. A considerable percentage of the men who have asked for sick leave lately were found to be suffering from tuberculosis, and Commissioner Woodbury wants to know just how badly his force is infected. He does not believe that the work of street cleaning is unusually dangerous, but if tuberculosis is spreading he wants to know it, so that some means may be devised for the protection of the men. The examination will take about 15 days.

Consolidation of Medical Societies.—At a meeting of the Joint Committee of Conference held at the New York Academy of Medicine, May 6, 1904, the following resolutions were passed: *Resolved*, That the president and the secretary of the Joint Committee of Conference be authorized and directed to make a certificate provided for in the tenth paragraph of the agreement, and the council of the committee be directed to proceed with diligence to obtain a final order for the consolidation of the corporations, pursuant to the terms of the agreement, and that the form of the certificate to be made by the chairman and the secretary, be in the form of the draft certificate submitted to this committee, which is as follows: Supreme Court, New York County. In the matter of the application of the Medical Society of the State of New York, and the New York State Medical Association for an order consolidating the said corporations, pursuant to the act, Chapter 1 of the laws of 1904. This is to certify that the Joint Committee of Conference mentioned in the agreement for the consolidation of the Medical Society of the State of New York and the New York State Medical Association, which agreement was unanimously adopted by the Medical Society of the State of New York, at its annual meeting at Albany, on January 26, 1904, and by the New York State Medical Association at a special meeting of the association held in New York, on March 21, 1904, has not ordered the submission of said agreement or of any questions in connection therewith, to the county medical societies or associations referred to in said agreement, and that the conditions precedent to an application to the Court for an order consolidating the Medical Society of the State of New York and the New York State Medical Association have been fully complied with; and this certificate is made pursuant to the "tenth" paragraph of said agreement. In witness thereof, the undersigned, Abraham Jacobi, Chairman of the Joint Committee of Conference, and Wisner R. Townsend, Secretary of the Joint Committee of Conference, do hereunto subscribe their names at the City of New York, this — day of May, 1904. Thirty out of 35 county associations have ratified. One, Onondaga, has refused to ratify; four have not yet reported. The associations that have ratified represent a membership of 1,711, and those that have not acted, a membership of 42. The one refusing to ratify has 14 members. Ratifications have been received from 47 out of the 51 county societies; four have not yet acted. Those which have ratified represent a membership of 5,569. Those which have not yet acted, a membership of 164. According to the agreement, article 10, declares "that whenever the chairman and secretary of the Joint Conference Committee shall certify that the conditions precedent to an application to the Court have been fully complied with, the presidents of the respective corporations shall, and they are hereby authorized and required in the name and behalf of their respective corporations to petition the Supreme Court for an order to consolidate in accordance with the term thereof. Therefore all county associations and societies that have not ratified will be asked to appear before the Court at a specified date appointed by the Court, and show cause why the consolidation should not be completed according to the terms of the agreement, despite their failure to ratify."

PHILADELPHIA, PENNSYLVANIA, ETC.

Victims of the Butler Typhoid Epidemic Sue for Damages.—In Butler, Pa., an organization has been effected, composed of members of the recent frightful typhoid epidemic in that town, and suit has been instituted against the water company furnishing the water to the town. It is held that this company has been guilty of negligence in furnishing impure water to the city, the use of which resulted in the great epidemic and consequent damage to the victims, hence the suit. This will be watched with interest by both the legal and medical fraternities, as the claim for damages under such circumstances is a new one. Some hold that prosecution for criminal negligence would be more to result in punishment of the company.

Nurses' Associated Alumnae.—Uniformity in the standard of training and State registration of nurses, and reciprocity were the aims discussed in the convention of the Nurses' Associated Alumnae in the Drexel Institute, Philadelphia, last week. A member of the association gives a brief review of the work accomplished, as follows: Friday morning, after the usual orders of business meeting, the following papers were read: "Section on State Registration," by Miss S. A. Bowen, Boston City Hospital Alumnae; "The Effect of Registration upon the Educational Standards of Training Schools, as Shown by Results in New York State," by Miss S. F. Palmer, Editor *American Journal of Nursing*; "The Justice of an Examining Board Composed of Nurses," by Miss Cabiness, Johns Hopkins Hospital Alumnae; "The Necessity for Low Standards in the Beginning," by Miss I. C. Rose, the Illinois Training School Alumnae; "State Reciprocity," by Miss Nutting, Johns Hopkins Hospital Alumnae. Miss Nutting tried to show that toward reciprocity in nursing we take our first step when we ask for laws which shall establish standards of education for nurses and require that those wishing to practise as professional nurses shall prove before competent examining boards that they conform to those standards. Investigation shows us an entire lack of uniformity in instruction in training schools throughout the country. Our school (Massachusetts) has a

course of four years. And there are other schools having a course of only a few weeks. It is fair to say that three years will become the accepted uniform period. Of 5,000 so-called schools in America, 230 have accepted this term. Until we can further emerge from this disorganized condition which permits every hospital or sanatorium in the country to maintain a school for nurses on its own lines, until we can establish some unanimous standard, we may continue to secure laws in certain States, but they will vary so greatly that the standards of one State may not prove acceptable to another. We must raise the profession to the highest possible standard, and have uniform teaching in the training schools. Saturday morning all papers were on "Central Directories." All sessions had a full attendance.

SOUTHERN STATES.

The Cat Pest and Congress.—Washington is likely to have a cat pound, where all stray felines may be impounded and the stillness of the night hours thus preserved to the citizens. The objection to ownerless cats is that they are likely to spread disease and are breeding far beyond the requirements as rat catchers. For many years there have been hosts of wild cats in the Treasury Department, inhabiting the intricate subterranean corridors of that remarkable structure. Their justification, given many times officially, is that they help Uncle Sam to save his money by hunting down the rats and mice that would otherwise eat up all the greenbacks and bonds stored in the vaults. The present movement against the irresponsible cat was begun by a physician, who said he knew that the death of two children was stated by a medical association to have been due to the germs of diphtheria carried by stray cats with which the children had played. It will be necessary for Congress to grant legislation which will enable the District government to provide for the licensing of cats and the impounding of those which have no owners.

WESTERN STATES.

Summary of a Decade.—The Bulletin of Chicago's Health Department for the week ended May 7, 1904, says: During the decade 1894-1903 there were 246,189 deaths reported from all causes in this city. Of this number, pulmonary tuberculosis caused 24,265 deaths, or 9.8%, and pneumonia 28,665, or 11.6% of the total. Of the 10,161 deaths from all causes reported during the first 4 months of this year, pulmonary tuberculosis caused 1,154 deaths, or 11.3%, and pneumonia caused 2,328 deaths, or 22.9% of the total. That is to say, while the pulmonary tuberculosis mortality is 15.3% higher this year than during the previous 10 years, the pneumonia mortality is 97.4% higher.

Chicago Prepares for Fourth of July.—One policeman, one fireman, one doctor, one volunteer school teacher, and one naval militiaman will be on hand July 4 to guard each of several mimic theaters of war that have been arranged for by the managers of the public Independence Day celebration in Chicago. The program proper will begin upon the morning of the Fourth, and free firecrackers and torpedoes of the harmless variety will be supplied to each small boy for the asking. In the afternoon bands of the National Guard will give concerts in the parks and a military promenade will take place. A committee upon medicine and science, to have charge of the work of providing safeguards for persons injured by toy pistols or fireworks, and to prepare statistics on lockjaw, has been appointed.

Mortality of Michigan during April, 1904.—The total number of deaths returned to the State Department for the month of April was 3,212, or 194 less than the number registered for the preceding month. The deathrate was 15.7 as compared with a rate of 16.0 for March. Deaths at important ages were as follows: Under 1 year, 518; 1 to 4 years, 172; 65 years and over, 1,008. Deaths by causes: Tuberculosis of lungs, 235; other forms of tuberculosis, 37; typhoid fever, 81; diphtheria and croup, 47; scarlet fever, 25; measles, 27; whoopingcough, 15; pneumonia, 302; influenza, 104; cancer, 145; accidents and violence, 184. There was a marked rise in the number of deaths from typhoid fever, and a decrease in the number reported from pneumonia and influenza, as compared with the preceding month. No deaths from smallpox were reported for April.

Milk Inspection in Chicago.—The Bulletin of Chicago's Health Department for the week ended May 7, says: During the week the laboratory analyzed 547 samples of milk and cream; of these 6.03% were found below grade. This high percentage of low-grade samples is due to the fact that at this season of the year there is a large number of fresh cows. The dairy inspector destroyed over 100 rusty milk cans. The department has decided that milk cans must be in first-class condition and thoroughly bright and clean. Filthy, rusty cans will be destroyed wherever found, because these cans cannot be thoroughly cleaned and sterilized; some milk remains in them and becomes sour. A small amount of sour milk, added to a can of fresh milk, will cause it to sour very readily, especially in warm weather, and, next to dirty milk, sour milk is a very potent factor in the cause of intestinal diseases among children.

FOREIGN NEWS AND NOTES

GENERAL.

A Modesty Peculiar to Her Sex.—The poorhouse in Budapest contains among its inmates a woman named Jetty Einzig, who, according to her baptismal certificate, is 116 years old. She gave her age as 105, and when confronted with the certificate and asked why she had not told the truth, she replied it was because she felt ashamed to be so old!

Bubonic Plague in Formosa.—A. C. Lambert, vice-consul-general at Daitotai, which is a new name for Tamsui, the old capital of Formosa, reports to the State Department that during the month of March there were 558 cases of bubonic plague on the island, with 369 deaths. The consul shows that the plague has been epidemic for the last five years in the southern part of the island, but, with one exception, this March record is the worst for the corresponding month in any preceding year.

OBITUARIES.

John Milton Duff, a wellknown physician and surgeon, at his home in Pittsburg, May 14, of blood poisoning, following an operation. Dr. Duff was clinical professor of gynecology in the West Penn Medical College, obstetrician-in-chief and abdominal surgeon in the Rhine-man Hospital, surgeon at the South Side Hospital, gynecologist at the Kaufman Clinic and President of the Section of Obstetricians and Gynecologists of the American Medical Association in Pittsburg. He was ex-president of the Pittsburg and South Side Medical Society and member of a dozen other medical societies. He was the author of many valuable medical papers. He graduated from the Western University of Pennsylvania after the Civil war, in which he participated as a soldier in Company B, 107th Pennsylvania Volunteer Infantry.

William Waterworth, at his home in Brooklyn, May 12, aged 53. After being graduated at Western Reserve College, at Hudson, Ohio, in the class of 1875, he was graduated from the Bellevue College of Medicine, afterward becoming an interne of the Brooklyn Hospital. He was a visiting physician at the Brooklyn Eye and Ear Hospital, and an active member of the Kings County Medical Society. He was a Freemason, a member of the Royal Arcanum and of the Union League Club. His activities in his profession involved much work of a purely humanitarian character and his charities will never be known except to the beneficiaries.

Luther D. Jacobs, Emporia, Kansas, at a hospital in Chicago, April 28, after an operation upon the stomach. He was a graduate of the University of Pennsylvania, member of the American Medical Association, of the National Association of Railway Surgeons, ex-president of the Santa Fe Medical and Surgical Society and fellow of the Academy of Medicine.

Bernard Mackay, of New York City, was struck and instantly killed in Madison Square, May 12, by a fire engine. He had been deaf for nearly 40 years, which accounts for the accident. He was educated in Paris, where he studied medicine, though he never practised, owing to his deafness, and he was 71 years of age.

James Gray Thomas, at his home in Mobile, Ala., aged 69. He was a prominent surgeon of Mobile; served as a surgeon of the Confederate army during the Civil war, and in 1889 was appointed commissioner from Alabama to the Paris Exposition. At the time of his death he was a member of Governor Jelks' staff.

Giles S. Mitchell, at his home in Cincinnati, May 5; a graduate of the Medical College of Ohio, Cincinnati, in 1875; member of the American Medical Association; professor of gynecology in the Cincinnati College of Medicine and Surgery and surgeon to St. Mary's Hospital, Cincinnati.

John Stansill, from heart disease, at his home in Rockingham, N. C., April 25, aged 55; a graduate of the University of Maryland School of Medicine, Baltimore, in 1872; member of the American Medical Association and of the Medical Society of the State of North Carolina.

William H. McGee, at his home in Belvidere, N. J., May 10, aged 56; a graduate of Bellevue Medical College, N. Y., in 1872. He was a member of the Warren County Medical Association and resident physician for the Pennsylvania Railroad Company.

Clinton Cushing, at his home in Washington, D. C., May 11; a graduate of Rush Medical College, Chicago, in 1865. He was one of the oldest and best known physicians of Washington, having retired from active practice some years ago.

Albion P. Tophit, at his home in Portland, Maine, May 9; a graduate from Dartmouth College, and later from Bellevue Medical College, New York. He has practised in Portland since 1878, being one of the best known physicians in the city.

Emma L. McCollum Clawson, of Battle Creek, Mich., from pneumonia, at Los Angeles, April 24, aged 39; a graduate of the University of Michigan, Ann Arbor, in 1891. She was a member of the American Medical Association.

John L. Dodge, from the effects of an overdose of chloroform, which he evidently took to relieve a severe headache, at his home in Boliver, Miss., May 10; a graduate of the Louisville University in 1887.

Augustus Reimer, from Bright's disease, at his home in College Point, N. Y., April 29, aged 66; a graduate of the University of Göttingen, Germany, in 1880; one time coroner of Queens County, New York.

James Griffin Conly, at his home in Elk Point, S. D., May 8, aged 66; a graduate of Rush Medical College, Chicago, in 1862. A surgeon in the Third Wisconsin Volunteer Infantry during the Civil war.

John B. Blanton, at his home in Chico, Texas, April 25, aged 65; a graduate of the Medical College of Virginia, Richmond, in 1860; regimental surgeon in the Federal service during the Civil war.

John A. Gibbons, at his home in Keokuk, May 1, aged 41; a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1883; at one time demonstrator of anatomy in that institution.

Walton Fuqua, at his home in Stewartville, Va., April 28, aged 32; a graduate of the Medical College of Virginia, Richmond, in 1896; member of the Medical Society of Virginia.

J. Ellwood Peters, from apoplexy, at his home in Jenkintown, Pa., May 16, aged 40. Dr. Peters was the oldest practicing physician in Jenkintown, having been there since 1874.

P. C. Robinson, from apoplexy, at his home in Pittsburg, May 15; a graduate of Jefferson Medical College, Philadelphia. He served in the Confederate army during the Civil war.

M. O. Butterfield, committed suicide at the home of his brother, in Venice, Ohio, by shooting himself, May 1, aged 51; a graduate of the Medical College of Ohio in 1880.

Thomas B. Saulsbury, of Towson, Md., at the Maryland General Hospital, Baltimore, May 1, aged 53; a graduate of the College of Physicians and Surgeons in 1882.

Edward Reed Wheeler, of Spencer, Mass., from agna pectoris, at Winthrop Beach, April 30, aged 64; a graduate of Bellevue Hospital Medical College in 1894.

Louis Bedford Welch, of Chiroch, Pa., in West Elizabeth, Pa., April 27, aged 68; a graduate of the University of Maryland School of Medicine in 1879.

John R. Hawkins, at his home in Sioux Falls, May 8; a graduate of Rush Medical College in 1900; member of the American Medical Association.

Melvin W. Caster, from pneumonia, at his home in Clayton, Mo., April 30, aged 73; a graduate of the Medical College of Ohio, Cincinnati, in 1877.

Robert M. Price, from pneumonia, at his home in Centerville, Md., April 30, aged 62; a graduate of the Baltimore Medical College in 1881.

Herbert Linderman, at his home in Philadelphia, May 15, aged 37; a graduate of the Medico-Chirurgical College, Philadelphia, in 1891.

Grant H. Richtmeyer, at his home in New York City, April 21, aged 39; a graduate of the University of Vermont, Burlington, in 1890.

Henry C. Whitehead, at his home in Fort Worth, Texas, April 22, aged 43; a graduate of Vanderbilt University, Nashville, in 1893.

Henry L. Standinger, at his home in St. Louis, April 24, aged 63; a graduate of the Humboldt Medical College, St. Louis, in 1867.

Benjamin F. Moulton, at his home in Lawrence, Mass., May 3, aged 59; a graduate of Harvard Medical School in 1867.

Joseph P. Chartrand, at his home in Quebec, April 25, aged 43; a graduate of Victoria College, Cobourg, Ont.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 14, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
Florida:	Jacksonville.....Apr. 30-May 7....	4	
Illinois:	Chicago.....Apr. 30-May 7....	2	
Kentucky:	Covington.....Apr. 30-May 7....	5	
Louisiana:	New Orleans.....Apr. 30-May 7....	5	
Maryland:	Baltimore.....Apr. 30-May 7....	5	
Michigan:	Detroit.....Apr. 30-May 7....	1	
	Grand Rapids.....Apr. 30-May 7....	3	
Missouri:	St. Louis.....Apr. 25-May 7....	35	
New Hampshire:	Manchester.....Apr. 30-May 7....	2	
New Jersey:	Camden.....Apr. 30-May 7....	1	
New York:	Buffalo.....Apr. 30-May 7....	3	
	New York.....Apr. 30-May 7....	1	
	Bucyrus.....Apr. 30-May 7....	3	
Ohio:	Cincinnati.....Apr. 29-May 6....	15	1
	Cleveland.....Apr. 29-May 6....	4	
	Dayton.....Apr. 30-May 7....	12	1
	Toledo.....Apr. 30-May 7....	1	
Pennsylvania:	Philadelphia.....Apr. 30-May 7....	26	5
	Pittsburg.....Apr. 30-May 7....	6	
South Carolina:	Charleston.....Apr. 30-May 7....	2	One imported.
	Greenville.....Apr. 23-30.....	9	
Tennessee:	Nashville.....Apr. 30-May 7....	8	
Wisconsin:	Milwaukee.....Apr. 30-May 7....	3	

SMALLPOX—INSULAR.

Philippine Islands:	Manila.....Mar. 12-26.....	9	1
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SMALLPOX—FOREIGN.

Argentina:	Buenos Ayres.....Feb. 1-29.....		51
Austria:	Prague.....Apr. 16-23.....	2	
Belgium:	Antwerp.....Apr. 16-23.....	16	6
Brazil:	Rio de Janeiro.....Mar. 27-Apr. 10....	95	63
Canada:	Sydney.....To Apr. 30.....	55	1
	Winnipeg.....Apr. 23-30.....	1	
China:	Shanghai.....Mar. 26-Apr. 2....		15
Colombia:	Barranquilla.....Apr. 18-24.....		1
Great Britain:	Dundee.....Apr. 16-23.....	2	
	Edinburgh.....Apr. 16-23.....	2	
	Glasgow.....Apr. 22-29.....	81	2
	Hull.....Apr. 16-23.....	3	
	Leeds.....Apr. 23-30.....	5	
Russia:	Odessa.....Mar. 26-Apr. 23....	9	1
	St. Petersburg.....Apr. 8-16.....	12	3
Turkey:	Alexandretta.....Apr. 8-18.....	16	1
	Constantinople.....Apr. 10-24.....		11
	Smyrna.....Mar. 26-Apr. 3....		1

YELLOW FEVER.

Brazil:	Rio de Janeiro.....Mar. 26-Apr. 10....	8	4
Ecuador:	Guayaquil.....Apr. 9-16.....		8
Mexico:	Merida.....Apr. 24-30.....	2	1

CHOLERA.

India:	Calcutta.....Apr. 2-9.....		104
	Madras.....Apr. 2-8.....		8

PLAGUE—INSULAR.

Hawaii:	Honolulu.....May 8.....		1
Philippine Islands:	Manila.....Mar. 12-26.....	8	8

PLAGUE—FOREIGN.

Brazil:	Rio de Janeiro.....Apr. 3-10.....	3	
	Bombay.....Apr. 5-12.....		811
	Calcutta.....Apr. 2-9.....		539
Peru:	Callao.....Apr. 3-10.....	1	1
	Chosica.....Apr. 14.....		2
	Matacuna.....Apr. 14.....	2	

Changes in the Medical Corps of the U. S. Army for the week ended May 14, 1904:

FELTZ, ROBT. L., contract surgeon, leave granted February 27 is extended one month.

MURRAY, First Lieutenant **ALEXANDER**, assistant surgeon, is granted leave for twenty-one days.

HUGHES, LEONARD S., contract surgeon, will report for duty to the commanding officer, department rifle range, Point Bonita, Cal., relieving Contract Surgeon Gustavus I. Hogue, who will report at the Presidio for temporary duty until the return to that post of Contract Surgeon Frank H. Titus, when Contract Surgeon Hogue will rejoin his proper station.

GEDDINGS, First Lieutenant **EDWARD F.**, assistant surgeon, is granted leave for two months from about May 15, with permission to apply for an extension of one month.

RUTHERFORD, First Lieutenant **HENRY H.**, assistant surgeon, now in Hot Springs, Ark., on sick leave, will report to the commanding officer, Army and Navy General Hospital, for such duty as he may be able to perform.

FORD, First Lieutenant **CLYDE S.**, assistant surgeon, leave granted for ten days is extended to twenty days.

WEED, F. WATKINS, contract surgeon, now at Baltimore, Md., will report at Fort McHenry for duty.

EBLE, CHARLES F., sergeant first class, orders of April 29 are revoked.

EBLE, CHARLES F., sergeant first class, Fort Thomas, will report to the commanding officer, Third Infantry, at that post, to accompany that regiment to Alaska, and Companies L and M thereof to Fort St. Michael, reporting on arrival to the commanding officer, to relieve Sergeant First Class James R. Filgate. Sergeant First Class Filgate will proceed to San Francisco, Cal., on the transport Crook, reporting to the commanding general, department of California, and by letter to the military secretary of the Army for further orders.

BUSHNELL, Major **GEORGE E.**, surgeon, now on duty at the General Hospital, Fort Bayard, will assume command of that hospital upon the departure of Lieutenant-Colonel Edward T. Comegys, deputy surgeon-general, in compliance with orders heretofore issued.

LA GARDE, Major **LOUIS A.**, surgeon, Par. 19, S. O. 46, February 25, W. D., is revoked. Major La Garde will report to Rear Admiral John G. Walker, United States Navy, chairman Isthmian Canal Commission, for duty with the commission upon the Isthmian Canal of Panama.

The following changes in the stations and duties of officers are ordered: First Lieutenant **Chester J. Stedman**, assistant surgeon, is relieved from duty at Columbus Barracks, Ohio, to take effect upon the departure from that post of the battalion of the Third Infantry, and will then report to the commanding officer of that battalion for duty en route to Fort Lisicum, Alaska, and upon arrival at that post will report in person to the commanding officer thereof for duty, relieving First Lieutenant **Cosam J. Bartlett**, assistant surgeon. Lieutenant **Bartlett** will proceed on the transport Crook to San Francisco, Cal., and report by telegraph to the military secretary for further orders. First Lieutenant **John R. Bosley**, assistant surgeon, is relieved from duty at Fort Thomas, to take effect upon the departure from that post of the Third Infantry, and will then report to the commanding officer of that regiment for duty en route to Fort Egbert, Alaska, and upon arrival at that post will report to the commanding officer thereof for duty, relieving Captain **Jere B. Clayton**, assistant surgeon. Captain Clayton will proceed to Fort William H. Seward, Alaska, for duty.

The following changes in the stations and duties are ordered: Captain Irving W. Rand is relieved from duty at Ord Barracks, Cal., and will report to the commanding officer, cantonment, Presidio, for duty. Contract Surgeon Frank H. Titus is relieved from duty at the Presidio, to take effect upon the arrival of Captain Rand, and will proceed to Ord Barracks, Cal., for duty. Contract Surgeon H. Newton Klerulf is relieved from duty at the Presidio, and will report to the commanding officer of the cantonment at that post for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended May 14, 1904:

SPRATLING, L. W., surgeon, detached from duty with the Marine Battalion on the Isthmus of Panama and ordered to duty with the Panama Canal Commission—May 6.
 RODMAN, S. S., passed assistant surgeon, commissioned a passed assistant surgeon with rank of lieutenant, from December 14, 1903—May 6.
 SUTTON, R. L., assistant surgeon, detached from the Bureau of Medicine and Surgery, Navy Department and ordered to duty with the Marine Battalion on the Isthmus of Panama—May 6.
 LEDBETTER, R. E., assistant surgeon, ordered to the Lancaster—May 7.
 BRAISTED, W. C., surgeon, detached from the Naval Hospital, New York and ordered to the Relief; authorized to delay one week en route—May 10.
 MILLER, J. J., assistant surgeon, detached from the Naval Museum of Hygiene and Medical School and ordered to the Denver—May 11.
 ZALESKY, W. J., assistant surgeon, ordered to the Naval Hospital, Philadelphia, Pa.—May 11.
 NORTON, O. D., surgeon, detached from the Navy Yard, League Island, Pa., and ordered to the Illinois—May 12.
 GATES, M. F., surgeon, detached from the Naval Hospital, Philadelphia, Pa., and ordered to the Navy Yard, League Island, Pa.—May 12.
 BLACKWOOD, N. J., surgeon, detached from the Illinois and ordered to the Torpedo Station, Newport, R. I., with additional duty in attendance upon navy and marine officers not otherwise provided with medical aid at Newport, R. I.—May 12.
 WILSON, G. B., surgeon, detached from the Torpedo Station, Newport, R. I., and ordered to the Naval Hospital, Chelsea, Mass.—May 12.

Changes in the Public Health and Marine-Hospital Service for the week ended May 12, 1904:

CARRINGTON, P. M., surgeon, detailed to represent the Service at the meeting of the American Medical Association, June 7, 1904, stopping at the Bureau en route—May 10, 1904.
 NYDEGGER, J. A., passed assistant surgeon, granted extension of leave of absence, on account of sickness, for one month from April 6—May 9, 1904.
 SPRAGUE, E. K., passed assistant surgeon, relieved from duty at Calcutta, India, and directed to proceed to the United States—May 4, 1904.
 KERR, J. W., passed assistant surgeon, granted leave of absence for one month from May 20—May 9, 1904.
 GOLDBERGER, JOSEPH, assistant surgeon, relieved from duty at Tampico, Mexico, and directed to proceed to Monterey, Mexico, for duty—May 6, 1904.
 HOLT, J. M., assistant surgeon, Bureau letter of February 9, 1904, directing him to report to Passed Assistant Surgeon V. G. Helser, at Manila, P. I., for examination for promotion, revoked—May 12, 1904.
 BURKHALTER, J. T., assistant surgeon, granted extension of leave of absence for ten days—May 9, 1904.
 WIGHTMAN, W. M., assistant surgeon, granted leave of absence for seven days, under paragraph 191 of the regulations—May 1, 1904.
 MCKEON, F. H., assistant surgeon, to proceed to New York, N. Y. (Stapleton), and report to medical officer in command for duty and assignment to quarters—May 9, 1904.
 PETTYJOHN, JOSEPH, assistant surgeon, to proceed to New York, N. Y., and report to Surgeon G. W. Stoner, Immigration Depot, for duty—May 4, 1904.
 SWEET, E. A., assistant surgeon, to proceed to New York, N. Y., and report to Surgeon G. W. Stoner, Immigration Depot, for duty—May 4, 1904.
 SPRATT, R. D., assistant surgeon, to proceed to New Orleans, La., and report to medical officer in command for duty and assignment to quarters—May 9, 1904.
 ALEXANDER, E., acting assistant surgeon, leave of absence for ten days from May 1, 1904, granted him by Department letter of April 26, revoked—May 10, 1904.
 RICHARDSON, N. D., acting assistant surgeon, granted seven days' leave of absence from February 25, 1904, under paragraph 210 of the regulations.
 SLAUGHTER, A. W., acting assistant surgeon, granted leave of absence for fourteen days from June 1—May 10, 1904.
 COMFORT, N. C., pharmacist, reassigned to duty at Manila, P. I., effective February 7—May 4, 1904.
 NEVES, GEORGE, pharmacist, directed to proceed to Cairo, Illinois, and report to medical officer for temporary duty during absence on leave of Pharmacist C. G. Carlton—May 9, 1904.
 SIENBURG, FRANK, pharmacist, to proceed to San Francisco, Cal., and report to medical officer in command for duty and assignment to quarters—May 6, 1904.

Appointments.

F. H. McKeon, of Connecticut; J. Pettyjohn, of Georgia; E. A. Sweet, of Massachusetts; and R. D. Spratt, of Alabama, commissioned as assistant surgeons—May 2, 1904.

Reinstatement.

Frank Siedenburgh, of Illinois, reinstated as pharmacist of the third class—May 3, 1904.

SOCIETY REPORTS

ASSOCIATION OF AMERICAN PHYSICIANS.

Nineteenth Annual Meeting, Held at Washington, D. C., May 10, 1904.

[Specially reported for *American Medicine*.]

The meeting was called to order by the president, Wm. T. COUNCILMAN, of Boston. The first feature of the program was the delivery of the **president's address**. In this, Dr. Councilman reviewed the condition of the Association and called particular attention to the disadvantages resulting from the limitations upon membership. He asked that careful consideration be given to the question of increasing the number of members and suggested, as one means whereby the end might be accomplished without detriment to the work of the society, that a class of associate members be established from which future members should be chosen, and, that active membership be limited to 20 years; at the end of that period members to be transferred to the roll of honorary membership. This would about cover the average active period of a man's professional life and provide regularly a sufficient number of vacancies to accommodate the desirable portion of those on the waiting list.

Officers Elected.—The following officers were elected for the ensuing year: President, Edward L. Trudeau; vice-president, Frank Billings; secretary, Henry Hun; treasurer, J. P. Crozer Griffith; recorder, S. Solis Cohen; councillor, F. Forchheimer; representative in the executive committee of the Congress of American Physicians and Surgeons, Wm. Osler; alternate, F. H. Williams.

The Influence of Suprarenal Extract upon Absorption and Elimination; with Demonstrations.—S. J. MELTZER and JOHN AUER. Meltzer explained the experimental work whereby it was shown that the action of certain drugs was very much retarded when they were given in association with suprarenal extract. It was shown that this action was not a matter of chemic naturalization, but due to biologic changes. If small doses of adrenalin be injected into a frog, it becomes paralyzed in a few moments, but this is not a muscular paralysis, since stimulation of the sciatic nerve causes the muscle to contract in a normal manner. If the effect of the adrenalin be allowed to wear off now, and strychnin given, even in more than the usually fatal dose, it produces no effect, or only after a long period of delay. In order to determine whether this was really a matter of delayed absorption experiments were made with a substance which is ordinarily very rapidly taken up by the tissues. If fluorescein be injected subcutaneously into a rabbit, the conjunctivas and mucous membranes very quickly take on the characteristic yellow stain and the Ehrlich's line appears in the pupil. If, however, such an animal be previously given adrenalin, the coloring effects do not appear for a much greater length of time. As this coloring matter has first to be absorbed into the blood and then eliminated through the tissues of the organs, this may not have been purely a matter of delayed absorption, but rather one of delayed elimination. By carefully timing, on a series of animals, the appearance of the color in the serum, and later in tissues, it was demonstrated that both absorption and elimination are delayed by the adrenalin. These differences were most strikingly shown in the tissues of the kidney; the studies upon the urine were not as distinctive, because even a minute portion of the fluorescein colors the fluids of the body intensely. An effort was then made to determine whether transudation would also be delayed by adrenalin. For this purpose salt solution was introduced into the peritoneal cavity, where, as we know, it ordinarily changes very rapidly with the blood, and fluorescein was injected into the vessels. Specimens were shown demonstrating that the fluid from the peritoneal cavity of the control animals contained more coloring matter after eight minutes than that from the adrenalin injected animal after sixteen minutes. The work seemed to show that the use of adrenalin delays the absorption, elimination and transudation of other substances introduced in the body. The principal practical conclusion drawn was that in certain cases toxic materials introduced into the tissues might be delayed in their action by the use of adrenalin.

Discussion.—W. GILMAN THOMPSON said that in his use of adrenalin therapeutically he had not observed that it had any effect whatever upon the kidneys, and that it might do so experimentally because of the large dose or its continuous employment, he doubted if it would do so in therapeutic doses. H. A. HARE said that his conception of the action of adrenalin had been that it was quite brief in its effect, and he was surprised to hear that it could prolong the effect of other remedies. He also called attention to the belief that the local application of adrenalin through the ischemia produced, seemed to increase the danger of infection. Dr. Meltzer, in closing, said that the popular conception of the action of adrenalin, as expressed by Dr. Hare, had its origin in a knowledge of its action on the blood-pressure only. In some experiments he had been able to watch its effect upon the bloodvessels for several hours. The effect upon nonstriated muscle was much longer than that upon the striated muscles. He explained the delayed absorption and transudation by the theory that there exists a ring of contrac-

tile tissue around the pores of the capillary endothelium, and that the varying size of this ring, under the stimulus of the adrenalin, determines the rapidity with which other substances may pass through the pores.

Polyuria in Typhoid Fever.—F. H. FUSSELL, H. S. CARMAN, and HUDSON.—TYSON reviewed the literature of typhoid fever to show the general opinion that as a rule the quantity of urine passed during the first week or ten days of this disease is usually diminished, that after the second week the quantity increases, and that during convalescence it is almost invariably copious and of low specific gravity. Some authorities were quoted to show that polyuria occurs in a small percentage of cases, and that rarely the amount passed may be as great as 10,000 cc. The case which he reported was that of a married man, aged 40, admitted to the hospital on about the eighth day of his typhoid fever with a temperature of 103°. On the day after admission his polyuria began, and continued during the height of the fever. The largest amount passed during one day was 7,200 cc. The amount of urea excreted was constantly normal in percentage. The polyuria lasted, to a greater or less degree for a month, and during this period he was nervous and extremely thirsty. The patient has been under observation for a year since his recovery from typhoid, and presents no evidences of organic kidney disease or diabetes.

Discussion.—DOCK called attention to some work which had been done in regard to the retention of waters in fever, as the result of which the rule has been laid down that at first there is an actual retention of fluid in the body, but that after deference the amount secreted increases until there may be a polyuria. He had been interested in noticing the effect of cold baths in typhoid upon the excretion of urine, and had found that where these were used there was not much retention during the fever. He therefore believed that the theory of treating fevers by "washing out" is to a certain extent possible. WITHINGTON inquired as to the nervous condition of the patient preceding the onset of polyuria, and CABOT and OSLER both asked as to the connection between the polyuria and the typhoid, OSLER pointing out the fact, that in certain conditions, such as tuberculous peritonitis and retroperitoneal tumors, polyuria frequently occurred as the result of local irritation. THAYER remarked that the quantity of water the patient is drinking might play an important part in these cases, and spoke of some observations made by CUSHING (Cleveland) in this connection. He pointed out that typhoid fever patients probably do not always get as much water as they desire in spite of the liberal attitude of the physician in charge. CUSHING has been carrying a rubber tube from the water tank to the bedside and attaching it so that the patient may suck water from it whenever he desires. He has found that these patients drink enormous quantities of water and pass large quantities of urine, and he is also under the impression that this is a beneficial feature in their treatment.

Cases of Venous Thrombosis Occurring in the Course of Typhoid Fever.—W. S. THAYER presented an analysis of 42 cases of venous thrombosis occurring in the course of typhoid fever. Thirty-nine were instances of venous thrombosis that occurred among the 1,465 cases of typhoid treated in the Johns Hopkins Hospital; two were instances of this complication which were admitted during the period of convalescence and one was a man who had suffered from double iliac thrombosis coming on during typhoid fever but who entered the hospital for treatment two years later. In five of the 39 cases occurring in the hospital there was a fatal result; mortality, 12.3%. In two instances the thrombus was the primary cause of death. As to the distribution of the lesions, the thrombus occurred in the lower extremities in 40 instances; in the upper extremity in one instance; and in the pulmonary artery in one instance. The vessel occluded was located, on the left side of the body in 26 cases; on the right side in 5 cases; on both sides in 9 cases; no record in 2 cases. The particular vessels affected were: The femoral vein in 21 instances; the popliteal vein in 5 instances; the iliac vein in 5 instances; the internal saphenous in 3; the veins of the calf alone in 5; the axillary vein in 1; the pulmonary artery in 1; and the pulmonary artery and common iliac in 1. In 36 of the 39 cases the development of the thrombosis was associated with fever. In 11 cases it was associated with chills. The first definite symptom of thrombosis in every instance was pain. In all of the cases there was swelling of the affected part, and in some instances there was redness over the affected vessel. In 16 cases the thrombotic mass was felt as a palpable cord. Leukocytosis was almost always present and its extent depended, in part at least, upon the extent of the lesion, the highest count noted being 25,000 and the average count above 10,000. A study of the prognostic features showed that venous thrombosis in the lower extremity is always a serious complication of typhoid fever, and although the immediate danger is not great, the after-results are often grave; the affected extremity is often considerably and permanently enlarged, there is marked varicosity and usually more or less permanent disability when the femoral or iliac veins are affected. Thrombosis of the veins of the calf is less severe.

Discussion.—PEABODY referred to the belief that the coagulability of the blood is increased by the presence of an increased amount of the calcium salts in the blood and to the possibility that this could be overcome and thrombosis prevented by the administration of sodium citrate. STENGEL said that he had had a number of experiences with the appearance of the gen-

eral symptoms produced by the thrombus before the local symptoms were noted. He had seen two cases of thrombosis of the pulmonary artery. WELCH called attention to the accumulating evidence in support of the old theory that the thrombosis in these cases originates from a primary inflammation of the walls of the vein—an infective phlebitis. This notion was once supposed to have been overthrown by Virchow, but the recent work of the French school, in particular, tends to show that although the question is by no means settled the inflammatory theory must be reconsidered. One of his assistants, Dr. Longcope, has recently gone carefully over these pathologic specimens in his laboratory and demonstrated the presence of bacteria in over 70% of the cases. PRINCE said that, in this connection, he would like to report a case of typhoid that began with phlebitis of the veins of the leg. The patient was one who had previously suffered a number of attacks of phlebitis and presented the history of a gouty diathesis. CAREY referred to the marked disproportion between the general systemic symptoms and the local condition. He recalled a case where the local trouble did not seem to be very great, but where the chills were as violent as in the vicious types of malaria. He believed, however, that most of these patients recovered entirely from the local edema. THOMPSON differed with Carey as to the ultimate results. He had eight cases under observation for from 6 to 10 years, and in no one was there anything like complete recovery. All of them are weak and show edema after any exertion. TYSON questioned whether the pain which was such a marked feature of the thrombosis might not be due to the sudden vascular obstruction and explained in the same way as that which accompanies angina pectoris. OSLER called attention to the difference in clinical picture between the hard swollen, painful leg of phlegmasia alba dolens and the condition described as occurring in typhoid. He said that he did not believe that the average experience with this condition would show quite such hopeless results as appeared in the report. He had known of a number of cases in private practice that had shown complete recovery and thought that the hospital had simply had an experience of an unfortunate series of cases.

Clinical Studies in Arteriosclerosis.—ALFRED STENGEL. The author had carefully studied the blood in a series of these cases. In measuring the blood-pressure he uses Stanton's apparatus in preference to the Riva-Rocci, because it is devised to estimate both the diastolic and systolic curves. He does not believe that there is always high pressure where there is arteriosclerosis. He had observed that the diastolic pressure is always high, but the systolic pressure is not necessarily so; the mean pressure is generally high. He found a marked contrast between the appearance of the patient and the condition of the blood. In spite of the very marked anemia of the advanced cases there is often a high blood count and high percentage of hemoglobin. He had also noted that one of the first signs of arteriosclerosis was a sustained first sound of the heart, and this prolongation was considered an important point in determining the early development of arteriosclerosis.

Discussion.—KINNICUTT asked whether the cases of low blood-pressure that STENGEL had encountered were in what might be called senile arteriosclerosis, and said that his own observations had been that the blood-pressure in senile arteriosclerosis has been rather lower than that seen in pathologic sclerosis. BOHEN called attention to the fact that many elements enter into the production of high or low blood-pressure, and that as only the net results are expressed by the measurements, it is impossible to say whether the changes from normal are due to alterations in the vessel-wall, the innervation, or the cardiac force. He agreed with Stengel in the observation regarding the prolongation of the first cardiac sound, and added that the sound is often impure in character. STENGEL replied to Kinnicutt that the cases of low pressure he had referred to were in pathologic and not senile sclerosis.

An Investigation of the Effects of Cardiac Stimulants: Especially Strychnin, on the Blood-pressure in Febrile Conditions.—R. C. CABOT. This paper will appear in a future issue of *American Medicine*.

[To be continued.]

Medical Students Will Quit the College of Physicians and Surgeons in New York.—It is reported that a month ago the tuition fee at the College of Physicians and Surgeons was raised from \$200 to \$250 a year. The students held a meeting, and a long petition was sent to each member of the Board of Trustees. In the petition were included letters from Johns Hopkins, Harvard, Cornell, and other medical colleges, to the effect that they made it a rule, when tuition prices were raised, that students who had already been entered with a view to taking the entire course should not be affected by the increase. The students argued that it was a manifest injustice to increase the fee after they had entered the institution on the understanding that the charge would be \$200 per year. The trustees replied a few days ago, and refused to grant their request. A meeting of students was held recently, and 98 decided not to return, but to go to Cornell, Johns Hopkins, and other colleges. Another professor, Dr. Robert W. Taylor, resigned recently, making the seventh who has resigned within the year. The six preceding him were Professors Bull, Lefferts, Weir, Peabody, Tuttle, and Elliot.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

ULCERATIVE ENDOCARDITIS: REPORT OF A CASE.*

BY

WILLIAM H. MORRISON, M.D.,
of Philadelphia.

Ulcerative or malignant endocarditis is a disease of sufficient rarity to make the report of even a single case of some interest.

On October 16, B. S., a lad of 12, came under my observation with the following history. He had been perfectly well and healthy up to the age of 8, at which time he presented symptoms indicating the presence of scarlet fever, namely, fever, sore throat and eruption. However, he did not seem to be ill and a physician was not consulted. Five weeks later he suddenly developed high fever, swelling of the legs and puffiness of the face. The condition was diagnosed as one of kidney and heart trouble and the boy was under homeopathic treatment for six or seven months subsequently. During this time, there were frequent attacks of epistaxis. Recovering from this condition, the boy seemed to be fairly well with the exception that any extra exertion such as running, or playing with other children, led to violent action of the heart, dyspnea, dry cough, and cyanosis. There was no history of rheumatism or of disease other than mentioned.

During the five years following the attack of nephritis his condition remained about the same until August, two months

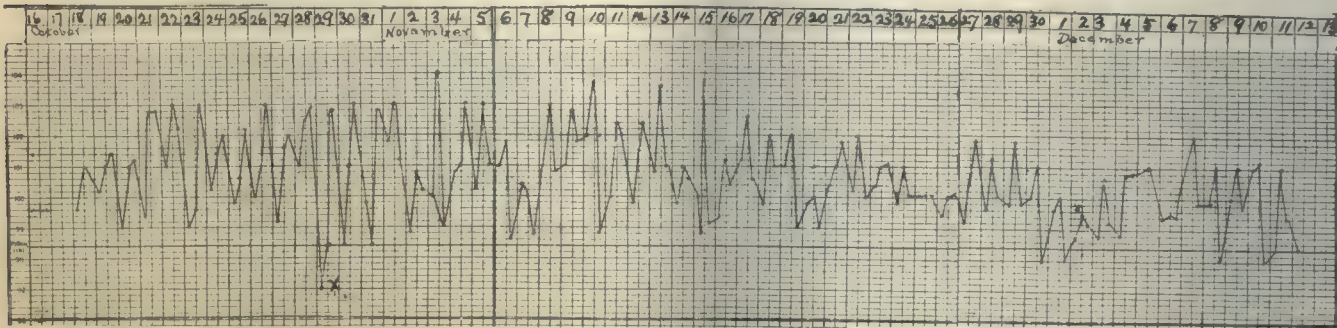
exception of remittent fever, rapid pulse, mitral systolic murmur and enlargement of the liver and spleen.

A careful record of the temperature was now begun and continued for a period of eight weeks, the thermometer being used morning, noon and night. The temperature curve shows an exceedingly irregular and remittent fever. As a rule the highest point was reached at noon, the morning and evening temperatures being approximately the same and 3° or 4° below the midday figure. The average morning temperature was between 99° and 100° while the noon temperature was between 102° and 103°.

Taking into consideration the history of old cardiac disease, the presence of a continuous, irregular temperature and the absence of the evidences of local disease with the exception of those referable to the mitral valve, a diagnosis of ulcerative endocarditis seemed to be warranted and a correspondingly unfavorable prognosis was given.

On October 29, there was a sudden attack of severe pain in the right iliac region associated with a fall of the temperature to 97°. This was readily relieved by a small hypodermic injection of morphia. No tenderness or other sign of trouble in this region remained after the subsidence of the pain. Two days later, there was a second and milder attack of pain in this region.

December 1, two weeks before death, there was suppression of urine with edema of the face. This continued for two days. The urine at this time contained a trace of albumin and a few blood-corpuscles. Ten days before death there occurred an attack of syncope which was repeated on the following day. Petechias made their appearance for the first time one week before death, in the form of small dark spots on the eyelids and about the face. During the following days they appeared in small numbers on the surface of the abdomen. Failure of strength steadily progressed and the boy died of exhaustion, December 13, four months after the onset of the attack of typhoid fever.



X, attack of severe pain in right iliac region.

before I saw him. He then began to complain of lassitude and weakness. This was shortly followed by fever, loss of appetite, severe headache and backache, pain in the abdomen and diarrhea—the stools at first being thin and offensive, sometimes light in color and sometimes dark. There was no pain in the right iliac region. The physician who saw him at this time diagnosed typhoid fever. The diarrhea continued for five weeks when the bowels gradually returned to their normal condition. The fever, however, persisted but its exact degree is not known as the thermometer was used infrequently. Emaciation and weakness progressed and as the patient showed no improvement he was placed under my care two months after the onset of the attack.

Examination at this time revealed great emaciation, with the skin dry, harsh and slightly jaundiced. The temperature was 101.5°, the pulse 100 and the respiration normal. There was no pain referred to any part of the body; no delirium or mental confusion; no cough; no evidence of pulmonary trouble. The area of cardiac dullness was slightly increased and on auscultation a loud systolic mitral murmur was found. No murmur referable to the other valves of the heart could be detected. There was no pain over the precordia, no palpitation and no edema of any part of the body.

The area of splenic and hepatic dullness was slightly increased, but there was no tenderness over either organ. The appetite was good, sometimes craving, and digestion was well performed. There was no diarrhea, but on the contrary, a tendency to constipation. The abdomen was scaphoid and there was no tenderness in the epigastrium or in the right iliac region. There were no symptoms referable to the kidneys. There was no edema, the urine was passed in normal quantity and examination failed to reveal either albumin or casts. At no time had there been chills or sweating. There was no bone disease, no middle-ear trouble and no focus of suppuration could be discovered in any part of the body. There were no petechias or other cutaneous eruption.

There was entire absence of symptoms and signs with the

The autopsy made 24 hours after death revealed the following conditions:

The surface of the small intestine was studded with numerous milium infarcts. The large intestine showed no infarcts. The vermiform appendix was two inches in length and normal.

The spleen was enlarged, measuring 4 in. by 6 in., and presented three large old infarcts measuring 3 in. to 1½ in. at their bases. There were no signs of breaking down.

The liver was slightly enlarged, but no infarcts were discovered.

The kidneys presented the evidences of chronic inflammatory disease and showed numerous fresh milium infarcts.

The lungs were normal, with the exception of one large infarct in the right lung.

There was no evidence of embolism of any of the larger arteries. The heart showed a slight hypertrophy. The valves of the right side were normal. The mitral valve, however, presented extensive disease of both leaflets, the entire auricular surface of the valve being covered to the depth of half an inch with friable vegetations. The entrance of the pulmonary veins into the auricle was also surrounded by vegetations. The aortic valves were normal. No bacteriologic study of the material from the mitral valves was made.

Child Labor.—In an address recently, Colonel Dulaney, chief factory inspector of Pennsylvania, who outlined a new bill he proposes to bring before the next Legislature, dealt with the bill which Alexander Simpson prepared, but which was defeated through the efforts of the glass manufacturers in the last Legislature. He explained that his substitute covered practically the same ground, but exempted glass manufacturers. This, he said, was on account of the difficulty experienced by them in conducting their business in accordance with the demands of such a law. The bill provides that no child under 14 years of age shall be employed in any factory, and no child over that age shall work more than 10 hours in every 24, nor more than 54 in a week.

* Read before the Kensington Branch of the Philadelphia County Medical Society, April 19, 1904.

ORIGINAL ARTICLES

A STUDY OF 91 OPERATIONS FOR THE RELIEF OF VARIOUS FORMS OF HERNIA, WITH THEIR COMPLICATIONS.*

BY

ORVILLE HORWITZ, B.S., M.D.,

of Philadelphia.

Clinical Professor of Genitourinary Diseases, Jefferson Medical College; Surgeon to Jefferson Medical College Hospital; Philadelphia Hospital; Consulting Surgeon to the State Hospital for the Insane, and Jewish Hospital.

The operations performed by us for the relief of various forms of hernia as here set forth represent the work achieved during the past 12 years in private practice at the Philadelphia Hospital, and at the Jefferson Medical College Hospital. Unfortunately the majority of patients were inmates of either one or the other of these establishments, and consequently many were lost sight of after they had quitted these institutions, so that the number of patients who permanently recovered after a radical cure had been attempted cannot be definitely ascertained. The opportunity has been afforded us in 29 cases to watch the permanency of the results obtained by operation, and from this number we are in position to give some definite information regarding the subject.

As none of the cases under consideration was adapted to the employment of any of the palliative measures in vogue which are applicable to so many forms of hernia, this important division of the subject will not be considered in the study of the cases herein recounted.

The various operations performed are classified as follows:

- 32 cases indirect inguinal hernia (strangulated).
- 27 cases indirect inguinal hernia (radical operation).
- 8 cases indirect inguinal hernia (palliative).
- 5 cases direct inguinal hernia (strangulated).
- 1 case direct inguinal hernia (radical operation).
- 3 cases direct inguinal hernia (palliative).
- 3 cases femoral hernia (strangulated).
- 2 cases femoral hernia (radical operation).
- 3 cases umbilical hernia (strangulated).
- 3 cases umbilical hernia (radical cure).
- 4 cases ventral hernia (incisional), radical operation.

The complications were:

One case of bilateral hydrocele with inguinal hernia; radical cure.

Two cases of unilateral hydrocele, inguinal hernia; radical cure of both.

One case of tuberculosis of testicle, inguinal hernia; castration with radical operation for hernia.

Four cases of inguinal hernia with undescended testicle; castration and radical operation for hernia.

Three cases of inguinal hernia with undescended testicle; transplantation of testicle and radical operation for hernia.

One case of inguinal hernia with encysted hydrocele of cord; radical operation for both conditions.

One case of long-standing strangulated femoral hernia, gangrene of bowel with rupture, necessitating abdominal section (Richter's hernia).

One case of hernia reduced *en masse*, necessitating abdominal section.

One case of appendiceal abscess rupturing into an inguinal hernia sac.

One case of long-standing hematoma of the tunica vaginalis testis with large incarcerated omental hernia simulating malignant disease of the testicle.

In two cases of strangulated inguinal hernia, an ovary was found in the sac in one, and a portion of the bladder in the other. Gangrene of the constricted bowels in seven cases necessitated the establishment of an artificial anus; bowel opened without disturbing constriction, and left in situ in one; resection of bowels in three cases and the removal of a doubtful spot about the size of a thumb nail, with closure of the opening in one.

Death ensued in 16 cases, as follows: One femoral, two umbilical, one direct inguinal, 12 indirect inguinal.

In 12 of the cases death was due to peritonitis; strangulation had existed for many hours before resorting to operations, taxis having been persisted in for a lengthened period without avail.

Of the four remaining cases, one patient died from exhaustion, one died from intestinal perforation of a damaged bowel, following operation; probably caused by intestinal distention succeeding paralysis of the bowels. Death occurred on the fourth day after the operation. In one, in which the individual suffered from chronic Bright's disease, uremia was developed. In this case local anesthesia had been employed. The remaining case was one in which a radical operation had been attempted for the relief of a large reducible hernia. Examination of the urine before the operation showed the kidneys to be healthy; suppression of urine intervened, and the patient succumbed.

Operations for the relief of hernia may be divided into three classes:

1. Herniotomy, an operation which is performed when strangulation exists; it is always an emergency operation; the mortality depends not only on the age, character of the hernia, and condition of the patient, but is greatly influenced by the length of time that the protrusion has continued, as well as the amount of force put forth, and the duration and frequency with which attempts at taxis have been made.

2. The so-called "radical operation," when the hernial protrusion is not strangulated and an effort is made to effect a permanent cure.

3. A palliative operation, by which is meant surgical intervention in cases in which, owing to the large size of the hernia, atrophy of the muscular structures of the abdominal wall ensues; the large size of the hernial outlet, and the changed condition of the inguinal canal exists, and a permanent cure following a radical operation is not to be hoped for. Nevertheless, in properly selected cases, individuals suffering from this condition are materially benefited by surgical interference. The general health improves; the obstinate constipation so frequently associated with this state is relieved. The annoying sensation of abdominal tension and pain disappears; the patient being able to keep the contents of the hernial protrusion within the abdominal cavity by means of an apparatus, an impossibility before surgical interference.

There were 42 operations performed for the relief of different forms of strangulated hernia, of which number, 3 were femoral, 3 umbilical, 5 direct, and 32 indirect inguinal. It is significant to note, that in every instance when death resulted from herniotomy the operation had not been performed for several hours after the constriction occurred, and in almost every instance violent and prolonged taxis had been made at short intervals for a lengthened period of time. In one case, that of an old man, aged 73, the strangulation was unrelieved from four o'clock in the morning until eight in the evening, during which time the patient was kept constantly under the influence of ether, taxis being frequently resorted to. On opening the sac the tissues were found to be blood-stained and the serous coat of the bowels stripped off in patches. The intestines presented a most doubtful appearance. The reports of many similar instances are to be found in the literature on the subject.

This statement is confirmed by reference to the "Year Book of Medicine and Surgery for 1903," in which several cases that had occurred during the last year are reported. Bertram cites four cases of strangulated hernia, in which the bowels were found to be gangrenous and resection became necessary. In each instance the rupture was supposed to have been reduced by *forcible* taxis. In one case DaCosta discovered a disorganized and crushed testicle in the inguinal canal following the manipulations made to relieve a strangulated hernia.

Gibbon operated upon a case of intestinal obstruction in which a strangulated hernia had been reduced during the preceding 48 hours. Eight inches of the bowel was found to be gangrenous, making resection necessary.

Crowley,¹ writing on this subject, corroborates our views when he says: "More injury is invoked in a few minutes by brute force taxis than the constriction could cause of itself in several days." He very aptly paraphrases the old adage of Desaut: "To think well of a

* Read before the Philadelphia County Medical Association, January 30, 1904.

strangulated hernia when taxis has not been used," into "Think favorably of a strangulated hernia when taxis has not been abused." "Dangerous as taxis is in unskilful hands, it is often the cause of death in experienced hands by the dangerous delay in operating."

From a compilation of statistics of St. Bartholomew's, St. Thomas', and Guy's Hospitals, from May, 1861, to October, 1892, by Croft,² the inference is drawn that the deathrate of herniotomy is largely increased by the unnecessary delay which is allowed to take place between the occurrence of the strangulation and the operation. Bowbly concurs in this view, and adds that "In cases in which the strangulation is of long duration the danger of death is increased by having to perform a serious operation on a patient who is exhausted from starvation, pain, and vomiting." It is now generally conceded that taxis should not be resorted to if the strangulation has existed for two days or even one day, if there be local signs of inflammation, edema, emphysema, gangrene, or if stercoraceous vomiting be present, or when the patient is in a condition of collapse, or when the hernia is found to be irreducible before strangulation supervened; nor should an effort at reduction be made in cases in which the patient is brought to the hospital with a history of the strangulation having existed for some hours, during which period violent, unsuccessful efforts have been repeatedly made. The majority of surgeons are in accord in the belief that an inflamed hernia should always be treated by operation, and never by taxis.

We believe that gentle taxis should be attempted for the period of about 10 minutes after the strangulation occurs. Should this fail, preparations should at once be made with a view to an operation. As soon as the patient is under the influence of an anesthetic, another gentle effort should be made to relieve the constricted bowel; if this does not succeed an immediate operation should be resorted to. It is generally conceded that taxis of a strangulated femoral hernia is fraught with more danger than that of the inguinal variety (Craly). Cases are recorded of rupture of the bowel occurring in violent efforts at reduction in femoral hernia; statistics prove that there is more danger of a reduction taking place *en bloc*, when the protrusion occurs at the femoral than at the inguinal outlet. Taxis, therefore, can be persisted in for a longer period and with less danger when the rupture is of the latter than of the former variety. It is true that in a small percentage of cases, delay, the local employment of ice, etherization and taxis will sometimes result in relieving the strangulation. The number of cases in which this method of treatment succeeds is so small in comparison with the number in which it fails that it is wise to err on the safe side and operate early, thereby preventing the individual being brought to the operating table with a damaged intestine, and reducing the chance of recovery. We feel assured that no modern surgeon would be content, after a fair effort at taxis had failed, to allow several hours to elapse without affording operative relief to the patient, and would object to trusting to time and renewed resort to taxis to reduce the hernia. Symptoms of intestinal obstruction persisting after reduction of a strangulated inguinal hernia calls for immediate abdominal section, as the probability is that the hernia has been reduced *en masse*. One symptom that we have observed to be frequently present, characteristic of acute intestinal obstruction, is the peculiar character of the uncontrollable vomiting; the individual turns on his side and ejects a large quantity of watery, mucoid material, sometimes tinged with greenish bile. This is repeated at short intervals until the bystanders frequently wonder from whence all the fluid matter is derived.

A case of this description came under our observation during the past winter. We were called to see a strangulated hernia which the hospital resident had been unable to reduce. Under the influence of an anesthetic,

reduction was easily accomplished. On visiting the institution late the following afternoon, we were informed that the patient was suffering from ether vomiting which had continued from the time taxis had been resorted to. Examination disclosed the fact that the abdomen was somewhat tender and rigid on the left side; there was no distention. Temperature 99°; pulse 110. At intervals the patient would turn on his side and eject large quantities of fluid matter. On opening the abdomen the hernia was found to have been reduced *en bloc*; a fibrous band was found constricting the bowel, which was gangrenous, necessitating resection. It is important to see that the bladder is emptied before taxis is made. In one case which came under our cognizance, an old man of 75, with a strangulated inguinal hernia, there was also retention of urine, the bladder being distended almost up to the umbilicus. Repeated efforts at reduction had been made without avail. The patient was catheterized, after which the protrusion was returned without much difficulty.

The so-called "Richter's" hernia is an unusual occurrence, and it is thought a brief history of the ailment as it presented itself to us will not be uninteresting.

The patient was a middle-aged man, who had been an inmate of the Insane Department of the Philadelphia Hospital for some years. Owing to his mental condition an accurate history of the case could not be obtained. The attendant stated that he noticed that the patient had been ailing for a day or so. There was some nausea and vomiting and he acted as though he were in pain. Purges of various kinds were administered with success. Temperature rose to 102°; pulse 115. The abdomen becoming distended, it was decided to transfer him to the surgical wards of the institution. On examination a small lump was discovered, located over the femoral outlet, about the size of a large marble. It was hard, indurated, and slightly movable; no impulse on coughing. A strangulated femoral hernia was suspected, but the resident stated that the lump had existed for at least two weeks before the patient was taken ill and had been treated as an enlarged lymphatic gland. An exploratory abdominal operation was decided upon. On opening the peritoneum, gas and fecal matter escaped. There was diffuse peritonitis. It was found that a portion of the circumference of the ileum had become constricted at the femoral outlet, which was gangrenous, accompanied by rupture, with extravasation of the contents of the bowel. The intestine was resected, a circular enterorrhaphy being performed. All symptoms of obstruction disappeared. The bowels moved freely several times after the operation. Patient died of general peritonitis on the fourth day after operation. Postmortem examination showed the anastomosis to be perfect.

The following case is of interest from the fact that a gangrenous omental hernia existed with practically no constitutional symptoms. The case was seen in consultation with Dr. Stillwell in January last.

The patient, aged 42, had suffered for two years from a reducible inguinal hernia for which he had worn a truss. Three days before he was first seen by us the hernia had become distended and reduction was impossible. As it gave rise to no pain, no further attention was paid to it until the following day when it began to be more or less tender. Unsuccessful efforts at reduction had been made by his physician. The tumor began to increase somewhat in size, the overlying skin becoming reddened and the parts tender to the touch. Temperature rose to 102°; there was slight nausea and vomiting but no symptoms of obstruction, the bowel moving freely. When first seen the hernia was found to be about the size of a lemon, tender to touch; temperature 99°, pulse 120. On opening the sac a mass of gangrenous omentum was exposed to view. The interesting feature of this case is the fact that with a partly gangrenous omentum there should have been little or no constitutional symptoms. Before operation the temperature had fallen from 102° to 99°; the tumor was tender on pressure but there was less pain than there had been previously; the most significant point being the pulse, which was 120 and quite out of proportion to a temperature of 99°.

Of the cases of inguinal hernia operated upon, with the exception of three, these being among the earliest herein recounted, the incision employed was similar to that made for the radical cure in nonstrangulated cases. The advantage of this mode of exposing the sac, over the old method of raising a fold of skin at right angles to the external abdominal ring, and transfixing it, is too obvious to need any comment. In two cases in which the bowels were gangrenous, the general condition of the patients being desperate, the constriction was not

molested; the gangrenous portion of the bowel was freely incised and left in situ. One individual recovered, and the other died, apparently from exhaustion, the patient being well nigh in *articulo mortis* at the time of operation. In a third case the gangrenous portion of the intestine was resected and the divided ends of the gut stitched to the edges of the wound. This person recovered with the formation of a fecal fistula. In three cases resection of the gangrenous portion of the intestines was performed; one being a strangulated femoral hernia, the so-called "Richter's" variety already alluded to; the second, a strangulated umbilical hernia, and the third an indirect inguinal hernia. The latter patient recovered, the other two died of peritonitis. In one case it was found that the area of gangrene was limited to a spot about the size of a thumb-nail. This was resected and the wound closed by continuous Lembert suture. The patient made an uninterrupted recovery. The Murphy button was employed in one instance, the patient's condition being such at the time of operation as not to warrant unnecessary delay. In one case, the O'Hara anastomosis forceps were employed, and found to be most satisfactory. We, as a rule, do not advocate the employment of any of the various instruments devised to accelerate the operation of intestinal anastomosis. We have been able to resect an anastomosis quite as quickly without the aid of any of the devices suggested, as with them. It is a great advantage to acquire the dexterity of operating rapidly without being hampered by the use of special instruments.

The advantages to be derived from a resection of a gangrenous bowel with anastomosis, over that of establishing an artificial anus, are too evident to need comment. It is only in those cases in which the patient's condition is such that any unnecessary delay would add to the danger of a fatal result that an artificial anus should be established. Local anesthesia was employed when the patient's condition at the time of operation was desperate. It was not found, as is so frequently claimed, that the intestines could be manipulated without pain.

In every instance in which the patient's condition warranted the attempt, an effort was made to effect a radical cure after the constriction had been relieved and the contents of the sac returned. The additional work necessary to produce a permanent cure, as a rule, requires but very little additional time, and should always be attempted whenever possible. In cases in which general peritonitis existed, accompanied by paralysis of the bowel, the method of treatment suggested by Dr. Andrew J. MacCosh⁸ was adopted:

Two ounces of a saturated solution of magnesium sulfate was injected into the small intestine as high up as possible by means of a hollow needle attached to an aspirating syringe, the little wound of the bowel being closed by means of a Lembert suture. We are convinced that in at least three cases life was saved by this means of treatment. When peritonitis was present, the abdominal cavity was irrigated with a large quantity of hot normal salt solution and drained. If there had been no injury to the bowel, .65 gm. (10 gr.) of calomel was administered as soon as the patient had recovered from the effects of the anesthetic. A large dose of the mild mercuric chlorid in paralysis of the bowel, with marked distention, is always beneficial; not only does it have a tendency to induce peristaltic action, but it is an excellent diuretic, having a proneness to prevent suppression of urine, which sometimes accompanies abdominal complications. Small doses of the remedy, repeated at short intervals, will not produce the active vermiculation which is obtained by the administration of a single large dose.

In one case of strangulated hernia, on opening the sac, after separating the omentum and intestines, there was found to be, lying posteriorly, what appeared to be a cyst. The nature of the cystocele was not at first rec-

ognized, protrusion of a portion of the bladder being suspected; the urine was withdrawn by means of a catheter, when the tumor immediately subsided, thereby verifying the diagnosis. There were no symptoms present before operation which would tend to show that the bladder was in any way connected with the hernia. We have had the opportunity to observe two similar cases; the patients were inmates of the Philadelphia Hospital, and came under the care of our colleagues. In neither case were there any symptoms present that would lead a surgeon to suspect that the bladder was in any way implicated. In one of the patients the bladder was opened by mistake, and in the other the organ was recognized and returned to the abdominal cavity. Hernia of the bladder may occur alone, or it may be associated with a protrusion of the intestine and omentum. The diagnosis of the condition is but rarely made before operation. The condition may be suspected if there is an unexplainable frequency of micturition, and the history of the tumor shows that it diminishes in size or disappears after urination. The suspicion that the bladder forms a portion of the hernial contents can be determined by drawing off the urine, by means of a catheter. On removing the urine the size of the swelling will diminish; after evacuating the bladder, it can then be dilated by means of either air or water and the tumor will immediately reappear.

The following case serves to illustrate the fact that the condition is seldom suspected before operation:

A patient was admitted to the genitourinary department of the Jefferson Hospital in July last on account of a urinary fistula in the right groin, communicating with the bladder, through which there was a constant dribbling of urine. Two years previous to his first visit to Jefferson Hospital a sur-



Urinary fistula communicating with bladder, following operation upon inguinal hernia. The cross shows position of fistulous opening.

geon, connected with another institution, had operated upon him for what was presumed to be an inguinal hernia. The tumor was found to contain the bladder, which was accidentally incised, and left in situ, giving rise to a permanent urinary fistula. A plastic operation was performed, closing the opening, the patient was discharged cured three weeks later. The cross in the accompanying picture shows the position of the opening of the fistula.

Charles Adams⁹ reports a case of a child who was affected with the usual symptoms of inguinal hernia, no vesical symptoms being present. On opening what was presumed to be the sac, it was discovered that the surgeon had incised a diverticulum of the bladder. Hernia of the bladder alone may be mistaken for an ordinary hydrocele or a hydrocele of a hernia sac. Several cases are on record in which a hernial protrusion of the bladder has been tapped under the belief that the cyst was a hydrocele of the vaginal tunic. On opening the sac the

bladder may be recognized if present, by the discovery of what appears to be a cystic tumor, which usually forms part of the wall of the sac; the usual presence of fat over the cyst, and outside of the sac, the characteristic unstriped muscular fibers, composing the wall of the bladder, and also occasionally the longitudinal veins which are found in the vicinity of the fundus of the organ, which are frequently much engorged and consequently prominent should aid in making a proper diagnosis. Moreover, when the sac has been twisted, preparatory to resection, if the bladder is included, suspicion should be aroused by the unusual thickness of the structure.

Brunner divides hernia of the bladder into three classes: Extraperitoneal, paraperitoneal, and intraperitoneal.

Vesical hernia is said to be more common in men than in women. It usually occurs with the inguinal variety, although a few cases are on record in which it has been found to exist as a femoral protrusion. It is more common on the right side. According to Eccles it is present in about 1% of the inguinal cases. Lossen⁵ reports three cases of hernia of the bladder that came under his observation; all of the inguinal variety. In studying the literature of the subject, he found that out of 3,000 operations for hernia, a portion of the bladder was found in 1.6% of the cases. The most elaborate review of the literature of this subject is to be found in an article published by Alessandri.⁶

When a portion of the bladder is found to form a portion of the contents of the hernial sac, it should be freed from any adhesions that may exist and returned to the abdominal cavity. Should the protrusion of the viscus assume the form of a diverticulum, it is generally considered wisest to resect the pouch and close the opening made in the bladder by two rows of sutures.

In a private patient operated upon at the St. Joseph Hospital for what was presumed to be an incarcerated inguinal omental hernia, the sac was found to contain the ovary and fallopian tube with a piece of indurated omentum. The latter was resected and the ovary and tube freed from adhesions and restored to the abdominal cavity. The tumor had existed for three years, during which time it had been gradually increasing in size with increased induration. The patient stated that it was the seat of much pain during menstruation. The cause of this was inexplicable before operation.

Little is known as to the etiology of hernia of the ovary. The diagnosis is but seldom ascertained before operation. The condition may be either acquired or congenital, the latter form being the most common. The sac may contain only the ovary or the fallopian tube; both structures, however, may be present, associated with other viscera. The rupture usually occurs on the left side; cases are on record in which the protrusion has been bilateral. Statistics show that the inguinal variety is by far the most common. The ovary has been found in Scarpa's space, and even in the obturator foramen. So far as we have been able to ascertain, there is no case on record in which the ovary has been found associated with a femoral hernia.

Paul F. Morf,⁷ in reporting a case of inguinal hernia in which were found a bit of omentum and the fallopian tube, without the ovary, collected the reports of 24 similar cases in which 13 were inguinal, 5 of which were in infants; 10 were crural and 1 was obturator.

A study of hernia and its literature during the past 15 years shows that the subject of its radical cure has exercised the ingenuity and talents of surgeons to a remarkable degree. Different methods of attempting to effect a radical cure of the inguinal variety have been suggested by as many as 25 operators, viz., Ferguson, Nélaton, Ombrédanne, Bernhardt, Deaver, Ball, Stinson, Landphear, Mayhean, Phillips, Czerny, Socin, Thomas, Schawtz, Barker, Martin, MacCuen, Bloodgood, Eccles, Beck, Fowler, Kocher, Halstead, Bassini, and Benjamin.

These gentlemen each recommend a different method of operation in hopes of achieving success.

Many of these operations still have their advocates; some are forgotten; others have fallen into disuse; a few are yet on trial. The fact that so many different methods of operating are still to be tested would seem to prove that the proper method is thus far to be selected, in the hopes of procuring a fundamental cure; this depends on the particular condition that each case presents, as well as the character of the tissue of the individual with whom the operator has to deal. As Eccles very aptly puts it: "Uniformity of procedure in suturing the canal implies that all inguinal hernias are alike and implies similar treatment, a fact that experience entirely and necessarily discredits, each case having to be dealt with on its own merits." This statement appears to us to be the keynote of the situation and explains why a particular operation will not succeed in each instance, and hence the existence of so many different methods to effect a radical cure that are in vogue.

In spite of the fact that the profession is at variance as to the most suitable operation to be selected for the radical cure of hernia, accumulated evidence derived from a large number of different operations has narrowed the choice of methods adopted, by the majority of surgeons in this country, down to a few; which may be enumerated in order of their popularity as the Bassini, Halstead, Kocher, Bloodgood, and Fowler; the last named being still on trial. Each has its advocates; as has been already pointed out, none is probably suitable to every variety of inguinal protrusion. Frequently the surgeon must use his ingenuity, and experience, as a guide to the best method of procedure.

The popularity and confidence evinced by the profession, in the United States, for the Bassini operation are probably largely due to the writings of Bull and Coley, who published an article in the *Annals of Surgery* for 1898, in which it is demonstrated that attempts to effect a radical cure of inguinal hernia were disappointing until the Bassini method of operating, together with the employment of the absorbable suture, was adopted. The results of 1,053 operations are tabulated, of which 522 were performed by Bull and 531 by Coley. Of this number, 618 were performed by the Bassini method, among which there were but 12 relapses; 371 were in children under 14 years of age, and but 3 relapses occurred, giving a percentage of 0.75; 274 were in adults, over 14 years of age; of these 9 cases recurred, making 3.7%. Primary union took place in 95.5%. In a new series of 917 cases, operated on since 1890, 486 patients were well a year after the performance of the operation. Of these, 295 were kept under cognizance and found free from recurrences for periods varying from three to seven years. The mortality in this series of operations was five deaths, or .04%. Since the reports of these cases, the mortality has continued to decrease until today, in unstrangled cases, when the individual has been in a physical condition to submit to a radical operation, the mortality is less than .5%.

De Garmo⁸ gives the record of 250 Bassini operations for inguinal hernia, no deaths resulting. There were 216 patients operated upon; in 34 the operation was performed on both sides. The brilliant results obtained by Bull and Coley, by the Bassini method, together with the low mortality, which is in accord with the experience of numerous other surgeons, has had much to do with the popularity of this operation. From our own experience, and from the knowledge gained from the study of the literature of the subject, we have learned to believe that the Bassini is the proper method to pursue for the radical cure of the majority of patients afflicted with inguinal hernia; but cases will arise from time to time in which we must deviate from the directions suggested by Bassini and select some other means of operating in order to effect a cure. When the conjoined tendon is either so attenuated, or so obliterated,

that Hesselbach's triangle has lost its strongest support, transplantation of the rectus muscle is employed after the method suggested by Bloodgood;⁹ the remainder of the operation is performed by the Bassini method.

While some authorities still advocate aseptic silk and silver wire for the buried sutures when closing the various structures, the mass of clinical evidence is against their employment; the material of choice being kangaroo tendon and chromicized catgut. Coley has noticed 14 cases in which sinuses with relapses of the hernia have followed the employment of the silver wire suture. Four similar cases have come under our observation. In 250 operations performed by Coley,¹⁰ in which kangaroo tendon was used as buried sutures, in 96% primary union occurred, and in no instance was the healing attended by the formation of a sinus. Attention is called to the fact that "A large proportion of cases of suppuration formerly attributed to catgut or imperfectly sterilized buried sutures was really due to other causes, chiefly to infection by the hands of the operator or assistants; it is only necessary to compare the results of wound healing before and after the use of rubber gloves."¹¹ Of 29 cases in which a radical cure was attempted, and in which the after course could be traced, the result may be tabulated as follows:

18 cases indirect inguinal; Halstead 1; Fowler 1; and the remaining after the manner suggested by Bassini.

6 cases indirect inguinal hernia; strangulation existing at the time of operation. In these cases, after relieving the constriction, the Bassini or Bloodgood operation was performed.

1 case indirect inguinal hernia; Bloodgood operation.

1 case ventral hernia; following a celiotomy.

2 cases umbilical hernia; one the ordinary method, the other the Mayo operation.

1 case femoral hernia; Bassini method.

Of the 18 cases of nonstrangulated inguinal hernia, all have remained permanently cured for a varying period from one up to ten years save in one instance in which a recurrence took place one and a half years after operation. In this instance, the protrusion was large and had existed for several years, during which time a truss had been worn constantly. The case was one in which a Bloodgood operation should have been performed. Unfortunately the radical cure was attempted before this method of operating had been suggested. Of the six cases in which a radical cure was attempted at the time that the strangulation was relieved; one recurred in nine months, and another in two years after operation, this patient being 73 years old when the herniotomy was performed; the hernial protrusion having existed 15 years. In none of the remaining cases has recurrence taken place. Only six months, however, have elapsed since the operation for relief of femoral hernia was performed. Clinical evidence has shown that if a recurrence is likely to occur, it usually takes place within six months after the operation, and that the chances of recurrence are greatly diminished after one year.

The case of umbilical hernia operated upon after the method suggested by Mayo has been found to be the most satisfactory for the relief of this form that we have ever employed. It is nine months since the operation was performed and up to this time the individual continues in excellent health; there is no tendency to recurrence. Mayo¹² reported 19 successful operations by this method. Absorbable sutures were employed in all the operations, save in the one in which a Halstead operation was employed, when silver wire was used for the buried sutures. After convalescence, the wire occasionally gave rise to some local symptoms of irritation, and one year after the operation a sinus formed leading down to one of the sutures, which it became necessary to remove. In three similar cases, operated upon by different surgeons, we have been called upon to remove one or more of the buried silver wire sutures which had been employed to close the canal. The employment of the nonabsorbable suture is not recommended.

In the cases in which either a unilateral or bilateral hydrocele existed as a complication, the hydrocele was partially resected in one, and in the two remaining patients the Doyen method was adopted. All eventually recovered. So far there has been no tendency to a recurrence of either the hernias or hydroceles. In the case of hydrocele of the cord, the tumor was the size of a small orange, which was dissected out in its entirety.

In the case of tuberculosis of the testicle, complicated with hernia, it was found necessary to resect the entire vas deferens together with the removal of the testicle. Two years have elapsed since the operation; so far there has been neither a return of the rupture nor any evidence of further tuberculous infection; it is true that the patient has had the advantage of fortifying his constitution by a sojourn for a year and a half in New Mexico.

In seven cases of undescended testicle, associated with inguinal hernia, one was an iliac retention, the testicle being found in the iliac fascia near the internal abdominal ring. In the remaining cases the organ was located either in the inguinal canal or at the external abdominal ring. In four of the cases the hernia had insinuated itself beyond the retained testicle and had passed into the scrotum. In one case the presence of the testicle prevented the protrusion of the bowel beyond the external ring. In this case both the rupture and the testicle were found in the inguinal canal.

Authorities differ in opinion as to the efficiency of a misplaced testicle. Astley Cooper, Curling, Hunter, and Griffiths, from a study of this condition in man, and the lower animals, believe that an undescended testicle fails to secrete fertilizing fluid. Should the condition be bilateral the individual is frequently not only impotent but sterile. On the other hand, Monod, Arthaud, Jacobson, ourselves, and others, are convinced that in the early stage the testicle is still functionally perfect; that the danger of the organ becoming atrophied and functionless is less in the abdominal form of the retention than it is in the inguinal variety.

If the individual is under 30, and is strong and vigorous, the chances are in his favor of not being sterile. If, however, he is effeminate; has a falsetto voice; small undeveloped penis, and absence of hair on the pubis, the condition being bilateral, the testicles having been the seat of repeated attacks of orchitis; the probabilities are that the patient is incapable of procreation. Provided the testicle was healthy, even if somewhat atrophied, it has been our custom to save it whenever it was possible to do so. On more than one occasion we have been gratified to find that the transplantation of an atrophied testicle has developed into almost its normal size when placed in its normal position. Many cases are on record in which men with undescended testicles have married and succeeded in impregnating their wives. For this reason the individual should always have the benefit of the doubt; the sexual glands should not be sacrificed if possible; moreover, it is well known that the loss of one, or both, of the glands is frequently conducive to great mental depression and even melancholia. Dimi-tresco,¹³ after a careful study of the effect of castration, emphasizes the fact that teratology teaches that the testicle has a double function; that of a vascular gland as well as one of excretion. As White very tritely expresses it (White and Martin), the testicle has a twofold function: "The reproduction of the species and the development of the secondary characteristics of the individual." Physiologists have long since recognized the fact that the sexual glands secrete what is known as the "internal testicular secretion," the character of which is unknown, but is supposed, on being absorbed into the economy, to preserve the tone and vigor of the nervous system. In other words, the secretion serves to keep the individual in the normal groove. This is illustrated by the wellknown physiologic axiom that individuals known to be incapable of producing spermatozoa

retain all the characteristics of the male but are unable to procreate (Griffiths¹⁴).

Postmortem examinations made by John Hunter, Goslin, Simon, Tenon, and others, on men whose testicles were well developed, but in whom there existed a congenital absence of the vas deferens, showed that though these individuals were known to be strong and sexually vigorous, yet they were sterile. Clinical experience has taught that in resection of the epididymis and vasa deferentia in cases of diseased condition of those organs, the testicle retains its normal size, sexual vigor is unimpaired, the mentality of the patient remaining undisturbed. This observation places the testicle among the ductless glands. From what has been said it would appear that one of the functions of the testicle is to elaborate a secretion, the absorption of which is of vital importance to the preserving of the normal condition of the nervous system. If this theory be true, the organ should never be sacrificed if there be a chance of its being preserved. In one instance, after freeing the adhesions of an undescended testicle, it was found that on placing the organ in the scrotum the tension on the cord was very great. In order to relieve this condition, the method suggested by Mr. Wood was adopted. The globus major was dissected free from the testicle, far enough down to permit of the organ being inverted. By this means one and a half inches in length was gained. After a testicle had been transplanted not only was it fastened, by means of a suture to the bottom of the scrotum, but the cord was stitched to the pillows of the ring.

A brief history of the following case is of interest, as it may be classified as an accidental radical cure of inguinal hernia:

The patient was seen two years ago, in consultation with Drs. Musser and Ott. He had a large reducible inguinal hernia on the right side which had existed for eight years, for the relief of which he had worn a truss. Five days before he was first seen by us, an acute attack of appendicitis had been developed, accompanied by the formation of an abscess. The rupture, which had been reduced at the onset of the appendicitis began gradually to protrude, presenting all the symptoms of an inflamed hernia, being tense, painful, and irreducible. It increased in size daily. There was nausea and vomiting, with high temperature, but the bowels moved regularly. On opening the appendiceal abscess it was found that the pus had burrowed down and had been discharged into the hernial sac, while the hernial outlet had become obliterated. The abdominal abscess as well as the hernial sac were drained. Since recovery there has been no sign of recurring hernia.

Eleven patients were treated by what may be denominated the "palliative operation"; these cases were of long standing with large hernias, enormous hernial outlets, and atrophied muscular abdominal walls. Eight were indirect, and three were direct inguinal hernias. Two had been incarcerated for a long time; three were partially so; and three were reducible, but the individuals were unable to retain the mass by any form of apparatus that was employed. Four were of large size, the remainder being of the dimensions of the average hernia. These individuals were annoyed by flatulence, eructations, constipation, occasional nausea, and colicky pains. In each instance, the individuals were incapacitated for work so that they necessarily became involuntary idlers and habitues of the Out-Wards of the Philadelphia Hospital. In none of these cases was it presumed that the operation would result in a permanent cure. It was undertaken simply in order to relieve the symptoms and in hopes that after convalescence the individuals would be enabled to retain the intestinal protrusion by means of a properly applied truss. In each instance the result justified what might be regarded as an experimental operation; all were much improved and all were enabled to retain the bowels by means of a suitable apparatus.

In cases of this description, the surgeon cannot follow the fixed rules laid down for any recognized operation; he must utilize his experience and judgment with such

available resources as he may have at command. In two cases in which the rings were large and the conjoined tendon weak, or absent, the Bloodgood method was adopted. For the closure of enormous hernial outlets, with large protrusion associated with an atrophied condition of the muscular structure,—cases hitherto considered as inoperative, Witzel¹⁵ suggested the closure of these large apertures by means of buried silver netting. Gopel reports 11 umbilical and seven inguinal hernias operated upon by this method with but two failures. Willy Meyer¹⁶ strongly advocates the employment of the silver filigree in cases of the kind and reports three successful operations. He calls attention to the fact, which is insisted upon by Witzel, and emphasized by Phelps, that even in those instances in which the wound becomes infected and suppuration supervenes that the filigree pad should be kept intact. In event of the wound becoming infected it has been suggested that the sinus be enlarged sufficiently to permit a curet to be employed, after which the wound should be filled with pure carbolic acid, which is to be washed out with alcohol.

In spite of the apparently favorable results obtained in the few reported cases, we cannot help feeling sceptical as to the value of the procedure, and are inclined to believe that a more extended experience with this method, of attempting to close large hernial outlets, will prove unsatisfactory. As has already been pointed out, the employment of the buried silver suture, from the use of which so much was expected, when first introduced to the notice of the profession, has not come up to the expectations and has in consequence been abandoned by the majority of surgeons. We can see no reason why, therefore, the employment of silver netting, filigree, or allied devices, should not meet a similar fate. Nevertheless, this method of attempting to relieve what was hitherto supposed to be an inoperable condition is still on trial. It certainly merits the careful study and serious consideration of the profession. The gratifying results obtained in the few cases that have been reported are most encouraging, and it is hoped that a more extended experience, with this mode of treatment in cases of this kind, will result in demonstrating that a large number of these unfortunate sufferers who are now condemned to a life of pain and misery may be capable of being relieved.

In each case of the kind operated upon by us, a different method was employed. Eccles calls attention to the fact that in many cases in which large hernias have been operated on, and their contents restored to the abdominal cavity, that a hernia is apt to make its appearance at one of the other outlets. Fortunately, this has not occurred in any of the cases under consideration. It is claimed that in hernias of enormous size, or of long standing, especially if the sac contains an unusual amount of bowel and omentum, with some one of the solid viscera, such as the uterus or liver, that the abdominal cavity becomes contracted, when necessarily the hernial protrusion cannot be restored. As Petit aptly expresses it: "The protrusion has forfeited its right of domicile." This condition must be very rare, as shown by reference to the literature on the subject, where it will be found that hernias of enormous size have been successfully restored to the abdominal cavity even after they have protruded for years. Among recent reports of cases of the kind, we find one which was relieved by operation recounted by Robson.¹⁷ The patient was aged 62; six feet in height, and the tumor reached to his knees. F. T. Stewart¹⁸ reports a successful operation on an enormous ventral hernia, which contained half the stomach, all of the transverse colon, the omentum, and most of the small intestines. A somewhat similar case, as regards size, is reported by DaCosta.¹⁹ Both patients were operated on successfully. Two cases of unusually large hernia are reported by Keen.²⁰ The study of these few selected cases, out of the many that might be cited, seems to show that there

is little fear but that the ability of the operator will enable him to restore the contents of a large hernia to the abdominal cavity; yet it is not uncommon to hear surgeons say that the hernia is too large or has existed too long to permit the contents to be restored to the abdominal cavity.

In our judgment, in selected cases of long standing, incarcerated hernias and those that are reducible, but cannot be retained by the employment of a truss, the chance of relief should be attempted and comfort afforded by a palliative operation. Not with the hope of making a permanent cure, but to relieve the distressing symptoms which naturally accompany such a condition an effort should be made to retain the rupture by means of a suitable apparatus. We are convinced that too many surgeons give too little attention to the selection of a suitable truss in nonoperative cases. As a rule, the patient is sent to a truss maker, who applies the variety of instrument that in his judgment is best suited for the case. It is true, that the average truss sold by instrument makers will usually serve to retain the ordinary hernias. Occasionally the truss does not hold the protrusion in place, when the patient is told that it is impossible to retain the rupture by means of an apparatus. A careful study of the cause which prevents the truss from being satisfactory, together with the anatomic peculiarities which exist in each instance, will result, in the earlier stages of reducible hernias, in keeping them satisfactorily in place by the use of a suitable device. The truth of this assertion was forcibly brought to our notice by a patient under our care, who had been repeatedly fitted with trusses, both in this city and in New York, and without success. While residing in a little country village during the summer months, a harness-maker devised for him an apparatus consisting of pads and straps, which not only retained the rupture satisfactorily, but from which he has experienced no discomfort.

It is generally conceded that age makes but little difference in the mortality when operating on strangulated hernias, provided the constriction is relieved without using taxis inordinately, before resorting to operation. The extremes of life seem to bear the operation well. Audion²¹ exhibited a child before the Paris Society of Obstetrics, who had been successfully operated upon for the relief of a strangulated hernia, one hour after birth.

O'Callaghan²² claims that those aged individuals whose only infirmities are those incidental to advanced years bear critical operations better than the majority of middle-aged people. This condition, he claims, applies especially to women. This is in accordance with our own experience. As one of the surgeons to the Philadelphia Hospital, we are constantly called upon to operate upon very old people affected with strangulated hernia. The prognosis is favorable if there is no marked organic disease, the physical condition of the individual being merely that of senility and the operation being performed very shortly after obstruction has occurred. If the opportunity for performing herniotomy has been delayed and prolonged and violent taxis has been employed, the majority of patients die either from exhaustion or peritonitis. In the cases under consideration the youngest patient was 14, and the oldest 78. In the latter case not only was herniotomy performed for the relief of a strangulation, but a radical cure was attempted as well. Two years elapsed before a recurrence took place.

Regarding the age when a radical operation can be performed for the relief of hernia with the greatest certainty of a favorable result, the views advanced by Coley have been generally accepted in this country, the most favorable period being about the sixth year. In the adult without good cause it is not well to attempt a radical cure after 60, and not then in very large and incarcerated hernias.

Coley teaches that if after an operation a recurrence is liable to take place, it usually does so within six months, and that if the patient remains in a healthful condition for one year it is usually safe to predict that recurrence will not take place. In three cases we have had a recurrence after two years. We believe in the main that Coley's views are correct.

There is a certain class of patients subject to hernia who are unfit for a radical or palliative operation unless the protrusion becomes strangulated, when the danger is greatly increased, but of course the individual must be allowed to take his chances. Unsuitable cases for either a radical or a palliative operation are the obese, in whom the abdominal wall bulges far forward; persons who suffer from any disease of the viscera, and those who have an incarcerated hernia of enormous size and long standing. Those who necessarily wear a truss after an operation are individuals who suffer from a direct inguinal hernia; those in whom an infection of the wound has taken place after an operation; all operations which might be classed under the head of palliative; in old hernias of long standing; in individuals who have to earn their livelihood by hard labor; in emergency herniotomy when the patient's condition would not warrant the employment of the length of time required to do a radical operation; and in children in whom it was found that the hernial ring was unusually large. According to Eccles, those who have a poorly developed muscular abdominal wall and a family history of tendency to hernia should always wear a properly fitting truss after undergoing an operation.

From the study of the cases recited in this paper, the following conclusions may seem to be warranted:

1. The safety of the patient as well as the lowering of the mortality in strangulated hernia depends on gentle taxis being exerted for a short period, which if unsuccessful, should be succeeded by an immediate operation.

2. Herniotomy for the relief of strangulated hernia in the aged is not a dangerous operation, provided it is performed as soon after the constriction has taken place as possible.

3. An inflamed hernia should not be treated by taxis but should be subjected to an operation.

4. No one method of attempted radical cure is applicable to every variety of rupture. The Bassini is suitable to the largest majority. The Bloodgood for those in whom a large abdominal ring and weak or atrophied conjoined tendons exist. The relief of special forms and conditions of hernia must be met by the ingenuity of the surgeon, selecting the operation to the indications presented.

5. The palliative operation is applicable to a large number of selected cases of reducible hernia in which the protrusion cannot be kept within the abdominal cavity by means of a truss, and also in some forms of incarcerated hernia.

6. A radical cure may be safely attempted on patients who have reached their sixth year and on those who have arrived at their sixtieth year.

7. Individuals who submit to what is known as the "palliative operation" should continue to wear trusses after recovery.

8. In cases not applicable to a routine method of operation, the surgeon should strive to do what in his judgment would be the best means of effecting the removal of the entire neck of the sac on a level with the parietal peritoneum; he should if possible, firmly close the opening in the peritoneum after the removal of the sac; he should obliterate the depression of the peritoneum in the vicinity of the internal abdominal ring, bring in apposition the structures, and close the apertures which form the canal through which the rupture protrudes.

9. An aseptic result following a radical operation, with primary union, is essential to obtain a permanent cure of hernia.

10. In cases of undescended testicle associated with hernia, every effort should be made to save and transplant the organ.

11. The method of operating for umbilical hernia suggested by Mayo is probably the most satisfactory for that variety hitherto suggested.

12. Absorbable sutures are preferable to those of non-absorbable material.

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MALPOSITION OF THE HEAD (TORTICOLLIS, CANTED OR TILTED HEAD) WITH RESULTANT ILL-HEALTH, SPINAL CURVATURE, ETC., DUE TO EYESTRAIN.

BY

GEORGE M. GOULD, M.D.,
of Philadelphia.

For years I noticed that many patients, during the practical tests of refraction, habitually held the head in an abnormal position, either sideways, sideways and downwards, or more rarely in some other constrained and unnatural position. These dim memories of such cases, as I gather them to a hazy focus, make me think I must have been bothered with at least hundreds during my 15 years of practice. But like so many important "little" things, these were stupidly ignored, or the attention was not sufficiently fixed upon them to stimulate any effective question as to the cause or significance of the phenomenon. With the explanation of the mystery described in a previous paper, my aroused attention has enabled me to discover about 20 cases within two or three months; and this in the ordinary run of practice. The cause and mechanism of habitual malposition of the head during refraction has now become so clear to me that before establishing the accurate diagnosis of the astigmatism I am able to foretell with considerable accuracy what will be the axis in the dominant eye. The steps leading to the conclusion are roughly as follows:

1. The patient must sit with body erect, head upright, accurately facing the test-letters, the refractionist himself being in such a position that he will observe with ease and quickness any abnormal position of the head of the patient. Some mechanism could be easily devised to aid in the detection of malposition, but I think the best one is the observant eye, and the ever alert attention of the oculist. The old method of absolute inattention to the position of the patient, whereby he sat at any angle with the cards, with legs crossed, with arms and head in any position, the oculist himself standing or sitting anywhere and anyhow, was proper only so long as one was ignorant or scornful of the existence or results of eyestrain.

2. Does the patient's head persistently remain in or return to an abnormally inclined, canted, twisted, depressed, or elevated position? If so, (a) is the patient righthanded and righteyed? If righteyed, the peculiar axis of astigmatism causing the malposition of the head is probably in the right eye. As I have pointed out,¹ right-eyedness is more primary and of more importance than righthandedness, and the two are always associated. (b) Is the patient lefthanded and lefteyed? If so, the ametropic defect is probably in the left eye. Traumatism, leukoma, a high degree of ametropia, or of amblyopia, may, of course, rarely compel a reversal of the natural function of dextrocularity or sinistrocularity.

3. All astigmatism, it should be premised, that can produce head-canting, must be from 8° to 25°—usually from 10° to 18°—to either side of axes 90° or 180°. Compensation of a less degree of aberration than 8° would not be noticed or would be made by the adaptations of the ocular structures, muscles, etc., Compensation for an astigmatic axis farther than 25° from 90° or 180° could hardly be made by the head-inclination, and nature would meet the difficulty in some other way—by amblyopia, heterophoria, morbid reflexes, etc.

4. Is the tilt of the head dextrad? If so, the axis of astigmatism of the dominant eye is in the neighborhood of 75° or 165°. If hyperopic, the axis in the great majority of cases will be about 75°, because most young hyperopes have the axes clustering about 90°, and rarely about 180°. If myopic, the axis will probably be in the neighborhood of 165°, because most myopic astigmatisms are about the 180° axis.

¹ Science, April, 1904.

5. Is the tilt of the head sinistral? If so, the axis of the dominant eye will be usually about 105° , rarely 15° .

6. If the head is thrown directly backward or forward, in a stiff and constrained position, it is probably due to hyperphoria, and the effort to bring the two visual axes to a horizontal.

In the large majority of cases the head is canted to the right, because most young people are righthanded, righteyed, and hyperopic. Hence, the greater number of head-tilters have the axis of their hyperopic astigmatism of the right eye at about 75° .

The explanation of the malposition of the head is, of course, simple, though heretofore unexplained so far as I am aware. The lines of the vast majority of the objects fixed by the eye are at axis 90° , and the next largest number at 180° . Trees, houses, picture frames, doors, windows, figures of wall paper, etc., scarcely need to be mentioned, because the printed letters of every book and newspaper are more important creators of the feeling of and demand for uprightness in objects, and in the mechanisms of visual sensation. If one who is dextrocular and with astigmatism at axis 90° , will place his correcting lens in the right eye at 70° or 75° , and then observe the small test letters with the head upright, and then canted to the right, it will at once become clear why patients with the astigmatic axis organically at 75° habitually incline the head to the right without accurate correction or without any correction.

It hardly needs to be added that, as all orthopedic surgeons know, persistent malposition of the head, especially in the young, will induce secondary spinal curvature.

The number of patients with these canted heads is astonishing. The number of those with secondary and unsuspected abnormally curved spines is not less remarkable. Out of my score of cases of canted heads, I have asked several (or their parents, physicians, etc.) if there was any knowledge of spinal abnormalism. So certain were they that it did not exist that an examination was with difficulty permitted; then the fact, hitherto unknown, was perfectly apparent. In most of these cases I have secured the confirmatory and scientific diagnosis of the wellknown orthopedic surgeon, Dr. H. Augustus Wilson and detailed and accurate reports of a number of cases with photographs will be published in due time. To gather the data, and to wait for cures, by glasses alone, requires time, of course. This preliminary note is made in order to place the method in a general way before oculists and orthopedists, in order that the mystery of the diseases of a large number of patients may be resolved. If only five in a thousand of eyestrain patients have this slightly oblique axis of astigmatism, there must be many thousands of sufferers in the whole country. I suspect the proportion is much higher. Viewed only from the standpoint of the refractionist, the reason for many puzzling failures to cure the ordinary eyestrain reflexes may find a solution in the foregoing suggestion.

To illustrate, I briefly epitomize a few cases to be described more fully in the future:

CASE I.—That already reported in *American Medicine* of March 26, 1904. For about two years there was no detection of the abnormal axis of astigmatism of the right eye, nor of the so-called torticollis, nor of the spinal curvature, because I had allowed the girl to hold her head to the right while being refracted. There was no cure of her headaches, gastric reflexes, malnutrition, etc., by my axis of astigmatism erroneously placed at 90° instead of 75° . There was no discovery of the pain in the chest, coughing, "consumption," etc., and no cure of these symptoms, because of the same blunder in diagnosis. The accurate axis of astigmatism was discovered by the protest of the patient that she "could not see" when her head was held in an upright position. By placing the right axis at 75° she was "unable to see" (*i. e.*, to see clearly and easily) with the head in the old life-long canted position, and the entire train of symptoms—the cough, pain, "consumption," headache, denutrition, canted head, and spinal curvature, all disappeared in a few months. I have received a letter from

her local physician expressing the greatest delight and wonder at the girl's sudden restoration to health, and her "complete transformation."

CASE II.—A young man complained of severe migrainous symptoms, melancholy, inability to carry on clerical work, loss of positions, etc.; he habitually held his head to the right, was "lop-shouldered," awkward, etc. Examination by an orthopedic surgeon revealed pronounced spinal curvature, hitherto unsuspected. He could see well only with the tilted head, and only poorly for continuous writing, even with the head thus inclined. With the astigmatism corrected he can see only with the head erect. His symptoms are disappearing.

CASE III.—A lady of 29 had never weighed over 98 pounds, had always been in feeble health, was very "nervous," had suffered much from headaches, gastric troubles, denutrition, etc. All the physicians and oculists consulted could not find out what ailed her, and could not give her relief. I failed as badly as the rest for over two years. With the experience of Case I fresh in my mind, I noticed at a recent visit that the head was canted to the right. All her photographs show this odd position of the head since childhood. I asked her if she was lefthanded. Emphatically and sorrowfully she said yes, and described the many troubles and worries she had had all her life because of her lefthandedness, and the unsuccessful results of the foolish training she had undergone to make her righthanded. Asked if she had any spinal trouble or curvature, she said she had had spinal pain all her life, but no spinal curvature, so far as she knew. Examination by her local physician and by an orthopedic surgeon showed the existence of the unsuspected curvature. I prescribed correction of her astigmatism, estimated carefully with the head erect, and in three weeks she gained about 10 pounds and was the happiest of women in the relief of many distressing symptoms. The glasses ordered were as follows:

R. + Cyl. 1.75 ax. 70° .

L. + Sph. 0.25 + Cyl. 0.87 ax. 120° .

She had been coerced into writing with her right hand. The tilt of the head to the right shows that she had for the intellectual tasks of reading and writing become righteyed, although much confused and "mixed" as regards other acts. The ametropic error is highly suggestive when one considers her other troubles. A more accurate report made in conjunction with Dr. Wilson will be published.

CASE IV.—This patient, a girl of 13, was sent to me by the orthopedic surgeon, Dr. H. Augustus Wilson, with the diagnosis of rigid dorsal scoliosis, the convexity to the right, and with the head persistently tilted to the right. I found her wearing the same correction, or malcorrection, in each eye: + Sph. 0.75 + Cyl. 0.50 ax. 90° .

Her static correction is:

R. + S. 1.37 + C. 0.62 ax. $75^\circ = 20/20$.

L. + S. 1.00 + Cyl. 1.25 ax. $90^\circ = 20/20$ slowly.

There was perfect muscular balance. Thus, even at 13 this girl is, perhaps, hopelessly injured for life by reliance upon the traveling optician, and the neglect of an axis of astigmatism deflected 15° out of symmetry.

CASE V.—Mrs. H., aged 34, has "never been without backache for five minutes all her life." She has had sick-headaches, or typical migraine, since she was a child, and other headaches between the crises. She has had great daytime sleepiness, flatulent dyspepsia, intense "nervousness," melancholy, uric acid symptoms, "rheumatism," etc. She was treated for spinal curvature at about the age of 18 and pronounced cured. The curvature was thought to be due to a fall. This was found to be one of the rare cases in which the head was persistently tilted to the left and also slightly backward. As she was not lefthanded, I said that her axis of astigmatism must be about 105° in the right eye, or if she had acquired sinistocularity (left-eyedness) the axis of the astigmatism in that eye must be about 105° . Upon testing, I found the following error:

R. + S. 2.00 + C. 0.62 ax. $100^\circ = 20/40$ +

L. + S. 2.50 + C. 0.25 " $105^\circ = 20/30$ +

with 9° of esophoria.

Thus, whether dextrocular or sinistocular, the tilt of the head was necessarily to the left. She is, however, righthanded and righteyed, although the right eye is the more amblyopic. Examination of the spine shows, despite the "cure" at 18, that it is curved to the left in the dorsal region.

CASE VI is interesting because of a rare peculiarity. The patient, a woman, 30 years old, has suffered much and long; she has never weighed over 85 pounds. She has had her ocular muscles tenotomized many times, and was wearing simple spheric glasses from the tenotomist. Her true refraction is:

R. + Sph. 3.25 + Cyl. 1.00 ax. 180° .

L. + Sph. 3.00 + Cyl. 0.87 " 105° .

Under the influence of these latter glasses she has had sudden relief of distressing symptoms, and as sudden reestablishment of normal muscular balance. The highly interesting facts are that, even with the ametropic correction given above, she has only 20/40 visual acuity with the right eye, but 20/20- with the left; that she has herself noticed that she tilts her head to the left in near-work (not for distance); that her left axis is 105° ; and that with proper glasses she does not tilt the head. Thus it is clear that the amblyopia of the right has produced a partial left-eyed-

ness, greatly complicating the other reflexes of eyestrain, and all relieved by proper correction of the astigmatism.

The investigation of the significance and suggestiveness of the ocular cause of inclined or tilted heads, and of many cases of spinal curvature, will probably throw much light upon other obscure problems of ophthalmology, neurology, and especially aid vastly in the practical solution of many difficulties and perplexities of practical refraction work and of the daily life of patients. One can foresee how it may be one of the causes of heterophoria of all kinds, especially of cyclophoria; of a number of chronic and inflammatory conditions of the fundus; of strange reflex ocular neuroses, etc. It will certainly explain many of our failures to cure migraine, hysteria, neurasthenia, and many other reflex ocular neuroses, even after the most painstaking ocular tests made without the knowledge of the slightly variant axes of astigmatism, the canted heads, etc. The extent to which it may influence ophthalmic and general medical practice appears incalculable. It may even lessen the prejudice of those who criticise "the exaggerations of the hobby-riding oculist," although this is hardly probable.

SOME FACTS CONCERNING RADIUM AND THE USE OF THE INTRAGASTRIC RADIODE.¹

BY

J. A. STORCK, M.D., PH.M.,
of New Orleans, La.

Professor of Diseases of the Digestive Apparatus, New Orleans Polyclinic; Professor of Physiology and Materia Medica, New Orleans College of Pharmacy; Visiting Physician to Charity Hospital, New Orleans.

Radium derives its name from the Latin radius, a ray, a term descriptive of the radiant energy which characterizes the metal. The fact that certain bodies possess the power of emitting invisible and penetrating rays was first brought forward by Seguin. Many years ago it was noticed that if a coin or a print were shut up in a box in close proximity to a sheet of blank paper, an image was made, even in the absence of solar light. These mysterious functions were formerly accounted for as the product of superhuman agency; but Seguin suggested that the bodies capable of producing this singular phenomenon did so by giving off a continuous stream of impalpable particles, projected at such a velocity as to make an impression on the substance which they bombarded. This hypothesis was rejected by physicists, who declared that such a radiation of matter going on forever without loss of weight was impossible. Though, indeed, almost inconceivable, yet this hypothesis is the best explanation so far offered to account for the strange behavior of the latest scientific wonder, radium.

The discovery by Röntgen of the röntgen rays, led to much speculation and experimentation. It was probably on a hint from M. Poincare, the mathematician, that M. Henri Becquerel was led to the investigation, and finally, in 1896, to the discovery of the radioactive properties of uranium and its compounds. These radioactive properties are the wellknown Becquerel rays. The discoveries cited led to further research by Mr. Schmidt and M. Curie. Working along these lines they discovered thorium, which, like uranium and its compounds, has also the power of discharging an electroscope. In 1898, Madame and M. Curie discovered that uraninite, or pitchblende, has four times the radioactivity of metallic uranium. While engaged in further research on pitchblende, Madame Curie found what was supposed to be an element, and named it polonium, after her native country, Poland. It was in 1899, after much widespread research and eager investigation, that Madame and M. Curie and M. Bemont made the discovery of the remarkable substance, radium.

Radium is obtained from uraninite or pitchblende,

which is found in Saxony, Bohemia, Cornwall and Colorado, and yields only about three grains of radium to the ton. Professor William Ramsay says that radium is undoubtedly an element in the sense in which the term is generally used. It belongs to the alkaline group of elements. No pure radium has as yet been produced, its bromid and chlorid salts being generally used for experimental and medicinal purposes. Among the curious facts stated concerning radium, Professor Lippmann, of the Sorbonne, claims to have established the fact that radium has the power of continually generating heat without drawing upon any external source of energy. Its salts are always hotter by from 2° F. to 5° F. than the surrounding atmosphere, and it is capable of dissolving its own weight of ice every hour.

Beside the heat rays, three kinds of radiation are constantly being evolved from radium, namely, the alpha, beta and gamma rays. The alpha rays are of very slight penetrating power and are stopped by the thinnest sheets of metal or paper. They carry positive electric charges and are thought to be particles shot off from the radium atoms with enormous velocity.

The beta rays are more penetrating, carry negative electric charges, and are exactly like the cathode rays of a Crookes tube.

The gamma rays are analogous to röntgen rays, will pass through many substances opaque to light, and will penetrate several coins placed one on top of the other.

The most rational explanation of this strange phenomenon is given by J. J. Thomson in his corpuscle theory, which assumes the existence of particles of matter called ions, thousands of times smaller than atoms. It is supposed that myriads of these corpuscles are thrown off at such a tremendous velocity as to generate the force which is known as radioactive energy. Seguin's idea, we may recall, gives reinforcement to the Thomsonian corpuscle theory. The incessant bombardment occasioned by the particles thrown off from radium may be demonstrated by the Crookes spintharoscope.

About 1899, Becquerel discovered that the rays of radium were deviated by a magnetic field in the same manner as the cathodic rays. Professor Rutherford and Frederick Soddy have found that if the active air of radium be cooled by passing it through a tube cooled by liquid air, it loses its activity, the active power remaining in the cold tube. On warming the tube, the active portion is carried forward, and with it the power of discharging an electroscope.

"There is this difference between the radiant energy of radium and the röntgen ray. Radium induces an activity which persists, while the activity of the röntgen ray ceases on the removal of the ray." Radium is said by Becquerel to have the property of imparting its radioactivity to other bodies with which it comes in contact. Sir Wm. Ramsay and Mr. Soddy have shown that the emanation from radium is a gas, and that this contains helium. They have determined that the fresh emanations from radium do not show the spectrum of helium, but as it decays, helium is produced in minute, but ever-increasing quantities. As radium gives off helium, itself an element, radium is thought to be composed of two or more elements. Or, is it possible, that the ancient and much-derided theory of the transmutation of metals receives an exemplification in the transformation of radium into helium?

In the summer of 1902, at a meeting of the British Association, Dr. J. J. Thomson is said to have stated that if a square centimeter of surface were covered with pure radium, it would lose only 1 mg. in 1,000,000 years. This corresponds to similar statements made by Becquerel.

Among the peculiar properties of radium we may mention these:

Radium transforms oxygen into ozone, it colors glass and changes white phosphorus into red; it decomposes silver salts on sensitized photographic plates. Its rays

¹ Read before the Orleans Parish Medical Society, March 26, 1904.

pass through aluminum, wood, etc., only partially through glass, and not at all through thick lead foil.

Mr. McLennan found that rain caught in a vessel and immediately evaporated to dryness imparted radioactivity to the vessel in which it was evaporated. It is claimed that the waters of the celebrated springs at Bath, England, contain radium and therefore give off radioactive emanations.

Caution must be observed in carrying radium about the person. Becquerel reports a burn from carrying a small particle in a glass tube in his vest pocket; while Curie, in the investigating spirit of the scientist, subjected himself to quite a severe burn from this substance.

Uranium is taken as the unit in measuring the radioactivity of radium; 1,000 radioactivity signifies that radium is 1,000 times more active than metallic uranium.

As radium loses some of its luminosity on exposure to moisture, it is desirable to keep the metal in sealed glass or aluminum tubes. Its luminosity may be increased by subjecting it to a high temperature.

No sooner had the wonderful properties of radium been made known than physicians began to speculate on its therapeutic properties. When the price reached such a figure that small quantities fit for medical experimentation could be purchased, physicians began to use it in the treatment of different diseases, and some report it of considerable value as a therapeutic agent.

Dr. John McIntyre, of Glasgow, reports the cure of two cases of lupus, one of the hand in three weeks, and one of the nose in four weeks. He also reports a case of rodent ulcer much benefited after two weeks' treatment. Dr. Oudin, of Paris, says that he has cured some cases of lupus, but he does not give the details. Professor Gusenbauer reports to the Vienna Medical Society, that in 20 cases of cancer treated by radium during the six months ending July 1, all showed more or less improvement and in two cases cure was established.

Drs. Willy Meyer and W. J. Hammer, of New York, record a case of recurrent cancer in which the röntgen rays and Coley's fluid had been used for about a year without avail. Radium of 300,000 activity was used in this case, and while a cure was not effected, much improvement was noticed, the growth becoming much smaller and less painful.

Dr. Andrew H. Smith, of New York, saw a patient with a rodent ulcer who had been treated by the röntgen rays without benefit. After five treatments by the

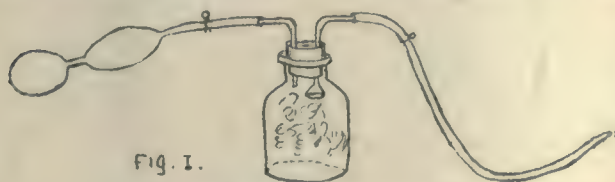


Fig. I.

Fig. I.—Emanation spray.

radium rays, perfect healing of the parts took place. In the *British Medical Journal*, Soddy suggests that the emanations given off from radium bromid, dissolved in water, may be used in the treatment of pulmonary tuberculosis. The inhalation of these emanations leaves a thin film of radioactive substance in the lungs. This causes the phenomenon of induced radioactivity, which remains in the air cells of the lungs, exercising a germicidal power over diseased tissue long after the emanations have been exhaled. This leads us to infer that these emanations might be used in the treatment of tuberculosis and cancer of the intestines, and also in cancer of the stomach. For this purpose an apparatus such as here shown may be utilized (Fig. I). Caspari, Ashkassi and Sir Henry Crookes have proved that radium has marked bactericidal properties. There are several attachments now on the market for applying

radium to different parts of the body. Fig. II shows a radiode devised by Dr. J. B. Shober. It consists of an aluminum capsule containing radium, and a long rubber handle, allowing it to be used in the nose, throat, vagina, rectum, etc. The whole instrument can be inserted in a glass tube (Fig. II, b) and thus employed, or the radiode can be used alone without the glass tube.

Wishing to test the effect of radium on cancer of the stomach, and being unable to find any literature on the subject, or any mention of radium having been used in the treatment of this disease, I devised an instrument specially intended for this purpose. I call it an intragastric radiode. It consists of an aluminum capsule containing 10 mg. of 7,000 radioactive radium, attached to a flexible copper wire passed through a suitable

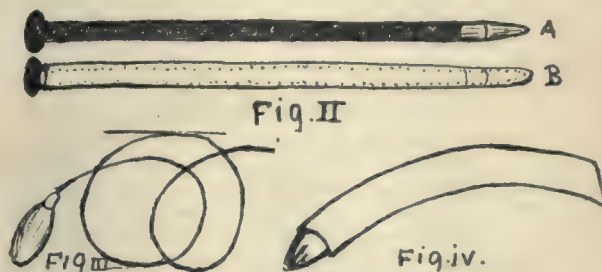


Fig. II.—Shober radiode. Fig. III.—Storeck intragastric radiode. Fig. IV.—Intragastric radiode end projecting from rubber tube.

rubber tube (a stomach tube will answer every purpose), the capsule being allowed to project beyond the end of the tube. The intragastric radiode is so manipulated as to come immediately, or as nearly as possible, in contact with the growth. So far I have had experience in its employment only in one case, that of a white male, aged 70, a wretched subject and an inoperable case.

The diagnosis in this case was positively established before beginning the use of radium.

The patient is markedly emaciated and cachectic, has vomited blood (coffee-ground vomit), and the tumor at the pyloric orifice is easily palpated. Several examinations of the stomach contents showed absence of hydrochloric acid, rennin and pepsin, and the presence of lactic acid and the Boas-Opller bacilli. He complained of severe pain. The application of radium in this case was made three times a week, allowing the radiode to remain in the stomach on an average of three minutes. After the third application he claimed to be relieved of his pain, and after the fifth application, vomiting, which had been almost continuous, had almost completely subsided. Since beginning the use of radium in this case, three weeks have elapsed, and there has been no recurrence of the pain. I notice no diminution in the size of the tumor, and the cachectic condition is about the same as before treatment. He says that he eats somewhat better. I shall continue the use of radium in this case, with the hope of giving more positive benefit to the patient.

In discussing the strange and unaccountable characteristics of radium, Lord Kelvin says that the discovery of the Becquerel rays has placed the first question against the principle of the conservation of energy.

In a recent article, Sir William Crookes says: "Certainly no discovery of modern times has had such wide-embracing consequences and thrown such a flood of light on broad regions of hitherto inexplicable phenomena, as this discovery of M. and Mme. Curie and M. Bemont. The existence of matter in an ultragaseous state, material particles smaller than atoms; the existence of electric atoms or electrons; the constitution of röntgen rays and their passage through opaque bodies; the emanations from uranium; the dissociation of the elements—all these isolated hypotheses are now focused and welded into one harmonious theory by the discovery of radium."

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THE TREATMENT OF PNEUMONIA.¹

BY

R. S. THORNTON, M.B., C.M., EDIN.,

of Deloraine, Manitoba, Canada.

Pneumonia is a disease which will not submit to cast-iron rules of treatment. It presents a great variety of types. While the pathologic process in the lung in all cases is the same, the clinical conditions to which it gives rise are so varied that we have, in practice, not one disease to treat, but many. In no disease does the patient himself constitute so large a factor in the question of treatment as in pneumonia.

Pneumonia presents different aspects and problems to be met according as it occurs in the infant, in the period of adolescence, in the aged, in the strong and robust, in the plethoric, in the anemic and nervous, in the debilitated, in the alcoholic. It presents different questions at various stages in the same case. The type is also modified by conditions outside of the patient. Pneumonia as it attacks the dweller in cities has features different from that affecting the dweller in rural districts. It varies with East or West, with North or South, with highland or lowland, with moist climate or dry, with summer or winter. It is recognized as a germ disease, so we naturally find that different epidemics present types of varying virulence.

These conditions may, in part, account for the very contradictory methods of treatment advocated; some writers lay greatest stress on the need of stimulant treatment being probably influenced by a greater experience with asthenic types, others lay equal stress on the need of sedative treatment probably because of a greater experience with sthenic types, while a third class strikes a middle course and advocates the expectant method.

The expectant plan of treatment is based on the opinion that pneumonia is a self-limited disease, following a regular course, terminating by crisis at or about the eighth day, to be followed by a more or less prolonged convalescence, with or without permanent injury to the lung. In fatal cases death is due to the virulence of the disease, to exhaustion, to embarrassment of the circulation, to complications.

From these premises it is argued that little need be done except to treat symptoms and sustain the strength, but while we agree with the premises, the conclusion does not seem to be warranted by experience. The course of the disease may be favorably modified, and crisis averted even in typical cases, and the first days of the disease are those in which we can do most to help our patients. It will be granted by all, that there are many cases in which because of the severity of the attack or of some weakness in the individual, a fatal result is inevitable in spite of all advantages of nursing and treatment. On the other hand, there are many cases in which the infection is so slight or the area of lung involved so small, or the patient's system so unfavorable to the development of the disease, that the attack will terminate favorably without treatment, or

become abortive, crisis occurring by the third or fourth day. But between these extremes there is a large middle class, constituting the majority of all cases, in which proper management is of the utmost importance and there is no disease under the care of the physician in which so much may be done by proper management to bring about a successful result. I use the word management rather than treatment because we are so apt to associate the latter term with medicinal treatment. The administration of medicines is by no means our first or our most important duty, and while I am convinced of the efficacy of proper medicinal treatment at certain stages and conditions of the malady, I am also convinced that the final issue depends just as much on proper attention to many details, any one of which by itself may be of little moment but which in the aggregate may decide the balance between success and failure.

The great variety of types and conditions has already been referred to. It will be impossible to deal with these in detail in this discussion, and I shall direct attention to a few considerations applicable to all cases, for since the pathologic process is the same there must be some principles in common.

What is the chief indication that ought to be kept in mind first, last, and all the time, the one measure, having which some others may be neglected, and lacking which all others may fail to win through? Is there any indication of such primary importance? I think there is. It is rest. Pneumonia is an inflammation and if there is one principle in therapeutics established beyond question it is that of the necessity and value of rest in all inflammatory processes. This is so obvious that one feels almost like apologizing for mentioning it, and yet we all fail in giving full effect to the principle, and in the various textbooks I do not find it emphasized as it ought to be. It means here rest, both general and local. It means a firm bed—not a feather tick which allows the patient to slide around and wearies the muscles for lack of support. It means the use of the bed-pan, the urinejar, the feeding cup. It means that every muscular movement that can be avoided must be avoided, so that the heart which has the great strain of the illness to bear, shall not have one unnecessary beat, or the embarrassed lung one unnecessary respiration. It means especially that there must be no talking, that visitors must be rigorously excluded, that no one shall be in the sickroom except those directly ministering to the patient. We have all seen cases which have been doing well, running a course of moderate severity, in which we have confidently expected a perfect recovery, yet one day we find the temperature up, the pulse quickened, the patient restless and excited and a train of unfavorable symptoms set up which go from bad to worse, the whole disturbance having its origin in a prolonged or exciting conversation. Doubtless some pneumonia patients have in this sense been "talked to death."

All this means a nurse to give effect to these directions, a trained nurse if possible, but in any case some one individual, whose whole duty it should be to attend to the patient.

The temperature of the room must be as equable as possible at 65° to 70°. The atmosphere should be moistened, especially in winter, when stoves or furnaces dry the air. The moist atmosphere is soothing to the irritated respiratory membrane, and it may be medicated with some volatile antiseptic, such as carbolic acid, creosote, and so on, the selection being made to suit the taste of the patient. The food of the patient must be concentrated and nourishing.

The next point I wish to discuss is the use of poultices. In hospitals generally these have been discarded. In our practice here we find a strong popular sentiment in their favor which it is difficult to antagonize. The non-use of poultices in a severe case may give rise to adverse criticism. Why should we put on poultices and what do we expect them to do? Lauder Brunton says "poultices

¹ Read before the Southwestern Manitoba Medical Association.

are almost always of use when there is pain." Now the acute pain of pneumonia takes place usually before complete consolidation sets in during the acute congestive condition, and especially as the disease process approaches the pleura. There can be no doubt that the poultice gives relief and is gratefully welcomed by the patient. But when consolidation has taken place the poultice should be discarded. It cannot affect the disease process in the lung. It is heavy, requires frequent changing, exhausts the patient, and interferes with the principle of rest, which we have already insisted on. No matter how carefully it is done, the changing of the poultice always quickens the heart-beat (sometimes 20 beats to the minute), and some considerable time elapses before it returns to its former rate. This, too, at a time when the heart is feeling the great resistance to the circulation in the lung. If, then, poultices are used at all they should not be continued beyond the stage of congestion. There are other methods of using heat, more convenient to apply and not open to these objections. A smart mustard plaster, pure, applied warm, and retained till the skin is thoroughly reddened, then the cotton jacket, and the hot water bag if continuous heat is desirable will give as satisfactory relief. The cotton jacket must not be too thick or it, too, may be objectionable.

The general constitutional treatment of pneumonia must be that of a toxemia. It is, therefore, of the utmost importance that the bowels and kidneys be kept acting freely, and a sufficient quantity of water must be taken to let them do so, not only to eliminate the waste products, but to diminish the absorption from the alimentary canal of the products of fermentation going on there. As an initial purge, a dose of calomel is often of great service, but the best results are secured by the administration of a saline laxative.

Coming next to the question of drugs and still following the indication of rest, we find certain disturbing factors, such as pain, restlessness, sleeplessness, delirium, and cough. These must be allayed so far as possible, and for the pain there is nothing better than an initial dose of morphin—1 cg. ($\frac{1}{8}$ gr.) by the mouth or hypodermically, to be repeated after some hours if the pain demands it. It is not well, however, to continue its use beyond this point, because it locks up the secretions, thus interfering with the proper action of stomach, bowels, and kidneys, and rather increases the tendency to cerebral congestion. But we have a most valuable weapon in the use of another opium derivative—codein. This drug does not interfere with the secretions, and does not affect the digestion, and while acting as an excellent general sedative, it does so without depressing the heart. Indeed, by slowing the pulse slightly and thus saving the heart unnecessary exertion, it indirectly acts as a stimulant. It has a specially soothing effect on the respiratory mucous membrane, and while it checks the irritating cough it does not interfere with the necessary expectoration of the sputum. It is a very safe and satisfactory medicine to use with children. It is best given in small repeated doses, from 5 mg. to 16 mg. ($\frac{1}{12}$ gr. to $\frac{1}{4}$ gr.) for adults, and from 1 mg. to 5 mg. ($\frac{1}{60}$ gr. to $\frac{1}{12}$ gr.) for children according to age and condition, once in three hours.

At this point, while considering the question of sleep and rest, I would emphasize the importance of carefully considering the directions given to the nurse. It is an instructive experience to stay continuously with your patient for 12 hours. Medicine is to be given say once in three hours, food at similar intervals, and all the other details to be attended to, so that, unless you carefully contrive to have as many things as possible done at one time, the patient is being constantly disturbed.

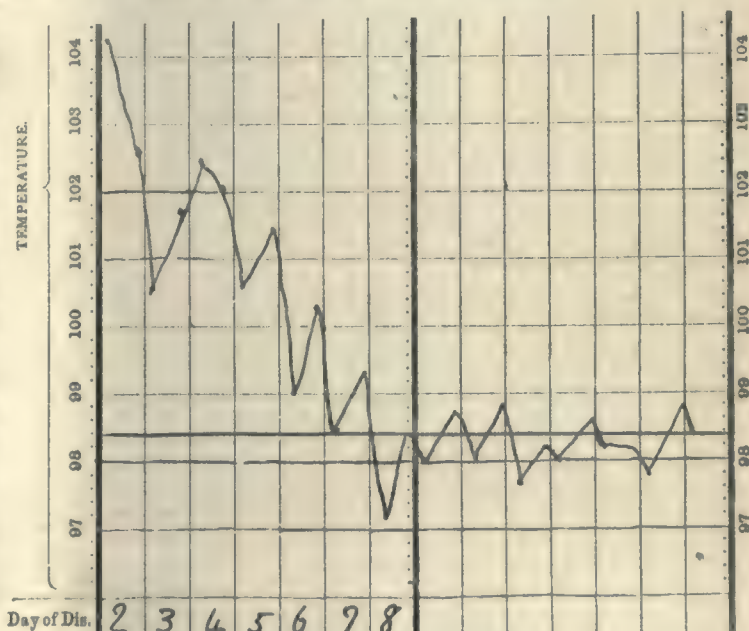
There are three drugs used more or less constantly in

pneumonia for their effect on the circulation—aconitin, digitalin, and strychnin. Aconitin, or its congener—veratrin—is recommended in the early stages of sthenic cases. By the advocates of the expectant treatment, the use of either of these or similar drugs is condemned as heart depressant. If, by quieting the circulation, we can save the heart from over-exerting itself, we are doing it better service than when we stimulate, if it require it, and that is precisely what aconitin does. It reduces temperature, and therefore tissue waste. It dilates the arterioles, decreasing blood-pressure and the pulse-rate. In medicinal doses it does not depress the heart. That occurs only when relaxation is excessive.

Digitalin and strychnin are especially of value near and after the time of crisis, when the right ventricle is apt to be losing ground and dilating because of the opposition in the lungs. I would merely point out that the use of digitalin should be begun some time before its effect is wanted, as its action on the muscular fibers of the heart takes some time to make itself manifest.

In passing, let me enter a plea for the more general use of the active principles rather than the uncertain strength of tinctures and fluid extracts. We all use strychnin, and few, I think, would care to depend in emergency on such uncertain quantities as are represented in tincture of nuxvomica. Let us do similarly with aconitin, digitalin, and other drugs. For hypodermic use we are careful to select the pure single agents, and the accuracy of hypodermic medication depends as much on the drugs used as on the method of employing them. Surely it is as reasonable to be as accurate in administering drugs by the mouth.

So far I have not mentioned alcohol in the form of whisky or brandy, and simply for the reason that for many years I have abandoned its use altogether. In ammonia, either as carbonate or aromatic spirits we have as satisfactory a diffusible stimulant. Strychnin and digitalin have a better permanent effect, and in cases of collapse, atropin is greatly preferable.



Pneumonia being a germ disease, the question of treatment directed against the specific cause has to be considered. Experiments have been made and an anti-pneumococcic serum has been tried but the results so far have not been satisfactory. But of late years a method of treatment by the use of creasote or creasote carbonate has given very good results. Creasote may best be administered in enteric pills, coated so as not to dissolve in the stomach and thus avoid gastric disturbance.

The dose in this way would be from .065 gm. to .13 gm. (1 gr. to 2 gr.) every three hours. Carbonate of creasote, is a brown syrupy liquid, and may be administered in an emulsion of acacia, or in cinnamon water or other aromatic water. Given in this way it has no very disagreeable taste and children take it readily enough. The average adult dose is .6 cc. (10 m.) every three hours. It seldom produces any gastric disturbance and in most cases seems to affect the stomach rather favorably. The value of this treatment is proportionate to the earliness with which it is adopted. In cases in which the stage of complete consolidation has not been reached the temperature falls and in 48 hours the patient has become convalescent. When the stage of consolidation has been reached the symptoms are ameliorated and the temperature falls gradually instead of abruptly and a critical discharge does not occur. Some few patients are not influenced by it at all. It is important that the creasote or creasote carbonate should be continued throughout convalescence. The probable explanation of its action is that of an internal antiseptic, and we must remember that pneumonia is really a systemic disease, with a local manifestation. It seems reasonable to suppose that the creasote would follow the microorganism and its toxins throughout the circulation. But whatever the explanation of its action the evidence in favor of its beneficial effect in pneumonia is accumulating. My own experience with the drug corroborates these claims. I have here the temperature chart of a patient whom I have had under my care since I was requested to prepare this paper. Now, in estimating the effect of any treatment on any given patient, the physician must be sure that it is not a case in which spontaneous cure was likely to take place.

The patient, a man, aged 41, had been treated for alcoholism two years previously. He had had an attack of pneumonia in the same lung about 12 years previously. There was a family history of tuberculous disease, a brother and a sister, and probably also the mother, having died from pulmonary tuberculosis. When I made my first visit he had been in bed 36 hours; temperature was 104°, respirations 34, pulse 104; he was complaining of severe pain in the side, and expectorating the characteristic rusty sputum. Examination showed the right lung was involved, the disease starting in the apex and also in the apex of the middle lobe (a circumstance usually to be regarded as significant of tuberculous infection, although subsequent microscopic examination failed to show the tubercle bacillus) and already the heart was showing the stress of the illness, the pulse being irregular. Twenty-four hours later there was complete percussion dullness over the right lung from apex to base. Any one seeing this patient would have given a very guarded prognosis, and most physicians would have given an unfavorable prognosis. The patient recovered completely under the treatment as outlined above.

However, it is not so much the fact of recovery that I wish to point out, as the course of the temperature. Here was a typical case, with bad features, but note the very gradual and steady descent of the temperature so that when the time of crisis did come there was little or no reactionary depression. Were this an isolated case it would still show that typical crisis can be averted in typical cases, but I may say that since adopting this treatment I have not once seen a crisis, and all my cases in which recovery has taken place have been characterized by the same gradual and steady decline of temperature without any critical discharge.

Splenic Anemia.—J. H. Davenport and H. C. Pit§ report a case which they regard as unique in that severe anemia and wandering spleen were both present, other reported cases of the latter condition not being accompanied by marked anemia. The patient was a girl of 16, who had amenorrhea, edema, petechial hemorrhages and a large pelvic tumor. Diagnosis was in doubt but ovarian cyst seemed most probable. The tumor extended to the level of the umbilicus. Operation revealed the tumor to be the enlarged spleen which had a long, slim pedicle; it was not removed. The patient died 18 days afterward, bloody vomiting and nose-bleed having been severe. The blood count was as low as 1,176,000 reds, 2,800 leukocytes, and hemoglobin 20%.—*Yale Medical Journal*.

PRELIMINARY REPORT OF A CASE OF SPLENOMYELOGENOUS LEUKEMIA SHOWING MARKED IMPROVEMENT UNDER THE USE OF THE RÖNTGEN RAY.*

BY

CHARLES H. WEBER, M.D.,

of Philadelphia.

The patient whose case I report was admitted to the Episcopal Hospital October 19, 1903, having been referred by Dr. William A. Steel, who had made the diagnosis of splenomyelogenous leukemia.

The usual treatment with arsenic was instituted, and continued for several weeks, when the röntgen ray was substituted. This latter treatment was suggested by the favorable report of Senn upon this method as employed by him in a similar case.¹ Two additional reports have appeared, one by Brown,² the other by Bryant and Crane,³ in each of which there is noted an entire disappearance of symptoms and abnormal blood conditions. The history of the patient is as follows:

Mrs. B., a widow, aged 53, was born in Germany; occupation, housework. Her mother died of carcinoma of the stomach at the age of 72; her father died of pneumonia at 59; six sisters and two brothers are living and well. No history of tuberculosis or other disease in the family was obtainable. The patient states that she never had any of the ordinary diseases of childhood. She was healthy as a young girl, her first illness being typhoid fever at the age of 29. She recovered after having a relapse, and has been well since. Menstruation began at 16 years, and has always been regular and painless. Has three children, all living and well. Menopause occurred three years ago.

The symptoms of her present illness began about two years ago, with pain in the splenic region. It was of a sharp character, like the prick of a needle, and was increased on pressure or deep inspiration. This was diagnosed pleurisy, and treated accordingly. Shortly after this attack she noticed that her abdomen was becoming large and that deep inspiration was performed with difficulty. She felt weak and lost her appetite; complained of headache almost continually. Bowels were normal and she slept well. These symptoms have persisted or have become more severe until the present time. She complains now, in addition, of great drowsiness and vertigo, and failing vision.

Examination.—Patient appears fairly well nourished, though she has lost flesh for several months. She has a peculiar clay-colored complexion; some capillaries of the face are enlarged. Heart: Apex beat is in the fifth interspace, to the left of the midclavicular line; dullness, third rib above left border of the sternum. There is heard a systolic blowing murmur, most marked at the left of the sternum, in the third interspace; this murmur is also heard at the apex and in the vessels of the neck.

Spleen extends a finger's breadth to the right of the median line, and below, an inch above the crest of the ilium; upper boundary, eighth rib. It is hard and tender. The liver extends two inches below the costal margin. Right kidney is freely movable and can be easily palpated.

Urine: Specific gravity, 1.016; acid; marked reaction for albumin; no sugar; a few hyaline casts, epithelial cells, and leukocytes.

Blood: Red blood-corpuscles, 2,400,000; white blood-corpuscles, 328,000; hemoglobin, 30%. The differential count shows: Polymorphonuclear, 40%; myelocytes, 40.8%; eosinophiles, 13.3%; small lymphocytes, 0.74%; large lymphocytes, 4.42%; basophiles, 0.74%; nucleated reds, 24; megaloblasts, 3. There is a moderate poikilocytosis. The patient has no fever.

November 1.—The patient has been in bed since admission. The spleen has diminished slightly in size, the present boundaries being: Half an inch to the left of the median line; lower border extends to a point on a line with the umbilicus. Treatment, Fowler's solution.

November 18.—Blood-examination at this date shows: Red blood-corpuscles, 2,306,000; white blood-corpuscles, 293,600; hemoglobin, 48%.

November 20.—The patient has been in the hospital for one month on arsenic treatment. Her hemoglobin percentage has increased, but otherwise there has been no improvement in her condition. She has been encouraged to remain, by the promise of röntgen ray treatment, the delay in starting this being due to the installation of a new and improved apparatus.

December 19.—Since the last note the patient has been receiving daily applications of the röntgen ray. A low tube was used, placed 12 in. to 14 in. above the body and focused over the spleen. The applications were of 15 minutes' duration. Upon

* Read before the Section on General Medicine of the College of Physicians, of Philadelphia, April 11, 1904.

this date she left the hospital, wishing to spend Christmas with her family. She was gone nearly three weeks, during which time she came twice for treatment. Blood-examination made several days before her departure was as follows: White blood-corpuscles, 129,400. Differential count: Polymorphonuclear, 66.8%; myelocytes, 25.4%; eosinophiles, 4.2%; small lymphocytes, 1.6%; large lymphocytes, 1.6%; basophiles, 0.4%; nucleated reds, 2; megaloblasts, 2.

January 6.—Patient has returned to the hospital for readmission. Her appearance and general condition have improved during her absence. Weight at present is 111 lbs., a gain of 13 lbs. since her first admission. Daily röntgen ray treatment has been resumed. Spleen extends to left parasternal line at a point $1\frac{1}{2}$ in. above a line through the navel; lower edge $\frac{3}{4}$ in. above the middle of Poupart's ligament.

January 18.—Blood-examination. Differential count: Polymorphonuclear, 82.6%; myelocytes, 11.6%; eosinophiles, 3.4%; small lymphocytes, 0.8%; large lymphocytes, 1.6%; red blood-corpuscles, 3,448,000; white blood-corpuscles, 68,800; hemoglobin, 71%.

January 21.—Patient discharged from hospital to return three times a week for röntgen ray treatment.

February 29.—Blood-examination: Red blood-corpuscles, 4,400,000; white blood-corpuscles, 23,000; hemoglobin, 82%. Differential count: Polymorphonuclear, 80.4%; myelocytes, 7%; eosinophiles, 3%; large lymphocytes, 7.8%; small lymphocytes 1.6%; basophiles, 0.2%.

March 18.—During the past month the spleen has diminished greatly. It can be palpated at the costal margin, the edge being hard and nodular. The skin of the chest and abdomen is pigmented (mahogany color). There is some desquamation of the skin of the abdomen. The skin of the face, though rosy, has a brownish tinge. There has never been any reaction from the use of the röntgen ray, as described by Senn. Patient's weight 122 lbs.

April 10.—Blood-examination: Red blood-corpuscles, 4,720,000; white blood-corpuscles, 7,200; hemoglobin, 72%. Differential count: Polymorphonuclear, 73.6%; eosinophiles, 2.6%; large lymphocytes, 18.2%; small lymphocytes, 5.6%; no poikilocytosis; red blood-corpuscles stain uniformly; no variation in size; no myelocytes seen.

The patient has been under observation for a period of less than six months, during which time there has been a progressive improvement in her general condition, symptoms and also in the blood. For the last five months she has received no medication, only the röntgen ray. There have been no fluctuations in the blood counts, as exhibited in some cases. The myelocytes have gradually decreased, both relatively and absolutely, until at this last examination they have entirely disappeared; in fact, at present her blood is practically normal and, if she were to come under observation now for the first time, a proper diagnosis would be impossible. She herself says that she feels as well as ever, and is particularly relieved by the disappearance of the splenic tumor. This case is not reported as a recovery, but there seems to be sufficient evidence to justify the belief that the röntgen ray has been of therapeutic value in the relief of her condition.

Many cases of improvement under various methods of treatment are on record, a list of remedies too long to enumerate, of which the most popular is arsenic. The effect of an intercurrent infection has proved beneficial in some cases; other patients have improved without any treatment, but the inevitable result in all these patients is relapse and finally death. Whether in the röntgen ray we have a method which will give permanent relief, time alone will determine.

I am indebted to Dr. A. A. Ghiskey for the blood-examinations, and to Mr. Samuel Riegel for giving the röntgen ray treatments.

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- ¹ New York Med. Record, 1903, lxiiv, p. 281.
- ² Jour. Amer. Med. Assoc., March 26, 1904.
- ³ New York Med. Record, April 9, 1904.

THE THERAPY OF ACETANILID.

BY

J. R. JOHNS, M.D.,
of Philadelphia.

Although classed with antipyretics, acetanilid is employed most frequently as an analgesic. The literature of this drug is quite as interesting as that of any in the materia medica. The circumstances attending its discovery as a therapeutic agent and its disastrous association with other remedies make the history of acetanilid unique. Notwithstanding the fact that the toxicology of this drug can be written from its early reports,

the drug is today much employed and deserving of more extended use.

The reason for the foregoing discrepancy is not difficult to find. Acetanilid is a comparatively new remedy. Its relation to antipyrin and the importance attached to antifebrile treatment, at all hazards, at the time when the latter was so favorably received everywhere, have determined the classification of acetanilid and character of its literature. But time has changed the general methods of fever treatment. The mere fact of an elevation in the body temperature is not now considered an indication for the administration of antipyretic drugs. The cause of the fever, the condition of the patient, and the suitability of the antipyretic remedy are considered as well. The result is that antipyretic drugs are less frequently employed now than twenty years ago.

Another fact in the literature of acetanilid is attributable to this same relationship, namely the too large dose quite generally stated. Antipyrin is administered in large quantities. The characteristic antipyretic effect requires full doses, as much as 1.3 gm. (20 gr.) repeated in half doses every half hour till 2.6 gr. (40 gr.) if needed, are given. Acetanilid does not require such quantities; indeed, is not safe in such doses. The Dispensatory makes two statements relative to the dose of the latter which are quite contradictory. In one place it says, "The full dose is .65 gm. (10 gr.) repeated if necessary," and subsequently adds: "The dose is .32 gm. to 1 gm. (5 gr. to 15 gr.)."

The dose of acetanilid may be said to range from .13 gm. to .52 gm. (2 gr. to 8 gr.) with a maximum for 24 hours of about 2 gm. (30 gr.) Only exceptionally, and in well-selected cases, is a dose of .65 gm. (10 gr.) justifiable, and it is probably never necessary. Effects appear after the administration of an ordinary dose, say .26 gm. to .39 gm. (4 gr. or 6 gr.) in about half an hour, reach their height in two or three hours and disappear again after about six hours. For strong analgesic or antipyretic effects a dose of .39 gm. to .52 gm. (6 gr. or 8 gr.) may be repeated in one or two hours. I have seldom, if ever, used a larger dose than .39 gm. (6 gr.) The combination with caffein is no doubt a good one, and for many uses I am partial to the formula containing also monobromated camphor, found in all tablet lists.

Acetanilid expends itself in the domain of the sympathetic nervous system and is particularly inimical to morbid reflexes in the sensory sphere. In larger doses and continued treatment it reaches the motor sphere as well; thus producing, in its fullest effects, both the analgesic and antispasmodic action. It cuts off the morbid reflexes and in so doing removes the staff of disease and tends to reestablish a feeling of well-being.

Small doses, .065 gm. to .130 gm. (1 gr. to 2 gr.) in adults and less than .065 gm. (1 gr.) in children—produce a sense of ease and quiet within; and, even in very much larger doses, such treatment is not followed by a feeling of depression. These facts determine the large range of utility and great value of this drug.

Referring to the toxicology of acetanilid we note that this drug will cause general anesthesia, but that it does not reduce a normal body temperature; which facts but emphasize my contention, namely, that acetanilid is primarily an analgesic. It also indicates that antipyresis is the result of the action of the drug upon morbid functions of the sympathetic nervous system. The result of this action is an absolute loss in the production of heat. Incidentally heat radiation is generally more or less increased by diaphoresis resulting directly or indirectly from the effects of the drug. In the same manner tissue metabolism is reduced and thus the production of heat decreased.

This increase in heat loss and decrease of heat production, though considered conjointly and in their fullest effects, can not adequately account for the full

antipyretic action of acetanilid, as is quite generally admitted. They are, as stated, incidental to the main effects of the drug—the latter quite indirectly so. Diaphoresis does not always accompany reduction of fever with acetanilid, and we know by conclusive experiments that it is not essential that it should. Again, toxic doses materially reduce the oxygen carrying and ozonizing function of the blood, thus decreasing the production of heat in the system. We may presume that this effect is *nil*, or comparatively so from medicinal doses. On the other hand the production of heat is correspondingly large in fevers. The mere reduction of the temperature reduces heat production.

To sum up, the effects of acetanilid upon the nervous system are sedative, analgesic, antispasmodic, antipyretic and antiperiodic. In addition to being beneficently palliative these effects are in a large measure also curative.

Acetanilid is our best remedy for the relief of pain not due to local inflammation, reflex pains, etc., the cries of nerve centers, the fury of nerve storms, the dyscrasias of the sensory nervous apparatus. This class of pain is more common than any other. Our best illustration is probably found in the characteristic fulgurant pains of tabes. The class embraces gastralgia, functional dysmenorrhea, sciatica, rheumatism, neuralgia, migraine, etc. When there is marked irritability the remedy may be advantageously supplemented by one of the bromids.

Acetanilid is a valuable adjunct to other major remedies, as a modifier of action. Such remedies are quinin, salicylates, opium, and calomel. In some instances it acts mainly as a correction of the effects of such remedies. In others, and I may say the majority of instances, it is effective as well, in controlling and curing the condition for which treatment is pursued.

Fifteen years ago I gradually fell into the practice of always giving acetanilid with quinin. I found the effects more pleasant to the patient and the results of treatment more satisfactory to myself. Especially is the former the case when full doses of quinin are given. Then it was considered good treatment to repeat a .52 gm. or .65 gm. (8 gr. or 10 gr.) dose of quinin to "break up," as we said. In such treatment a moderate dose of acetanilid cut off the train of reflexes resulting from the full doses of quinin.

The next step in my experience was to observe that a larger quantity of acetanilid and a smaller quantity of quinin will yield better results. I then, as a rule, gave 18 gm. (2 gr.) of the former with an equal or double quantity of the latter. The same remarks, except as to quantities, apply to the salicylates. Here, in connection with the modifying effects upon the main remedy, we have the analgesic and antipyretic effects so essential in the treatment of rheumatism.

Acetanilid is antagonistic to opium in some of its spheres of action and supplemental in others. It takes from opium that subtle soporific influence which follows its anodyne effect. I have observed, taking for instance an adult who is unused to the effects of either drug, that 16 mg. ($\frac{1}{2}$ gr.) of morphin, given at night for severe reflex pain, afforded relief and sleep, followed next day by languor; but when combined with .26 gm. or .39 gm. (4 gr. or 6 gr.) of acetanilid, I obtained relief from pain without the resulting drowsiness, sleep, and languor. Instead, there was brilliant wakefulness, with very marked mental activity for five or six hours. In another trial, 8 mg. ($\frac{1}{4}$ gr.) given alone, was inductive of sleep, but when combined with .26 gm. (4 gr.) of acetanilid, of wakefulness.

The value of acetanilid in combination with calomel in the treatment of many acute and subacute maladies in children cannot well be overestimated. I know of no condition in which small doses of calomel, with or without sodium bicarbonate, are generally used in which acetanilid could not be advantageously combined in the treatment.

The irritability so generally present calls for small doses of an anodyne, once so largely supplied in Dover's powder, but now so much better provided in small doses, .03 gm. ($\frac{1}{2}$ gr.) or less, of acetanilid.

The drug is eminently adapted to play a most important part in such treatment. It is a good intestinal antiseptic, tasteless, etc. In most conditions so treated there is some febrile action which, while not calling for direct treatment, adds much to make the patient irritable and peevish. Treatment with calomel and acetanilid in small doses every hour, followed in due time by a mild purgative, if needed, affords early relief and makes for a speedy cure.

In conclusion, let me add two other instances in which acetanilid is the best drug to employ: 1. When the indications for treatment are not clear; when you do not know what to give—give acetanilid. It will afford a measure of very acceptable relief without further masking the diagnosis of the condition or interfering with the inauguration of any other course of treatment. 2. When only the psychic features of the case demand drug treatment, give acetanilid in .13 gm. (2 gr.) doses. It is as harmless as any placebo and may be depended upon to produce a favorable mental effect.

SPECIAL ARTICLES

THE MEDICAL INSPECTION OF SCHOOLS.

BY

HELEN MACMURCHY, M.D.,

of Toronto, Can.

Compulsory education, now almost the rule in civilized countries, sometimes means compulsory infection. But the medical inspector is abroad in the land, and the movement for the medical inspection of schools is making steady progress. It was needed.

"How many times, to take an almost everyday example, does not one hear the distressing complaint that 'the child had never had a day's illness until it went to school, and scarcely had it started school life before it got one infectious disease after another?' Some parents have a positive dread of sending children to school at all on this account, and one cannot wonder at it, for the control exercised in the matter by those competent to act is practically nil."—[*Medical Magazine*, Eng.]

"We have, for instance, a child suffering from diphtheria in school, not ill enough to attract special attention. He may be there a day or two before the disease is discovered, with a mild, unrecognized case, or he may be there for a much longer time in a condition for spreading the disease. During this time he may attach the infective matter to the desk, chair, books, slates, slate pencil, penholder, sponge, drinking cup, door knob, window sill, banister, wainscoting, or to anything else which he may handle or touch after using his fingers about the mouth. The fact that these things may become infected with diphtheria in this way has been conclusively shown in the laboratory by Professor Ernst.

"In kindergarten schools the danger of spreading the disease by a single case is much greater, both by direct and indirect infection, because these children by virtue of the different processes of teaching are brought into much closer contact with each other, and they use a large number of objects in common, which are very liable to become infected. One unrecognized case under such circumstances may give rise to a dozen more, and without our being able to trace one of them to its particular source.

"The following account of a kindergarten teacher may be of interest at this point: 'Regarding the contact of children with each other in the kindergarten and the interchangeable use of material, it is as follows: The chairs for seating the children are small, portable ones. These are carried from one place to another as the classes need them; no one chair is allotted to any particular child; all are used in common. The tables at which the children sit are long enough for four or five children to sit at each. It is impossible to arrange so that each child may have the same chair or the same place at the table regularly. The material used is such that it is almost impossible to let one child use any portion of it solely as his. We have but two dozen worsted balls with which to teach color, form, and direction; and we have 70 children to use the balls. It is the same with everything else. The blocks used are handled by two or three classes during the same day. The iron rings, wooden sticks, wooden planes, pasteboard tablets, wooden beads, weav-

ing needles, and worsted needles are used in common. The napkins used at lunch time are washed once a week, and taken out before then if really soiled, otherwise they are folded and returned to the drawer ready for the next day. The picture books are enjoyed by all, and the dolls are used at every recess. In playing the games the children stand holding hands on the ring, and when there is good attendance they are crowded.

"Many of the games bring them very close together, for instance: In playing the 'bird's nest,' the mother bird chooses six or more children, who kneel upon the floor in a semicircle; she twines their arms about each other to imitate weaving the nest. She then chooses three children, who are put close together, necessarily, in the nest, and then the game proceeds. This is a typical bird game, and is very pretty; but in time of epidemic of throat diseases, we do not like to play it in our kindergarten, as it brings the heads so near each other. There are other games, of course, which do not need such close proximity as the one described; but all the games are for two or more children to take part in, and they are generally in contact in some way, if only holding hands."

"Numerous instances have come under our observation in which a child has been found in school suffering from an infectious disease, by the medical inspector of schools, and sent home. This case has been followed in due time by other cases in children whose only discoverable exposure was that which occurred in the schoolroom."

"In the examination of the children in school, every facility is extended to the doctor by the teachers, and he in turn reaches a satisfactory conclusion with the least possible delay or annoyance to anyone. There being frequent need for looking into the children's throats, we provided the inspectors with something for a tongue depressor which could be used once and destroyed, and thus get rid of the danger of communicating any disease from one pupil to another, and avoid unfavorable criticism on that score. These little pieces of clean pine are made for us at a cost of one-tenth of a cent each. They are without objection in use or appearance, and will burn as easily as a match, which is the intended destiny of each after being used once. The thermometer is rarely a necessity in these examinations, and when used is treated with due care."

"The corps of inspectors has become an organized association, which meets once in two months to discuss the manifold medical questions which arise in the performance of their duties."—[Dr. S. H. Durgin, of the Boston Board of Health.]

"How little protection would come by trusting to the parents of some public school children is shown by their action in the following cases: Four children were sent home at the time of the discovery of the epidemic on the morning of May 5, 1897. They all had suspicious looking throats, and in view of the existing epidemic the diagnosis of diphtheria was warranted clinically. With each child was sent a note, stating that there had been some cases of diphtheria in the schoolroom, that the child had a sore throat that probably was diphtheric, and that the school inspector advised calling the family physician. The mother of one of the children brought him back herself in the afternoon and was abusive to the teacher for sending him home. I turned up just in season to get my share. I was informed that I did not know what I was talking about, that his nausea and vomiting and constitutional symptoms two days before were due to indiscretion in eating, that his sore throat was simply 'tonsillitis,' which he was subject to, and that the patches in the throat were of no importance. The other children might have diphtheria, but *her* boy didn't, 'because he wasn't sick enough.' She refused to let me take a culture, and was informed that the boy would not be admitted to the school until a negative culture had been obtained by myself, or if she preferred, by her family physician. She did not go to the family physician until another week had elapsed and a culture proved negative. I feel reasonably sure, however, that an earlier culture would have been positive."

"The three other children returned next morning. Two brought verbal messages that they were well enough to come to school. The third brought a note from his father, saying it was absurd to say his boy had diphtheria. *Cultures were taken from all three throats, and all proved positive; i. e., the three children had diphtheria.* The mother of one of these was not convinced even then. She called another doctor to prove that the school doctor was wrong, and discharged him when he obtained a positive culture, and she was only partially persuaded there was no trick to it when a third doctor also found a positive reply to his culture."—[H. D. Arnold, M.D., of Boston.]

HISTORY OF THE MOVEMENT FOR THE MEDICAL INSPECTION OF SCHOOLS.

On the Continent.—During the nineteenth century efforts were made in this direction in Belgium, Sweden, Switzerland, Germany, Austria, Hungary, Holland, Servia, Roumania, Russia, Portugal, Spain, and especially in France, where, in 1833, 1837, and 1842, laws were passed relating to school physicians and school hygiene. In Paris, the system was reorganized in 1878, and placed upon its present basis in 1884. In Paris each school district for medical supervision contains from 15 to 20 schoolrooms and the annual salary of the school physicians

is 800 francs. The school physician must visit each schoolroom under his charge at least once a fortnight, and oftener if necessary. The Minister of Public Instruction in France has just received the report of a Commission on Tuberculosis in Schools appointed by the government, and having regard to their report, has ordered that each scholar in an elementary or secondary school shall bring with him or her a certificate, giving his or her height, weight, and chest measurements, and that these measurements shall be kept on file by the school physician and repeated every three months.

In Germany the plan of medical inspection varies a good deal in different cities. That of Wiesbaden has been recommended by the Government for general adoption. In Wiesbaden the school physician is expected to examine the physical condition of all new pupils, to visit the classrooms under his charge from 10 a. m. to 12 a. m., once a fortnight, or oftener, if necessary. Each pupil is also weighed and measured periodically by the class teacher and a record is made on the child's health-card twice in each year.

Japan and the Argentine Republic.—Japan has had school physicians since 1893 and the Argentine Republic in South America has now medical inspection of schools.

Great Britain.—In Great Britain all the great public schools and many private schools have regularly appointed school physicians.

The School Boards of London, Edinburgh, Bradford, Leeds, Sheffield, Bristol, Hull, Birmingham, etc., have all appointed medical officers. In London, the school physicians are assisted by school nurses, a plan that has been received with great favor.

The Royal Commission on Physical Training for Scotland, as a result of its investigations, has advised that all schools should be under regular medical inspection.

In Canada, the City of Toronto appointed a medical inspector of public schools in 1903, and a very complete record with regard to diphtheria in schools is kept at the City Health Office. A law has also been passed by the Province of Ontario, providing for the medical inspection of schools where cases of diphtheria or scarlet fever have occurred.

The United States.—Philadelphia, Boston, New York, Chicago, Washington, Detroit, and a great many smaller cities and towns in the United States, have systematic medical inspection of schools. Preliminary investigations satisfied the boards as to the necessity, but in Boston, for example, although a small appropriation for this purpose was secured from the City Council in 1892, it was not till a severe epidemic of diphtheria occurred in 1894 that the system was inaugurated.

The city of Boston is divided into districts, each containing a school population of about 1,400, and a medical inspector is assigned to each district, at a salary of \$200 a year. It is the duty of the inspector "to visit each school daily, early in the morning, and to examine all children whom the teacher thinks ailing. The teachers report to the principal all pupils who appear to be ill, the physician examines them, and if any one is found too ill to remain in school, from any cause, he is sent home for the observation and care of his parents and family physician. If the illness is contagious, the child is ordered home and the case is reported to the Board of Health. It is also the duty of the inspector to visit the homes where contagious diseases exist."

"The method of medical school inspection in New York City has recently been radically changed. As it is now more complete and satisfactory than that employed in other cities, it may interest many physicians to know in just what this present method consists."

"The isolation of such children as might be sources of contagion was formerly left entirely to the judgment of the teacher. Some of these were not very observant; others, depending solely on their own diagnostic skill, neglected to send patients with contagious diseases to the medical school inspector. This was the weak point in the system. In order to obviate this defect, the inspector now visits the classroom himself once a week, and examines each pupil. This examination is not a thorough one, but, as almost all of the acute exanthema and the contagious affections of the eyes and the skin have typical manifestations on the head, face, or hands, or in the mouth and throat, the examination is sufficient to detect any such disease. The visit to the classroom also gives the inspector an opportunity to instruct the teacher and demonstrate to her those symptoms which are to be especially noted, in order that she may be able

to select those who are to be sent to the physician for examination. The teachers are aware that it is possible for them to contract a contagious disease from their pupils, and that the more thorough the inspector's examination, the less this danger is. For these various reasons the teachers observe their pupils more carefully and more intelligently.

"There are at present 80 medical school inspectors in the borough of Manhattan, each having three or four schools, with a total of 4,000 to 5,000 children to inspect. The schools are situated in one neighborhood, so that as little time as possible is lost in going from one school to another. The inspector visits his schools before 10 a.m. every morning, and examines, in a room set aside for that purpose, all pupils who have been isolated by the teachers as being possible sources of contagion. Children presenting any symptoms of measles, scarlet fever, diphtheria, mumps, whoopingcough, or chickenpox, are sent home immediately; those affected with contagious diseases of the skin or eyes leave at the next recess. Each of these children is given a card on which are stated the reason for exclusion and the date on which the child should return for re-examination, with the advice to the parents that the patient be promptly treated.

"After the day's work is finished, a report is sent to the department stating, on a separate blank for each school, the number of pupils examined, and the name, age, and address, with the reason, in each case excluded.

"At the end of each week, a list of those pupils who have been absent for three or more days on account of sickness is obtained from the school. These are visited, and the character of the disease is determined. If cases of contagious disease are found, the name, address, disease, and its duration are sent to the department. The inspectors report every Saturday morning at the central office to receive instructions.

"In the lower part of the city, where the number of children requiring treatment is much greater, nurses have been appointed by the department. They visit each school at a stated time every day, and treat in the school, children who have been sent by the inspector, with the diagnosis and an outline of the treatment to be followed. In this way, many that would otherwise be sent home (impetigo contagiosa,) ringworm of the face, acute conjunctivitis, etc.) may remain in school. The nurses also visit the homes of the pupils excluded on account of parasitic diseases of the skin and scalp, and treat these patients, also giving instructions to the mother, the object being that the child shall lose the least possible amount of time from school.

"The number of cases of trachoma in this same neighborhood being very great (due to a large Russian and Polish population), the department has opened special wards in the old Gouverneur Hospital building for the local and operative treatment of these patients. The children are given a card on which the date of each visit is stamped, so that the school inspector knows whether the patient continues under treatment. From December 17, 1902, on which date the wards were opened, until February 2, 1903, the total number of visits has been 11,968. Of these, 7,726 were in old cases, 4,242 were in new cases, and 608 were in operative cases.

"The department has power only in cases of contagious disease. However, in other affections, such as enlarged tonsils, adenoids, otitis, errors of refraction, etc., the inspector may call attention to the existence of such trouble and advise treatment. In no case, however, does he treat or prescribe drugs." [Charles Hermann, M.D., in *The New York Medical Journal*.]

IS AN EPIDEMIC NECESSARY?

Is an epidemic necessary in order to convince a community of the necessity for the medical inspection of schools? Sometimes it is. In Boston the mayor and council were persuaded to make an appropriation for this purpose in 1892, but delay after delay occurred until an epidemic of diphtheria visited the city in 1894. That settled the question. The inspectors went to work and during the first year they found within the school-rooms and sent home 73 children ill with diphtheria. How many more cases of diphtheria were prevented by these medical inspectors?

In Germany it was measles:

"Public meetings were held at Berlin after a serious epidemic of measles, in which three-fourths of the scholars of the local academy suffered because the school was not closed. These meetings resulted in the passing of resolutions as follows: 'Laymen and physicians demand that each school have a physician assigned to it, to have charge of the general hygiene of the building and be watchful over the health of scholars; to see to the proper heating, ventilation, cleanliness, and, if necessary, disinfection of the building; to order the closing of the school when the heat becomes excessive and in time of epidemic; furthermore, to examine new scholars, in short, the school physicians should protect the scholars against the dangers of school life.'"—[*The Medical Record*, January 22, 1898.]

DOES THE MEDICAL INSPECTION OF SCHOOLS PAY?

Chicago tried it first in 1900. Here is the result so far as diphtheria and scarlet fever are concerned:

In 1899 there were 3,931 cases of diphtheria with 843 deaths.

In 1900 there were 3,303 cases of diphtheria with 797 deaths.

In 1899 there were, 5800 cases of scarlet fever, 533 deaths.

In 1900 there were 3,475 cases of scarlet fever, 226 deaths.

The result—2,953 cases of illness prevented and 353 lives saved would pay well and repay many times all the money spent on medical inspection of the schools.

New York first sent medical inspectors to its schools in 1897. The first day, March 29, 1897, gave the following results:

	Cases.
Diphtheria	14
Measles	3
Scarlet fever	1
Contagious eye diseases	35
Mumps	3
Croup	1
Chickenpox	8
Skin diseases	8
Parasitic diseases	67
Children excluded	140

Cases of neglect of cleanliness were numerous.

In the last annual report of the health officer of Boston it is shown that there were found in the schools in 1902, 1,040 children having dangerous communicable diseases as follows:

Diphtheria	7
Scarlet fever	2
Measles	69
Whoopingcough	119
Mumps	50
Chickenpox	57
Tonsillitis	738
	1,040

It pays to prevent these diseases. If there are 40 or 50 children in each class it pays to prevent them carrying infection to 39 or 49 other homes beside the one already infected.

"There is no reason why this plan of school inspection should be limited to large cities. It seems to me that in smaller communities, where the number of schools is smaller, it would be even easier to execute the plan.

"In Detroit a medical inspection of schools was started in February, 1902. The method of inspection is similar to the one in vogue in Chicago and is as follows:

"A medical inspector visits each school in the morning about the same hour. Before his arrival each teacher sends to the principal's room any pupil who is suspected of having some communicable disease or who has been absent from school. The medical inspector immediately examines all pupils thus detained in the principal's room, and any child found with a communicable disease or any symptoms of such disease is at once sent home with a notice signed by the principal of the school informing the parents of the child's condition and advising them to send for a physician. In no case does the medical inspector prescribe for the child or have anything to do with it except at school. Whenever a child is excluded from school on account of a disease required to be quarantined by the Board of Health, notice is sent immediately to the health officer. The home of the child is then quarantined and the school, or at least the room from which the child came, promptly and thoroughly disinfected. For the examination of throats of the children the examiners are provided with wooden tongue depressors, each one to be destroyed immediately after it has been once used.

"This plan was adopted in Detroit in February, 1902. It was first submitted by the health officer to the Board of Health and the Board of Education. The latter body offered its cooperation in the work, and the Board of Health instructed the health officer to begin the examinations in four schools. As there were no funds at the disposal of any of the city commissions for this work, volunteer inspectors were called for and the response was very encouraging. The results obtained by this experiment in four schools were so satisfactory that on March 1, 26 schools were added to the list, making a total of 30, and on May 1 the number was increased to 50 schools, with one volunteer inspector working daily in each school. An idea of the scope of this work may be had from the following facts and figures:

"The total number of pupils examined in Detroit during the 4½ months, from February 1 to the close of the school year, was 10,554, and the total number excluded 914. The diseases for which the children were excluded, together with the number excluded for each disease, were as follow:

Scarlet fever	11
Diphtheria	1
Tonsillitis	314
Measles	78
Mumps	128
Impetigo	24
Whoopingcough	19
Chickenpox	79
Pediculosis	151
Other diseases	117

From these figures, given in detail, the value of this work can be estimated. When we consider, for example, the cases of measles and mumps that were excluded, 78 cases of the former and 128 of the latter disease, nearly all in the early stages, and when we remember that these diseases are communicable before the rash appears in the one case and before the parotitis is apparent in the other, in other words before a physician is called in either case, then we must conclude that this plan of daily inspection of schools is probably the only way in which these diseases can be discovered early and thus hundreds of other cases prevented. Again let us look at the scarlet fever column. Eleven children were found with the disease and sent home. In each instance the schoolroom was immediately disinfected and no more cases followed. There is, of course, no telling how many cases would have followed if these 11 children had remained in school, but it is safe to say that the number would have been quite large. Another condition for which we have excluded children is pediculosis (lice) and when you look at the number sent home for this cause, 151, you will, perhaps, be surprised. These children are kept home until they can no longer communicate the loathsome disease.

"These are some of the good results to be obtained from a systematic, daily, medical inspection of schools."—[Dr. Guy L. Kiefer, Medical Health Officer of Detroit.]

"The system of medical inspection of schools should be under the control of the Board of Education. It should be a department of the school system, and only related to the Board of Health as the two bodies may be of mutual benefit in performing their respective functions. It would be less liable to interfere with any other department of the school system. It would be more liable to become a factor of the school system, assisting the teacher in determining the physical condition of all defective children, thereby enlarging its sphere of usefulness.

"By daily medical inspection of the pupils, diseases are detected in their incipency, and therefore most easily dealt with, and, in cases of infectious diseases, they can be isolated. The treatment of diphtheria with antitoxin, it is well known, should be as early as possible to insure success. In November and December of 1898, in the city of Chicago, there were 219 patients with diphtheria treated with antitoxin. Of these, nine died, but there were no deaths among those treated on the first or second day. Medical inspection of schoolchildren is the best means of preventing disease. It should be the aim of the medical profession to prevent sickness as well as to cure the sick, and by doing this the profession is attaining its highest ideal. Medical inspection is truly prophylactic work, and when it is once well established our physicians will be able to broaden their field of usefulness by the more careful study of the growing body in relation to exercise and education. The field is a practical one and is worthy the ambition of the best talent of our race. It would be asking too much to expect the teacher to be able to diagnose the cases of disease which appear before her. This requires medical skill and can only be properly done by regular physicians.

"The prevention of disease and physical disorder is a public blessing, particularly the prevention of the spread of contagious diseases. It requires time, energy, and skill on the part of some one to accomplish this end. The public purse ought to pay for that which is a public benefit. Medical inspection would be a valuable benefit to a community in directing the people to sanitary measures which they would practise in their homes by reason of having their attention directed to them. It would be educative by spreading among the people more generally a knowledge of the common laws of health.

"Disease not checked or prevented in children is what makes dependents in adults. Our country is burdened with the insane, the feeble-minded, the deaf and dumb, the blind, the epileptic, orphans, and paupers. Ohio is a fair representative of the States. There was spent in Ohio in 1894 for charities \$4,175,915.47. The income of all the colleges of the State for 1896-97 amounted to about \$1,000,000. Over four times as much was spent on charities as for higher education. Education is nothing without health and a physical constitution. It is high time that we strike a blow at the root of all this defectiveness. One does not wonder at the condition of adults when he reflects on the percentage of defectives among children. Strong, robust, healthful childhood would prevent much of this inability in adult life. The cost of medical inspection is but a bagatelle compared to the good it would accomplish in mitigating suffering and making those self-supporting who otherwise would probably be objects of charity. We spend millions in taking care of these dependents. Would it not be true economy and equally just and appropriate to care alike for all children, who show beginnings of spinal curvature, defective vision or hearing, signs of pulmonary tuberculosis, or symptoms of nervous diseases of every kind? These diseases detected in their incipency could generally be cured, but they are of such a nature as to require medical skill for their detection.

"Chronic diseases of all kinds often have their beginnings in environment. It requires a bacteriologist to detect the germs of disease. The State which provides a place for the assembling of children and does not provide for the prevention of contagious or any other disease, the germs of which could be detected by a competent expert, is morally responsible.

"Compulsory attendance at school is fast becoming the law of the various States. We are thereby often requiring a child

to attend school when he possesses some physical defect of sight, hearing, or other bodily ailment, of which he is not aware, but which makes school life distasteful and a burden, and which might be easily detected and cured by a skillful physician. The State should demand attendance at school on the part of those for whom the schools exist, but it should also see to it that no child blindly suffers from a defect that could be cured.

"A child physically defective so that he cannot succeed well with his studies and gets behind his class grows to dislike school, and if his moral training is not of the highest standard he becomes a truant. It would be better to prevent dislike for school and truancy than to have truant officers and reformatories. It is better to lead the child in the right way by skillfully correcting all physical or mental defects and surrounding him with the proper environment than to build walls of prohibition and costly State penitentiaries. Do not wait till a criminal is made to reform him. Train him so he cannot become one. Truly much is being done for the education of children, but much more can be done. The cost of a system of medical inspection would be more than saved in the lessened cost of the care of adult criminals and dependents.—[H. W. Tickle, of the University of Colorado.]

THE DUTIES OF MEDICAL INSPECTORS OF SCHOOLS.

In his report of the Committee on Medical Inspection of Schools in New Jersey, Dr. Walter B. Johnson, chairman, made some wise suggestions to the State Board of Education which may be of service to other inspectors and boards. They were as follow:

1. The educational boards, to whom the inspector is responsible under the law, shall assume full control, and health boards or health officers shall only be called upon to assist in the work when the duties of one overlap the duties of the other, or when requested to act in an advisory capacity.

2. The medical inspector should keep all of the records, which the law directs, in suitable books or cards of a uniform character specially prepared for use throughout the State. Each pupil should be examined at least once in every school year, for the detection of physical defects or diseases of the organs of special sense, especially of sight and hearing, for the presence of spinal curvature or other bodily deformity. There should also be notes of the record of each pupil, as kept from year to year, indicating the growth and development of such pupil.

3. The duties of the medical inspectors in relation to lectures of instruction to teachers are of great importance and should not be neglected. The teachers should be thoroughly conversant with the methods to be employed in the detection of the first signs of communicable disease. Their instruction should include also, under the head of the "Recognized Measures for the Promotion of Health and Prevention of Disease," a complete understanding of the essentials for a perfect hygienic condition of the schoolrooms. The use and operation of the mechanical appliances used for heating and ventilation should be appreciated. If a ventilating apparatus is not used, instruction in relation to the best methods of admitting fresh air through the natural channels when opportunity occurs, without exposure of the pupils to drafts, must be considered. Attention should also be given to the adjustment of school desks and seats to the bodily requirements of the pupils, to the admission of sufficient light from the proper direction, and to such other matters as pertain to the physical well-being of the pupils. The fact that the complete success of the operation of the law depends upon the teachers, who are in reality executive officers constantly present in the schoolroom, is an indication of the importance of the thorough instruction advised.

Your committee feels that it is possible under the present law to secure very satisfactory results, providing that the educational board of the State will undertake to secure the uniformity of method in the administration of the law suggested in every community where medical inspectors have been or may be appointed.

"There is obviously room for the development of systematic inspection of schoolchildren in this country, but we see no reason whatever why such inspection should be limited to infectious diseases. We should prefer to see it embrace an examination for all morbid conditions likely to diminish the child's chances in the struggle for survival or which would be likely, by passing unrecognized and untreated, to render the child a charge upon the national funds."—[*Lancet*.]

"The function of the school doctor in relation to the children in the schools is often mistaken even by medical men, who should know better. It is no part of his duty to prescribe for or treat any individual. His work is preventive, and in individual cases only applies to matters involving educational questions. He may call attention to the need of glasses, but has nothing to do with prescribing them. He may notice the presence of adenoids, but takes no part in their removal. On the other hand, his work should extend far beyond mere investigation of the sanitary state of buildings, or the excluding of unhealthy or diseased children. The methods of education, requirements of physical exercise, avoidance, particularly in

the very young, of overstrain from prolonged fatigue or from improper tasks, are all matters in which improvement can only be obtained by the school doctor acting, not as an authority to shut or close, to disturb or interrupt the proper work of the school, but as a counselor and advisor with knowledge of school routine and of the requirements for health to assist and collaborate with the teacher and administrator, and it is with this in mind that he should enter any school."—[Dr. James Kerr, Medical Officer of the London School Board.]

What the medical inspectors of schools should do:

1. Prevent children, as far as possible, from being exposed to communicable disease at school.

2. Help children with defective sight or hearing to profit by the education the State is giving them.

Sight.—In London, England, in 1902, the newly-appointed school physicians examined 17,245 children, and found that 8% of the boys and 11% of the girls had serious visual defects.

Hearing.—Dr. Barr examined 600 children in Glasgow, Scotland. Their ages ranged from 7 to 14 and there was an equal number of boys and girls. He found 166 defective in hearing. After his tests were made, Dr. Barr asked the teachers to select 70 bright pupils and 70 backward ones. He found 14 of the bright and 28 of the backward defective in hearing.

Of 5,000 schoolchildren in Stuttgart 30% were found by Weil to be defective in hearing.

Dr. Sexton examined 570 children in the schools of New York City and found 76 had defective hearing. Of all these 76 pupils only one was known by the teacher to be defective, and only 10 knew themselves to be deficient in this sense.

3. Pay proper attention to the physical condition of the children. What is the sense of promoting growing children to a higher grade when their bodies are unfit for that grade?

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

May 14, 1904. [Vol. XLII, No. 20.]

1. Acute Ascending Paralysis and Landry's Paralysis. L. HARRISON METTLER.
2. Surgery of the Stomach. WILLIAM H. WATHEN.
3. The Prevention of Tetanus. DANIEL N. EISENDRATH.
4. Suprapubic Prostatectomy under Nitrous Oxid Anesthesia. JOSEPH WIENER, JR.
5. The Medical Profession in the Public and Private Life of America. CHARLES A. L. REED.
6. The Army Medical Department, II. A Historic Sketch. (Continued.)

1.—Acute Ascending Paralysis and Landry's Paralysis.—L. H. Mettler thinks the term Landry's paralysis should be confined to describe simply one phase of a wellknown disease. It once stood for a definite clinical entity, but now is applied to conditions diametrically opposite. Both the above terms describe simply phases of a specific intoxication of probably bacterial origin, producing first functional and later inflammatory and degenerative changes in various parts of the central and peripheral nervous apparatus, thus accounting for the variability of the clinical symptoms. Postmortem findings may be nil, or suggestive of diffuse myelitis, acute anterior poliomyelitis, or peripheral multiple neuritis. The paralysis may descend or even skip about from arm to leg, and from side to side. The point in which the different types agree is in apparent limitation to the lower or peripheral neurons. There is frequent association in modern cases of pronounced sensory symptoms with the motor symptoms. This disease has developed whether etiologically or not after malaria, diphtheria, typhoid, variola, anthrax, influenza, pneumonia, pertussis, septicemia, gonorrhea, and the puerperium. Once it occurred after Pasteur treatment for rabies, and sometimes has been attributed to syphilis and alcohol. In some cases the changes of interstitial and parenchymatous neuritis have been found, in others the changes were in the spinal nerve roots, more frequently in the anterior than posterior, a third class was characterized by spinal cord involvement, a fourth by a diffuse process involving all parts of the lower motor neuron, peripheral nerve, spinal root, and ganglion cell. The indications for treatment are support and elimination. [H.M.]

2.—Surgery of the Stomach.—W. H. Wathen believes that many cases diagnosed as chronic dyspepsia are due to

interference with the normal physics of the stomach and duodenum, because of organic and mechanical changes in these organs. Of postmortem cases, 5% have or have had gastric ulcer. In 50% of these there are perigastric adhesions, and from 1% to 3.5% of all deaths are caused by gastric cancer and 40% of all cancers occur in the stomach. We can prevent these results by early diagnosis and timely operation. We must learn to make pathologic and surgical diagnosis as in pelvic disease. The writer discusses the question of diagnosis in detail, together with the proper surgical treatment in cases of hemorrhage from ulcer, perforation, chronic ulcer, benign pyloric stenosis and retention, perigastric adhesions and contracted stomach, and gastric cancer. [H.M.]

3.—Prevention of Tetanus.—D. N. Eisendrath emphasizes the following points: Early and thorough exposure of every part of the tract which has been infected by the blank cartridge or instrument which caused the punctured wound, retracting the edges so the disinfection and removal of the infected tissue can be done under the guidance of the eye. Prophylactic injections of tetanus antitoxin. Thorough disinfection can be carried out only under anesthesia, either local or general, and when the parts are rendered bloodless by a constrictor. Such radical measures are our only hope for reducing mortality. [H.M.]

4.—Suprapubic Prostatectomy under Nitrous Oxid Anesthesia.—J. Wiener, Jr., has found that suprapubic prostatectomy can be rapidly and safely performed under laughing gas. Any patient who can stand this for 10 or 12 minutes can have this operation performed. Old age, diabetes and cystitis are no contraindication. All of the contraindications usually mentioned are contraindications not for the operation but for the administration of ether and chloroform. [H.M.]

5.—The Medical Profession.—C. A. L. Reed points out that professional service rendered the government is the most conspicuous that can be offered to society, and if efficient the science which it represents is advanced in public esteem, therefore we should approve of the severity of examinations and should object to lower compensation than that paid to other professions invested with similar responsibilities, the precedent tending to cheapen the profession in private life. The same holds true when one profession is denied rank, position, or social prerogatives accorded to other professions. Life tenure takes away the stimulus of necessity, but long public service unfits for private practice. The greatest loss a professional man can sustain is loss of enthusiasm. Those in authority should give their subordinates the fullest opportunity for the development of individualism consistent with discipline. Promotion should be for cause. Special postgraduate instruction is important for military and naval service and clinical hospitals should be provided in connection with the special medical school. The writer advocates the creation of a reserve corps for emergencies, appointed on examination, and discusses the duties of the profession in private life to those who by reason of government regulations are prohibited from attempts to influence legislation in their own behalf. [H.M.]

Boston Medical and Surgical Journal.

May 5, 1904. [Vol. CL, No. 18.]

1. Contribution to the Etiology of Idiocy and Imbecility. WILLIAM N. BULLARD.
2. A Sigmoid Band of Unusual Origin: Operation: Relief. AETHUR L. CHUTE.

1.—Etiology of Idiocy and Imbecility.—W. N. Bullard presents a study of 258 cases, of which 113 were congenital, 63 acquired, and the remainder uncertain. Of the acquired cases 13% to 19% were due to trauma and the rest to diseases including encephalitis and meningitis, hemorrhage, cerebrospinal meningitis, measles, scarlet fever, pertussis, pneumonia, sunstroke, rheumatic fever, diphtheria, etc. The majority of congenital cases are due to prenatal causes, although the large proportion of unusual circumstances in labor may be an exciting cause, but a depression or fracture at birth does not prove that the cerebral condition was not preexistent. The occurrence of unconsciousness, convulsions, or other acute cerebral symptoms immediately on birth suggests intranatal lesion. The

affection is as liable to be caused by prolonged pressure on the head during delivery as by injury from forceps. Prenatal causes may include worry, fright, falls, or illness during pregnancy. Heredity is a potent factor. The feeble-minded and epileptics are liable to imbecile offspring. Syphilis and alcoholism are important causes. The latter acts only through excess or through the fright or worry that it causes the mother. Enough stress has not been laid on maternal uterine disease. Attempted abortion undoubtedly also plays a part in causation. In the 258 cases there were 11 of hydrocephalus. [H.M.]

2.—Sigmoid Bands.—Arthur L. Chute reports the case. From December, 1899, until February, 1902, a female patient did not have a single natural defecation. In February, 1902, she was sent into a hospital for observation. At first she was fed large quantities of bulky food and given neither cathartics nor enemas. Two or three attempts of this sort showed its futility, as at the end of 48 hours she would have a violent headache and begin to vomit. Various cathartics in small doses produced no effect; in larger doses they caused vomiting and griping abdominal pain. Nothing but an enema would bring about a defecation. Not all of the enema was returned, and after each enema the patient would pass for an hour or more a greatly increased quantity of colorless urine. It was found that an enema of a few ounces acted quite as well as a larger one. Laparotomy revealed bands across the sigmoid; the latter was distended and thin above the obstruction. Removal of the bands resulted in complete relief. The fact that the symptoms of chronic obstruction arose after a difficult labor, led the author to believe that some injury occurring during the labor was responsible for the adhesions. [A.B.C.]

Medical Record.

May 14, 1904. [Vol. 65, No. 20.]

1. Some Characteristics of Stegomyia Fasciata Which Affect Its Conveyance of Yellow Fever. H. R. CARTER.
2. The Unclassified Troubles of Women. EUGENE COLEMAN SAVIDGE.
3. A Diagnostic Syndrome for Intracranial Syphilis, with Remarks upon Prognosis and Treatment. WM. BROADBENT PRITCHARD.
4. Claudius' Catgut: A New and Effective Method for Its Sterilization. ALEXIS V. MOSCHCOWITZ.
5. A Case of Hodgkin's Disease Treated by Röntgen Rays. EDWARD B. FINCH.
6. Local Applications in Pneumonia. W. F. CHURCH.

1.—Stegomyia Fasciata.—H. R. Carter thinks that other species may possibly be hosts for yellow fever. Its distribution is generally between latitudes 43° N. and 43° S. on the coasts and low plains of Africa, Asia, and the adjacent islands, Australia, and the Mediterranean basin of Europe. On the east coast of America it is general from 38° N. to 35° S. latitude. On the west it is found at Panama and Guayaquil, and its existence is implied from Guayaquil to Acapulco. It is conveyed by vessels indefinite distances, more often by sail than steam vessels. It lives a long time—154 days being recorded, power of transmitting yellow fever being retained as long as it lives. It propagates preferably in artificial containers, or in pools, if these are not available. In America it has been reported only near dwellings, and war against it should be waged about houses, cisterns; and water jars should be abolished, and covered drains be introduced to carry off rain water and prevent pools. Cess-pools are not breeding places. It hibernates, but a larger proportion of the adults or of the infecting parasite must generally die. It is inclined to stay where it has fed, hence the greater danger of the residence portion of an infected city. It does not feed in the dark or in bright sunlight, but will do so in artificial light. Prior to 14 days of development in the mosquito the germ cannot be transmitted to man. This mosquito is usually conveyed aerially less than 100 yards. Twelve hundred feet from the Havana shore has always been considered a safe distance for vessels. The direction of the prevailing wind during the day influences its aerial flight. [H.M.]

2.—The Unclassified Troubles of Women.—E. C. Savidge believes that there are certain important matters connected with the "feminine element" which make for woman's longevity, and determine her resistance to many of the inevitables involved by her sex. He refers to a frequently met condition which he calls the "self obliterated feminine element," occurring either in young girls as the result of overexpenditure

of vitality in intellectual and emotional pursuits and leading to a shortened life when life is most valuable, or in women from 25 to 40 whose increasing lithemia, growing obesity, conscious hebetude and diminishing menstruation show a strangling out in function of important selective principles. The gynecologist should study these conditions and the medical profession must look to the specialist for light on this subject. Savidge believes also that many effective years may be added to the life of a woman after the menopause, if we learn to keep patients at this period from becoming uric acid machines, to keep their arteries soft, to abolish the toxic headache and the loose flesh folds which are simply human sewers. In these unclassified troubles the psychologic condition aggravates enormously the physical condition. The woman too often feels that she is losing her usefulness to her husband and family and spends her time waiting for the end. These influences all conspire to rob her of what should be the best years of her life and the most useful to the community. The gynecologist must learn to call up the power for life and healing in the human mind, an underlying force of which the eddyte avails himself, and which medical men have too long neglected. [W.K.]

3.—Diagnostic Syndrome for Intracranial Syphilis.—William B. Pritchard states that in his experience covering a period of 16 years' special work syphilis was the dominant factor in the histories of more than 40% of all organic cerebrospinal lesions. Syphilis may simulate almost any other disease and may therefore lead to much confusion in diagnosis. The author gives the following formula, as his chief guide: Given a patient between the ages of 25 and 45, affected with any form of intracranial paralysis, which was preceded by headaches, of nocturnal onset or exacerbation, associated with vertigo and with insomnia, the insomnia occurring during the first half of the night, the paralysis developing during sleep, both headache and insomnia appearing upon the onset of the paralysis; the cause is syphilis. The average age among 160 carefully recorded cases of cerebral syphilis was 37; the youngest was 22; the oldest 72. The average interval in years between the primary syphilis and the metasyphilitic nervous accident was 7½ years; the shortest interval was 7 months; the longest interval was 28 years. Mercury and the iodids are the only drugs of value, the latter being the chief reliance. Iodism is rare if the drug is given properly. Beginning with 20 drops (never less) after meals, the dose is increased 3, 5 or 10 drops daily, according to the urgency or gravity of conditions. The vehicle is changed every third day, the first 2 days water, the next 2 milk, the next vichy, then apollinaris, then back and through the same cycle again. Should iodism develop to an annoying or extreme degree, stop for 2 days and then start just where you stopped, doubling the ratio of daily increase. [A.B.C.]

4.—Claudius' Catgut.—A. V. Moschcowitz says catgut prepared by this method has been in use almost uninterrupted during the past 17 months at Mount Sinai Hospital for all purposes for which formerly catgut prepared by other methods had been used, and it has stood the test well. The preparation of this catgut by this method is very simple. Catgut, just as it is bought from the dealer, is wound, preferably in a single layer, on to the spool, and tied at both ends, in order to prevent unraveling. It is then immersed for eight days in a solution of iodine, one part; potassium iodide one part; distilled water, 100 parts. The solution is prepared by dissolving the potassium iodide in a small quantity of the water, to which the iodine previously finely pulverized, is added, and the whole diluted up to 100 parts. It has been found that even anthrax spores were killed after the catgut was placed for 30 minutes in this solution; still for absolute safety eight days is recommended. The catgut can be kept indefinitely in this solution, and when simply rinsed off in sterile water is ready for use. [A.B.C.]

5.—Hodgkin's Disease Treated by Röntgen Rays and Quinin.—Edward B. Finch reports that a youth of 18 presented himself, having enlarged lymph-glands in the neck, axillas, and groin. The spleen was enlarged. Over the cartilage of the second rib was a soft tumor 5 cm. (2 in.) in diameter. An incision was made into this tumor, and while it could not be removed, a portion taken for microscopic study showed

evidence of lymphosarcoma. The peculiarity of this tumor, together with the general glandular involvement and the blood-examination, led to a diagnosis of Hodgkin's disease. Quinin in 3 gr. doses, given three times daily, and röntgen ray treatment was resorted to. Exposures to the röntgen rays lasted for from 40 to 90 minutes, the position of the tube being altered every 10 minutes so as to subject the whole body to a "shower" of röntgen rays. During a period of 5½ months, 62 röntgen ray sittings were had, after which time all tumor and glandular enlargement had entirely disappeared, and the patient was dismissed. Two months later the patient returned for treatment, the presternal tumor showing rapid recurrence. The former treatment was again employed and the growth was rapidly receding at the time of writing. The use of quinin as an adjuvant to the röntgen ray, on Morton's theory of its fluorescence in the blood, undoubtedly hastened the favorable result in this case, several cases of Hodgkin's disease having been reported as unsuccessfully treated with the röntgen ray when quinin was not used. [A.B.C.]

6.—Local Applications in Pneumonia.—W. F. Church thinks the status of local applications would have been settled long ago were there not so many differing modes of internal treatment. Transmission of blood from the lungs to the muscles and integument of the chest through the pleura must be very slight. In order to modify the supply to the lungs, the agent must act on the heart itself or the vessels connecting the two organs. It is claimed that cold, and possibly other agents, reflexly affect the cardiac and respiratory centers. Dilating the cutaneous vessels and anesthetizing the nerve twigs may relieve pleuritic pain, but the small amount of blood taken from the general circulation does not relieve the lung any more than were it drawn to other parts of the body. The addition of appreciable weight to the chest must result in loss of strength. By baths with friction, rubefacients, etc., more blood can be drawn to the extremities to relieve internal congestion than would be possible by producing hyperemia of the chest wall. [H.M.]

New York Medical Journal.

May 7, 1904. [Vol. LXXIX, No. 19.]

1. The Significance of Parenchymatous Change in the Kidneys. H. A. TOMLINSON.
2. Juvenile Tabes. ALFRED GORDON.
3. Experimental Researches on Resuscitation after Death from Chloroform. ROBERT COLEMAN KEMP and A. W. GARDNER.
4. Arteriosclerosis of the Central Nervous System: With Report of Five Cases. THEODORE DILLER.
5. Preliminary Note Concerning the Reduction of Diabetic Glycosuria with Pancreas-Hemoglobin-Muscle Extracts. ALFRED C. CROFTAN.
6. Diabetes in Childhood. HUBERT N. ROWELL.

1.—Parenchymatous Change in the Kidney.—H. A. Tomlinson discusses this subject at some length. The conclusions arrived at from clinical experience, which have been largely verified by the study of similar conditions, both experimentally and clinically, in the lower animals, are: That there is as much difference in the kidney capacity of different individuals as there is in the capacity of their other vital organs and the nervous system; that some individuals are born with defective kidneys, not necessarily anatomically incomplete, but functionally incapable; that in these individuals a chronic degenerative process is set up early in life; that they are always, to some extent, the victims of chronic autointoxication, because of imperfect elimination; and that in them the irritation resulting from the retention of the waste products of retrograde metabolism, keeps up a chronic congestion in the kidneys, so that from causes which do not seriously affect the ordinary individual, there may arise, and does arise, acute involvement of the parenchyma of these organs, checking elimination, and resulting in more or less explosive outbreaks involving the general organism, and especially the nervous system. [C.A.O.]

2.—Juvenile Tabes.—The case reported in detail by Alfred Gordon is that of a girl of 17, who presents a rare example of tabetic manifestations developed in a patient who shows symptoms of an acute anterior poliomyelitis of infancy. All the cases known are those of progressive muscular atrophy with a rare involvement of the pyramidal tract (amyotrophic lateral

sclerosis). It also shows that hereditary syphilitic tabes and acquired syphilitic tabes are identical in their symptomatology. [C.A.O.]

4.—Arteriosclerosis.—Theodore Diller reports five cases. The first is that of a man of 66, who for four months had been frequently subject to curious attacks which came on toward morning, just before the arising time. In these attacks he kicked and sprawled about the bed. Various muscles were irregularly involved. They lasted from a few minutes to half an hour; during them he was conscious or semiconscious. Beside these "attacks" for two weeks his speech upon waking was thick, slurring, difficult to understand. His legs were ataxic. Upon attempting to arise he staggered and sprawled about the room in a very helpless fashion and was dizzy. Soon after arising the patient's various symptoms, including the speech defect disappeared. The condition is believed to be one of temporary deficiency of blood-supply to the brain and cord, for which three possible explanations are given: 1. Insufficient heart force. 2. Arteriosclerosis. 3. Vasomotor spasm. Diller says that probably all three factors were operative; certainly two of them, either the first or second, or first and third. The disappearance of the symptoms soon after arising he looked upon as due to the increased cardiac activity accompanying the efforts in arising and dressing, which forced increased amounts of blood, through partly occluded vessels. The patient was put on large and frequently repeated doses of nitroglycerin. In less than a month all his symptoms had disappeared. The diagnosis of spinal arteriosclerosis in four other cases was made on the consideration of the following facts: A marked weakness and unsteadiness of the legs in all cases suggestive of the gait of the very old man; a senile appearance; the presence of sclerotic arteries; an uncertainty in gait which bore only a superficial resemblance to that of tabes; the altered knee-jerks (in three of the four cases the knee-jerks were feeble or absent, in the other cases they were active); the absence of specific history; the absence of muscular atrophy; the absence of sensory symptoms (subjective or objective); the absence of involvement of the sphincters; the failure of the symptoms to conform to those of any of the wellknown organic diseases of the cord. [C.A.O.]

5.—Diabetic Glycosuria.—A. C. Croftan submits a preliminary note concerning the reduction of diabetic glycosuria with pancreas-hemoglobin-muscle extracts prepared by him. The preparation has been given in six cases so far, and in each case a marked decrease in the sugar excretion followed within 24 hours. [C.A.O.]

6.—Diabetes in Childhood.—Two cases are reported by H. N. Rowell to illustrate the influence of the nervous system upon this condition. The patients were brother and sister and death occurred in each instance. The members of the father's side of the family all exhibited neurotic tendencies. The father himself, while apparently free from organic disease, is an unusually nervous, irritable man, and is considered eccentric by his fellows. An uncle is confined at present in a hospital for the insane. An aunt died recently of goiter and diabetes. The father's father died of chronic alcoholism, and the father's mother is alive, but partially mentally unbalanced. [C.A.O.]

Medical News.

May 14, 1904. [Vol. 84, No. 20.]

1. Intraspinal Injection of Lysol Solution in the Treatment of Cerebrospinal Meningitis, with a Report of Three Cases. MORRIS MANGES.
2. A Case of Carcinoma of Retained Testis. SINCLAIR TOUSEY.
3. The Modification of Mattoli in the Operation of Von Hacker for Gastroenterostomy. CARLO SAVINI.
4. Asthenopia: A Clinical Study. D. H. WIESNER.
5. Some Considerations in the Treatment of Tuberculosis of the Testicle. JOSEPH A. BLAKE.
6. Some Remarks on Tuberculosis of the Urinary Bladder. ALEX. B. JOHNSON.
7. A Few Considerations Concerning the Mechanism of Developing Mental Disorder. W. K. WALKER.
8. The Ammonium Sulfate Method of Sterilizing Catgut. WELLER VAN HOOK.
9. A Severe Case of Major Hysteria (Traumatic Neurosis) Following an Accident: Recurrence of Symptoms after a Second Accident: Absence of Damage Claims in Both Instances. THEODORE DILLER.

1.—Intraspinal Injections of Lysol in the Treatment of Cerebrospinal Meningitis.—Morris Manges reviews the litera

ture, and reports three cases treated successfully by Seager's method, except that Manges did not wash out the spinal canal with an artificial serum. Seager's treatment consists of lumbar puncture and the withdrawal by aspiration of varying quantities of cerebrospinal fluid from the spinal canal, frequently amounting to 50 cc. Normal salt solution is then injected with the same syringe by means of a canula placed between the twelfth dorsal and second lumbar vertebrae and injecting the solution through the upper canula and allowing it to flow out the lower; lastly, a quantity (from 9 cc. to 12 cc.) of a 1% solution of lysol is injected through the syringe and the needle withdrawn. The temperature falls immediately, but rises again after one to three days, when the puncture and injections are repeated, and so on until only quite clear and limpid fluid is withdrawn after puncture, when the injection of lysol is stopped. Afterward a few punctures are made to see if the fluid continues clear. Of the 31 patients whom Seager treated by this method 13 died and 18 made complete recoveries, there being no after-complications. Manges' patients likewise recovered completely. [A.B.C.]

2.—Carcinoma of Retained Testis.—Sinclair Tousey reports the case. The patient was a man of 33, with both tuberculosis and cancer in his family history. He was born with a number of malformations. Among these were claw-like deformities of the hands and feet, some of the phalanges being absent. Both testes were completely within the abdominal cavity, and neither could be felt. There was an inguinal hernia; and an exaggerated hypospadias with apparent absence of the penis. The penis was buried in a sulcus, the glans pointing back. There was practically no corpus spongiosum. Some years ago a plastic operation for the formation of a penis was successfully performed. Four years ago the patient began to complain of fainting spells, pain in the lumbar region, and later a tumor presented in entire lower portion of the abdomen. In 1903 Tousey did a laparotomy, and removed a very large cystic malignant mass from the abdomen, which had its origin in malignant degeneration of the retained right testis. The man recovered from the operation, and was apparently well for some months, but pain in the lumbar region recurred, and death followed. Necropsy showed the lumbar vertebrae attacked by malignant diseases—as were also several other parts of the body. [A.B.C.]

3.—Modification of Mattoli in the Operation of Von Hacker for Gastroenterostomy.—Carlo Savini reviews the operations of Roux, Braun-Jaboulay, and Von Hacker, and then describes Mattoli's modification of the last. This modification consists in transforming the modified Von Hacker into an operation offering the practical advantages of a Roux, by closing with sutures the efferent or duodenal portions of the intestine between the two anastomoses. According to Mattoli the operation should be performed in three steps: 1. The jejunum is anastomosed to the posterior wall of the stomach as in the Von Hacker. 2. The two branches of the jejunum are united and anastomosed about three inches from the gastroenterostomy as in the Braun-Jaboulay. 3. The afferent branch of the jejunum between the two anastomoses is held between the thumb and middle finger of the left hand, placing the fingers longitudinally. The pressure forms a groove and the two resulting ridges are sewed together by a number of stitches. The section of the intestine is here changed into a solid cord. The vicious circle is thus absolutely prevented, and the bile and pancreatic juice flow into the stomach and thus entirely empty the jejunum. Illustrations accompany the article. [A.B.C.]

5.—Treatment of Tuberculosis of the Testis.—Joseph A. Blake has operated on eight patients by castration, with removal of the entire vas deferens in all, and in two with simultaneous removal of the seminal vesicle. In one case double castration was performed. He has never performed epididymectomy alone. In all cases the disease was restricted, as far as could be ascertained, to the genital apparatus, with the exception of one previously reported, in which in three successive operations the kidney, ureter, left testicle, both seminal vesicles and most of the prostate were removed. It is now nearly three years since the last operation, and this patient is practically a

sound man. Blake discusses the various operative procedures, his preference being castration, unless both testicles are involved. He doubts whether sexual vigor is retained long after epididymectomy. The seminal vesicles should be removed in all cases in which they are affected if the disease is limited to the genitourinary tract. [A.B.C.]

6.—Tuberculosis of the Urinary Bladder.—Alex. B. Johnson discusses this subject at some length, and concludes as follows: (1) If other tuberculous lesions of the genitourinary tract exist, their operative removal is sometimes followed by improvement and even cure of the process in the bladder, provided the patients are placed under the most favorable hygienic surroundings; (2) operative treatment of the bladder alone in the presence of tuberculous lesions of other portions of the urinary tract, is usually harmful rather than beneficial; (3) the local treatment of the tuberculous bladder by means of injections or applications through the urethra is generally useless, and often very deleterious; (4) the internal administration of the drugs known as urinary antiseptics is generally useless; (5) palliative operations, such as suprapubic drainage, may be useful in advanced cases; (6) the general or hygienic treatment, suitable climate, out-of-door life, etc., offer these patients the best hope of recovery; (7) such hygienic measures should be preceded by the operative removal of tuberculous foci in the kidney, the epididymis, the prostate, and the seminal vesicles, if such exist, and the patient is still in sufficiently good condition to bear the operative procedure; (8) in those rare cases where the bladder alone is affected over a moderate area only, the operative removal or destruction of the diseased tissue may be followed by improvement and even cure. [A.B.C.]

7.—Developing Mental Disorder.—W. K. Walker notes that, while we cannot always correlate nervous and mental phenomena with cell changes or their metabolic activities, we are beginning to understand how they may have their origin in nutritive changes, which interfere with the cellular mechanism upon which "associative memory" depends, that is, the mechanism of mental states, whatever their character. Previous happenings in the individual's mental life are here of equal significance as those of his physical organization in relation to bodily diseases. In dissociative or disorganizing processes we look to the sphere of sensation (with its psychic equivalent idea) or the earliest indications of mental disorder. Every idea results either in movement or in inhibition of movement. Fixation of attention necessary for performance can in health be transferred to a variety of objects. Emotions through repetition, long duration, or intensity may attract all the forces, and with no conflicting ideas interposed, be translated into action with clear, blurred, or no consciousness whatever (epilepsy). Exhaustion narrows the field of consciousness by interfering with associative memory. Emotion narrows it by attracting ideas which harmonize with the particular emotion. It is through attention that higher development is possible. Fixed ideas and obsessions are merely the morbid manifestation of this faculty and are apt to be the earliest signs of abnormality, but it rarely happens the medical adviser is made acquainted with these until the underlying emotional element is more clearly shown as translated into appropriate deed. In the early stage we may do much through removal of the exciting cause, whether this be overwork or defect of the organs of special sense, excessive expenditure of energy, emotional stress, or toxins. [H.M.]

8.—Ammonium Sulfate Method of Sterilizing Catgut.—Weller Van Hook is not favorably impressed with the method of Claudius for sterilizing catgut, claiming it is not agreeable for handling and is brittle. He prefers the ammonium sulfate method of Elsberg. Van Hook has slightly modified Elsberg's method, and as used by him, consists of the following: Select raw, rough, unbleached material of good quality. Soak for a week in pure ether or a mixture of chloroform 1 part and ether 2 parts. Wind on glass spools in single layers. Soak for 3 days in aqueous solution of chromic acid, 1 to 1,000. Boil for 20 minutes in water, to which, while boiling, chemically pure ammonium sulfate has been added until the crystals cease to dissolve. Wash the catgut for a half hour in cold sterile water. Store as desired. Van Hook places the spools in a solu-

tion of corrosive sublimate, 1 part in 95% alcohol, 1,000 parts. Should the material become infected, it may be reboiled. [A.B.C.]

9.—**Major Hysteria.**—T. Diller reports a case interesting from its high and subnormal temperature, greatly accelerated respiration, and practically normal pulse, with recurrence of symptoms after a second accident, in neither of which were there grounds for damage suits. At one time the respirations were 60, the pulse 66, and the temperature 107°. The temperature ranged from 96° to 109°. The permanent stigmas consisted in contracture and sensory changes, including restricted visual fields. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Something about Catalysis.—The scientific conception of the process, or processes, designated by catalysis has, in the light of modern research, undergone a change. The process may be termed a physicochemic one, and the only explanation of the same that scientists up to a comparatively recent period were in a position to offer was that of mere action by contact, in which the introduction of certain agents produced a change or reaction in the original substance to which it was added. This theory, however, no longer holds good, as it fails to explain the phenomenon of certain original substances remaining apparently unchanged, in spite of the distinctly traceable catalytic process. Modern scientists have, therefore come to the conclusion that the formation of intermediate compounds must be assumed, and, in doing so, they have differentiated between the action of catalytic agents which are the actual causers of the process, such as the solidification of an oversaturated solution brought about by the introduction of a crystal, and that catalytic action which only accelerates reactions which already ensued before the introduction of the catalytic agent, such as occur in the catalysis of all, or almost all, chemic bodies.

Catalysis in oversaturated substances takes place when such substances do not possess the highest possible degree of stability under the prevailing conditions of pressure and temperature. A small quantity of substances which possess a higher degree of stability, coming in contact with the former, impart a new phase to it which will go on increasing until a state of equipoise shall have been reached. Thus, an oversaturated solution of carbonate of soda will be reduced to solidification by the introduction of the smallest possible weighable particle of solid carbonate of soda. It is, indeed, a matter of importance for the formation of the new substance that the catalytic agent should consist of the same substance as the possible solid result. Foreign substances exercise no influence upon it.

Isomorphic substances, however, produce certain effects, but in this connection extensive research is still required. It may be assumed that isomorphic substances produce their effects by the formation of fixed solutions, but it is questionable whether nonisomorphic solid substances which can form fixed solutions with the original substance produce any catalytic effect. There are other cases where solid bodies react on the original substance which are neither isomorphic nor capable of forming fixed solutions. This will sometimes happen, for instance, when silicic acid is rendered insoluble in the presence of the crystals, and the latter are removed by means of suitable solvents. A solution may be simultaneously oversaturated with regard to several different phases. Thus, acetate and thiosulfate of soda can be combined into one fluid, which, however, will react in a different way upon germs of each one of the respective salts by excreting its own special substance, while the

rest remains in a solvent state. This would explain the formation of the various substances of the animal body from the blood, if it were permissible to regard the latter as a fluid surcharged with the germs of all these substances.

Homogeneous Catalysis.—While in the cases above described contact with a substance of greater stability was required to produce catalytic effects, such a condition is excluded in the case of catalysis in homogeneous substances, as the term implies. Catalytic action is only possible with nonstable bodies, and homogeneous nonstable formations can only exist in a state of transmutation. A fluid which is capable of producing, without extraneous influence, other substances which remain in solution cannot exist without forming such products. The degree of rapidity with which such transmutation takes place is of no consequence. The catalytic agent, however, increases that speed, and that is the only effect it has on homogeneous substances. The measurement of this influence on the speed of transformation in connection with the various substances is another important point to which research should give its attention.

Heterogeneous Catalysis.—The most important process illustrating the catalytic effect of heterogeneous substances is the combustion of sulfur dioxide into trioxide. These are likewise cases of increased speed in the transmutation of substances, and the regularity of such increase, as the temperature rises leads one to assume that some transmutation, however small, takes place even at normal temperature. The slowness of the process is explained by the fact that gases always react slowly. This is best shown by experimenting with the same substance in a fluid state and in a gaseous state; in the latter case its reacting power is very considerably lessened. If we assume that by catalytic action part of a gaseous substance becomes fluid or assumes the density of a fluid, then that part will display a more active reaction and be transformed into the final product with increased speed, and if the catalytic agent is such as to constantly renew its condensing influence, the result throughout the process is accelerated reaction. The effect of platinum upon combustible gases would find a ready explanation by the adoption of this assumption.

Enzymic Catalysis.—We have to look upon enzymes as catalytic factors which are generated in the organism during the life of the cells, and to assume that by their action living beings perform the greatest portion of their chemic task. The production of chemic energy by combustion at the expense of the oxygen of the atmosphere, and therefore life itself, would be impossible without the decisive cooperation of enzymic catalysis. Oxygen, unaided, would be too slow in action to sustain life and is dependent upon the accelerating effect of reactions. Such acceleration may be accomplished by temperature, concentrations or catalysis. Animal life, however, cannot control temperature at will, while concentrations frequently depend upon the solubility of substances. There remains as the only reliable means the employment of enzymosis as catalytic agent, and this is fully equal to the task.

REVIEW OF LITERATURE

Corset Cancer.—Clement Lucas¹ reports two cases, and concludes that he has demonstrated a site of origin of cancer dependent upon the friction of the upper edge of a corset where it crosses the anterior fold of the axilla. The disease, he believes, was due to a chronic irritation, but supposing cancer to be of germ origin introduced from without, the rubbing in of such an organism at this point might aptly be compared to the rubbing in of staphylococci by the collar in the production of boils and carbuncles. Allusion is made to other recognized

¹ The Lancet, April 2, 1904.

sites of origin associated with irritation, and especially with the points of junction of mucous membrane with skin. He then essays to show how syphilis producing injurious effects in numerous situations often proves the forerunner of cancer. Inoculation and contagion are considered; also the proved inoculability of cancer in animals of the same species; the self-inoculation in the human subjects in parts in contact but not continuous; and the probable communication of the disease in certain cases from wife to husband. The recent observations of Farmer, Moore, and Walker as to the resemblance of the myototic changes of cancer cells to those normal in the reproductive cells of plants and animals, are alluded to as of interest, showing why in both cancer and sarcoma there exists such an intense power of multiplication of cells. [A.B.C.]

The Lymph-glands in Typhoid Fever.—D. L. Edsall¹ has observed the behavior of the lymph-glands in 60 cases of typhoid fever; in 36 of these satisfactory notes were obtained and are made the basis of the paper. Of the 36, glandular involvement during the course of the disease occurred in 25; in 4 the conditions were doubtful; in 7 there were no determinable changes in the glands. The regions observed were the groin, axilla, anterior and posterior portions of the neck. As a rule the occurrence of glandular involvement could be detected only by painstaking and deliberate examination; occasionally it was prominent enough to be apparent on rather hasty palpation. Several factors must be taken into account in these cases to prevent too high estimation of their occurrence; chief among them is that emaciation of typhoid patients makes prominent the glands and the taking on of flesh after the disease has run its course obscures them. Edsall finds in this involvement of the glands but little that is of value from a diagnostic standpoint; the principal conclusion drawn is that glandular enlargement, unless very marked, cannot be considered a point against typhoid fever. As to prognosis, the condition apparently has no important bearing; enlargement of the glands is followed by relapse and is usually more prominent in the relapse. Further study may reveal some prognostic value. The fact that all the patients recovered and that glandular enlargement was more marked as convalescence was established, suggests that the lymphatic tissues were active in establishing immunity. [A.G.E.]

Albuminuria in the Apparently Healthy.—S. West² believes that albuminuria is always pathologic, except when the albumin is obtained from a residue of cells extracted after evaporation. He classifies cases into (1) postrenal or accidental, due to contamination from the genitourinary tract; (2) renal (a) with obvious cause as kidney disease, (b) without obvious cause; (3) prerenal (a) with obvious cause, as in fevers or heart disease, (b) with no obvious cause. A tiny calculus in the kidney or oxalic acid gravel or strongly acid urine might lead to transient albuminuria. The frequency of the condition has been put at 10%; in quite young infants the figure has been placed at 40%; in boys at school at 20%. These boys should be under medical supervision. The presence of albumin is a risk which the insurance office is justified in declining to take. The gravity of the condition increases with every year. When accompanied by arterial thickening, it is an indication of granular change in the kidney. It is advisable for life insurance companies to reject all cases of albuminuria above 40, to load heavily those between 35 and 40, to add considerably between 25 and 30, and to postpone and watch those cases occurring from 18 to 25. If arterial thickening is present one should reject at all ages. [H.M.]

Transplantation of the Thyroid Gland in Man.—H. Cristiani³ had the opportunity of experimenting with thyroid transplantation in three patients who were subjected to operations on the neck. He found that new thyroid glands could be produced in man by this process. The results are excellent when normal thyroid tissue is used, and are even successful when tissue is used that is slightly altered by pathologic changes. The new glands thus obtained are practically normal. If markedly pathologic thyroid tissue is used, the results are nega-

tive, the transplanted tissue being disintegrated and absorbed. From a clinical point of view, the transplantation is shown to be of great service in cases where the entire thyroid gland has been removed on account of disease, and also in cases of myxedema due to deficiency in the thyroid gland. The chief difficulty, from a practical point of view, is in obtaining fresh human thyroid tissue for transplantation. This may be met in the future by devising some preservative medium, such as artificial serum or the blood-serum of certain animals. An open operation may possibly be avoided by devising a method of injecting an emulsion of the thyroid tissue into one of the body cavities. [B.K.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

Fat as a Cause of Painful Knee-joint.—Abnormal deposits of fat in the knee-joint have been described by pathologists since the days of Virchow's eminent teacher, Johannes Müller, who gave the name *lipoma arborescens* to such accumulations. Until recently the condition has attracted little attention from surgeons, but during the past few months two important contributions have appeared on this subject. Painter and Ewing¹ report in detail seven cases of *lipoma arborescens* under observation during the year preceding their publication, and Hoffa² also reports a series of seven cases of similar nature which he operated upon during the year. The earlier pathologists believed that the condition was almost always associated with tuberculosis or arthritis deformans, but later writers are not inclined to attach much importance to these diseases as a cause for such abnormal deposits of fat. Hoffa believes that the condition is usually of traumatic origin, though he does not agree with König that it arises by an ingrowth of fat through the break in the synovial membrane caused by injury, but rather it is a condition of hypertrophy of the normal folds of synovial membrane; the so-called *plicae alares* and *plica synovialis patellaris*. Quite possibly he is indebted to Painter and Ewing for this suggestion, for their valuable paper antedates his almost a year, and so far as we are aware, they were first to suggest that *lipoma arborescens* is not really a fatty new-growth, but only a condition of hypertrophy of the normal synovial folds with fatty degeneration. The usual course of the affection as described by Hoffa is: Severe pain in the knee following some injury which may not be considered of very great importance at the time; there is, however, permanent pain on moving the joint, the pain, as a rule, being located on the inner side of the joint; the knee cannot be fully flexed; there is usually more or less atrophy of the quadriceps tendon, and sooner or later a typical swelling appears just below and on either side of the patella, which makes the patellar ligament seem prominent; the subquadriceps bursa is usually free, as are the sides of the joint capsule; the swelling below and on the sides of the patellar tendon have a doughy consistence and quite a characteristic appearance. In the later development of the case the movability of the joint may be normal, or there may be some joint crepitation on motion. Hoffa considers the picture so characteristic that a diagnosis can be made with absolute certainty. In the differential diagnosis, foreign body in the knee-joint or separation of a semilunar cartilage has to be considered, but with the latter we have the typical point of pain and swelling exactly in the fissure between the ends of the bone, while with foreign body within the joint the röntgen ray photograph is of aid. He claims to have made the diagnosis in all of his cases, the accuracy of the diagnosis being confirmed by operation at which the hypertrophied fatty

¹ American Journal of the Medical Sciences, April, 1904.

² Medical Press and Circular, February 10, 1904.

³ La Semaine Médicale, March 16, 1904.

¹ Boston Medical and Surgical Journal, 1903, Vol. cxlviii, p. 906.

² Deutsche medizinische Wochenschrift, 1904, Vol. xxx, p. 837.

masses were excised. In the after-treatment, Hoffa advises gauze drainage for the first 24 hours, removal of the stitches on the tenth day, after which active movements are begun, and the patient is allowed to be out of bed on the tenth to the fourteenth day. With massage and suitable gymnastics a perfect functional result is usually obtained in from six to eight weeks. Painter and Ewing find that the symptoms are usually those of a foreign body in the knee-joint, and they believe that a positive diagnosis is usually impossible until the joint is opened. Modern, septic exploration of the knee-joint is not attended by any more danger than is the opening of any other cavity of the body, and it seems indicated in cases in which it seems likely that this is the cause of the trouble. The favorable results which have been obtained in such cases certainly would encourage the removal of hypertrophied and fatty tissues. The condition has attracted very little attention in surgical textbooks, and we venture to be unrecognized by many surgeons of considerable experience. The writers quoted seem to believe that the condition is a relatively frequent one, and their opportunities for the examination and exploration of numerous cases of joint diseases give their opinion great value. Probably many persons now suffering from painful affections of the knee-joint will find relief in years to come from the simple operation suggested.

REVIEW OF LITERATURE

Treatment of Anterior Dislocation of the Shoulder.—

George Tulley Vaughan,¹ in discussing the treatment of luxation at the shoulder-joint, states that the method of direct reposition should be first tried; when it fails the method of extension and counterextension should be employed. Reference is made to an article by Stimson, in which he advocates placing the patient on a canvas cot with a hole cut through sufficiently large to permit the arm of the affected side to pass; the patient lies on the cot with a weight of some 10 lb. suspended from the wrist of the projecting arm. In 10 cases reported by Stimson, in no instance was it necessary to continue extension longer than six minutes. Vaughan's method of employing extension and counterextension is similar in principle, but it consists in placing a sheet around the patient's body below the axilla of the affected side, crossing anteriorly and posteriorly the shoulder of the opposite side, traction being made by an assistant. The surgeon then makes traction upon the affected arm first in the line of the displacement, and as the traction increases the arm is carried away from the side to an angle of 45 degrees. Traction is continued, not too strongly, but just enough to make the muscles tense. An assistant should be ready to relieve the surgeon when he becomes tired and the change is made without relaxing the traction. In from one to six minutes the steady traction overcomes the muscular spasm, contraction ceases, and the head of the bone slips into place. The importance of using traction with gentleness and persistence without force is insisted upon. The Kocher method is discussed in some detail, while in old cases the method of arthrotomy is applicable. [A.B.C.]

Suppuration of the Bursa of the Great Trochanter Simulating Hip Disease.—T. Pridgin Teale² quotes from a paper which he published more than 30 years ago, calling attention to two cases of suppuration of the bursa overlying the great trochanter, wherein the patients complained of symptoms which strongly simulated hip-joint disease. In the present paper he calls attention to another case coming under his own observation and to one or two others which have come to his notice, and says that very little in reference to this troublesome, though rare condition, is to be found in the textbooks. The recent case reported was that of a man of 51 who, when 14 years of age, was kicked in the region of the great trochanter; 16 years later a lump the size of a walnut appeared 1½ inches below the great trochanter; this was opened a year later and fluid escaped, a sinus persisting for 3 years, and then healing; 15 years later

the sinus opened, and has now been discharging for 4 or 5 years. Three years ago a second sinus opened in front of the trochanter; 9 months ago a third below the buttock. The sinus behind the trochanter was enlarged, the finger introduced, and the bursa was laid open by direct incision, dividing the aponeurosis of the great gluteal muscles. The points upon which he lays stress are: (1) A *prima facie* suspicion of hip disease; (2) either no marked muscular rigidity of fixity of the hip-joint, or if such exist, their disappearance under an anesthetic; (3) absence of tenderness on pressure of the head of the femoral against the acetabulum; (4) the frequency of the history of a fall or blow on the trochanter; (5) the effect of the flap tendon of the gluteus maximus as a factor in keeping up the diseased condition of the bursa and the importance of the division of this tendon in the surgical treatment of the disease. [A.B.C.]

Traumatic Rupture of the Small Intestine.—Lawford Knaggs¹ reports two cases of rupture of the small intestine, one of the patients recovering after operation and the other dying. The author states that the symptoms produced by abdominal contusions when the bowel has been ruptured are frequently insidious in their onset; in some cases the presence of the collapse and the urgency of symptoms leaves no room for doubt; in others, the immediate effect of the accident is recovered from and the patient subsequently develops symptoms of peritonitis, which justify an exploratory operation. It is the time that is lost in this way that is responsible for the want of success in the treatment of ruptured intestine, yet it is impossible to prevent it unless a rule be formulated that every severe abdominal contusion be subjected to immediate laparotomy, and this, of course, all surgeons will not accede to. Increased rapidity of the pulse as an indication for operation is a most valuable sign, but as it also indicates the absorption of toxins from the peritoneum, it shows that valuable time has been lost. The author appears to place more importance upon vomiting as an early symptom of intestinal rupture; it is not always present until unsatisfactory conditions are far advanced, but should it occur early it points to probable implication of the peritoneum, and may be the first sign of intestinal rupture. All cases of severe abdominal contusion if not operated upon at once should be watched with extreme care for the first signs of any complication. [A.B.C.]

Experimental Nephritis and Renal Decapsulation.—

Hall and Herxheimer¹ experimented on 35 rabbits, doing a decapsulation as a primary experiment, and neither by ordinary nor by serial section of the kidneys was there any marked formation of new blood channels between the kidneys and the adherent tissues. Their experiments agreed with those of Johnson, who found that the capsule, when removed from healthy kidney is reformed at the end of about 21 days and is represented by fibrous covering thicker than the original capsule. After their preliminary experiments they then undertook a series in which they produced an acute degenerative nephritis in rabbits by injecting ammonium chromate; following this, after degeneration had time to ensue, with decapsulation of the kidney, in order to more nearly approach the condition under which the operation has its practical application in man. The experiments are enumerated in detail. They state that from the anatomic standpoint decapsulation does not appear to offer any advantages, and if there exists no anatomic basis for the operation in acute degenerative nephritis it is impossible that in chronic nephritis the capsular change will be less marked. Clinically it is true that increased excretion of urea, disappearance of albumin and casts have been observed to follow renal decapsulation. Some ascribe this to the relief of congestion, others suggest that it is the result upon the sympathetic ganglia. The latter, they believe, the correct explanation. This being true they question the necessity of removing the entire capsule and assert that renipuncture or one longitudinally and several transverse incisions would avoid the main anatomic disadvantages and yield equally beneficial results. According to the compiled statistics of Guiteras, who collected 120 cases operated upon for chronic nephritis, there were 16% of cures, 43% improved, 11% unimproved, and 33% followed by immediate death.

¹ Journal of the Association of Military Surgeons, May, 1904.

² The Lancet, November 14, 1903.

¹ British Medical Journal, April 9, 1904.

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

Ventrofixation of the Uterus.—The operation of ventrofixation appears to W. J. Sinclair¹ to be the best for the treatment of chronic retroflexion of the uterus in women at the childbearing time of life. The ideal ventrofixation is that which results from cesarean section, when the wound is longitudinal, involving about the middle third of the uterus, and complete adhesion takes place between the uterine and abdominal wounds. In these cases, when pregnancy occurs again, there are absolutely no abnormal symptoms, either functional or mechanical, and the operation may be repeated again almost or altogether without opening the peritoneum. Sinclair condemns the introduction of sutures through the posterior surface of the uterus as practised by Kelly. That is ventral suspension, not fixation, and is faulty in many respects. In performing ventrofixation he uses only catgut and the finest silk thread. In closing the vesicouterine fold he introduces only two catgut sutures, one on each side, well below the lowest point of the abdominal wound, while the uterus is firmly pulled upward by means of an ordinary volsella inserted in the center of the fundus and manipulated by an assistant. Then fine silk sutures are introduced from the outside surface of the parietal peritoneum, passed through the peritoneum, and after taking a good hold of the uterus low down and near its margin, they are brought back through the peritoneum and firmly tied. The knot is thus always extraperitoneal. Two of such sutures are, as a rule, introduced on each side. The same process is now continued, the sutures including the fascia, as well as the peritoneum on each side. The transverse sutures are next introduced. These are two or three in number, consist of fine silk, and include fascia and peritoneum at the sides, and each takes a fairly extensive hold of the anterior surface of the uterus. The highest of the sutures is placed about half way up from the isthmus to the fundus. After suturing the abdominal wound in the usual way, the last step in every case is the introduction of a glycerin-pessary into the vagina to press forward and support the uterus during the formation of adhesions. The patients are kept in bed for a month or six weeks, and are advised to lead invalid lives for several months. This operation has stood the test of efficiency in nearly 100 cases. [W.K.]

Leukocytosis in Pelvic Disease in the Female.—E. S. Carmichael² believes that in 75% of cases quantitative gives as trustworthy results as qualitative examinations. Toward the end of pregnancy and during parturition, leukocytes increase, while during the puerperium there is a steady decrease, and if a marked leukocytosis is found, toxemia must be suspected. There is a strange independence of temperature and leukocytosis. Pelvic exudation or abscess may be looked for. In chronic exudations the leukocytosis is lower than in acute forms. Streptococci cause the highest degree, and *B. coli communis* the next, gonococci only a moderate degree, and the tubercle bacillus not any. More than 10,000 in tuberculous conditions indicates a mixed infection. In ovarian tumor much increase in the white cells indicates an inflammatory, rather than malignant cause. One cannot lay down a hard and fast rule as to the number indicating operation, but suppuration should be suspected after three counts of 20,000 or above. A rise after operation is a sign of bad drainage. With high leukocytosis and tubal swelling, palliative methods as drainage by the vagina are indicated. In ulcerative cancer of the cervix the leukocyte count should be reduced by cauterization before extirpation. In puerperal fever with marked toxemia and no leukocytosis the result is inevitably fatal. Leukocyte decrease with eclampsia is grave, increase is favorable. The qualitative count in a few cases gives more information than the quantitative, but it also often fails. The count should be made when digestive leukocytosis is absent, and also that from drugs and hemorrhages. It should never be relied on exclusively as a means of diagnosis. [H.M.]

Ruptured Ovarian Cyst and Sarcoma.—R. Alcock³ reports a case of multilocular cystadenoma of the left ovary in a woman of 34. Operation was not performed until one week after rupture of the cyst had occurred. The cyst contained no evidence of malignancy and the right ovary was normal. Improvement of the patient was marked for a time, but general decline then began, and death occurred nine months after the operation. Autopsy showed the entire abdominal cavity to be occupied by a white, friable tumor mass; there was also a tumor of the right ovary, the size of an orange, that could barely be differentiated from the former. The whole mass was a round-cell sarcoma. The writer believes there was a causal relation between the contents of the cyst that escaped into the abdominal cavity and the sarcoma of the contained structures. There is a possibility that the tumor of the right ovary was independent of the general tumor mass in which it was embedded, and that the latter was secondary to it. The general distribution was against this view, and Alcock considers it very important that no cystic fluid be allowed to escape into the peritoneal cavity during operation on ovarian cysts. [A.G.E.]

The Coagulation Time of the Blood in Pregnant and Puerperal Women with Albuminuria and Eclampsia.—According to Carstairs Douglas,² in general terms, it may be said that the total quantity of blood is raised in pregnancy; that the leukocytes, fibrin, and probably the hemoglobin are increased in amount, while the red cells are if anything diminished. A study is made of the question of the alleged tendency of the blood in eclampsia to form thrombi readily by examining the blood as to the time of coagulation, several hundred observations being made upon these groups: Cases of albuminuria, of eclampsia, of healthy puerperas, of healthy pregnant women, of healthy nonparous women. The only class of cases in which the time of coagulation was shortened was that of albuminuria in pregnancy, in which the average was 5.6 minutes, in all the other classes the average being 7 to 7.75 minutes, but none of these cases of albuminuria developed convulsions. He concludes that there is little difference in the coagulation time of healthy pregnant and puerperal women and of women having eclampsia before or after delivery, and that there is nothing as far as the coagulability of the blood goes, to support the contention that the thrombi found in certain organs in fatal cases of eclampsia are due to an increased coagulability in these cases. [W.K.]

Treatment of Dysmenorrhea and Sterility, Due to Stenosis of the Cervix, by Incision.—Bedford Fenwick³ contends that dysmenorrhea due to stenosis of the cervix or to a conical cervix, can only be permanently cured by incision of the cervix, and the separation of the edges of the wound until healing is complete. Other methods, such as dilation of cervical canal by bougies or other means, or incision of the internal os, only give temporary relief. Fenwick prevents union of the incised lips as follows: After an incision of a half to three-fourths inch is made on each side, the posterior lip falls back and the anterior lip is drawn forward with a hook. A small needle threaded with strong catgut is passed through the left side of the anterior lip close to the upper angle of incision, and then across and through the corresponding point on the right side. The catgut is cut sufficiently short, and a similar stitch is inserted about midway between the former and the tip of the cervix. The anterior lip is sponged clean of blood, and first the upper and then the lower stitch is tied. The result is that the anterior lip of the cervix is indrawn together—the raw surface being closed completely, while the posterior lip is flat and open. Two or three wool plugs are then applied tightly against the cervix to check hemorrhage. At the end of 10 days the catgut stitches are removed, and then the anterior lip flattens out and lies nearly in its normal position, but both the opposed surfaces being covered with mucous membrane, they cannot adhere. He has performed this operation in 87 cases, and in 91% the relief from pain has been permanent. Out of 41 cases of sterility he has heard from 24, in 18 of whom pregnancy has resulted. [W.K.]

¹ British Medical Journal, March 26, 1904.² Scottish Medical and Surgical Journal, February, 1904.³ The Practitioner, April, 1904.² British Med. Jour., March 26, 1904.³ British Gynecological Journal, February, 1904.

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Treatment of Insomnia.—C. J. Aldrich¹ first makes emphatic that the treatment of sleeplessness does not resolve itself into a choice of drugs. He then considers the condition under five forms—irritative, toxic, psychic, degenerative, and that due to changes in mode of living. In the first the cause of irritation should be removed and stimulants and opiates sedulously shunned. Of the toxic variety, hydrotherapy is of special value in the insomnia of alcoholism, a condition from which many die because of poor treatment. Chloral, morphin, and hyoscin should rarely be used; they are not necessary, and frequently cause death. Aldrich uses bromids in large doses, combined with a small amount of chloral, tincture of capsicum, infusion of digitalis, and whisky or brandy. Many trials of digitalis have convinced him of its safety and usefulness. Strychnin hypodermically is a necessary adjunct of such treatment. The use of hypnotics in pneumonia is reprehensible; strychnin and stimulants with free catharsis is more serviceable and less dangerous. For the insomnia of the gouty individual with high arterial tension, commercial potassium nitrate combined with small amounts of potassium iodid makes an ideal eliminant. Aldrich believes that the seriousness of insomnia is, as a rule, overrated, and the condition therefore overtreated. He closes by stating that there is no absolutely safe hypnotic. [A.G.E.]

Digestion and Absorption of Hemoglobin.—W. D. Halliburton² gives the results of his series of experiments carried out along physiologic lines to determine the question of digestion and absorption of hemoglobin in the general system. His conclusions are: 1. The administration of iron in the form of powdered hemoglobin, leads in rats to an increase in the number of red corpuscles and the amount of hemoglobin in the blood. 2. There appears every reason to suppose that the hemoglobin is actually absorbed; the intensity of ammonium sulfid reaction is much greater than in animals kept on a diet poor in iron; the main situation for absorption, as judged by this reaction, both to the naked eye and to the microscope, is the extreme pyloric end of the stomach and the first few inches of the abdomen. The spleen appears to be the principal organ for storage. 3. Hemoglobin in the stomach is converted into acid hematin. This is the pigment of what clinical observers call "coffee grounds" in the vomitus in hematemesis. Acid hematin after it is formed is slowly precipitated and is indiffusible through parchment paper. It therefore seems unlikely that much of it is absorbed. 4. By the pancreatic juice, however, it is rapidly dissolved and forms alkaline hematin, which diffuses through parchment paper. This accounts for absorption in the first part of the duodenum, lower down where the reaction no more becomes acid, absorption ceases. It is well known that in many animals the reaction of the intestinal contents becomes alkaline, owing to ammonia formation in the large bowel, but in rats Halliburton found the contents of the cecum and first part of the colon still acid. [A.B.C.]

Enemas of Blood of Benefit in Chlorosis.—Juan Manuel Mariani³ reported to the Fourteenth International Congress of Medicine at Madrid his results in chlorosis treated by enemas of blood. He now gives the details of seven cases, with his conclusions, as follows: 1. The blood so injected is quite well absorbed—it would seem entirely. 2. Tests made confirm the belief that the patient is rapidly and surely benefited, while the clinical appearances are satisfactory. 3. This treatment is good in cases of chloranemia, but of little value in anemia the result of cachectic morbid processes. [T.H.E.]

Treatment with Antituberculous Serum.—Alexander Marmorek⁴ reports results obtained in several patients treated by his antituberculous serum. He began with a series, having advanced tuberculous lesions, holding that if these could be

cured it was then time to begin with lesions of less advanced character. His results were sufficiently encouraging to warrant his continuing the treatment and applying it in less advanced cases. The more acute the lesion the sooner may good results be expected from the serum, though in the most acute form, tuberculous meningitis, Marmorek was not able to effect a cure. He states that in a large number of well-advanced cases he succeeded in reducing the hectic fever; many of these patients had previously been treated in sanatoriums and elsewhere without success. In mixed infection he suggests the alternate use of antituberculous and antistreptococcal serum. Many of his patients are doing well under treatment, but the time has not been sufficient for a cure to have taken place; however the physical signs have changed so much for the better that final complete cure is anticipated. [A.B.C.]

Injections of Thiosinamin in the Treatment of Keloid.—Presno y Bastiony¹ gives the following formula:

Water	} of each 45 gm.
Glycerin	
Thiosinamin . . . . .		10 gm.

This is given subcutaneously or even intramuscularly, though its administration is very disagreeable and painful. Bastiony believes thiosinamin to have a special value as a tissue-builder and regenerator. Hebra and Richter use the drug in the form of a plaster. [T.H.E.]

Serumtherapy of Tetanus.—Blumenthal² reports the cases of two women operated on the same day; on the eighth day one of them complained of slight soreness of the jaws. Considering tetanus a possibility, both patients were injected with curative doses of serum; tetanus convulsions developed in spite of the treatment and ultimately both died. The inefficacy of these injections, he explains through the fact that the serum, although capable of neutralizing the toxin within the circulatory stream, cannot do this within the peripheral and central nervous system, and hypodermic injections must therefore always be associated with subdural and intravenous injections. The wound must be thoroughly cleansed but amputations are not approved of by him. Morphin and chloral should be exhibited in large doses as they only can inhibit the convulsions. Whenever possible prophylactic injections should be employed. During the height of the disease no nourishment should be given by mouth on account of danger from aspiration pneumonia. [E.L.]

Treatment of Lumbago in Women.—Toledo³ offers the following as an excellent remedy for lumbago in women:

	Gm.—Dec.
Ferric phosphate	0 050
Ext. of belladonna	} of each 0 006
Ext. of nux vomica	
Ext. of cascara sagrada . . . . .		0 050

M. To make one pill. [T.H.E.]

Suggestion Treatment in Alcoholics.—Since the end of 1899, Stegmann⁴ has treated 28 drunkards of different types with hypnotic suggestion. Of these, five forsook treatment during the first week, although he was able to produce hypnotic sleep in all of them; seven others were treated for some time, but relapsed into old habits soon after discharge. The other 16 have been sober since treatment was commenced; seven have had short recurrences since discharge. Of the nine persons apparently cured, two have had no relapse for over two years, four for one year, and three for shorter periods. The treatment was conducted in the following manner: Patients who wished to be treated had intense suggestions made to them for weeks, in some cases for months, still while awake, later in the hypnotic state; after discharge they returned to the institution once or twice weekly for further suggestions. Most of the patients were asked to join temperance societies after discharge. With grave psychic disturbances the treatment is more difficult and the prognosis not so good. Long duration of the disease does not preclude a cure, but makes a longer stay in the sanatorium imperative. [E.L.]

¹ Medicine, April, 1904.

² British Medical Journal, April 9, 1904.

³ La Escuela de Med., Mexico, March 15, 1904.

⁴ The Lancet, March 26, 1904.

¹ Rev. de Med. y Cir. de la Habana, March 10, 1904.

² Wiener klinische-therapeutische Wochenschrift, 1904, p. 37.

³ Revista de Med. y Cir. de la Habana, March 10, 1904.

⁴ Archiv für Psychiatrie, 1906, Vol. xxxvii.

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Obstetrics and Gynecology

WILMER KRUSEN
FRANK C. HAMMOND

Nervous and Mental Diseases
J. K. MITCHELL
F. SAVARY PEARCE

Treatment

SOLOMON SOLIS COHEN
L. F. APPLEMAN

Dermatology
M. B. HARTZELL

Laryngology, Etc.

D. BRADEN KYLE

Ophthalmology

WALTER L. PYLE

Pathology
J. EDWIN SWEET

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Three Methods of Promoting Scientific Discovery.—The older method adopted by endowers and scientific societies was to offer prizes for manuscripts chronicling the discovery, their publication to be later and under the control of the prize-givers. The evils of this plan early became evident and as a consequence there is much competition now, among the prize-givers, not among the seekers, for contributions. What may be called the second method is that adopted by the Carnegie Institution, of grants to investigators, and this is a better plan; but it has already drawn upon itself the severe criticisms of many scientific men. The most telling of these relates to the impossibility of any group of human beings finding out in what direction, and especially by what particular workers, discovery is to come. There is a strange waywardness and obstinacy in the law of discovery, which often makes the official and recognized investigation resultless. The real resolution of the mystery so frequently comes by some unknown delver, who at first may even be sneered at by the official judges and leaders. The history of almost all great discoveries and progressive steps is that the recognized authorities ignored or scorned the great innovation and left the genuine discoverer to the inevitable and pathetic reward of his temerity. The third method is that adopted by Nobel: Reward the true discoverer and innovator as soon as the genuineness and value of his thought has been demonstrated.

Health Boards in towns and small cities often need organizing and reorganizing. We are too prone to pay attention to those of large cities only, forgetting that the country is often as unhealthy or more so than cities, and that the people by no means all live in cities. For their neglect of the manifest duty and the commands of the law, the executive officers are partly responsible, but upon the local medical profession must always rest the burden of the actual work. Only medical men can put the requisite zeal and science into actual reductions of the deathrate by practical efficiency. In many places there is no organization whatever, and in many more there is no life to the nominal organization. One is pleased to note that the thoroughgoing and scientific character of the work of health boards in some towns is often of as high an order as in the large cities. Serving without salaries, and often doing most needed

work, unrecognized perhaps by their fellow citizens, frequently perhaps making enemies by the very nature of their labors, these unknown presidents and members of the local boards have a thankless task. In one place, Warren, Pa., the review of the year's work for 1903, the methods employed to lessen the deathrate to an enviable figure are admirably set forth by Dr. Ball. The deaths from cancer are noteworthy—11% of the whole number. Next in order come organic diseases of the heart, 7.1%; chronic Bright's disease, 7.1%; pneumonia, 6.2%; debility in the aged, 6.2%; apoplexy, 5.3%; tuberculosis, 4.4%. The true spirit is shown in these words:

If we have succeeded in preventing one untimely death we have saved more than triple the amount of our appropriation. Money spent in guarding the health of a community and preventing disease is money well invested. To say nothing of the mental and physical suffering disease produces, the injury done to the business interests by any well-marked epidemic is not inconsiderable.

Picture Books.—In a laudable endeavor to attract the attention of the charitable there has lately grown up an interesting custom of hospitals, which consists in spending a large amount of the money contributed in making beautiful pictures. The annual reports of some of these institutions are veritable works of art and in a little pamphlet will be found on nearly each alternate leaf a full-page illustration of sylvan scenes, landscapes, rural, and architectural views, glimpses of chambers and sitting-rooms which are possible only to private citizens of wealth and leisure. It is well, indeed, that the sick and the crippled in life's battles should have precisely these peaceful and delightful places in which to regain health, or at least to pass the remnant of failed lives; but there seems to be an over-accentuated satisfaction in these conditions and a trend toward considering them ends in themselves. There remains, at least, the critical question as to the expense of the illustrations of the reports. The full-page reproductions on plate paper of exquisite photographs with tissue paper interleaving, as all book makers know, cost a deal of money. Did the almsgiving donors endow for this purpose? and is not the competition to get into these "havens of repose" sufficiently keen already? What relation do they bear to therapeutics? Could not the money be more wisely expended?

The American Red Cross controversy is by no means ended with the resignation of Miss Clara Barton. There has been no investigation and publication of the deplorable financial and other conditions of the society in the past, nor what they are today. There is no reputable and trustworthy new organization to guarantee that "the more it changes the more it [does not] remain the same." For example, the Red Cross report for 1903 stated as the balance of cash on hand \$124; whereas Miss Barton, in her letter announcing her retirement from the presidency, says: "It is a pride as well as a pleasure to hand you an organization . . . with no debts, and a sum from \$12,000 to \$14,000 available to our treasury as a working fund." It will be of interest to know how the meager balance of 1903 swelled one hundred fold or more in a single year. It is a great misfortune that during the long recess of Congress nobody representing the original aims, spirit, and organization of the Red Cross should be in a position to act promptly in concert for the relief of sufferers from an epidemic or other great disaster. At the outbreak of the war between Russia and Japan both Ambassador Cassini and Minister Takahiri declined in behalf of their governments the assistance of what now purports to be the American Red Cross. There can be little doubt that the motive for their refusal was a desire to keep out of the disagreeable muddle in which the wreck of the old society is now involved. A new charter was prepared during the last Congressional session, and it is expected that it will be authorized by the next Congress, but in the meantime much "investigation" is imperatively demanded if the organization is to be supported and to be of service in future emergencies. And also in the interim the talents of the ex-president can be usefully devoted to the encouragement of quack nursing schools and patent medicine vendors.

The Italian immigrant is the subject of a capital special number of that excellent periodical, *Charities*, and the *Revista Commerciale* has published the results of a statistical investigation of the Italians of New York City. One is astonished to learn that there are in that city 382,775 Italians, the great majority below 45 years of age, and nearly 50,000 are being added each year. Although 48% are utterly illiterate, the fact remains that they are "most valuable additions to our population." For instance, from the investigation made by the Committee of Fifty, of nearly 30,000 cases in the records of organized charity, it was shown that in 20% of the German cases, 24% of the American cases, 25% of the English cases, and 38% of the Irish cases, the principal cause of distress was intemperance; in only 3½% of the Italian cases was intemperance the cause. American city life is having a bad effect upon them. The sudden change of diet is responsible for an increase of certain diseases. The change from the stone cottage in the open fields to the dark and unventilated tenement of Mulberry and Mott streets has resulted in an alarming spread of tuberculosis. Dr. Stella, in his practice in New York, has known as many as 25 cases of pulmonary tuberculosis in one year in a single tenement house. The danger is sufficiently shown in

the fact that the mortality is greater among the second than the first generation. Dr. Stella says that in New York in the mortality from pulmonary tuberculosis among the different nationalities between the ages of 15 and 45, the Italians occupy only the tenth place in the list, losing but 149.9 per 10,000 population, as against 548.4 and 428.0 lost, respectively, by the negroes and the Irish, who lead the way. On the contrary, Italians come second in the table where the mortality is considered below the fifteenth year of life (children generally being allowed to die here); and the same high percentage would certainly be found for the adult generation, were the statistics arranged not according to the deathrate, but according to the infection-rate, which is simply appalling.

Comparative Per Capita Expenditure for Health Purposes of American Cities.—In his 1904 annual message the Mayor of Chicago thus epitomizes the health expenditures of different American cities for the year 1900:

Cities.	Deathrate per 1,000 of population.	Per capita expenditure for health purposes.
Chicago.....	16.2	\$0.10
Cleveland.....	17.1	.16
St. Louis.....	17.9	.22
Buffalo.....	18.4	.14
Cincinnati.....	19.1	.12
Pittsburg.....	20.1	.25
San Francisco.....	20.5	.64
Baltimore.....	21.0	.15
Philadelphia.....	21.2	.23
Boston.....	23.4	.30
New York.....	25.4	.30

These figures show Chicago's deathrate to be 20% lower than the average of the other 10 cities, 23% lower than that of Baltimore, 24% lower than Philadelphia, 32% lower than Boston, and 36% lower than New York. They show its per capita expenditure for health purposes to be 58% lower than the average, and 66.6% lower than that of Boston and New York. These results are traced to supervision of the milk-supply, to measures restricting the prevalence of infectious diseases, to the antitoxin treatment of diphtheria, to daily examinations and warnings as to the water-supply, etc.

In 1894 the city paid the penalty of previous years of neglected vaccination through an epidemic of smallpox, which cost 1,190 lives and an enormous loss in money. The practice of vaccination has been completely modernized and persistently pushed. At the close of last year there had been but 61 deaths from smallpox since 1895. In October, 1895, the department promoted the antitoxin treatment of diphtheria and assumed its treatment among the poor and destitute. In that year the deaths from this disease amounted to 11.66 per 10,000 of population. Last year they were only 3.44 per 10,000—a decrease of 70%. During the three years previous to the first appointment of the present Commissioner there were 4,494 deaths from typhoid fever—an average annual rate of 12.86 per 10,000 of population. During the last three years, 1901-1903, there were only 1,898 such deaths—an average annual rate of 3.46 per 10,000, and a decrease of nearly three-fourths (73.1%) in the typhoid mortality.

The Prevention of Ankylostomiasis.—One of the most thorough and generally valuable contributions to the subject of ankylostomiasis is that of Boycott and

Haldane,¹ who present a general discussion of the disease from the point of view of its prevention, particularly in mines. As the prevention of the spread of the disease depends largely upon the knowledge of the life-history of the parasite, that point is first considered by the writers. They find the longevity of adult worms to be such that individuals who in the past have been in contact with infected places, can be proved free from infection only by the absence of eggs in their stools. As to the resistance of larval worms, it has been quite conclusively shown that they are susceptible to the action of reagents, particularly corrosive sublimate, to such a degree as to encourage the practical use of disinfectants; this is true even of the "encapsuled" larva, which appears to be the infective stage of the ankylostoma. In considering the paths of infection, the writers call attention to a phase of the question not hitherto generally known, namely, the importance of infection through the skin. In a previous paper they gave an account of the very troublesome skin eruptions associated with cases of ankylostomiasis among the miners at Dolcoath mine, in Cornwall. Inquiry has failed to show that such eruptions were specially associated with cases of the disease among workers in other mines in England, and personal experiments, in which cultures of larvas were bandaged on the arm for as long as twelve hours, have repeatedly yielded negative results. Notwithstanding these facts, the association of the skin disease known in Assam as "water-itch" or "ground-itch" with the prevalence of ankylostomiasis, and the experiments of Looss on puppies and on man, in addition to the Cornwall cases, seem to the authors to render it all but certain that infection with ankylostomas may occur quite readily through the skin. If this is true, precautions against infection through the mouth will not effectually prevent the disease among ground workers, although there seems to be no doubt that this is the chief path of infection in man. Among the means of actually preventing the disease in mines, the following are mentioned: The drinking of clear water, the adoption of cleanly habits in eating, the rigid exclusion of all persons whose feces contain ova, prevention of fecal pollution of mines. Many of these prohibitions mean considerable expense to mine owners, but when contrasted with the loss from the presence of the disease, the monetary significance of medical supervision, etc., necessary to enforce them becomes markedly lessened.

Leprosy; Mr. Hutchinson's "Fish Hypothesis."

—The "fish hypothesis" of the origin of leprosy is still being advocated by Mr. Jonathan Hutchinson, of London, with zeal. All the world knows that Mr. Hutchinson's hypothesis is that the cause of leprosy in man is a (ill-conditioned) fish diet. Accordingly, this malady is not transmissible by the methods of contagion, and segregation means unnecessary and useless expenditure of pains and trouble. One must see at a glance that in order to establish this hypothesis it is necessary to prove that every subject of leprosy has partaken of such diet, and that every person who never partakes of the same remains always free from the disease. Before the fish

hypothesis of the origin of leprosy is admitted, it must be proved that every leper has been a partaker of such fish diet. And it must be proved that nonlepers have been—at least—less addicted to its use than the victims of the disease. From both these aspects the foundation of Mr. Hutchinson's hypothesis still remains in an unsatisfactory condition. It is well known that in numerous tribes of Kashmere and of Southern Africa, leprosy is of frequent occurrence, although the touch—far more the taste—of fish is treated as a religious sacrilege, punishable with tribal excommunication. Still Mr. Hutchinson, by the most laborious investigation, thinks that he has gathered evidence sufficient to prove the possibility of the affected individuals of these localities having at some date ingested some smuggled preparation of ill-cooked or ill-preserved fish. Such evidence, of course, involves no sort of explanation of the infinitely greater susceptibility of the members of the tribes in question. With regard to Europe, he explains the greater frequency of leprosy in some countries by their adhesion to the older form of the Christian faith; and the definite proportion of fish dietary to which its inhabitants adhere, in conformity with their religious regime. Accordingly, the disappearance of leprosy from England and Scotland is readily explained; as a consequence of their adoption of the reformed faith and its dietic methods. But—according to the metaphoric derivation of *lucus a non lucendo*—the omission of a reference to Ireland in this connection is somewhat suggestive of a Hibernicism. The great body of the Irish peasantry has always remained *unreformed*; and along the coast line, especially in the South and West, the poorest of the inhabitants partakes largely of a fish diet all the year round. In some of those parts fuel is so scarce that the cooking is often done by the help of dried twigs and leaves, and cow dung. It is hardly necessary to add that the cooking often hardly deserves the name, while the hygiene of such districts is of the most primitive description, and admits the consumption of the fish in almost every conceivable condition. Yet the occurrence of a case of leprosy is never heard of, far less seen.

Capitalizing Mystery.—The charm of the mysterious is inexhaustible, as the South Sea Bubble and all of Mrs. Eddy's children have exemplified. With the inevitable logic of a commercial world, we shall perhaps soon have million dollar syndicates for securing the miraculous vibrations of health, success, and happiness straight and fresh from the creator, purity and genuineness guaranteed, together with 25% dividends, payable quarterly at the company's office, located anywhere and everywhere. A noteworthy indication of the trend is shown by a bulky periodical, "The New York Magazine of Mysteries." No. 3 of Volume VI is now lying before us. It is "a magazine of health, happiness, and prosperity." It deals in palmistry, prophecy, dreams, psychometry, new civilizations, wisdom, metaphysics, etc., but its greatest things for sale are prayer, healing vibrations, religiosity, and success. The Mystic Healing Circle costs patients \$1.00 a month, and the testimonials are delightful in writing of the miracles

¹ Journal of Hygiene, January, 1904.

performed by "Mystic Adept No. 12" in their bodies through his healing vibrations, which cure tuberculosis, estrangement, bowel troubles, insomnia, out-of-work, weakness, sickness, melancholy, and all the rest. It is entered as second-class matter at the New York Post-office. The advertisements offer cures of spinal curvature, deafness, stammering, rheumatism, biliousness, kidneys, heart, neuralgia, cascades, etc. Sexology is, of course, to be had, hair-growers, and hair-removers, and hair-stainers, diamonds on credit, spectacles at wholesale, astrology, and gold watches free.

An Oculist's Division of the Spoils.—The following letter is being received by the citizens of Philadelphia, and deserves the serious attention of the profession:

In the early part of September last, I outlined a plan of mutual advantage on a 20% basis to you for all eye work sent me, together with the prescription work. That the plan has proved a signal success is attested by the 17 opticians who have so far responded.

In the four months in which the system has been in operation I have distributed commissions to the amount of \$198, averaging over \$2.50 to each patient sent me, and at the same time have kept my fee for services under an average of \$10 per case. One optician alone received \$42 in commissions in nine weeks, together with 14 prescriptions for glasses, from which he made a nice profit. He acknowledges that the work has proved entirely satisfactory and that he would not have made half this amount had he refracted the patients himself or sent them elsewhere.

My practice is limited to eye, ear, nose, and throat work. I have had large experience as resident surgeon and assistant in the leading hospitals of this city, and my offices are fully equipped to do the work right.

I ask you to use my card with your endorsement when an opportunity for recommending a specialist arises, and for which

1. You receive 20% commission for all cases sent me.
2. You receive the commission and prescription for glasses promptly by mail.
3. You receive both from any case coming to me through a patient, sent by you. Further, I direct patients from my personal following to opticians, who cooperate with me, and which will average more than an equal exchange, and for which I ask nothing.

My fees are extremely low, and for the really poor, nominal only. I am reaching out for more business, and I have the ability and facility to care for it satisfactorily. Will you join me? Thanking you for your attention, and wishing you a happy and prosperous New Year, etc.,

I am, very truly yours,

The letter of this physician for revenue is here reproduced to call the attention to a hundred schemes to fleece the patient suffering from eyestrain. There is no part of medical practice so abused as that of the specialist in diseases of the eye. The profession seems to have made up its mind that nonprofessionalism as to the eye does not count. The druggist may not prescribe for typhoid fever or stomach-ache, but spectacle peddlers fill the land, and a host of quack colleges, schools, and institutions manufacture "ophthalmotricians," and every sort of "eye-doctors" that may be imagined, and as many that cannot. There is a big penalty to pay for this professional neglect to protect the community from the malpractice of ignorance and greed.

BOOK REVIEWS

The International Medical Annual.—A Year Book of Treatment and Practitioner's Index. Twenty-second year. 1904. New York: E. B. Treat & Co. Price \$3.

An extended review of this wellknown publication is unnecessary. The present number is fully up to the former standard, which is that of one of the best summaries of current medical and surgical literature. With but two exceptions, the contributors are English physicians; all are men of eminence in the profession. The volume contains 742 pages of text; to this is added a list of the principal medical books published during 1903. Illustrations include 34 plates and 38 diagrams. A new departure is the introduction of stereoscopic views, illustrating the anatomy of the ear. All articles have been thoroughly condensed, which allows of a very large number of really valuable references.

Immune Serums.—By PROFESSOR A. WASSERMANN, M.D. Authorized translation by CHARLES BOLDUAN, M.D. New York: John Wiley & Sons. 1904.

This little monograph of 77 pages supplies a distinct need for concise and definite information regarding a subject that is at present of paramount importance in experimental medicine. Under the three titles of Hemolysins, Cytotoxins, and Precipitins is given the gist of modern ideas concerning immunity, special attention being paid to Ehrlich's side-chain theory. This necessarily complicated subject is set forth so simply and intelligently that its principles, all that can be given in a work of such size, may readily be grasped by any careful reader. Every physician ought to read this book, and it should prove invaluable to students of medicine.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences.—Edited by HOBART AMORY HARE, M.D., assisted by H. R. M. LANDIS, M.D. Vol. vi, No. 1, March, 1904. Lea Brothers & Co., Philadelphia and New York.

This volume comprises a critical digest of recent literature on the surgery of the head, neck, and thorax, by Dr. Charles H. Frazier; on the infectious diseases, including acute rheumatism, croupous pneumonia, and influenza, by Dr. Robert B. Preble; on the diseases of children, by Dr. Floyd M. Crandall; on laryngology and rhinology, by Dr. Charles P. Grayson; and on otology, by Dr. Robert L. Randolph. The recent literature on each of these branches of medicine is very well covered, there is an excellent assortment of the wheat from the chaff; and in its new dress the volume sustains the reputation attained by its more dressed-up predecessors.

Medical Epitome Series: Pediatrics.—By HENRY ENOS TULEY, A.B., M.D. Lea Brothers & Co., Philadelphia and New York.

This number of the series edited by Pedersen is a very successful condensation of accepted knowledge regarding pediatrics. Unusual ability to state things concisely is shown by the distinguished author, hence the book is exactly what it purports to be and contains a very great amount of information in small compass. We think, however, that the true nature of the book would be better indicated if the subtitle was changed from a "A Manual for Students and Practitioners" to "A Manual for Students." For those who from inclination or necessity wish rapidly to review the essentials of the subject the book will prove very valuable; we cannot believe that the practising physician will often refer to it in preference to larger treatises.

Physiology and Pathology of the Urine, with Methods for its Examination.—By J. DIXON MANN, M.D., F.R.C.P. Charles Griffith & Co., London; J. B. Lippincott Company, Philadelphia, 1904.

The author intends this volume to serve as a clinical guide in the diagnosis and treatment of disease. He describes the constituents of the urine, its physical properties, its chemical reactions and the methods to be followed in its examination. While strictly clinical methods are allotted the chief place, many processes are described that are best carried out in the

laboratory of pathologic chemistry. The first 234 pages of the book deal with the urine and its examination; the remaining 32 pages are devoted to a discussion of the urine in its pathologic relations or its characters in various diseases. References to many of the original articles mentioned are furnished. The book is well written and is up to date. It can be recommended as a very convenient guide to urine examination.

Manual of Clinical Microscopy and Chemistry.—By Dr. HERMANN LENHARTZ. Authorized translation from the fourth and last German edition, with notes and additions by Henry T. Brooks, M.D.

Lenhartz has succeeded very well in his attempt to furnish students and physicians a book that will not only instruct them in microscopic and chemie methods of examination, but also aid them in interpreting the diagnostic significance of their results. The accomplishment of this difficult task forms the chief recommendation of this work among the many laboratory guides now offered to the profession. The emphasis placed upon diagnostic features has led to the necessary abridgment of certain parts of the technical side of the book. The translator has very happily supplied this want where it existed by inserting descriptive notes of instruments and technic that are so essential to the untrained or partially trained investigator. The book thus rounded out is a very complete one, and can be unhesitatingly recommended to physicians. The contents of the 395 pages are grouped in six divisions: 1. Vegetable and Animal Parasites. 2. The Blood. 3. The Sputum. 4. Secretions of the Mouth and the Gastric and Intestinal Contents. 5. The Urine. 6. Aspirated fluids.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

International Clinics. Vol. I, Fourteenth Series, 1904: A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otolaryngology, Rhinology, Laryngology, Hygiene, and other topics of interest to students and practitioners by leading members of the medical profession throughout the world.—Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, U. S. A. With the collaboration of William Osler, M.D.; John H. Musser, M.D.; James Stewart, M.D.; J. B. Murphy, M.D.; A. McPhedran, M.D.; Thomas M. Rotch, M.D.; John G. Clark, M.D.; James J. Walsh, M.D.; J. W. Balantyne, M.D.; John Harold, M.D.; Edmund Landolt, M.D.; Richard Kretz, M.D. J. B. Lippincott Company, Philadelphia, 1904.

The Therapeutics of Mineral Springs and Climates.—By I. BURNEY YEO, M.D., F.R.C.P., Emeritus Professor of Medicine in King's College, London; Consulting Physician to King's College Hospital; Honorary Fellow of King's College; formerly Professor of Principles and Practice of Medicine and of Clinical Therapeutics in King's College, and Examiner in Medicine at the Royal College of Physicians. W. T. Keener & Co., Chicago, 1904. Price, \$3.50 net.

Digest of Researches.—By Laboratory Workers of the Smith, Kline & French Company of Philadelphia, 1904. Volume I, comprising abstracts of papers published from 1898-1904.

A Manual of Fever Nursing.—By REYNOLD WEBB WILCOX, M.A., M.D., LL.D., Professor of Medicine in the New York Postgraduate Medical School and Hospital; Consulting Physician to the Nassau Hospital; Visiting Physician to St. Mark's Hospital; Fellow of the American Academy of Medicine; Member of the American Therapeutic Society, etc. Illustrated. P. Blakiston's Son & Co., Philadelphia, 1904.

Lea's Series of Medical Epitomes. Epitome of Pediatrics: A Manual for Students and Practitioners.—By HENRY ENOS TULEY, A.B., M.D., Professor of Obstetrics in the Medical Department of Kentucky University, Louisville, Ky. In one volume of 266 pages, with 33 engravings. Cloth, \$1.00 net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1903.

The Practical Medicine Series of Year Books.—Comprising 10 volumes on the year's progress in medicine and surgery. Issued monthly under the general editorial charge of GUSTAVUS P. HEAD, M.D., Professor of Laryngology and Rhinology, Chicago Postgraduate Medical School. Vol. III. The Eye, Ear, Nose and Throat. Edited by CASEY A. WOOD, C.M., M.D. D.C.L.; ALBERT H. ANDREWS, M.D.; GUSTAVUS P. HEAD, M.D. December, 1903. The Year Book Publishers, Chicago.

Physiology and Pathology of the Urine: With Methods for its Examination.—By J. DIXON MANN, M.D., F.R.C.P., Physician to the Salford Royal Hospital; Professor of Forensic Medicine in the Victoria University of Manchester. With illustrations. J. B. Lippincott Company, Philadelphia, 1904. Price, \$3.00.

A Textbook of Physiology.—By ISAAC OTT, A.M., M.D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia. With 137 illustrations. Royal octavo, 568 pages. Bound in extra cloth. Price, \$3.00 net. F. A. Davis Company, Philadelphia, Pa.

Röntgen Ray Diagnosis and Therapy.—By CARL BECK, M.D., Professor of Surgery in the New York Postgraduate Medical School and Hospital; Visiting Surgeon to St. Mark's Hospital and the German Poliklinik. With 222 illustrations in the text. D. Appleton & Co., New York and London, 1904.

AMERICAN NEWS AND NOTES

GENERAL.

The American Medical Temperance Association.—The thirteenth annual meeting will be held in the parlors of the Hotel Dennis, at Atlantic City, June 8 and 9, 1904, at 9 a.m. The object of this Association is to encourage and promote the clinical, therapeutic, pharmacologic and chemie study of alcohol in health and disease. It also aims to gather, compile, and make available the studies and experiences of medical men in all parts of the country, concerning the use of alcohol, and to formulate such definite facts as can be utilized and made available in the practice of medicine. For particulars address T. D. Crothers, Secretary, Hartford, Conn.

Miscellaneous.—Maine: The Maine Medical Association will hold its fifty-second annual meeting in Portland, Maine, June 1, 2 and 3, 1904. Dr. Frederick C. Shattuck will deliver the annual oration, his subject being "The Anomalies of Thyroid Secretion, General." **New Organization to be Formed to Combat Tuberculosis:** A number of wellknown physicians in the United States, among whom are Drs. Trudeau, Biggs, Flick, Sternberg, Osler, Welch and Jacobs, and others, will convene at the public school building in Atlantic City, June 6, at 8 p.m., for the purpose of organizing the National Association for the Study and Prevention of Tuberculosis. **New York:** The Manhattan Eye, Ear and Throat Hospital is the recipient from Edward R. Thomas of \$40,000. The amount is given as a memorial to General Samuel Thomas, father of the donor. This secures conditional gifts of \$125,000, and makes possible the erection of a new hospital. **The American Surgical Association** will hold its annual meeting in St. Louis, June 14 to 17, 1904.

Liable for Appendicitis.—An interesting point of law was determined by the full bench of the Supreme Court recently when it held that the Boston Elevated Railway Company was liable for an attack of appendicitis which James J. Sullivan suffered two years and three months after an injury he sustained by reason of the negligence of the road. The company had strenuously urged that the attack of appendicitis was too remote and that the accident was not the proximate cause of it. It contended, further, that damages by reason of that contention could not be recovered against the road. The accident happened August 8, 1900, in Main street, Charlestown, as a result of a car running into a brewery wagon which Sullivan was driving. With Sullivan was John J. Knox, who also was injured. Sullivan had been in good health up to the time of the accident, and was operated on for appendicitis in November, 1902. The operating surgeon testified that the accident was a sufficient cause for the appendicitis. Sullivan received a verdict of \$4,000, but subsequently agreed to abate \$1,000 from it. Knox was awarded \$2,250.

Poison in Canned Foods.—News from Washington states that a series of experiments have been carried out by Dr. Wylie since January last, have demonstrated that certain poisons are found in canned goods. Experiments were carried out by a number of persons who volunteered their services for the purpose, being fed on the canned foods. Some of the so-called poison squad, of a dozen men, have suffered in the course of the experiments. The ill-effects of eating drugs used in preserving articles of food are said to be visible on all members of the squad, and one or two of them are on the verge of breaking down. Two of the young men are from Georgetown University. One is from the Columbian. The others are employees of the chemie laboratory of the Department of Agriculture. The experiment was made to ascertain exactly what are the effects on the human system of preservatives used by food packers, both domestic and foreign. The results show the preservatives are injurious to the digestive tract. The experiment tends to explain away many poison mysteries following the eating, by people in various parts of the country, of canned goods and preserved foods generally.

Pneumonia vs. Tuberculosis in Chicago and New York.—The Bulletin of Chicago's Health Department for the week ended May 7, says: The excessive mortality that has obtained from the two specified diseases since the first of last November still keeps up, and all previous records, both in this city and in New York, have been far distanced this season. At the close of office hours on Saturday, May 7, the reported deaths from all causes, from tuberculosis and from pneumonia in each city, since November 1, 1903, were as follows:

	New York	Chicago
Total deaths, all causes	42,249	15,829
Deaths from tuberculosis	4,706	1,686
Deaths from pneumonia	9,119	3,448
Proportion percent of all deaths:		
From tuberculosis	11.1	10.6
From pneumonia	21.5	22.4

These figures show that, while New York has had a 4.7% excess of tuberculosis mortality as compared with Chicago, the latter city has had a 4.2% excess of pneumonia mortality.

The War on Mosquitos.—An exchange calls attention to the war which is being waged this spring in various parts of the country and states that: The chief center of operations is New Jersey, where plans are already on foot for an antimosquito crusade. Ponds where the insects breed will be drained and filled up, and the mosquito will be attacked in the larva stage. Suggestive communications were recently sent by New Jersey's State entomologist to Long Branch and to Cape May relative to the work of extermination of these infested points. At Long Branch the mosquito-breeding areas have been located and about 7,300 feet of ditching will be constructed. It is said that the whole of Cape May's mosquito supply is bred within its own haunts, which will be drained at once. When it is understood that a mosquito can reproduce itself nearly 400 times a week under favorable conditions and that the progeny of one mosquito will number over 60,000,000 in a season, the immensity of the task of extermination is apprehended. It is apropos to note that the proposition to form a national antimosquito organization is under consideration. It is proposed through a national society to distribute literature dealing with the subject, describing the breeding places of the mosquito and the easiest way of doing away with them.

The Red Cross in the United States.—Clara Barton's recent resignation from the head of the Red Cross Society in the United States paves the way for a complete reorganization of the society. The parent organization, it appears, was not in complete harmony with various too loosely affiliated local organizations in the several States. These latter held themselves not responsible to, nor subject to the central organization in Washington; this, together with the lax business methods on the part of the central organization, form the basis for contentions, investigations, and dissensions. The latter reached such a crisis that Clara Barton, for many years the head of the central organization has resigned, and it now remains for a complete reorganization to effect a unification of the parent society and the affiliated societies into one complete whole, whose central head and supreme authority will probably be vested in the head of the central organization in Washington, D. C. Only in some such manner can the Red Cross in the United States hope to equal in effectiveness and utility the Red Cross organization in the more progressive and enlightened European countries.

The Etiology of Scarlet Fever.—Dr. Mallory, of Boston, claims to have discovered a protozoon which is the cause of scarlet fever. Concerning this discovery, Dr. Mallory is credited with the following quotation: "These protozoon bodies which I have found resemble the well-recognized protozoa or microorganisms which are the cause of malaria. They are, however, about a third larger. The bodies are of two types. One is a granular form which varies in size from one to seven or eight microns in diameter, a blood-corpuscle being seven microns in diameter. The other type of body is radiate in structure and resembles the segmenting forms of rosetts found in malaria. These rosetts break up and each segment forms a small granular body. In other words, we have a cycle of development corresponding to that of the malarial organisms. It is not possible at the present time to prove that these bodies in scarlet fever are live organisms and that they are the cause of the disease, but from their morphology, the development cycle which can be traced in them and their staining reaction, it seems possible that they may be. In four cases during the stage of the eruption, three times in the skin and once in the tongue. They are found both in the protoplasm of epithelial cells and also in the superficial lymphatics of the skin. They bear no resemblance whatever to the bodies found in cases of smallpox and vaccinia, the disease which comes from vaccination. In the six other cases under study the protozoa were not found, but only small bits of skin were available in those instances for study. In their morphology and in their staining reaction they do not resemble in any way leukocytes or degenerating cells. It is a subject of difficult pathologic research because fresh material cannot be easily obtained from living cases of scarlet fever, and there is no way in which the parts of the body over which the protozoa may be distributed can be ascertained."

NEW YORK.

Fewer Cases of Pneumonia in New York.—For the first time since January 1, officials of the Health Department have been able to report a let up in new cases of pneumonia. There have been in greater New York more than 200 deaths each week in this year—double the average of the preceding year—the greatest number reported being 311 for the week ended March 5. A campaign of education will at once be put under way in the hope of preventing a recurrence of the scourge.

Reception Hospital for the Insane.—It is announced that Governor Odell has approved a bill authorizing the city of New York to acquire a site for the establishment thereon of a reception hospital for the insane, and authorizing the State Commission in Lunacy to erect such a building. The need of such a hospital has long been urged. New York has no such reception pavilion. Advocates of the bill have pointed out that the difference between a speedy recovery and permanent mental derangement can oftentimes be laid to the first place of detention to which an insane person is taken.

To Fight Spotted Fever.—That there is an epidemic of cerebrospinal meningitis among children of the city is shown by the daily reports of hospitals, dispensaries and clinics of Manhattan and the Bronx, and that the mortality is considerable is evidenced by weekly statistics of the Health Department. That the epidemic is the greatest the city has ever known in this disease or that the mortality from it has broken records is not denied by the authorities as well as by physicians, both in private practice and public work. Territorially every part of the city may be said to be affected at this time. Cerebrospinal meningitis is at present a baffling disease to physicians generally, because its symptoms are so irregular that no definite diagnosis can be laid down, and a course of treatment which may be effective in one case may have the opposite result in another. But that the profession is learning fast how to conquer the malady there is no reason to doubt.

Vaccination Frauds.—Health Department officials have discovered a system of swindling for small amounts ignorant people of the East Side, by the sale of bogus certificates of vaccination. Many of the certificates, it is said, have been issued by dispensaries, and evidence has been secured to the effect that some physicians have been peddling the certificates at 10 cents each. Dr. Darlington, the Health Commissioner, said that he wished not only to warn purchasers of the certificates that the documents would not be received at the public schools, but that he wished to advise people that they were throwing away any money by the purchase of certificates which have been and are issued free by the Health Department. Certificates given by reputable physicians to the effect that examinations of scars have been made and found satisfactory are accepted without question, but none of these contains a "guarantee." The sale of the certificates has been extensive, the buyers believing that possession will permit children to attend school without any other formality. All certificates are issued gratis by the Health Department for all children submitting to examination of scars or to new vaccination.

Loomis Sanatorium for the Tuberculous.—The seventh annual report of the superintendent of the Loomis Sanatorium for the tuberculous, situated at Liberty, Sullivan county, New York, has lately been issued. This report states that the treatment remains practically the same as that which has been in vogue for several years, no "specific treatment" being employed. The clinical work has been along the lines of exhaustive studies of the blood of patients suffering with tuberculosis, chemic and microscopic investigation of the stomach contents of such patients as presented digestive disturbances, and more thorough and exhaustive study of the excretions, both physiologic and pathologic. To summarize briefly the most important results of the year's work then, of the 119 patients, in all stages of the disease, discharged from the main sanatorium during the year, whose term of residence was a month or more, there were apparently cured 23, or over 19.3%, and with disease arrested 24, or over 20%. Thus a total of 47 patients, or over 39%, were enabled to return to their homes and resume in part, or whole, their several occupations. In the annex, of the 58 patients reported upon, 9, or 15.5%, were discharged apparently cured, while 16, or 27.5%, were discharged with disease arrested. In other words, 25, or 43%, were enabled to return to their homes and occupations.

PHILADELPHIA, PENNSYLVANIA, ETC.

Resident Physicians Elected.—At the regular meeting of the Board of Trustees of the Polyclinic Hospital, held May 19, the following were elected resident physicians to fill the vacancies occurring in the resident staff during the coming year: James K. Hall, John Decker Butzner, Edward D. Lovejoy, George Eaton Adams, and John Read.

To Combat Tuberculosis.—The White League, an association for the treatment of tuberculosis, applied for a charter recently to Common Pleas Court. The object of the league is to treat the disease by modern scientific methods, including open-air camps and hospitals. It proposes to provide for the suitable employment and maintenance of those suffering from the disease.

Faculty Reorganization, University of Pennsylvania.—A plan for the reorganization of the faculty has just been approved by the Board of Trustees, whereby the faculty membership has been extended to the clinical, associated and assistant professors, to the associates and lecturers and to limited representation from the subordinate staff. The scheme provides for an executive body or council, to be composed of the heads of the departments in the fundamental subjects and two representatives of the specialties. The plan will be put into effect September 1, 1904.

Vaccination against Tuberculosis.—At a meeting of the State Live Stock Sanitary Board, at Harrisburg, a report was made on the general progress of the work for the past year. An investigation which is being conducted in relation to the protection of cattle against tuberculosis by vaccination, shows that

vaccinated cattle exposed for a year to daily contact with tuberculous animals remained free from disease, while unvaccinated cattle exposed in the same way, become extensively affected. In connection with these experiments, calves of tuberculous cows are being vaccinated and are then left with their diseased mothers and are allowed to use their milk, with the view of discovering whether vaccination will be effective under such conditions. Unvaccinated calves raised in this way, it was reported, almost invariably contract disease.

Rule for Requirements in Physical Examination of Teachers Defeated.—The proposed rule requiring all candidates for certificates of qualification to teach in the public schools to pass a physical examination was defeated in the Board of Education recently by one vote. The rule is suggested to be applied to prospective students in the Normal School and the School of Pedagogy at the time of applying for admittance. As amended, it provides that candidates shall answer the following questions: "Have you had any severe illness within the last year? If so, what was it? How much time have you lost from your studies, attendance at school, or vocation, through illness in the last two years? Have you any disease of the throat, eye or ear? Have you been successfully vaccinated within three years? What is your age?" It provides also that a certificate shall be signed by a physician in the following form: Name and address of applicant examined. Has the applicant pulmonary tuberculosis? Has the applicant any contagious disease of the skin or mucous membrane? Has the applicant any defect in hearing? If so, describe its extent. Has the applicant any irremediable defect in vision? Has the applicant any defect or disease which will disqualify him or her from performing regularly the duties of a teacher? It is expected that the matter will be again taken up in June.

Convicted for Illegal Practice of Medicine.—A correspondent sends us the following interesting item: "E. E. Leifer, alias Doctor Leifer, came to Chambersburg, Pa., in March, and commenced treating (?) diseases, using a small electric battery and some sort of decoction for medicine. A warrant was sworn out against him for obtaining money upon false pretenses. He was arrested as he was making an effort to leave the county. The count upon which he was arrested failed at the hearing before a justice. He was at once rearrested for practising medicine illegally, and practising as an itinerant. For this he was held for court. At the April term of court he was tried and convicted. The prosecution was brought by the District Attorney and by the Attorney of the Medical Society of Franklin county. Judge Stewart, in charging the jury, said that the law was designed to protect the health of the people of the Commonwealth, and not to protect the physicians as a body of men. May 1, Leifer was sentenced. The sentence imposed was very mild, as he had a wife and child in dependent circumstances. He was directed to pay the costs and to quit the county. In sentencing Leifer, Judge Stewart told him just why the sentence was light and intimated that he had better not attempt to practise again in Franklin county. He told the man that he was an impostor and not a physician, and could not cure people as he pretended to do."

WESTERN STATES.

Pneumonia and Tuberculosis.—The Bulletin of Chicago's Health Department for the week ended May 14, says: "What was styled, in one of last October's Bulletins, the 'murderous' pneumonia season is drawing to a close, but still has a tale of deaths double those of pulmonary tuberculosis, or consumption. Since the beginning of the current season, November 1, 1903, there have been reported 3,565 deaths from pneumonia and 1,696 from consumption in this city. In the city of New York, during the same period, the figures are 9,460 and 4,878 respectively. These two diseases, pneumonia and consumption, are responsible for one-third the total deaths from all causes in the two cities within the last six months and of the two, pneumonia has been twice as destructive of human life as consumption."

FOREIGN NEWS AND NOTES

GENERAL.

Would Require Hospital Training for Unmarried Girls.—A Zurich woman doctor is advocating a scheme under which all unmarried girls of the well-to-do classes are to be compelled by the State to devote one year to unpaid hospital work. She claims that not only would the hospitals benefit, but the girls would gain a training which would be of great value to them after marriage.

Doctors Poorly Paid.—Correspondence just printed in the newspapers call attention to the smallness of the salaries paid to house physicians in London hospitals. Out of 20 examples selected, the average salary is about £870 a year, in addition to board and lodging. At St. Bartholomew's Hospital, one of the largest in London, not only is no salary paid, but the

hospital doctors have to pay their own living expenses. The result in all cases is the selection of physicians according to the money they have and not through fitness, as only men possessing private resources are able to take hospital posts. There are many instances where excellent men have thus been excluded from appointments which are filled by less skilled young doctors who happen to be wealthier.

Blue Light in the Treatment of Neuralgia.—From a statement in the London *Daily Graphic*, it appears that the blue-glass cure is used in Italy for neuralgia. The apparatus used consists of a bell-shaped reflector, large enough to converge all the light from a lamp of 30-candle power, covered with blue glass. The patient sits about a foot from the lamp, and the light is directed over the neuralgic area. The doctor who uses this appliance is satisfied from the results obtained that the blue rays have marked anesthetic and pain-soothing properties on all types of neuralgia, not only giving relief when superficial structures are affected, but penetrating to the deeper tissue and even the abdominal organs. The action, he considers, is due to changes in the circulation, as well as a specific action in the blue light. Unlike the röntgen and ultraviolet rays, simple blue electric light is not possessed of any dangerous properties, so that the new treatment is one which might safely be tried by any sufferer from one of the most distressing "ills that flesh is heir to."

Sanitation and the Canal.—Colonel W. C. Gorgas and Major L. A. LaGarde of the medical department, and Medical Director J. W. Ross of the navy are hard at work on their plans for the redemption of Panama. Their visit to the isthmus disclosed the fact that those experts will have the biggest job of its kind which the profession has ever been called upon to consider. Practically nothing was ever done in Panama in the way of sanitation, and the indifference of the people who have been there, and who are there now, to the ordinary comforts of life as we know them is nothing short of appalling. The "palaces" where members of the commission stayed during their visit to the isthmus were barren of the conveniences of civilization and they found only one bath-tub in a country where such a feature was more a necessity, one would think, than a luxury. It will be necessary to furnish a water-supply for the cities of Panama and Colon, as well as along the line of the canal, where now water is delivered in barrels, each a receptacle for the breeding of millions of disease bearing mosquitos. Then, there will have to be a sewerage system at both towns, and Colon, to meet the sanitary demands in that locality, will have to be raised four feet. There will have to be hospital accommodations provided for 30,000 people and the establishment of strict rules for the government of the people, native and foreign, who live within the zone of canal administration. The army and navy surgeons are enthusiastic over their work, mainly because it is such a gigantic task and presents to them a field practically virgin. They have a professional curiosity in comparing the vital statistics of old conditions on the isthmus with those which will prevail under the new order of things.—[*Army and Navy Register*.]

OBITUARIES.

Julius A. Freeman, was killed in a runaway accident near his home in Millington, Ill., May 8, aged 76; a graduate of the American Medical College, Cincinnati, in 1850; member of the American Medical Association; ex-president of the North Central Illinois Medical Association; surgeon in the Federal army during the Civil war.

Joseph D. Titcomb, from pneumonia, at his home near Duluth, May 6, aged 45; a graduate of the Medical School of Maine, at Bowdoin College, Brunswick, in 1881; member of the American Medical Association and various State and county Associations. He was one of the most prominent ophthalmologists of the Northwest.

C. S. Priestley, from pneumonia, at his home in Des Moines, May 13; a graduate of the University of Pennsylvania in 1894; member of the American Medical Association, Iowa State Medical Society, and various local societies; professor of dermatology in the Drake University Medical College, Des Moines.

Truman B. Ellis, at his home in Bethany, Harrison county, Mo., April 28, aged 48; a graduate of the State University of Iowa, College of Medicine in 1881; member of the American Medical Association and various local organizations.

Andrew J. Leitch, from paralysis, at his home in Niles, Ohio, May 6, aged 56; a graduate of the Medical Department of Western Reserve University, Cleveland, in 1871. He retired from practice in 1898.

John E. Miller, at his home in Darbyville, Ohio, May 8, aged 43; a graduate of the Starling Medical College, Columbus, Ohio, in 1889; one time member of the Ohio State Legislature.

A. J. Campbell, at his home in Knoxville, May 4, aged 74. A surgeon in the Confederate army during the Civil war and for more than fifty years a practitioner of medicine.

Henry A. Wise, of Williamsburg, at St. Luke's Hospital, Richmond, Va., May 5, aged 80; a graduate of University College of Medicine, Richmond, Va., in 1896.

Henry Levy, at his home in Perth Amboy, N. J., May 5, aged 47; a graduate of the New York University in 1878; member of the American Medical Association.

Jacob C. Lee, shot and killed himself, at his home in Lees Summit, Mo., May 8, aged 46; a graduate of Hospital College of Maryland, Louisville, in 1877.

J. M. Woodward, at his home in Montmorenci, S. C., April 30, aged 55; a graduate of the Medical College of the State of South Carolina in 1878.

Martin L. Shanks, from Bright's disease, at his home in Casselton, N. D., May 5, aged 55; a graduate of Columbus (Ohio) Medical College in 1882.

Josephus Jordan, at his home in Zanesville, Ohio, May 2, aged 81; a graduate of the medical department of the University of Cincinnati in 1848.

John W. Brown, of Reading, Pa., at the Pennsylvania State Hospital, May 1, aged 69; a graduate of the University of Pennsylvania in 1870.

Leroy M. Nifong, from heart disease, at his home in Modesto, Ill., April 30; a graduate of Barnes Medical College, St. Louis, Mo., in 1897.

George P. Jeffers, at his home in Bangor, Me., May 9, aged 88; a graduate of the Medical School of Maine, Brunswick, in 1844.

Harper Tickle, at his home in Charleston, W. Va., May 5, aged 41; a graduate of the Baltimore Medical College in 1894.

William F. Miller, at his home in Louisville, May 10, aged 88; a graduate of the University of Louisville in 1843.

D. C. Phillips, of Millerstown, from paralysis, near White Mills, Ky., April 22, aged 80.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 21, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	Los Angeles.....Apr. 30-May 7.....	1	
	San Francisco.....Apr. 24-May 1.....	1	
Dist. of Columbia:	Washington.....Apr. 30-May 14.....	8	
Florida:	Jacksonville.....May 7-14.....	1	
Illinois:	Chicago.....May 7-14.....	11	
	Danville.....Apr. 30-May 7.....	2	
Indiana:	South Bend.....May 7-14.....	3	
Kentucky:	Covington.....May 7-14.....	3	
Louisiana:	New Orleans.....May 7-14.....	16	
		Eight imported.	
Maine:	Jonesport.....May 16.....		Present.
Maryland:	Baltimore.....May 7-14.....	1	1
Michigan:	Detroit.....May 7-14.....	5	
	Grand Rapids.....May 7-14.....	5	
Missouri:	St. Louis.....May 7-14.....	14	4
Nebraska:	Omaha.....May 7-14.....	3	
New Hampshire:	Manchester.....May 7-14.....	4	
New York:	Buffalo.....May 7-14.....	2	
	New York.....May 7-14.....	2	
Ohio:	Cincinnati.....May 6-13.....	7	
	Cleveland.....May 6-13.....	2	1
	Dayton.....May 7-14.....	12	
Pennsylvania:	Norristown.....May 7-14.....	1	
	Philadelphia.....May 7-14.....	27	5
	Pittsburg.....May 7-14.....	1	2
South Carolina:	Charleston.....May 7-14.....	1	
Tennessee:	Memphis.....May 7-14.....	46	
	Nashville.....May 7-14.....	4	
Wisconsin:	Milwaukee.....May 7-14.....	8	

SMALLPOX—INSULAR.

Philippine Islands:	Manila.....Apr. 2-9.....	2	2
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SMALLPOX—FOREIGN.

Austria:	Prague.....Apr. 23-30.....	7	
Belgium:	Antwerp.....Apr. 23-30.....	13	8
Brazil:	Bahia.....Apr. 8-23.....	6	
Canada:	Sydney.....May 7-14.....	17	
		To date, 61	
	Winnipeg.....May 7-14.....	1	
Colombia:	Barranquilla.....Apr. 24-30.....	1	2
France:	Paris.....Apr. 16-30.....	27	2
	Rhems.....Apr. 24-May 1.....	1	
Germany:	Barmen.....Apr. 22-29.....	4	
		On S. S. Wittkind.	
Great Britain:	Birmingham.....Apr. 30-May 7.....	1	
	Glasgow.....Apr. 29-May 6.....	22	3
	Hull.....Apr. 23-30.....	3	
	Liverpool.....Apr. 23-30.....	7	
	London.....Apr. 16-30.....	35	4
	Manchester.....Apr. 16-30.....	10	3
	Newcastle-on-Tyne.....Apr. 16-30.....	18	1
	Nottingham.....Apr. 16-30.....	9	1
	Sheffield.....Apr. 16-30.....	10	
	South Shields.....Apr. 16-30.....	14	
India:	Bombay.....Apr. 5-19.....		34
	Calcutta.....Apr. 3-10.....		4
	Karachi.....Apr. 10-17.....	11	3
Italy:	Catania.....Apr. 8-May 5.....	2	1

Japan:	Kobe.....Apr. 2-16.....	3	
	Nagasaki.....Apr. 10-20.....	249	43
Java:	Batavia.....Mar. 26-Apr. 9.....	20	2
Mexico:	City of Mexico.....Mar. 27-Apr. 3.....	4	9
	* Apr. 16-May 8.....	14	2
	Tampico.....Apr. 23-30.....	1	1
	Torreón.....Apr. 21-May 8.....	27	15
	Vera Cruz.....Apr. 23-30.....	1	
Netherlands:	Rotterdam.....Apr. 23-May 7.....	9	1
Russia:	Moscow.....Apr. 8-23.....	9	1
	Odessa.....Apr. 23-30.....	1	
	St. Petersburg.....Apr. 16-23.....	7	4
Spain:	Barcelona.....Apr. 1-30.....		9
Turkey:	Beirut.....Apr. 21-23.....		Present.

YELLOW FEVER.

Ecuador:	Guayaquil.....Apr. 16-23.....		6
Mexico:	Talleres.....May 11.....	1	
	Tehuantepec.....May 11.....	1	

CHOLERA.

India:	Madras.....Apr. 9-15.....		1
Turkey:	Basta.....Apr. 1-10.....	37	28

PLAGUE—INSULAR.

Philippine Islands:	Manila.....Apr. 2-9.....	3	2
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PLAGUE—FOREIGN.

Africa:	Cape Colony.....Apr. 8-16.....	1	1
Egypt:	Alexandria.....Apr. 8-16.....	59	36
	Port Said.....Apr. 3-16.....	1	1
India:	Bombay.....Apr. 12-19.....		638
	Karachi.....Apr. 10-17.....	365	285
	Madras.....Apr. 9-15.....		1
Formosa:		229	167
New Zealand:	Auckland.....Apr. 29.....	2	1
Peru:	Callao.....Apr. 10-24.....	2	2
	Lima.....Apr. 16-23.....	9	11

Changes in the Medical Corps of the U. S. Army for the week ended May 21, 1904:

HOGUE, GUSTAVUS I., contract surgeon, is granted leave for one month, with permission to apply for an extension of one month.

CHASE, ALPHA M., contract surgeon, is granted leave for three months, from June 1, or as soon thereafter as his services can be spared.

MILLER, First Lieutenant REUBEN B., assistant surgeon, leave granted March 19 is extended one month.

McMILLAN, CLEMENS M., contract surgeon, now temporarily at Fort Ethan Allen, will proceed to Fort Niagara for temporary duty during the target practice at that post, and upon the completion of this duty will rejoin his proper station—Fort Myer.

GWINN, ARTHUR C., sergeant first class, Fort Sheridan, is transferred to Fort Myer for duty.

KELLOGG, WILLIAM V., contract surgeon, is granted leave for two months, on surgeon's certificate.

MUNSON, Captain EDWARD L., assistant surgeon, now at San Francisco, Cal., is relieved from further duty in the Philippines Division, and will proceed to Fort Bayard and report at the United States General Hospital for duty.

HAISELL, JOHN T., contract surgeon, is granted leave for one month, with permission to apply for an extension of one month.

DAVIS, WILLIAM R., contract surgeon, now at San Francisco, Cal., will report for duty as surgeon on the transport Sheridan, to relieve First Lieutenant Alexander Murray, assistant surgeon, who will proceed to Fort Bayard and report at the United States General Hospital for duty.

KENNEDY, JAMES S., contract surgeon, is relieved from duty at the depot of recruits and casuals, Fort McDowell, and will proceed to Fort Grant for duty, relieving First Lieutenant Robert N. Winn, assistant surgeon, who will proceed to Fort McDowell for duty at the depot of recruits and casuals.

Changes in the Medical Corps of the U. S. Navy for the week ended May 21, 1904:

SNYDER, J. J., passed assistant surgeon, detached from the Kearsarge and ordered to the Maine—May 17.

BUCHER, W. H., surgeon, detached from the Naval Station, Cavite, P. I., and ordered to the Naval Hospital, Yokohama, Japan—May 17.

THOMPSON, E., surgeon, commissioned surgeon, with the rank of lieutenant-commander, from March 3, 1903—May 18.

FURLONG, F. M., passed assistant surgeon, detached from duty with the marine battalion on the Dixie, and ordered home to await orders—May 19.

BUTLER, C. ST. J., passed assistant surgeon, commissioned passed assistant surgeon, with the rank of lieutenant, from October 26, 1903—May 19.

MARCOUR, R. O., assistant surgeon, detached from duty with the marine battalion on the Dixie and ordered to the Hancock—May 19.

ROSSITER, P. S., assistant surgeon, detached from the Naval Recruiting Station, Baltimore, Md., and ordered to the Naval Station, Honolulu, H. I., sailing from San Francisco, Cal., via steamer Abarenda, June 4—May 19.

OWENS, W. D., assistant surgeon, appointed assistant surgeon, with rank of lieutenant, junior grade, from May 17, 1904—May 19.

SELLERS, F. E., acting assistant surgeon, appointed acting assistant surgeon from May 17, 1904—May 19.

Changes in the Public Health and Marine-Hospital Service for the week ended May 19, 1904:

CARTER, H. R., surgeon, to report at Washington, D. C., for special temporary duty—May 13, 1904.

* Report for Apr. 3-10 returned for correction. Report from Apr. 10-17 will be found in Health Reports, May 7.

WOODWARD, R. M., surgeon, granted leave of absence for three months from June 14—May 13, 1904.
 EAGER, J. M., passed assistant surgeon, reassigned to duty at the port of Naples, Italy, effective March 25—May 14, 1904.
 FRANCIS, EDWARD, assistant surgeon, to proceed to Martinsburg, W. Va., for special temporary duty—May 11, 1904.
 BURKHALTER, J. T., assistant surgeon, ten days' extension of leave of absence, granted by Bureau telegram of May 9, 1904, revoked—May 17, 1904.
 ALEXANDER, E., acting assistant surgeon, granted leave of absence for seven days from May 19—May 17, 1904.
 KENNARD, K. S., acting assistant surgeon, granted leave of absence for fourteen days from May 22—May 17, 1904.
 WALKER, R. T., acting assistant surgeon, granted leave of absence for four days from May 31—May 19, 1904.
 WALKLEY, W. S., acting assistant surgeon, granted leave of absence for nine days from May 24—May 19, 1904.
 RODMAN, J. C., acting assistant surgeon, granted leave of absence for four days from May 24—May 18, 1904.
 CARLTON, C. G., pharmacist, granted leave of absence for thirty days from June 1—May 12, 1904.
 BIERMAN, C. H., pharmacist, granted leave of absence, on account of sickness, for one day (May 9)—May 13, 1904.
 VANNESS, G. I., Jr., pharmacist, granted leave of absence for thirty days from June 1—May 17, 1904.

Boards Convened.

Board convened to meet at Baltimore, Md., May 18, 1904, for the physical examination of cadets in the Revenue Cutter Service. Detail for the Board: Surgeon H. R. Carter, chairman; Assistant Surgeon C. W. Wille, recorder.

Board convened to meet at Stapleton, N. Y., May 18, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon Preston H. Bailhache, chairman; Passed Assistant Surgeon A. C. Smith, recorder.

Board convened to meet at Washington, D. C., May 18, 1904, for the physical examination of applicants for appointment in the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General W. J. Pettus, recorder.

SOCIETY REPORTS

ASSOCIATION OF AMERICAN PHYSICIANS.

Nineteenth Annual Meeting, Held at Washington, D. C.,
May 10, 1904.

[Specially reported for *American Medicine*.]

[Concluded from page 809.]

A Supposed Cause of High Tension Pulse in Nephritis.

—W. H. THOMSON offered the following conclusions: 1. High tension pulse occurs too early in nephritis to be due to any other cause than the presence in the blood of a general vasoconstricting agent, similar in its properties to adrenalin. 2. Such an agent would also produce constriction of the renal vessels and general shrinkage of the kidneys, causing interference with the excretion of urea. 3. Prolonged presence of such an agent in the blood would lead ultimately to endarteritis with degeneration of the vascular walls and to cardiac changes. 4. Acute cardiac dilation may occur from the effects of such a general vasoconstricting agent in the circulation before extensive alterations in the bloodvessels have taken place. 5. Aconite is the best vasodilator in nephritis, much more effective than the nitrites. Reports of marked increase in the excretion of urea follow its administration.

Discussion.—PEABODY said that experience had taught him that aconite would materially increase the urea output, even in cases in which the arterial tension is abnormally low. The reason for this he could not give.

Poisoning by Illuminating Gas.—W. G. THOMPSON'S investigation was undertaken to determine the cause of death and of certain symptoms that are characteristic of poisoning by illuminating gas. The series of cases included 90, of which 17 were fatal. In New York there were 288 fatal cases in 1901 and probably 2,000 cases of gas poisoning occur there annually. This is due to the prevalent use of the gas stove and to the ignorance of the foreign population coming into the city. He described the effects upon the blood and looked on carbon monoxid as the particularly poisonous element. He believed its action upon the nervous system is more important than the changes produced in the blood. A leukocytosis that lasts for many days is one of the features. The character of the fever is varied. A subnormal temperature may exist for hours and then be followed by a fever that persists high for a week or more. One case of hyperpyrexia—110°—reported. The nervous symptoms are varied and inconsistent. They consist of tremors, anesthesia, rigidity, opisthotonos, headache, coma, mental disturbance, etc. Peripheral neurosis, sclerosis and changes in the brain and cord may follow as sequels. The most satisfactory form of treatment had been phlebotomy and infusion of salt solution.

Discussion.—STENGEL called attention to some experimental work that had shown that the transfusion of defibrinated blood had saved animals poisoned by coal gas, even when venesection and infusion with salt solution had failed. S.

WEIR MITCHELL and SOLIS COHEN each called attention to the varying composition of illuminating gas in different cities, and even in a given city at different times. The last named speaker and PEABODY spoke of the difficulties in the way of procuring and using defibrinated blood. THOMPSON said, in conclusion, that these patients must be treated promptly, and salt solution is more convenient than defibrinated blood.

An Antitoxin for Snake Venom.—A personal communication from Noguchi to Mitchell. S. WEIR MITCHELL read to the society a letter just received from Noguchi, detailing the results of experimental work which he had been conducting under the auspices of the Carnegie Institute, in the laboratories at Copenhagen. Mitchell explained that Noguchi had engaged upon this work with Flexner, at the University of Pennsylvania, two years ago, and having demonstrated his fitness to conduct such a scientific investigation, and having outlined his plan of work, the Institute had, at Mitchell's request, decided to provide him with the means. The report of his studies was eminently satisfactory. He believes he has succeeded in preparing a certain antidote to the venom of the rattlesnake. The antitoxin will not operate against the toxins of other varieties of snakes, and he questions the work of others who have claimed to have discovered a universal antitoxin.

Abdominal Pain from Unsuspected Irritation of the Internal Inguinal Ring.—CHARLES G. STOCKTON. This paper will be published in a future issue of *American Medicine*.

The Mechanism of Exophthalmos.—W. G. MACCALLUM and W. B. CORNELL. An effort was made to determine experimentally the mechanism of exophthalmos by arranging an apparatus that would mark upon the smoked drum any movement of the eye and then proceeding to alter the normal vascular and muscular conditions. It was shown that obstruction to the outflow of blood from the veins of the orbit produces at once exophthalmos, which is relieved by the establishment of collateral circulation. This process is completed, however, so slowly that in the meantime the orbital tissue as well as the tissue of the face becomes very edematous, thus adding to the exophthalmos. Furthermore, entirely independent of any circulatory changes, there is an exophthalmos produced directly by the stimulation of the cervical sympathetic nerve. This protrusion is due to the peristaltic contraction of the orbital muscle tissue. From these experiments no conclusions could be drawn as to the mechanism of exophthalmos in Grave's disease, but the possibilities are more closely defined.

Diabetes Insipidus.—THOMAS B. FUTCHER called attention to the fact that animal experiments have shown that polyuria follows lesions of a point in the floor of the fourth ventricle a little in front of the glycosuria center; also after injuries to various portions of the middle lobe of the cerebellum; and, after injuries to the posterior portion of the pons and the anterior part of the medulla. He divided the cases of diabetes insipidus clinically into two groups, the idiopathic cases, or those without evident cause and the secondary or symptomatic cases, those referable to some organic lesion or some known cause. Tumors of the medulla and floor of the fourth ventricle, basilar meningitis and cerebral hemorrhage are the commonest organic lesions causing the disease. He believed that cerebral syphilis is a cause in a much larger percentage of cases than has been generally suspected. A basilar syphilitic meningitis he considered to be frequently the lesion and looked upon a transitory bitemporal hemianopsia in a case of diabetes insipidus as strong evidence in favor of the disease being due to syphilis. He stated that diabetes insipidus belongs to the rarest of the medical diseases. In 15 years there have been but seven cases recorded in the Johns Hopkins Hospital and Dispensary out of a total of 403,535 patients. Five of these cases belonged to the symptomatic group and of these four were undoubtedly syphilitic in origin. Thirst appeared to be the first symptom complained of in the majority of cases. In considering the treatment, Fletcher stated that while it is very unsatisfactory as a rule, the cases which appear to do best are those of luetic origin; antiluetic treatment almost invariably relieves the cerebral symptoms and occasionally causes a reduction in the thirst and polyuria.

Discussion.—BAUMGARTEN asked if Fletcher had observed any connection between diabetes insipidus and saccharin diabetes. He related the history of a case which first came under his observation 20 years ago. The patient was a young man with diabetes insipidus. A year or two later the disease took on the attributes of saccharin diabetes. There was never any suspicion or evidence of syphilis or cerebral disease in this case and the patient eventually died of tuberculosis. THOMPSON related a case which was hereditary in character and in the treatment of which he had made careful estimations of the food and water taken and the amount of polyuria and had shown that actually more fluid was excreted than was ingested. TYSON said that he had only seen six or seven cases in the whole course of his practice, but that in these he had been impressed by the fact that the symptoms were largely relieved by potassium iodid. DOCK spoke of the prognostic differences of these cases and of the satisfaction with which he elicited the history of syphilis in any case, because he felt that the syphilitic cases were more favorable for treatment. JACOBI thought that the frequency of diabetes insipidus is very much greater than hospital records would seem to imply and gave as his reason the belief that the disease is quite frequent in childhood. He had seen it

follow chorea minor, whoopingcough, falls upon the occiput and probably cerebral tumors. FUTCHER said that he did not wish to give the impression that the vast majority of cases of diabetes insipidus is due to lues, but merely that there are a greater number of cases due to that disease than has been generally supposed.

A Case of Prolonged Male Hysteria: with Autopsy.—S. WEIR MITCHELL and W. G. SPILLER. Mitchell related in detail the clinical history of a hysteric man who had been under his observation more or less constantly for 30 years. He had watched it from the appearance of the first nervous symptoms to the development of peculiar muscular movements that were constant in character and uncontrollable by the patient except by the greatest effort on his part, or under the influence of hypnotism. The patient requested that after his death an autopsy should be performed under Mitchell's direction, and this was done, Spiller making a most careful examination of the brain and cord. Absolutely no lesion could be found.

Discussion.—PRINCE related the history of a similar case. PUTNAM expressed the feeling that these continuous movements which hysteric patients sometimes carry on, and the fact that they are carried on by dissociated centers and without signs of fatigue on the part of the patient, are important, and that the so-called professional neuroses cause effects from much less motion than these hysteric patients are accustomed to carry out. WOOD said that in order to account for this thing it would seem reasonable to suppose that the nerve centers of organic life may take on some of the functions of the centers of inorganic life. He referred to the fact that the heart, beats constantly for a period of many years, but leaves no record of its contractions, and suggested that perhaps after all it is not the muscular movement that leaves a cerebral record, but the volition thereto. MITCHELL thought that we might have expected to find some marked pathologic evidence resulting from such long continued muscular actions, and in support of this view referred to the work of Hodges on the effects of fatigue on the nerve cells.

Some Unusual Forms of Acute Myelitis.—B. SACHS defined the term "acute myelitis" as a disease process, causing a more or less rapid or a more or less complete destruction of the substance of the spinal cord at any given level, excluding, however, those forms which are due to large hemorrhages and to the breaking down of neoplasms. The clinical histories of two very unusual cases were given, the first being a senile form of myelitis, which had the characteristics of a spinal counterpart of the cerebral apoplexies, which occur at that time of life, and the second was the record of a sudden development of myelitis in a young girl, who presented the complication of multiple streptococcus abscesses.

Infectious Neuritis: with Report of a Case.—J. J. PUTNAM reported, in behalf of WATERMANN and himself, a series of cases, illustrating different sorts of reaction of the nervous system to infectious processes. A possible bond between certain of these cases lay in the fact that they had occurred during the same period—namely, in the winter of 1902 and 1903. The most important case was that of a man of 30, who suffered from an unusual, gradually progressive form of "myelitis," which spread slowly upward through the whole length of the spinal cord, the entire illness covering a period of about two months. All the functions of the cord were involved, and the paralysis was associated with constant fever, leukocytosis, gradually increasing pyelitis, and, eventually, with bloody dejecta. The post-mortem examination showed a disintegration of the nerve elements, accompanied with but few signs of active vascular change or of exudation processes and no evidence of antecedent anemia as due to arteriosclerosis or thrombosis. The other cases were of the following sort: Meningoencephalitis, possibly due in part to alcoholic excess; progressive paralysis, eventually involving certain cranial nerves, but ending in complete or incomplete recovery; infectious neuritis, followed by encephalitis; cases of the type of poliomyelitis, but coming on slowly; and myelitis during typhoid. He called attention to the complex results of infections of the nervous system and the impossibility at present of making sharp divisions.

The Clinical Features, Prognosis, and Treatment of Cerebrospinal Meningitis in Infants and Children.—HENRY KOPLIK studied 89 cases, of which 39 were absolutely confirmed by lumbar puncture; 35 were tuberculous, 1 staphylococcus, 1 streptococcus, and 2 pseudoinfluenza cases. Sixty percent of the cases were below two years of age. The mode of onset was, as a rule, sudden, except in the tuberculous cases. Rigidity of the neck was present in all cases at some time. Babinski's reflex was present in 77%, while Konig's reflex was of little value in the patients under two years of age. In the tuberculous cases, Macewen's sign was present in the majority of instances. Optic neuritis was more common in the tuberculous type than in any other class of cases. Koplik considered the disease to be self-limited, and scarcely influenced by any mode of treatment. He did not consider lumbar puncture as curative, nor had it in his cases relieved the symptoms of pressure.

A Case of Spasmodic Stricture of the Esophagus with Sacculation; Treated by Dilation, and Later by Gastrotomy.—JAMES TYSON, EDWARD MARTIN, and JOSEPH EVANS. Tyson read this paper, which opened with a review of the literature upon the subject of diverticula and dilations of the esophagus, their etiology, treatment, and diagnosis. Then followed the detailed clinical history of

two extremely interesting cases of spasm of the cardiac orifice with resulting dilation of the esophagus. The first patient was a man aged 33 years, who had been suffering from dysphagia from the time he was 12 years old, his first attack coming on suddenly while he was at his supper and compelling the immediate regurgitation of all that he had eaten. As he described his symptoms, "while in the act of swallowing solid food he was suddenly seized with a sensation of the material sticking in the esophagus at a point posterior to the middle of the sternum." For a moment he felt as if his heart had stopped beating, and then, without any nausea, he threw off the food and was relieved. He made several successive attempts to swallow more food, but without success. After four or five days he discovered that by drinking very hurriedly a large amount of liquid immediately after the taking of solid food he was able to overcome the stoppage in the esophagus, and could feel the material enter the stomach; in addition to the drinking of the liquid it was necessary for him, however, to exert considerable effort. For fifteen years he continued this method of feeding, but at times the dysphagia would increase and he could not force the food into the stomach. At such times, and whenever any remnants were left in the esophagus, the food was immediately regurgitated or would be a few hours later. If any food remained at the time he was asleep it would run out of his mouth and be discovered by him the next morning. If he assumed the horizontal position immediately after eating, an irritating cough would start in, and he could secure relief only by regurgitating the food. Tyson attempted dilation with all sorts of tubes, but without much success. Attempts to measure the capacity of the dilated esophagus showed that he could drink 34 ounces of fluid without any unpleasant sensation, and apparently without any of it reaching his stomach. The second case was in a woman aged 33, who had been suffering in much the same way for a period of eight months. A special instrument was devised by Martin for dilation in this case, the principle of the instrument being the same as that of the Kollmann urethral dilator. It was felt that its continued use would have given satisfactory results through the production of a partial paralysis of the muscular ring at the cardiac opening, but in order to put the esophagus at rest and to force the patient's nourishment it became necessary to do a gastrotomy.

Idiopathic Dilation of the Esophagus: Cardiospasm.—B. W. SIPPY reported a case in all essentials like that described above by TYSON. He exhibited the specimens from this case, the patient having died shortly after a gastroenterostomy performed for the relief of what was at the time believed to be a pyloric obstruction. At autopsy it was found that there was no anatomic narrowing of the cardia, but a hypertrophy of the circular fibers of the esophagus wall so that it was fully a quarter of an inch in thickness.

Dilation of the Esophagus and Stomach.—FRANCIS P. KINNICUTT described another case of the same general character, and the pathologic specimens were shown. The esophagus from this patient had a capacity of 1,800 cc. of fluid, and was, so far as could be determined, the most enormously dilated stomach and esophagus recorded.

Discussion.—JANEWAY reported a case like TYSON's, except that it was complicated by hemoptysis. This patient could take 800 cc. of fluid into the esophagus without difficulty and a photograph was exhibited showing the condition with this amount of dilation. Janeway spoke of two mistakes often made in these cases, i. e., considering them as hysteric, and, as tuberculosis. MELTZER, having been called upon to say something of this condition, described his discovery of and first description of it in 1888. At that time he saw a patient that had been suffering from it for 19 years and presenting the symptoms given above. Previous to that time they had all been described as idiopathic or hysteric dilations. Meltzer was the first to determine the true condition and ascribe to it the proper cause and mode of action. His patient was operated upon by a gynecologist five years later for a supposed malignant growth and when, later, an autopsy was done it was found that the anatomic condition was precisely what he had described from the theoretic standpoint.

At the opening of the morning session the following named gentlemen were elected to membership: P. K. Brown, San Francisco; Joseph Collins, New York; David L. Edsall, Philadelphia; Frederick E. Finley, Montreal; H. C. Gordinier, Troy; Richard M. Pearce, Albany; Mark W. Richardson, Boston; and, Richard P. Strong, Manila, P. I.

Honorary Members.—Beverly Robinson; Starling Lov- ing, and, Henry G. Walcott.

The Relation of Cells with Eosinophile Granulation to Bacterial Infection.—EUGENE L. OPIE presents a most elaborate study of the action of eosinophile cells when micro-organisms are introduced into the body. He reviews the literature of the subject at length, quotes from his own published work and then relates in detail the behavior of these leukocytes during the course of fatal and of nonfatal bacterial infection. He worked with a variety of organisms and offers the following conclusions: Certain bacteria (*B. tuberculosis*, *B. cholerae suis*) producing somewhat chronic, fatal infection in guinea pigs, cause the eosinophiles to disappear from the circulating blood. After death a few can be found in those tissues in which they are usually found in abundance. During more active and acute infections produced by inoculating bacteria into the peritoneal

cavity eosinophile leukocytes disappear almost completely from the peripheral circulation within a few hours. After the inoculation of an organism producing an infection from which the animal is capable of recovering they disappear from the peripheral circulation so that their proportion may fall from 5% or 10% to less than 1%. The number then gradually increases until in four or five days it exceeds the normal proportion, and then slowly falls back to normal. When the number of eosinophiles is at the lowest point in the peripheral circulation they are found in great numbers in the vessels of the inflamed mesentery and omentum near the site of inoculation. Unlike the polynuclear leukocytes they rarely if ever act as phagocytes. In the region of the bacterial poison they undergo degenerative changes of which nuclear fragmentation is the most characteristic. Under the influence of severe bacterial infection eosinophile myelocytes together with other elements, usually regarded as characteristic of the bone marrow, accumulate in the spleen and may be found in the circulating blood. The occurrence of this phenomena within two to four hours demonstrates that the elements are derived from the bone marrow and are not formed in the spleen. Bacteria exert a chemotactic influence upon cells with eosinophile granulation, attracting them from the circulating blood to the site of inoculation and from the bone marrow into the blood. Eosinophile leukocytes, like the finely granular polynuclears accumulate in the neighborhood of bacteria injected into the body and though they rarely act as phagocytes, have a part in the series of changes which follow bacterial invasion.

A New Case of Chloroma with Leukemia, with a Study of the Cases Reported since 1893.—GEO. DOCK and A. S. WARTHIN. Dock presented these conclusions: 1. Chloroma is a tumor-like hyperplasia of the parent cells of the leukocytes, primary in the red marrow, the periosteum being involved only secondarily. The possibility of a primary chloroma in any part of the body in which white cells are formed must be considered. 2. As a result of this leukoblastic hyperplasia, atypical leukocytes may appear in the circulating blood in varying number. Chloroma is therefore to be classed with the leukemias. 3. The white cells resulting from the atypical proliferation may in different cases attain different stages of differentiation. In some cases they may be of the large lymphocyte type, in others of the type of neutrophile or eosinophile myelocytes. 4. It is evident, therefore, as in the case of other leukemias, that the blood picture in chloroma may be very varied, and if this be used for a basis of classification it is possible to designate different varieties of chloroma. 5. The essential difference between chloroma and other forms of leukemia is the more marked neoplastic character of the former and the formation of the green infiltrations and metastases. 6. Chloroma is probably to be regarded as a more malignant form of leukemia. This malignancy of chloroma depends chiefly upon the replacement of the red marrow and erythroblastic elements by the proliferating white cells and the consequent diminished red-cell formation. 7. The cause of the green color remains unknown.

Types of Splenic Anemia or Splenomegaly.—ALFRED STENGEL reported a series of cases that had been carefully studied clinically and microscopically. The first case was that of a child 3 years old, that had, at the age of 2, shown an increase in the size of the abdomen and marked pallor. Physical examination showed an enlarged spleen and the blood-examination gave 30% of hemoglobin, 2,900,000 red cells and 7,600 white cells. A general dropsical condition appeared and at the same time a leukocytosis of about 20,000. Autopsy revealed a general splenic enlargement with infarcts of the spleen and kidneys, a bronchopneumonia, vegetative endocarditis of the mitral valve and miliary tuberculosis of the lungs, liver and spleen. The lymphatic glands showed a marked hyperplasia and necrosis of the endothelial cells. The second case was in an adult showing splenic anemia with cirrhosis of the liver. There was a generally stunted growth, club fingers and pigment changes in the skin. Autopsy examination disclosed hyperplastic changes in the spleen, cirrhosis of the liver and fibroid changes in the lungs and other organs. The third case was in a young woman of 25, whose condition was diagnosed as primitive splenomegaly. The spleen was removed by operation and the patient recovered. Microscopic sections of the spleen showed a very marked hyperplasia with extensive fibroid growth.

Discussion.—OSLER thought that these cases illustrate the extreme complexity of the subject and said that while the third case belonged to a very definite group it was doubtful if they could often be recognized clinically. He had seen such a case operated upon by Mikulicz some years ago and the patient was afterward exhibited before the German Surgical Congress. Since Osler's last report on this subject he has seen 9 cases of great enlargement of the spleen associated with anemia. One was a case of so-called primitive splenomegaly; 4 were cases of chronic splenic enlargement with pigmentation of the skin; 2 belonged to that group which resembles Hanneaux disease, and 2 were cases of splenic anemia subsequently becoming pernicious anemia. SIPPY related a case which he had seen since the report he published in 1899. The patient was a woman with a movable spleen that came down below the umbilicus and readily moved about in the abdominal cavity. She presented the picture of a gradually developing anemia. The spleen was removed by operation and she made a complete and satisfactory

recovery. He raised the question whether the splenic anemia in these cases might be due to poisonous substances secreted by the enlarged spleen or whether it be due to malnutrition. CABOT replied to this point that there is no evidence, clinical or experimental, that splenic anemia is ever due to malnutrition.

The Agglutination and Filtration of Trypanosomes.—The main features presented in this work by F. G. NOVY and his associates, MCNEAL and HARE, may be briefly summed up as follows: 1. The trypanosome present in the Philippine surra can be cultivated artificially. 2. Attenuated cultures of this organism can be obtained, as in the case of *Trypanosoma brucei*. 3. This trypanosome is differentiated by its cultural characteristics from *Trypanosoma brucei* and *Trypanosoma lewisi*. 4. The Philippine surra is therefore a distinct disease, different from nagana, and this observation confirms the work of Laveran and Mesnil on the nonidentity of nagana and the surra of Mauritius. 5. The morphologic differences between the Mauritian and Philippine trypanosomes suggests the probability that these organisms are distinct species, and hence that the term surra covers a group of closely allied diseases.

Zonal Necrosis of the Liver.—E. L. OPIE reviewed the vascular and other anatomic features peculiar to the liver structure to show the varying facility with which necrosis occurs in different zones of that organ. He referred at length to the experimental work which has heretofore been done on this subject, and then considered in sections the conditions associated with zonal necrosis of the liver in various diseases, dividing the subject into central necrosis, peripheral necrosis, and midzonal necrosis, and followed that with a special consideration of the relation of midzonal necrosis to acute yellow atrophy of the liver. He related the clinical and anatomic histories of cases in each class. The paper is an extremely interesting one, not susceptible of satisfactory abstraction, and can be profitably read in full by those who are interested in the subject.

Experimental Arthritis and Endocarditis Produced by a Streptococcus Isolated from the Blood of a Case of Rheumatism, Endocarditis, and Chorea.—M. J. LEWIS and W. P. LONGCOPE. In a fatal case of rheumatism, endocarditis, and chorea a streptococcus was isolated from the blood before death. This organism did not differ materially from the common varieties of *Streptococcus pyogenes* in cultural properties, but produced very characteristic lesions in rabbits when injected intravenously. Such inoculations were always followed after a few days' incubation period by a multiple arthritis, which usually started in the ankles. In one rabbit extensive vegetations were found on the mitral valve, while typical infarctions were seen in the spleen and kidneys. This organism was believed to be the same as that described by Wassermann, Meyer, Poynton and Paine, and Ainley Walker, and considered by them to be the specific cause of rheumatic fever.

Serum Treatment for Hay-fever.—Harper's Weekly states that in a list of 285 patients to which serum treatment had been given under different circumstances and in different countries, recently compiled in Germany, 60% are reported as completely relieved, 29% partly cured, and 11% failures. "Hay-fever," says the Weekly, "is supposed to result from the pollen of various plants, and the serum was prepared by inoculating horses with this pollen. It may be used in liquid or powdered form, and is applied locally, no attempts having been made as yet at subcutaneous injection. There is strong evidence to believe in the efficacy of the serum, and in the majority of cases it was found possible to relieve the patient and to shorten materially the seizure. Although it does not, however, prevent a recurrence of the attack, it has great value as a prophylactic."

Ceylon's Battle with the Plague.—A correspondent to an exchange states that the last governor of Ceylon, fearful that the bubonic plague might gain a footing in this island as in the adjacent mainland, left no means of prevention and no precaution untied. The railway stations are posted over with regulations and instructions in case of plague patients being apprehended on a train, and no one with a rash, a high temperature, a glassy eye, or a swelling near the glands of the throat need present himself at a ticket office and expect to go on. Despite the hordes of coolies traveling back and forth between southern India and the Ceylon tea estates, the plague has never been established on the island. There is strict quarantine against Madras, and tourists coming down by Tanjore and the temple towns of southern India are obliged to keep themselves under inspection and record for 10 days. A permit is given them and they are free to travel in Ceylon if they report themselves daily to the government medical officer, who stamps the paper day by day. This mysterious black death is almost as far from being understood as in the middle ages. A Japanese bacteriologist discovered the bacillus 10 years ago, and since then all means of battling with it have been experimental. It rages in Madras, Calcutta, and Bombay, in all of which ports the most elaborate sanitary regulations have been in force for years; and it only exists at times, instances in which it has been directly brought from other places, in Colombo and Singapore. If the high temperature of Colombo is the reason for its not being domiciled there permanently the cooler hill country should invite the black plague of Yunnan to whatever temperature it prefers.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

A CLINICAL METHOD OF DETERMINING THE VASOMOTOR FACTOR IN BLOOD-PRESSURE.

BY

ALBERT ABRAMS, A.M., M.D.,
of San Francisco, Cal.

Dr. L. F. Bishop, in a contribution on "The Importance of Considering the Element of Vasomotor Instability in Estimating the Significance of Irregularity of Cardiac Rhythm," published in *American Medicine*, April 23, 1904, directs attention to a significant clinical paradox, viz., the discrepancy often existing between the heart-sounds and the pulse—in other words, the vigor of the one cannot be gauged by the strength of the other. My own observations tally with those of Bishop. I have frequently noted among arteriosclerotics and others, that a high blood-pressure is often coupled with the local evidence of cardiac incompensation. When the heart tones are weak, increased blood-pressure can never indicate a vigorous heart action, and in estimating the vigor of the latter, blood-pressure is of subsidiary value only. When high blood-pressure coexists with cardiac enfeeblement, a vasomotor factor is concerned in the maintenance of the former, this increase in the peripheral resistance of the bloodvessels acting as a prop to the enfeebled heart. In other words, the arterial system serving the objects of compensation acts as a subsidiary heart, which in turn facilitates the circulation of blood. In this way, as I view it, the nervous system through the vasomotor nerves, may compensate an impaired myocardium. I have accumulated sufficient data to warrant recommending the following method for determining the vasomotor factor in the clinical measurement of blood-pressure. In my observations, the Riva-Rocci instrument was employed. After determining blood-pressure according to the conventional method, the patient is instructed to inhale amyl nitrite from a bottle, after which procedure the blood-pressure is again estimated, and the difference noted. The arm piece of the instrument need not be removed until the investigations are completed. The patient must be instructed not to practise forced breathing while inhaling amyl nitrite, as observation has taught me that this physiologic act alone will reduce blood-pressure, and thus negative the clinical findings. Sufficient amyl nitrite must be inhaled to induce its physiologic action, viz., slight duskeness of the face, fulness in the head and relaxation of the bloodvessels. The average effect of inhalation of the drug in the normal subject is to cause a slight increase of blood-pressure, varying from 2 mm. to 20 mm. The primary effect is to depress slightly the blood-pressure, but it rises at once. I am inclined to conclude that in the average healthy individual, inhalation of amyl nitrite relaxes the arterial walls by eliminating the vasomotor influence, thus bringing into play the veritable cardiac pressure. My observations, extending over a period of one year, permit me to formulate the following conclusions:

1. Blood-pressure is an expression of action of two chief factors, ventricular force and vasoconstriction.

2. Inhalation of amyl nitrite dissipates the vasoconstrictor factor and brings into play the ventricular force which is the real factor to be encouraged in a failing heart.

3. The vasoconstrictor factor may and does compensate myocardial inadequacy, for it is essential in most cardio-arterial diseases for the blood-pressure to be maintained to afford better nutrition for the heart and to augment arterial elasticity as a means of establishing the blood circulation.

4. The recognition of the myocardial and vasomotor factors in blood-pressure guides us correctly in the administration of cardiotonics.

5. In the individual endowed with cardiac health, the removal of the vasomotor factor by inhalation of amyl nitrite causes an increase in blood-pressure, whereas the converse condition causes the latter to fall and the degree of reduction is proportionate to the degree of cardiac enfeeblement. In other

words, the high blood-pressure in myocardial disease, is maintained by an augmented tonus of the vasomotor center. Thus the blood-pressure may fall from 240 mm. before, to 180 mm. after inhalation of amyl nitrite in arteriosclerotics with enfeebled hearts. Even this reduction in blood-pressure is not low enough to correspond with the tones of the feeble acting heart, hence one is constrained to conclude that the action of the amyl nitrite does not suffice wholly to eliminate the vasomotor factor.

6. The execution of the foregoing maneuvers in estimating heart vigor is by no means comparable to a correct method of cardiac auscultation, although the latter method does not indicate how much of the cardiac force may be attributed to increased peripheral resistance; cardiac auscultation in conjunction with the sphygmomanometer and the inhalation of amyl nitrite, constitute the ideal methods for eliciting the real condition of things.

7. In estimating blood-pressure, the sphygmomanometer only gauges the force of the left ventricle, and to determine the sufficiency of the right ventricle, auscultation of the pulmonic sounds and a physical examination of the lungs are alone adequate.

I have encountered a number of individuals with very high blood-pressure and who demonstrated no cardiac anomaly, yet the blood-pressure remained the same after as before the inhalation of amyl nitrite. In about half of these individuals, the urine was light in color, of low specific gravity, contained a trace of albumin, and was excreted in increased quantities. Albumin often disappeared when the blood-pressure was spontaneously lowered, to reappear when the pressure rose, hence the albuminuria in such instances could be correctly designated as the albuminuria of high blood-pressure.

Miners' Pulmonary Tuberculosis in the Transvaal.—Mr. R. B. Haldane, the wellknown British author and Liberal M. P., directs attention in a published letter to the ravages committed by miners' pulmonary tuberculosis in the mines of the Witwatersrand. It seems that the quartzite of the gold-bearing beds of the Witwatersrand is very hard, and the mines very dry; consequently, when the rock is drilled and blasting takes place, the atmosphere becomes filled with minute particles of hard rock dust, which are inhaled. The result is a deplorable loss of life, and great economic wastage. Mr. Haldane estimates that the deathrate among the white rock-drill miners of the average age of 35 is over 70 per 1,000. Among English coal miners of this age the mortality is only 6.3 per 1,000; among English ironstone miners, 6; and among English tin miners, 8.1. The figures appear to indicate that among the native rock-drill miners the mortality is less. It is given as 42.03 per 1,000. Mr. Haldane insists that the loss of life is unnecessary. All of it, or nearly all of it, could be obviated by the substitution of wet for dry mining. But this, owing to the scarcity of water, would be a costly operation.

Scheme for Measuring Great Britain's Population.—There is a likelihood that the committee which is at present investigating the alleged decline of the national physique will recommend a scheme for measuring and weighing the population of the United Kingdom. The desirability of adopting such a scheme has been strongly urged upon the committee by doctors and anthropologists. The development of a project of such magnitude will necessarily occupy considerable time, but it is understood that it has so far advanced that a schedule based upon measurements and tests prepared by Dr. Cunningham of the Edinburgh University is now being drawn up by a section of the British Association. A copy of this schedule, it is suggested, should be sent to every householder with a request that he state therein the age, height, weight, chest measurement, and other facts respecting the physical condition of himself and each member of his family. Anthropologists are anxious that the measurements should include those of the skull. They argue that as the population of these islands has become so cosmopolitan an effort should be made to determine the native counties of its constituent members. Skilled anthropologists can tell from the conformation of a man's head not only of what nationality he is, but in the case of an Englishman what county gave him birth. Mr. James Gray of the Anthropologic Institute, who is taking an active part in the present scheme, recently addressed a meeting at the Tynbee Hall. His audience included a large number of foreigners, whose heads he measured with an instrument invented by himself. Mr. Gray then correctly informed 50 of them in what countries they were born. For these and other reasons anthropologists urge that the size and shape of heads should be noted when the other proposed measurements are taken.—[*London Mail*.]

ORIGINAL ARTICLES

EMPYEMA.¹

BY

DE FOREST WILLARD, M.D.,
of Philadelphia.

Empyema is a condition so frequently unrecognized until the changes in the pleura are positive and destructive, that the results are exceedingly detrimental, not only to the immediate health of the patient, but to the subsequent symmetry of the chest. Many cases of lateral curvature of the spine are directly traceable to empyema as a cause of the commencement of the deviation. Collapse of the lung and contraction of one side of the thorax must necessarily distort the ribs and spine. The extreme degree to which the trunk may be twisted is well illustrated in the following case:

A girl of 14 had pleurisy at four years of age; her left chest was drained by a good surgeon for several months through two openings. One cicatrix is near the second costal cartilage, the other near the nipple. At the present time, 10 years later, her body is so tilted to the right that the line of the internatal fissure crosses her left shoulder, and a plummet line dropped from her right shoulder falls three inches outside her right hip. The anteroposterior diameter of the left chest varies from 3 inches to 4½ inches, while the right is 5 inches to 8 inches. The left thorax is greatly flattened and collapsed, and resonance and the vesicular murmur are heard only over the upper third. The right chest is very prominent, and the spinal curve with dorsal convexity to the right is most marked. The rotation is very great in the right thoracic region; moderate to the left in the lumbar. (Figs. 1 and 2.)

In many cases, in which drainage is instituted early, no deformity of the chest or body results. Only recently I had the opportunity of examining a lady upon whom I had operated 30 years ago when she was a child of five. She bore two large scars on the lateroposterior aspect of the right thorax, but her spine was perfectly straight, her right chest but slightly flattened, and even when stripped, asymmetry of the trunk could only be detected by close observation.

Many cases of pleurisy with effusion are subtle and insidious in their progress, patients even walking about with a large quantity of unrecognized fluid in their chests. In other cases the lack of recognition is due to the severity of the symptoms, especially when complicated with pneumonia, the effusion being masked until pus is thoroughly formed. No practitioner can afford to be other than an expert in percussion and auscultatory signs that mark an accumulation of fluid in the chest. With a flat percussion note, absence of respiratory murmur, of vocal fremitus and of vocal resonance, there need be but little doubt. A small locally walled-up accumulation may, however, cause a temporary uncertainty.

Errors of diagnosis are however not uncommon. I frequently have cases sent to me as spine disease or as lateral curvature, because the patient is tilting the body to one side and is carrying himself cautiously. When such a patient is stripped, it is plainly noted that the side toward which his body is inclined is sensitive to pressure, that movements in the opposite direction cause distress, while auscultation and percussion give speedy assurance of the existence of pleural accumulation.

On the other hand, pus in a case of dorsal spinal caries may make its way into the pleura, and if not evacuated, may perforate the lung. The danger of tuberculous infection of the lung in these cases is great, yet I have known the patients to recover. In some instances I have been able to demonstrate the continuousness of the pus track by injecting methylene-blue or pyoktanin into a sinus on the back and have it expectorated from the mouth.

In cancer of the liver, with extension to the diaphragm

and adhesion of lung, I have mistaken the condition for local encysted empyema, and have tapped unsuccessfully. I have had a similar experience in posthepatic abscess following appendicitis. Empyema from injuries of the liver and from abscess of the liver, or other infections following abdominal disease, has also occasionally deceived me. In malignant disease also of the spleen, or of the curve of the transverse colon, the surgeon may be misled unless a complete examination is made.

The fibrinous exudate, as drawn, sometimes presents a peculiar creamy appearance before it has been fully converted into pus, as illustrated in the following case of pleurisy of seven weeks' standing. The fluid was localized in front at the upper anterior portion of the chest, the heart being pushed downward two inches. I drained this accumulation in a child of 10, with speedy cure. The fluid had the appearance of an oil emulsion, and was about the consistency of pus, but on standing, did not separate in layers as pus does; even after 24 hours it was



Fig. 1.—Contracted left thorax following empyema, with tilting of body to right.

still of a creamy consistency and intimately mixed. Reaction acid. After making it alkaline, stains by the contrast method for 24 hours showed no tubercle bacilli. Plain stains showed a few diplococci, and a short, thick bacillus, but no streptococci nor staphylococci. A few polynuclear granular leukocytes were present, but no typical pus cells. There was much fibrin, which appeared in flakes, rather than in fibrils. This accounted for the consistency of the fluid.

Occasionally, spontaneous opening occurs in neglected cases; while the tendency seems to be anterior in spite of gravity, yet I have seen a number of cases of posterolateral openings. It is a very unfortunate complication when purulent accumulations are permitted to continue until they perforate the lung. To allow such an abscess to drain through the bronchi is to expose the lung to tuberculous infection, and to have the horrible, ill-smelling pus discharged from the mouth is exceedingly dangerous. These cases demand speedy interference and the

¹ Delivered, by invitation, before the Altoona Academy of Surgery, April, 1904.

freest drainage through a short route, *i. e.*, through the thoracic walls. A small serous effusion can be absorbed; it had better be withdrawn. Early recognition and early removal are therefore most important. I am not one who believes in the wisdom of compelling the absorbents to take up a pleural effusion, even though it be only serous. When aspiration is performed aseptically there is practically no risk, and the information to be gained thereby far more than counterbalances any slight detriment. It is the surest and safest preventive of empyema, and "prevention is always better than cure." The longer the lung is compressed, the more likely is the injury to become permanent. The error usually committed by practitioners, and one which I have seen several times during the past two months, is that this test is often made with an ordinary hypodermic syringe, the point of which is short and of small caliber. No liquid is obtained, and the physician decides that none is present, while the facts of the case are that he has not entered the pleural cavity at all. A false diagnosis is established, he is deterred from further attempts,



Fig. 2.—Contraction of left thorax following empyema, with tilting and rotation of vertebrae.

and the patient goes on to empyema under his very eyes. This test exploration should always be made with a long aspirating needle of good size, either the smaller or medium needle ordinarily connected with the aspirator set, and the vacuum bottle should be ready at hand for the complete withdrawal of fluid, if discovered.

Another very common error in the hands of a timid man consists in introducing the needle slowly; the thickened pleura is pushed forward in front of the instrument, and of course the fluid will not be reached. Again, if a small-calibered needle is used, flocculi of lymph or fringes from the membrane may block the orifice. A quick, short, vigorous thrust, the depth of the needle being properly guarded, is the best; if made just at the upper border of the rib, there is no danger of striking the intercostal vessels. Cocain infiltration or ethyl chlorid is sufficient, but a piece of ice dipped in salt and held against the part, is equally good. If a serous liquid is found, it should be thoroughly withdrawn with the

aspirator, and even if purulent or seropurulent, the withdrawal will be of advantage as a preliminary operation, since it gives an opportunity to the lung for expansion, and also relieves one of the serious conditions, namely, displacement of the heart.

Aspiration is an operation, however, only for temporary relief in pus cases. As before stated, it may allow the lung to expand and the heart to slide back to its position, and in some cases allow of slight recuperation on the part of the patient.

A few days' delay only is allowable for expansion. Thorough drainage should be the rule. How shall we drain? There are many methods. I have found none so helpful or safe and rapid in cure as the making of two large openings, with such an amount of resection of the ribs as may be indicated. The question of the resection of ribs will depend first, upon the condition of the pleura, second, upon the immobility of the lung. The resection may be an inch of a single rib, or it may be many inches from all the ribs. The surgeon cannot properly determine either of these conditions without a large opening, so that both palpation and inspection may be practised. When the pleura is dense and is degenerated, large multiple excisions are necessary, even complete thoracotomy. In doubtful cases it will be sufficient primarily to resect a portion of the ribs; thorough drainage will then put the patient in better condition for extensive resection of the walls. The site of the incisions will depend upon the position of the accumulation. The first opening may be made at any convenient point; let the pus flow slowly through a small opening; watch your patient's respirations; resect a portion of rib to admit the introduction of the finger, carry in a large-handled probe by means of which the most dependent portion of the cavity can be reached. An ordinary probe is useless for this work, but a long silver catheter or steel sound will sometimes answer as a substitute for the large probe, which should be a foot in length. The second opening should be at the very bottom of the cavity, with resection of a rib or ribs, to insure free drainage. If the lower opening is made too close to the diaphragm, the movements of this muscle may occasionally obstruct it. Again, the upper opening should not be made at a point that will be interfered with by the movements of the scapula. The amount of rib resection will vary greatly; in children, an inch at each of the openings is sufficient. It is very important that there shall be no pinching of the drainage-tube, and no obstruction to the exit of pus. In adults, the amount of bone removed will vary from two or three inches in the region of each opening, up to taking away nearly the whole chest wall. Ordinarily the difficulty is that the openings are made too small, not too large. In thoracic surgery of a lung that is not crippled by disease, the inlet of air will cause collapse and great dyspnea, but in empyema the lung is already compressed and fastened, so that there is but little effect upon the respiration, whether the opening be large or small, still the slow withdrawal of the fluid is better for the heart than rapid. The drainage-tube should be of very large size; for the first few days it should pass in at one opening and out at the other; later, it may be divided in the middle and shortened at each dressing, but extreme care must be used lest a section drop into the pleural cavity, as has not infrequently happened. Various devices of winged and infurled tubing have been invented to prevent this accident, which is certainly a most serious one, and many a secondary operation has been necessitated to remove the offending body. A tube with a collar may be employed, or a silk trailer may be attached, so as not to depend entirely upon the safety-pin, which may turn upon its long axis. Various forms of valves have been invented to exclude air and permit the passage of the pus, but they all seem to me unnecessary, since proper aseptic care and a free, rapid exit of the pus are infinitely more safe and curative.

Washings.—In my experience the washing of a chest cavity is nearly always disadvantageous. It is permissible in fetid accumulations, but even in these cases I believe that my patients have done better when it has been omitted, provided free drainage has been secured. After the first few days a fetid discharge indicates that the drainage is not complete but that pus is being retained; odor means that the openings should be extended so as to enable all purulent material to be immediately carried out upon the dressings.

The fact that irrigation is required shows that drainage is imperfect. The full and free exploration of the cavity at the time of operation, both by finger and by the long probe, is the best preventive of fetor. The use of irrigation at best should be only mechanical, and should consist of either salt or boric acid solutions. I have seen most violent irritation and inflammation aroused and great pain in consequence of the use of mercuric chlorid and other injections.

When the sinus persists after drainage, I have sometimes effected closure by laying open the entire tract, cutting away both soft and hard tissues, paring out the granulation tissue, and packing the wound, thus compelling it to granulate from the bottom.

Thoracotomy and Thoracoplasty.—In recent cases of moderate severity, free drainage is all that is necessary, but in the old neglected cases of pyothorax, in which the lung is collapsed and is thoroughly bound down, much more extensive operations are necessary. It is but natural that a cavity bounded exteriorly by rigid walls, supported by trusses like the ribs, and bounded internally by a rigid lung, should be unable to collapse and heal. Operative measures in such cases are of varying degree of severity and it is sometimes necessary to remove practically one-half the thorax of the individual. The radical operation in its extreme degree implies an excision of all the ribs, even to the first; the latter, however, is a dangerous operation, as it comes in such close contact with subclavian vessels. The "U" shaped incision for the extreme grade of operation starts from a point high up between the vertebrae and the scapula, runs down to the base of the chest, then upward and forward to the pectoral border near the anterior axillary line. The extent of the removal of the wall will vary in accordance with the condition of the pleura and lung. In some cases it is sufficient to excise a section only of the ribs in the path of the incision, raising a trap-door and then removing the ribs by incising each one upon the under surface, longitudinally to its axis, and shell-ing it out, or the resection may be made by dissecting up the skin and superficial tissues and excising the individual ribs from the outer face. In other cases the pleura and intercostal muscles are excised entirely in addition to the ribs, the skin flap being allowed to fall in and close the cavity. In such incisions I have always found it better to tie the intercostal arteries separately as cut, rather than to ligate any mass of tissue. Another plan which has for its object the expansion of the lung is to decorticate the lung (pneumoplasty as advised by Delorme, Fowler and others), dissecting away all the thickened pleura, releasing it from its adhesions, and then by deep breathing and other exercises endeavoring to cause the lung partially to obliterate the diseased space. All of these operations are exceedingly formidable, are followed by great deformity, and can all be avoided by early diagnosis and treatment. By any of these methods the ribs may be dissected from their costal cartilages nearly to the spine.

The use of the Röntgen ray will sometimes locate the pus, but ordinarily it is not satisfactory unless iodoform-glycerin is injected.

Even in the cases in which tuberculosis is present, it is often helpful to drain the abscess cavity, and in some cases even closure may be effected. In tuberculous cases extensive resections are apt to be serious; it is wiser not to be too radical. An extensive thoracoplasty is always

a serious operation; in fact, the deathrate even with an ordinary amount of excision of ribs is nearly one in four.

Postoperative Lung Gymnastics.—The use of deep breathing, dumb bells, muscular exercises, body flexions, playing of musical instruments, etc., is all important.

CONCLUSIONS.

1. Early diagnosis of pleurisy and early operation are the prime elements in the avoidance of empyema. The general practitioner is the one who needs to be on the alert.

2. A test for fluid should be made with the aspirating needle, not a hypodermic, as the latter is too small and short. Liquid, if present, should be immediately withdrawn; if purulent, further operation within a day or two is advisable as soon as the lung expands and the heart moves toward its normal position. Aspiration should be limited to diagnostic purposes, to the withdrawal of serum, and as a preliminary operation in empyema.

3. In all cases of pyothorax, free drainage, not aspiration, should be the rule. The larger the openings the quicker will cure be effected. Resection of ribs is imperative for exploration by the finger and for removal of fibrinous masses.

4. Washings are counterindicated, except in fetor, and even then more perfect drainage is indicated rather than irrigation.

5. In old chronic cases with contracted lung and degenerated pleura, more or less excision of the chest wall and pleura should be performed, even to the excision of the entire extent of all the ribs.

6. Even in tuberculous empyema, benefit is derived from thorough drainage.

EXPERIMENTAL PANCREATITIS CONSIDERED IN ITS RELATION TO THE ACUTE FORMS OF PANCREATITIS IN MAN.¹

BY

RICHARD M. PEARCE, M.D.,
of Albany, N. Y.

Director Bender Laboratory, Albany, N. Y.

The short space of time allotted me in this discussion will not allow a comprehensive statement of the many fruitful experimental researches having for their object the elucidation of the physiology and pathology of the pancreas. Various phases of the experimental investigations will, doubtless, be taken up by others who address you this evening; and I have therefore, with the approval of your president, decided to limit my remarks to a consideration of the acute lesions which may be produced experimentally. What we have gained by experiment in this field is practically a knowledge of etiology, and it is therefore more particularly the question of etiology that I will discuss. I will not hesitate, moreover, to compare the experimental lesions with the acute lesions seen in man, with the object as far as possible of correlating the knowledge gained by experiment and that gained by pathologic study.

In any consideration² of the acute forms of pancreatitis we are confronted at the outset with the question of classification. The division into hemorrhagic, suppurative, and gangrenous forms, as made by Fitz, would appear to satisfy all demands. Some writers, however, speak of a necrotic form. This is of doubtful value, for all forms show more or less necrosis; indeed, in the

¹ Presented before the Medical Society of the Greater City of New York, February 8, 1901, in a discussion of "Diseases of the Pancreas."

² In the preparation of this brief summary I have freely used the recently published work of Opie ("Disease of the Pancreas. Its Cause and Nature," J. B. Lippincott Company, 1903), and Flexner's description of the pathologic anatomy of the pancreas (Trans. Congress of American Physicians and Surgeons 1903, Vol. vi, 18); and I take this opportunity to acknowledge my indebtedness. I have not attached a bibliography. All references may be found in the bibliography of Opie's work.

hemorrhagic form, especially that produced experimentally, necrosis is a constant and essential part of the process, though not always evident microscopically. The possibility of pancreatic hemorrhage without inflammation—the so-called pancreatic apoplexy—is another debatable question which, in the present state of our knowledge, cannot be definitely settled. It seems probable from our present point of view, that thorough histologic examinations of such cases would furnish evidence of inflammatory changes and bring this lesion under the head of hemorrhagic pancreatitis. Seitz, the last writer (1892) to make a careful study of this lesion is, however, opposed to this view, and believes that some cases, at least, may be attributed to arteriosclerosis.

Hemorrhagic Pancreatitis.—The gross appearance of this form of pancreatitis—an enlarged organ with diffuse or mottled hemorrhagic areas of varying color and grayish-white spots or streaks of fat necrosis—is so well known that we may turn at once to the question of etiology. Our knowledge of the causes of pancreatitis is entirely the result of experiments having for their object the reproduction of the condition. Clinical observations have contributed nothing, and with the exception of Opie's observations upon the relation of cholelithiasis, the same may be said of general pathologic examinations. The simplest form of experimentation is the injection into the pancreatic duct of various irritating or supposedly injurious substances. A great variety of substances thus introduced has been found to produce typical hemorrhagic pancreatitis, usually with fat necrosis. These substances are deliquescent zinc chlorid (Thirollox), artificial gastric juice (Hlava, Flexner and Pearce), bile (Opie, Flexner, and Pearce), papain (Carnot), and bacteria and their toxins (Hlava, Carnot, Flexner). Flexner found various other substances, as formalin, nitric, and chromic acids, and solution of caustic alkalies, would produce the same results. The disease produced by these various means usually runs a rapidly fatal course, though some animals may live for weeks and present at death extensive suppurative or sclerotic changes. In some instances putrefactive microorganisms invade the injured organ and cause a gangrenous pancreatitis. If we study these various methods with the view of determining if any of them may operate to cause the hemorrhagic pancreatitis seen in man, we have four possibilities: Action of (a) ferments originating in the pancreas, (b) bacteria, (c) gastric juice, and (d) bile.

The possibility of the first is suggested by Carnot's experiments with papain, and some support is offered by Chiari's observations upon autodigestion of the pancreas. According to Chiari, this change occurs shortly before death, and may be accompanied by multiple small hemorrhages. The destruction of the parenchyma thus brought about affords an opportunity for the diffusion of the pancreatic ferments. There is some evidence that fat necroses may be caused by the fat-splitting ferment thus liberated, but as yet we have no definite proof that a true hemorrhagic pancreatitis may result from the action of this or other ferments liberated at the same time.

Various microorganisms as *Bacillus coli communis*, the pneumococcus, and the pyogenic cocci, have been found, not infrequently, associated with hemorrhagic pancreatitis. There has been no uniformity in these findings, and most of the writers reporting the results of bacteriologic examinations agree that the organisms represent a secondary invasion of injured tissue, and are in no way concerned in the etiology of the lesion.

That the gastric juice, as suggested by Hlava, may enter the pancreatic duct and produce an inflammation of the pancreas presupposes a powerful antiperistaltic, or other action, forcing the secretion into the duct. Of such action we have no definite evidence. Under normal conditions it is practically impossible to force fluids from the intestine into either bile or pancreatic ducts. I have recently made some experiments upon dogs in order to

determine this point. The intestine was ligated at varying distances above and below the orifice of the ducts and distended by injecting colored solutions and suspensions. After varying periods of time, the animals were killed, but no staining of the ducts could be demonstrated. In other experiments upon the dead animals, forcible manual pressure was exerted upon the similarly ligated intestine with negative results. On the other hand, it cannot be denied that under certain pathologic conditions of the duct orifice, intestinal fluids may possibly be forced into it. Concerning the action of the gastric juice upon pancreas parenchyma the following case would appear conclusive.

(Records of the Pathologic Department, University of Pennsylvania; Autopsy No. 01.48). The clinical history of this case is brief and incomplete. The patient, a negro, aged 41, was admitted to the insane department of the Philadelphia Hospital on July 19, 1900, with a diagnosis of delusional insanity. For the next six months his condition, apparently, was not noteworthy. "On January 28, 1901, the patient seemed rather dull and was put to bed." On February 11, regurgitation of blood mixed with milk curds was observed. This continued until his death on February 13. Physical examinations revealed a rather firm mass in the right hypochondriac region, which upon palpation caused the patient to complain of pain. At no other time did he complain of pain. Temperature was normal; pulse about 100, and of poor volume; no distention of abdomen; marked constipation. Albumin was found in the urine, and microscopically numerous hyaline and granular casts. The clinical diagnosis was cancer of the stomach and the liver, with chronic nephritis.

Autopsy. Pathologic Diagnosis.—Recent hemorrhage in and about pancreas and duodenum, chronic gastropancreatic fistula; chronic interstitial pancreatitis; chronic pulmonary tuberculosis; tuberculosis of the bronchial, gastrohepatic and retroperitoneal lymph-nodes; chronic mitral endocarditis; general chronic passive congestion; chronic diffuse nephritis (parenchymatous type).

Abdominal Cavity.—Stomach is greatly dilated, the lower margin extending below the umbilicus; pylorus touching the right costal margin. Beneath the pylorus and entirely surrounding the duodenum is a globular, firm, hemorrhagic mass, distinctly encapsulated and resting on the upper end of the right kidney. The subperitoneal tissues between the stomach and the transverse colon and in the neighborhood of the pylorus and adjacent abdominal wall are infiltrated with clotted blood. Stomach, pancreas, duodenum and transverse colon with hemorrhagic mass removed entire. Upon opening the stomach it is found normal except for the presence of a small orifice with smooth edges 4 cm. from the esophageal end. The outer wall of stomach about orifice is bound to the pancreas 9 cm. from its splenic end by dense fibrous adhesions. A probe passed through the orifice in the stomach enters a sinus leading to the pancreas. This sinus passed directly through the pancreatic tissue. Its walls are lined by dense fibrous tissue, and it contains bloodstained mucus-like fluid. The canal can be followed for a distance of 5 cm. It then approaches the surface of the pancreas, where it is continuous with the blood clot about the duodenum. No foreign body found in the sinus. The splenic end of the pancreas for a distance of 8 cm. appears normal; the middle portion for a distance of 4.5 cm. is paler and firmer than normal, and the lobulations are not so distinct; through the remaining 5 cm. constituting the duodenal end, the pancreas is extensively infiltrated with blood. Surrounding the duodenal end of the pancreas and completely encircling the duodenum is an encapsulated mass of black clotted blood 14 cm. in length and 7 cm. in diameter. The long diameter of this clot corresponds to the course of the duodenum. The source of the hemorrhage cannot be discovered. The pancreatic and common bile ducts are patulous. The mucous membrane of the duodenum is very thin, bloodstained, and at one point presents a small adherent blood clot 2 cm. in diameter. No fat necrosis.

Histologic Examination.—The wall of the sinus is composed of dense fibrous tissue. On its surface is a thin layer of granular material with a few pus cells. Sections stained by Gram-Weigert's method show a few cocci and bacilli. Scattered through superficial portion of sinus wall are many lymphoid and plasma cells and a few polymorphonuclear leukocytes. New bloodvessels are seen throughout and here and there are small areas of hemorrhage. In the deeper portions the hemorrhage is more diffuse, and here are seen small islands of atrophic pancreatic tissue infiltrated by lymphoid cells. From the sinus wall coarse bands of fibrous tissue run into the substance of the pancreas, and divide into finer lines which penetrate the pancreatic acini. Sections from various portions of the pancreas, at a distance from the sinus, show a moderate increase of perilobular connective tissue. The cells of the parenchyma are very granular and stain poorly. The islands of Langerhans are prominent and unaltered. Throughout the duodenal portion extensive hemorrhage is seen in the interstitial tissue, penetrating in places the parenchyma which is edematous. No necrosis or exudation is evident. The splenic portion is free from hemorrhage.

From this description it is evident that in the early development of the sinus the gastric juice must have been in intimate contact with the pancreas parenchyma but failed to produce a hemorrhagic pancreatitis. The hemorrhage into the duodenal portion, was unaccompanied by acute changes and was due apparently to extension from the large clot about the duodenum. The chronic pancreatitis was merely a localized process about the sinus. The case offers strong evidence against the possibility of gastric juice exciting a typical hemorrhagic pancreatitis.

The relation of bile to acute pancreatitis has received very substantial support from experimental observations and also from the not unusual occurrence of the lesion with cholelithiasis. The most important contributions to this phase of the subject have been made by Opie, who has worked out the pathogenesis of pancreatitis associated with gallstones, and by injecting bile into the pancreatic duct of the dog has produced a typical inflammation of the gland with associated fat necrosis. In one particularly fortunate autopsy he found at the apex of the diverticulum of Vater a small calculus completely blocking the duodenal orifice, but too small to obstruct the orifices of the common bile and the pancreatic duct. These ducts were thus transformed into a continuous closed channel from which it was impossible for their respective contents to escape. Upon dissecting the pancreatic duct it was found to be stained light green with bile, indicating that the slightly greater pressure in the bile duct, probably due to the contraction of the gallbladder, had forced bile into it. An acute hemorrhagic pancreatitis with disseminated abdominal fat necrosis existed.

The same writer has also analyzed the reported cases of acute pancreatitis and finds that cholelithiasis is very constantly associated with the hemorrhagic and gangrenous forms of the lesion. On the other hand, acute pancreatitis is a rare condition as compared with the relative frequency of cholelithiasis. In this connection it is important to point out, as Opie has done, that in only a small proportion of individuals (in about three out of ten) are the anatomic features such as to allow favorable conditions for bile to penetrate the pancreatic duct. The ducts, in a considerable number of individuals (10%) open separately and the diverticulum does not exist. Also, the size of the diverticulum bears an important relation to the production of the condition; its variation in length is from zero to 11 mm. the average diameter of the orifice being 2.5 mm. In only 30 of Opie's 100 examinations did the length reach 5 mm. Thus it is evident that a stone to produce obstruction of the duodenal orifice only, must be relatively smaller than the diverticulum, for otherwise the orifices of both ducts would also be obstructed and the secretions forced back upon their respective organs.

While cholelithiasis is thus definitely established as an important factor in the etiology of acute pancreatitis, it does not explain all cases. Many cases have been reported in which neither clinical history nor autopsy affords evidence of cholelithiasis, though it is noteworthy that since attention has been called to this association these cases are not so numerous. It should also be noted in this connection that the stone after obstructing the papilla orifice and causing a pancreatitis may pass into the intestine and escape observation, or perhaps pass from the intestine entirely. A dilation of the diverticulum may in such cases indicate the previous resting place of the stone. The following case would appear to be an example of this kind.

Patient of Dr. W. E. Fay, of Boston, Mass.

Clinical Abstract.—The patient was a robust woman of 36, with a history of occasional sharp attacks of gastroenteritis after excessive indulgence in wine. "The mortal attack began with a 'French' dinner on Thanksgiving Day. From claret she changed to whisky, drinking considerable between November 29 and December 8. When first seen, on the latter of these

dates, she was tremulous and sleepless, with a wild look in the eyes, intense burning in the epigastrium, and violent and continuous emesis. Neither water nor cracked ice could be retained. The vomitus was green, thin, and acid. After the hypodermic use of morphin, and careful administration of chloroform almost steadily for an hour, sleep was obtained lasting three hours. Restlessness then returned, with frequent hicough, and ceaseless cry for water, which was rejected in whatever quantity or temperature given. Washing the stomach and paraldehyd administered by enema afforded temporary relief. Abdomen was distended. Obstinate constipation was overcome by high enemas. Persistent flatulence was present in both stomach and bowel, and considerable pain centering in the epigastrium and extending throughout the abdomen. This condition continued, with temporary alleviations, for nine days after she was first seen. Then December 17, slight jaundice was noticed. The patient desired nothing but frequent drinks of milk and limewater. December 20 patient sat up and began to eat gruel, but had no energy. December 24 there was sudden enlargement of the right parotid and adjoining glands, with redness extending below angle of jaw; considerable emaciation had taken place. After sitting up parts of two or three days, which was agreeable to her, there was an increase of tenderness throughout the abdomen. Temperature rose to 101°. Distention was constant. Free fat appeared to float in the urine; sugar was present. The patient sank rapidly, and died on December 30."

Autopsy was performed six and a half hours after death.

Anatomic Diagnosis.—Hemorrhagic and gangrenous pancreatitis with fibrinous peritonitis and accumulation of grumous fluid in peritoneal cavity. Multiple fat necroses of omentum, mesentery, epiploic appendages and subperitoneal fat generally. Acute duodenitis with dilation of orifice of duodenal papilla. Localized dilation of common bile duct. Dilation of pancreatic duct. Fatty degeneration of heart, liver, and kidneys.

Abdomen.—Excessive amount of subcutaneous fat. Omentum, mesentery, epiploic appendages, and abdominal fat generally closely studded with round or grayish-white oval areas, 2 mm. to 5 mm. in diameter, and distinctly circumscribed. Many of the greatly enlarged epiploic appendages (3 cm. by 1.5 cm.) are entirely necrotic. In pelvis and both flanks is a thin, grayish-red greasy fluid, containing small black shreds of friable material. Omentum is glued to anterior abdominal wall by a bloodstained, fibrinous exudate. A similar exudate covers the coils of the small intestine. The position of the pancreas is occupied by a soft, friable, irregular reddish-black mass 4 cm. by 1.5 cm., freely movable. The cavity in which this mass lies is lined by reddish-black necrotic tissue, which adheres in places to colon and stomach. The mass on section shows at splenic end irregular areas of grayish pancreatic tissue separated by dark-red lines of hemorrhage and necrosis. Elsewhere it is uniformly necrotic.

Duodenum.—Contains material similar to that about pancreas and its mucosa is injected. The orifice of papilla is dilated, and 1 cm. from the orifice occurs a circular dilation with smooth walls, 1.5 cm. in circumference. No calculi are found in gallbladder, ducts, or intestine. The pancreatic duct is dilated and separated from the pancreas; a probe from duodenal end passing directly into cavity about the gangrenous pancreas. *Bacillus coli* was found in the necrotic material about the pancreas.

While this case is not conclusive, in as much as the stone was not found, the anatomic condition indicates that a calculus, at some time, was lodged in the common duct, and the possibility of later occlusion of the papilla with final discharge of the stone is evident.

The Sequence of Histologic Changes in Hemorrhagic Pancreatitis.—Much discussion has arisen concerning the precedence and succession of the three principal phenomena—hemorrhage, necrosis, and exudation. Katz and Winkler believe that the necrosis follows hemorrhage, and is the direct result of injury produced by the extravasated blood. Hlava found extensive occlusion of the bloodvessels after acid injection, and considered it to be the cause of both necrosis and hemorrhage. Opie found hemorrhage intimately associated with necrosis and followed only secondarily by inflammatory changes. From his earlier experiments Flexner drew the conclusion that hemorrhage and necrosis are the result of the simultaneous action of the injurious agent upon bloodvessels and tissue, and that they occur coincidentally. In a later series of experiments by Dr. Flexner and myself an attempt was made to settle definitely these mooted points. Dogs under chloroform narcosis received injections of 1% to 2% solutions of hydrochloric acid into the duct and directly into the parenchyma of the pancreas. Small portions of the organ were removed after periods varying from 35 minutes to eight hours,

and examined histologically. It was found that hemorrhage, hyaline necrosis, and exudation of fluid and leukocytes could be readily demonstrated in tissue removed one hour after injection. Sections taken at the end of eight hours represented the pathologic process at its height. That these lesions are correlated in the pancreas may therefore be considered demonstrated.

At the same time in order to determine the effect of red blood-corpuscles upon the pancreatic tissue, a condition analogous to hemorrhage was brought about by the injection of sterile defibrinated dog's blood through the duct and directly into the parenchyma. Such injections did not set up an acute pancreatitis, but were followed by chronic proliferative changes. Similar injections of dog's serum were negative.

Gangrenous Pancreatitis.—Experimental and post-mortem observations both indicate that in the majority of cases gangrenous pancreatitis is secondary to an acute hemorrhagic inflammation of the organ. The tissue primarily the seat of hemorrhage, necrosis and inflammation readily becomes gangrenous under the influence of putrefactive microorganisms invading it from the intestinal canal. The association of hemorrhage and gangrene frequently seen at autopsy was first emphasized by Fitz, who also recognized, however, the possibility of the lesion originating from perforating inflammation of the gastrointestinal canal or of the biliary passages.

In the series of experiments by Dr. Flexner and myself, two examples of gangrenous pancreatitis following acid and bile injections respectively, occurred. Death occurred in each instance in less than 24 hours, and the gangrenous portions of the pancreas were studded with emphysematous blebs. Films showed bacilli having the morphology of *B. aerogenes capsulatus*. Furthermore, gangrenous pancreatitis has the same relation to cholelithiasis as has the hemorrhagic form. In Opie's table of 37 cases of acute pancreatitis associated with cholelithiasis, 8 are described as hemorrhagic and gangrenous and 13 as gangrenous. Disseminated fat necrosis is a striking feature of this lesion.

Suppurative Pancreatitis.—Suppurative inflammation of the pancreas, unlike the hemorrhagic and gangrenous forms, does not differ essentially from that of other organs. It may be primary or secondary. The relation of the pancreas to the intestines allows the possibility of infection through the ducts, while lesions of adjacent hollow viscera may extend directly or as the result of perforation. In general infection of the blood, pyemic abscesses may develop in the pancreas as in other organs. Direct extension of an infectious pyelophlebitis may also occur. These lesions are seldom accompanied by extensive necrosis, hemorrhage, or disseminated fat necrosis. The accumulation of pus is not diffuse, but occurs usually as localized abscesses. Hemorrhage and necrosis, if present, are generally focal in character, suggesting the local action of an irritant. Rarely the pancreas may be entirely destroyed and appear as a sequestrum in a pus cavity. Experiments, especially those of Flexner, show that abscesses of the pancreas may follow the injection of various fluids, as weak solutions of hydrochloric, sulfuric and nitric acids, sodium hydrate and suspensions of *B. pyocyaneus*. In these experiments we have evidently a primary necrosis due to the irritant and a secondary invasion by microorganisms. Körte in a few instances produced abscesses by injecting pus containing a bacillus of the colon group. These experimental lesions are seldom accompanied by fat necrosis. A comparison of the lesion in man and of the experimental findings indicates that this suppurative form of pancreatitis is due to some local influence causing limited necrosis and suppuration. There is, however, some evidence that duct obstruction may rarely lead to the condition, probably in that it favors the entrance of bacteria. In Opie's table, previously quoted, "purulent pancreatitis" occurred in 4 of 41 cases complicated by

cholelithiasis. The common duct in only one of these, however, contained a stone. The following case illustrates suppuration of the pancreas, with fat necrosis, accompanying cancer of the diverticulum and cholelithiasis.

The individual, a male of 73, patient of Dr. A. W. Elting was admitted to the Albany Hospital on August 24, 1903, with a history of hepatic colic which began on August 15. Since May 1, he had suffered from gastric distress, nausea and dull pain in the region of the stomach, and had lost in strength and weight. Physical examination revealed a jaundiced, emaciated, feeble individual with evidence of arteriosclerosis, enlarged heart and emphysema of lungs. Upon palpation of abdomen a distinct irregular tumor mass was felt in the epigastrium; deep pressure elicited some tenderness. During the patient's sojourn in the hospital there was slight change in his condition; the jaundice continued and nausea after the taking of food persisted; the pain subsided, physical examination revealed nothing new. Emaciation and weakness progressed rapidly and death occurred on September 11.

Autopsy, by Dr. A. T. Laird, 12 hours after death.

Anatomic diagnosis.—Cancer of the diverticulum of Vater with ulceration of duodenum and metastases in liver; dilation of common duct and gallbladder; cholangitis, gallstones free in colon; jaundice; multiple abscess of head of pancreas; disseminated fat necrosis; hemorrhage into intestine; arteriosclerosis.

The individual is extremely emaciated and jaundiced. In duodenum, about 1.5 cm. above duodenal papilla is a circular ulcer 3 cm. in diameter with irregular edges and firm indurated bile-stained base. The base of the ulcer, 5 mm. in thickness, rests upon the head of the pancreas to which it is intimately adherent and upon indurated lymph-nodes. The tissues beneath the papilla are infiltrated by a dense grayish-white diffuse growth of new tissue. The duodenal papilla is prominent and rests on the indurated mass below it; bile readily flows from its orifice on forcible pressure of gallbladder. Common duct is slightly dilated. Gallbladder measures 10 cm. in length and is distended with thick fluid bile, no calculi present.

Liver is of a dark uniform greenish color and bile ducts are distended with thick bile. Scattered throughout the organ are numerous grayish-white firm areas .5 cm. to 2 cm. in diameter of fairly definite outline.

Pancreas measures 14 cm. in length. The duodenal end for a distance of 5 cm. is irregularly swollen. On section a yellowish purulent fluid escapes and the cut surface presents numerous abscesses of varying size with thin trabeculated walls. The middle portion of the organ is firmer than normal. Splenic end is unaltered. Duct patent, though its proximal portion is surrounded by the new growth. Peripancreatic fat presents numerous distinctly circumscribed yellowish opaque areas. The small intestine is bloodstained throughout its length and contains an accumulation of blood, fluid and clotted. A lesser amount of blood is found in the large intestine. The source of the hemorrhage is apparently the ulcer in the duodenum. In the lower portion of the descending colon are found two smooth faceted calculi composed of cholesterolin and inspissated bile.

Histologic examination shows a cancer about and involving the diverticulum and the common duct with extension to the duodenum and to the head of the pancreas and with metastases in the liver. The head of the pancreas is the seat of advanced perilobular pancreatitis, in the midst of which are numerous abscesses. These abscesses are chronic in character, and contain much necrotic material and zoogloea of large thick bacilli. The tail of the pancreas is the seat of a slight perilobular pancreatitis. Typical fat necroses are numerous. The ducts are dilated and contain an accumulation of mucous and desquamated epithelial cells.

Fat Necrosis.—This condition is so constantly a concomitant of acute pancreatitis and its elucidation so entirely the result of experimentation that a consideration of the experimental lesions of the pancreas would be incomplete without it. Hemorrhagic and gangrenous pancreatitis, as they occur in man or as the result of experiment, are generally accompanied by this peculiar lesion of the fat tissue. Rarely it occurs in connection with suppurative lesions, and occasionally, as will be pointed out later, with chronic interstitial pancreatitis. The characteristic appearance is that of small round or oval areas, white or grayish-white in color, and usually sharply circumscribed. Microscopic examination shows these areas to be composed of necrotic fat cells. In early necroses fatty acid crystals may be demonstrated. These areas are found most abundantly in the neighborhood of the pancreas, and are usually limited to the abdominal fat, but they may be widely disseminated and appear in the fat beneath the pericardium and the pleura, in the

subcutaneous fat, and in the marrow of long bones. Fitz first suggested that fat necrosis is the result of a lesion of the pancreas; but to Langerhans belongs the credit of first demonstrating the essential nature of the process. By chemic and histologic studies he showed that the changes within the fat cells are associated with the splitting of the fat molecule into its fatty acid and glycerin. The glycerin is absorbed and the acids are deposited in the cells as needle-like crystals. The cell loses its nucleus, and is apparently necrotic. Later, chronic proliferative changes occur about the areas. Leukocytes may enter the necrotic fat, but when numerous, indicate invasion by bacteria. Although bacteria have been frequently found in these necroses they are not concerned in the production of the lesion, and must be considered as secondary invaders. Instances in which the injection of bacteria into the pancreatic duct has resulted in the necrosis of fat are to be explained by the setting free of pancreatic ferments as the result of injury to or inflammation of the gland.

The first experimental proof of the relation of fat necrosis to pancreatic ferments was offered by Langerhans, who injected suspensions of the comminuted pancreas of the rabbit and dog into the perirenal fat of the rabbit. One of his 13 experiments was successful, and he concluded that these necroses are due to the action of the fat-splitting ferment of the pancreatic juice. Jung obtained similar results by introducing portions of the fresh pancreas of one animal into the abdominal cavity of another; Hildebrand and Dettmer, Williams, Whitney, Flexner, Milisch, Körte, and Opie have obtained similar results by various injuries allowing the escape of the pancreatic juice into the adjacent fat and the peritoneum. Their methods include ligation of ducts and vessels, ligation, laceration, and incision of the parenchyma; and excision of portions of the organ. The experiments of Hlava, Körte, Oser, Opie, Flexner, and Pearce, in which an acute pancreatitis, usually hemorrhagic, has followed the injection of various substances, as acids, alkalies, gastric juice, bile, bacteria, etc., have also caused the appearance of fat necrosis. In these experiments the fat necroses are not due to the substance injected, but to lesions of the pancreas which allow an escape of the pancreatic juice. The final link in this chain of experimental evidence was Flexner's demonstration, by chemic test, of the presence of fat-splitting ferment in the necrotic foci. Portions of the necrosed foci from both human and experimental cases when brought in contact with neutral butter fat caused a splitting of the fat with a freeing of fatty acids recognizable by their odor and reaction.

It has been claimed by some writers, especially by Oser, that the presence of a fat-splitting ferment will not explain the widely disseminated necroses, such as occur in the subpericardial, subpleural, and subcutaneous fat. Opie has, however, in a series of duct ligations demonstrated by Flexner's method the presence of the fat-splitting ferment in the distant necroses of the subcutaneous and subpericardial fat as well as in the peripancreatic foci. The diffusion of the ferment in these experiments he also found was hastened when the secretory activity of the pancreas was stimulated by injection of pilocarpin.

Wells¹ has found that commercial "pancreatin" will produce typical fat necrosis, but that this power is lost after heating for five minutes at some point between 65° C. and 71° C. Its power to produce fat necrosis decreases proportionally as the temperature is raised above 55° C. These observations indicate an enzyme action as the source of the lesion. He was unable however to determine which of the pancreatic enzymes causes fat necrosis, and could not produce fat necroses with the lipolytic extracts of hog's liver or cat's serum used either alone or in combination with trypsin.

He thinks it possible that the lipase causes fat-splitting after some other ingredient of the pancreatic juice has injured the cell; fat-splitting is subsequent to the necrosis and not its cause. The lipase normally in fat tissues exerts no fat-splitting effect upon necrotic fat if the latter be preserved from external influences. Foci of fat necrosis become visible to the naked eye three to five hours after application of "pancreatin" and were found outside the abdominal cavity as early as 12 hours after intraperitoneal injection.

In considering the application of the results of experimental fat necrosis to the lesion as seen in man it must be borne in mind that fat necrosis bears the same relation to obstruction of the pancreatic ducts as jaundice does to hepatic obstruction. Obstruction to the outflow of the pancreatic secretion causes its diffusion into the surrounding tissues (Opie). The escape of the ferment in the acute lesions of the pancreas is readily explained by obstruction or destruction of the finer ducts or by injury to the parenchyma. On the other hand either temporary or permanent obstruction of the duct of Wirsung by calculi or by cancer may be accompanied by fat necrosis. Usually other lesions exist as suppurative or chronic pancreatitis but in a few cases, as those reported by Fraenkel (stone in diverticulum) and by Flexner (stones in common duct) no lesion of the pancreas was found. There can be little doubt that in these cases the calculus causes compression of the pancreatic duct and an accumulation of secretion which finally becomes diffused into the adjacent tissues.

The following case would appear to belong in this group. A chronic atrophic cholecystitis with atrophy of the bile ducts and adhesions to head of pancreas apparently caused pressure upon the pancreatic duct.

Records of the Bender Laboratory, Autopsy No. 0.614.—Autopsy by Dr. A. T. Laird, 7½ hours after death; female, aged 42.

Anatomic Diagnosis.—Extensive syphilitic ulceration of nose and palate; edema of lungs, hydrothorax, chronic cholecystitis with almost complete obliteration of gallbladder and ducts, fat necrosis of pancreas. The gallbladder is greatly atrophied and lies in a mass of dense fibrous adhesions which bind it to the duodenum and the head of the pancreas and which also surround and penetrate the foramen of Winslow. The cavity of the gallbladder measures but 2 cm. in diameter. The pancreas measures 17 x 4 x 2 cm. At the head the capsule is much thickened by adhesions binding it to the gallbladder and to the duodenum. Over its entire surface, numerous grayish-yellow opaque areas, not extending into pancreatic tissue, are seen. The consistence of the pancreas is normal.

Histologic examination of the pancreas reveals numerous fat necroses, and dilated ducts filled with hyaline and granular material, desquamated cells and a few polymorphonuclear leukocytes. The latter also to a moderate degree infiltrate the walls of the larger ducts. No inflammation of the parenchyma proper is evident. The islands of Langerhans are unaltered.

The following accidental finding in a dog indicates that fat necrosis may follow a simple thickening of the orifice of the duct:

Dog 84; wt., 8,650 grams. Isolated February 6. Urine normal on February 7 and 8. Killed on February 12 for purposes of obtaining organs for injections in connection with cytolytic work. All organs were normal except pancreas, the capsule of which is studded with numerous small, grayish-yellow areas of definite outline and of firmer consistence than surrounding pancreatic tissue. No evidence of acute or chronic inflammation. No fat necroses of abdominal fat elsewhere. No obstruction of the duct is found. The papilla of duodenum, however, appears as a distinctly elevated, swollen, grayish-yellow ring; a sharp contrast to the normal appearance. A fine probe passes readily into the duct. The second pancreatic duct is not found. The orifice of bile duct, lying 1.5 cm. above pancreatic duct, can be located only by forcing bile from the gallbladder.

Histologic examination shows fat necroses chronic in character, pancreas otherwise normal.

Finally, as pointed out by Opie, we have fat necroses associated with cases of chronic interstitial pancreatitis, in which duct obstruction by calculi is not present. Here it is probable that the newly-formed fibrous tissue contracting about the smaller ducts constricts them, and allows an accumulation of secretion which finally diffuses

¹ Journal of Medical Research, 1903, ix, 70.

into the adjacent tissues. These necroses are most apt to be parapancreatic. I have found two examples of this condition in the autopsy reports of the Bender Laboratory; in one associated with localized chronic interstitial pancreatitis, in the other with atrophy and lipomatosis. Macroscopic evidence of duct obstruction did not exist. These reports are as follows:

0-223.—Autopsy 12 hours after death. Male, aged 49.

Anatomic Diagnosis.—Acute follicular duodenitis and ileitis; acute swelling of spleen and mesenteric lymph-nodes; fatty degeneration of liver; arteriosclerosis; atrophy of pancreas with lipomatosis, autodigestion, and foci of fat necrosis; general infection with the bacillus of Friedländer.

The pancreas appears to be of normal size, but much of the parenchyma is replaced by diffuse masses of fat tissue. On section small islands of pancreas are seen widely separated by fat tissue. This change is most marked at splenic end, where little pancreatic tissue remains. The parenchyma in some areas is whiter and softer than normal, and in other places presents a reddish-brown appearance, suggesting minute hemorrhages. On the surface and on section several minute opaque white points suggesting fat necrosis are seen. No calculi are found in the ducts; the vessels present a few small areas of atheroma.

Histologic examination shows small islands of pancreas widely separated by adipose tissue, slight self digestion of these areas, and typical foci of fat necrosis with minute hemorrhages. The interlobular connective tissue is increased in amount; the small ducts dilated and some acini appear as duct-like spaces with flattened epithelium and contain a finely granular material. In some islands these altered acini are very abundant, and apparently indicate atrophy from pressure within the lumen. The islands of Langerhans are unaltered.

0-332.—Autopsy 10 hours after death. Male, aged 63.

Anatomic Diagnosis.—Arteriosclerosis; hypertrophy and dilation of heart; general passive congestion; edema; double hydrothorax; thrombus of right auricular appendage; multiple infarcts of lungs; fat necrosis of pancreas.

Pancreas, 20 cm. long. Twelve centimeters from the tail, over an area 2.5 cm. in diameter, the capsule is greatly thickened; beneath the capsule the pancreas presents a congested area containing many small yellowish-white areas of soft cheese-like consistence. A few similar areas are found elsewhere in the pancreas.

Histologic examination reveals a slight localized interlobular pancreatitis with typical fat necrosis.

It is possible that the first of these cases belongs to the group described by Chiari, in which, in his opinion, self digestion of the pancreas occurs shortly before death as an agonal change, and allows the escape of the fat-splitting ferment and the development of fat necrosis with associated minute hemorrhages. That fat necrosis may develop very quickly is shown in one of the experiments of the series carried out by Dr. Flexner and myself, in which necroses were evident eight hours after injection of a 1% solution of hydrochloric acid into the pancreatic duct. Wells has observed them three to five hours after the application of "pancreatin." The theory that postmortem digestion of the pancreas may set free the pancreatic secretion and allow the development of fat necrosis has little evidence to support it. In connection with these agonal necroses, Opie believes that it is possible that shortly before death the character of the pancreatic juice may change, becoming thick and viscid, in consequence of which it flows slowly. Stagnation and slight diffusion of the secretion may result and cause the insignificant necroses occasionally seen.

Infant Mortality and Milk.—One of the things in which London is far behind New York and Chicago is the method and quality of its milk-supply, the importance of which Sir James Crichton-Browne dwelt upon at the annual meeting of the Sanitary Inspectors' Association in London. He laid particular stress on the importance of children being fed naturally. The nature of substitutes for mother's milk, he said, was responsible for the increasing infantile mortality. Of the 15,000 infants who are dying in England annually in the first year of their life, three-fourths have been fed artificially. In France the mortality among suckled children is 8%, while among hand-fed it is 61%. Patent foods, he declared, all should be condemned, as their exclusive use often leads to anemia, rickets and scurvy. He urged the further use of milk for adults. In certain sicknesses, such as typhoid, life may depend on milk, which may not only postpone the final issue in certain kinds of senile decay, but may contribute to the stability of vigor in maturity. He drew attention to the value of the goat as a milk producer.

ACUTE ANTERIOR POLIOMYELITIS IN ADULTS, WITH REPORT OF A CASE IN WHICH THERE WAS ALSO A PERIPHERAL FACIAL PALSY AND PARADOXIC PUPILS COMPLICATED WITH HIPPIUS.

BY

ALFRED GORDON, M.D.,
of Philadelphia.

Instructor in Nervous Diseases, Jefferson Medical College; Assistant Visiting Neurologist to the Philadelphia Hospital; Neurologist to Douglass Memorial Hospital.

Cases reported under the title of acute anterior poliomyelitis in adults should always be accepted as such with some hesitation. A careful reading of the old records will show now at a glance that a number of cases described as acute affections of the anterior cornua of the cord were in reality no more than examples of polyneuritis. Lately, however, the acute spinal diseases of adults, corresponding to the typical infantile palsies, have been reported more and more rarely, as our present knowledge of the subject enables us to make a better discrimination. It is true there are in the literature a few cases with undoubted microscopic findings (Gombault, Rissler, Williamson) and also some observations which clinically are types of true acute poliomyelitis, nevertheless, the histories of quite a large percentage of them are not at all convincing in regard to their poliomyelitic nature. The reason of the variety of the affection in adults as compared with children lies probably in the absence of a special predisposition to infectious diseases which characterizes childhood.

The case I am about to report presents clinically an affection which points to an invasion of the cells of a segment of the spinal cord and of those of a nucleus of the medulla, or perhaps to an involvement of two whole motor neurons; one in the cord and the other in the medulla. In my opinion, if it is not an example of a pure poliomyelitis, it nevertheless is undoubtedly not a case of polyneuritis.

M. D., aged 27, was admitted to the Philadelphia Hospital on November 9, 1903, with the following history: On May 8 while lying on the ground in the open air he fell asleep, and when he woke up he found himself in the Pennsylvania Hospital. The record of the latter institution, however, shows that the patient fell from a wagon and was brought to that hospital in a patrol wagon in a semiconscious state. On the third day a flaccid paralysis of the left upper limb was noticed. Three days later a left facial palsy of Bell's type was observed for the first time. When he left the Pennsylvania Hospital, on June 15, there was some improvement in the arm, but the facial palsy remained unaltered. The examination shows a very strongly built man, with perfectly normal viscera. The motor as well as the sensory conditions of both lower and right upper extremities are normal. The left upper limb is in a state of total flaccid paralysis, although there are some movements in the hand. All the reflexes (biceps, triceps, extensors of the wrist) of this limb, also Bechterew's reflex on the same side, are abolished. Sensations of the paralyzed limb present the following peculiarities: On the radial side of the hand in an area extending from the wrist to the tip of the thumb and to the ends of the first two phalanges of the index and medius there is a distinct delay to all forms of sensations. The rest of the entire limb is normal to touch. From the acromion down on the antero-external aspect of the arm, forearm, and hand, there is an area of an inch in width which is hypalgæsic and thermoanæsthetic. The same sensory disturbances are noticed on the auricle of the left ear (anterior and posterior aspects), also on the skin covering the mastoid process. The patient did not complain at any time of pain, but sometimes of numbness in the paralyzed limb. There is no tenderness on pressure of the nerve trunks. The deltoid, biceps, triceps, supraspinatus and infraspinatus muscles, first interosseous space, thenar and hypotenar muscles on the left side are distinctly atrophied. Fibillary contractions could be seen on biceps, triceps, and infraspinatus muscles. Electric reactions show diminution of contractility and reaction of degeneration in some muscles. The face shows distinct evidences of a previous palsy on the left side, although the orbicularis palpebrarum has recovered almost entirely. The muscles of the paralyzed side are retracted, so that the nasolabial fold is more elevated on the left than on the right, but when the patient is told to contract various muscles, it can be readily seen that the muscles of the left side are distinctly weaker than those of the right.

The pupils are unequal with predominance on the right.

The light reflex presents the following peculiarity. After the eyes have been closed for a minute, we notice on the opening that during the first second there is no reaction to light, but immediately afterward the pupils dilate and then hippus makes its appearance; contraction and dilation follow each other rapidly for a half minute. The ophthalmoscopic examination shows that both optic nerves are pale, especially the left; the arteries are rather narrow.

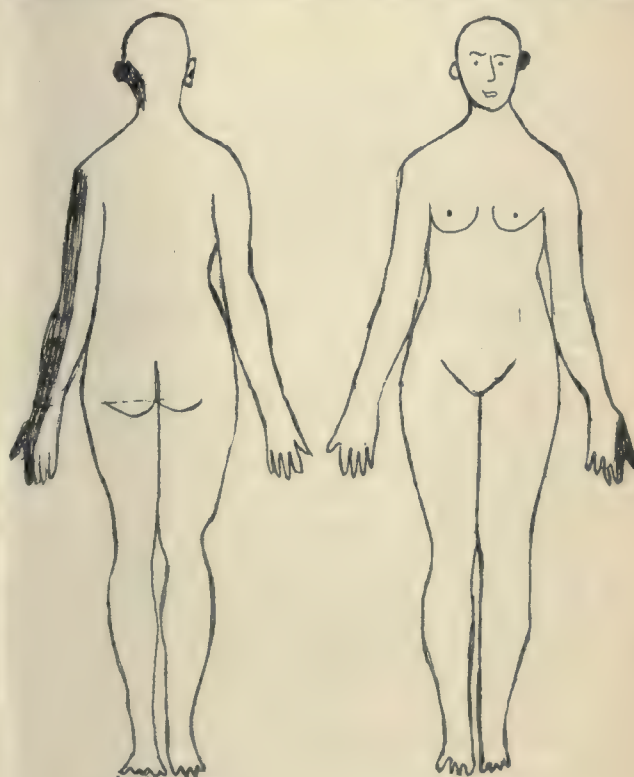
In making a diagnosis of this case three possibilities present themselves for consideration: Poliomyelitis, multiple neuritis, and hematomyelia.

As to the question of polyneuritis, our classic knowledge requires, among other symptoms, two essential points, viz., the presence of pain and a gradual onset. First of all, we know now that absence of pain is not a sufficient reason for rejecting the idea of this disease (see case of Guillain and Courtellemont).¹ In fact, it is difficult to conceive a pathogenic influence affecting exclusively the motor fibers of a certain nerve, since the mixed character of peripheral nerves is an established fact. The axis cylinders of the nervous elements as soon as they leave the spinal canal and enter into various plexuses (cervical, brachial, lumbar, and sacral) lose their unity and simplicity which they possessed at the level of their central origin. In the peripheral nerves the centripetal and centrifugal conductors are commingled so that there is no possibility of dissociating them. Primary or secondary affections of the peripheral nerves are therefore very complicated. Erb, however, expressed the view that a pathologic process affecting the cells of the anterior cornua primarily will involve secondarily the motor fibers, the nutrition of which depends upon those cells; and while the changes in the cells may be transitory, the changes in the motor fibers may persist and progress. Eisenlohr's case² proves almost conclusively this contention. When we take into consideration the various gradations of pathologic findings in poliomyelitis and polyneuritis from the mildest to the most marked forms and also the clinical evolution of both affections, one cannot but be convinced that an identical etiologic factor (infection) affects simultaneously, but to a varying degree, both the cord and the nerves, each of which is after all a segment of the same motor neuron; and if the suffering of the cells reacts upon the nerves, the opposite is also true.

According to the researches of Marinesco and others the localization, also the degree of the pathologic changes depends upon the nature of the infectious agent and upon the duration of its action. From the foregoing we can consequently conclude that the existence of a motor neuritis is admissible, but it is difficult sometimes to make a differential diagnosis between this form of neuritis and a poliomyelitis. A sudden onset on the other hand does not always speak against a polyneuritis, as cases of so-called apoplectic neuritis are known to us (Raymond, Dubois, Eichhorst) not in the sense of a hemorrhagic process, but from the point of view of a sudden appearance of the symptoms. The amyotrophy with reaction of degeneration are certainly symptoms which are usually found in polyneuritis. It is therefore evident that so far the paralytic symptoms in my case are not against the idea of multiple neuritis. From the foregoing it can be readily seen that it is difficult sometimes to draw a sharp line between an affection strictly limited to the anterior cornua of the cord or only to the motor fibers, as it is possible that in a great many cases the pathologic process affects the motor neuron *in toto*. The solution of the problem cannot be based upon the presence or absence of one or two symptoms. The entire course and the evolution of the disease should always be taken into consideration before we arrive at a conclusion. In a large majority of cases a symmetrically distributed bilateral affection with incomplete paralysis at the beginning, which increases gradually and insidiously and shows a tendency to become generalized and invades other portions of the body including those which are

innervated by the medulla, showing also almost complete integrity of objective sensations, finally a prompt amelioration of the symptoms—this is the usual picture of polyneuritis. If in addition to this we add the rarity of sudden onset and of absence of tenderness of the nerve trunks, we are led to reject the diagnosis of polyneuritis in our case.

Let us turn our attention to the two other possibilities, viz., poliomyelitis and hematomyelia. A sudden appearance of paralytic symptoms, with or without pain, should suggest first of all a hemorrhage. In my case, however, the monoplegia was detected only one to two days after he was brought to the hospital. Moreover, in hematomyelia, the reflexes are usually exaggerated and contractures make their appearance some time later. The suddenness is usually similar to that of apoplexy. In my case neither the onset, nor the character of the paralysis, nor the condition of the reflexes reminds one of hematomyelia. It presents, however, an objective sensory disturbance, which we find habitually in hem-



Pain (analgesic.)
Temperature (hypesthesia.)

Touch (delay.)

atomyelia, namely, the typical syringomyelic sensory dissociation (Fig.). On the other hand, the rapid onset of the monoplegia, the flaccid character of the paralysis, the loss of reflexes, the muscular atrophy with reaction of degeneration, and finally, the absence of pain—are all symptoms of acute poliomyelitis, although the usual history of an infectious onset (fever, vomiting, etc.) with an involvement at first of several extremities and confining itself later to one extremity is wanting.

Summing up all the points concerning the case, we may say that they admit the possibility of a spinal and peripheral lesion, and as we have symptoms in favor of and against each of these affections, the diagnosis is difficult. Nevertheless there are three symptoms which are almost decisive in favor of poliomyelitis, namely, the total flaccidity of the palsied limb, the loss of reflexes, and the absence of pain. If it is a poliomyelitis, its coincidence with a syringomyelic sensory dissociation of radicular type and with a facial palsy makes the case quite unusual. The latter is a possible occurrence in the

course of polyneuritis. That an infectious or a toxic element is apt to affect the peripheral nerves of the extremities, also those of the face, is a condition easily conceived and of a not infrequent occurrence. On the other hand, a nuclear involvement of the facial nerve with a cell involvement of the cord considered as one affection and caused by the same agent, is also a well-known pathologic condition. Taking into consideration the fact, that the facial palsy made its appearance only a few days after the onset of the flaccid paralysis of the arm, it is to suppose that we have here a degenerative process ascending in character and confined only to cellular elements of the cord and medulla. It is therefore a systemic affection, and because of its localization, it is a polioencephalomyelitis.

In discussing the differential diagnosis of the monoplegia in this case, I mention the possibility of a simultaneous involvement of the motor neuron *in toto* (cells and motor fibers). Owing to the peripheral character of the facial palsy we may, with equal right, admit now a possibility of an analogous involvement of the nucleus of the facial nerve with the motor fibers emanating from this nucleus. It is rational, therefore, to suppose that the same etiologic factor produced identical effects in the spinal cord and medulla; it is a bulbospinal affection.

Cases of anterior poliomyelitis complicated with facial paralysis have been reported, but they are not very frequent. In some of them the onset and course were those of typical poliomyelitis, in others the diagnosis could have been made as polyneuritis, still other cases show that there are intermediary forms. At all events infection or intoxications, which are considered as usual causes of poliomyelitis, may affect at various times various portions or systems of the entire cerebrospinal axis or various segments of the same neuron; their effect may be slight or grave, rapid, sudden or slow, transient or permanent. In the present state of our knowledge, the question as to the localization of the diseased process and to the effect of the latter on the nervous tissue, is elucidated almost in its entirety, but the question as to how the infection reaches the seat of the lesion is as yet surrounded with a mystery.

A point of interest in my case lies in the presence of syringomyelic sensory disturbances and in the radicular type of the latter. Syringomyelic sensory phenomena were observed in other pathologic conditions of the cord beside true gliosis, namely, in hematomyelia, compression of the cord, myelomalacia associated with syphilitic arteritis, Brown-Séquard's paralysis, tabes, also in leprosy, Morvan's disease, certain peripheral neuritis, finally in hysteria. In acute poliomyelitis, at least to my knowledge, the condition has not been described. The area occupied by the syringomyelic sensory dissociation in my case speaks in favor of its radicular distribution. The researches concerning the sensory distribution of spinal nerves, conducted by various authors do not all coincide in their results, and we can say that the extent of bands of skin supplied by each of the roots cannot be exactly determined, as the boundaries are usually ill-defined. According to the most recent investigations, the disturbed sensory area in my case will correspond to the fifth and seventh cervical roots.

As a last interesting feature I wish to call special attention to the curious condition of the pupils. Under the name "paradoxical pupil" we understand a condition which is characterized by a reversal of the normal pupillary reflexes: Dilation instead of contraction and vice versa. My patient presents beside the typical paradoxical pupils, also a typical hippus. Such an association of pupillary phenomena was observed by Raggi as far back as 1885 in a case of paresis. A paradoxical response of the pupils to light has been observed in various diseases. In 1887 Kahler³ described it in a case of basilar meningitis, Marina⁴, Mouney⁵ and Muchin⁶ in tabes, Obersteiner⁷ in diffuse syphilitic meningitis, Frenkel⁸ in syphilis with pseudotabes, Lépine⁹ in hysteria, A.

Leitz¹⁰ in tuberculous meningitis, Hirschl¹¹ in paresis, Silex¹² in a case of injury to the occiput with loss of consciousness. J. Piltz¹³ made an exhaustive and critical study of the subject. A careful analysis of all the varieties of paradoxical pupils described, leads to the following conclusions: The paradoxical reactions of pupils may show themselves in the act of accommodation as well as in light reflex. In both cases instead of a dilation of the pupils, a contraction is obtained and vice versa. Up to the present time three varieties of the paradoxical light reflex have been described: Morselli, Leitz and Silex observed a dilation of pupils under the influence of light without a preliminary contraction; V. Bechterew described a similar case with this difference that the dilation was preceded immediately by a momentary contraction; finally Piltz observed a variety of paradoxical pupil manifesting itself in a contraction of the pupils in the dark without a preliminary dilation. In addition to these three varieties I may add a fourth, as shown in my case: When a light was thrown into the pupils of my patient, on the first instant there was no reaction at all, but one second or a half second later the dilation took place and only then the display of the hippus followed. Paradoxical pupils is a rare condition, as its literature is very meager, and because of this rarity the pathogenesis is not at all elucidated. The occurrence of it in anterior poliomyelitis has never been observed before, at least to my knowledge.

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NEURITIS AS A COMPLICATION OF SOME PORTION OF THE CHILD-BEARING PROCESS.

BY

WILLIAM R. NICHOLSON, PH.D., M.D.,
of Philadelphia.Obstetrician to the Maternity Hospital of Philadelphia. Assistant
Obstetrician to the Philadelphia Hospital.

The following cases are of interest as examples of a rather rare complication of the puerperal period.

CASE I.—Mrs. J. was seen by me six weeks after the birth of her last child. She could give no reliable history further than that she had noticed nothing abnormal during her pregnancy until a short time before labor when she had an attack of "typhoid fever." From the details furnished by the family I do not consider this illness to have been typhoid fever, as the duration of the attack was too short, and as I was further unable to obtain any symptoms at all suggestive of that condition. However, the fact remains that she had been quite sick for two weeks before labor began. Labor was easy and rapid and no instruments were used; she complained of no unusual severity of the pains and noticed nothing abnormal until several days had passed when she found that she could not move her legs. On the tenth day her attending physician told her to get up and repeated this injunction at intervals until the case was taken out of his hands. He told her husband that she was simply lazy.

Her condition when first seen by me was as follows: She was unable to stand without support and could not take a step even when supported. There was an apparent incontinence of feces and from the history I judged that there had also been a previous urinary incontinence. The physical examination was negative as regards the heart, lungs, and kidneys and a pelvic examination showed nothing abnormal save a relaxed pelvic floor, a moderately lacerated cervix and a subinvolved but freely movable and anterior uterus. There was no sign of exudate in the pelvis. Her temperature was normal. As an additional sign that her labor had been easy it may be noted that the lacerations referred to were old, being due to her first and only previous delivery some 18 years ago. The pelvic measurements were approximately normal.

Dr. Hirst kindly gave me permission to admit the patient to his wards at the University Hospital. We both felt after

examination that it was a case of true myelitis, but later study disproved this. A more careful consideration of the case decided us that there had been no true incontinence of feces or urine at any time.

Dr. C. W. Burr kindly examined the patient with me in the ward of the hospital and his examination is in brief as follows:

Flexion and extension of the toes of both feet very imperfect. Dorsal flexion of the ankle impossible, *i. e.*, decided foot-drop present. Knee-jerks, absent. Irritation of either sole causes a slight movement of the leg, but none of the toes. Achilles-jerk absent. Flabbiness of the muscles of the calf and the thigh, but no atrophy present. Nerves of calves very sensitive to pressure, as are also the nerves back of the knees. Sciatic nerves not sensitive to pressure. Tactile anesthesia present in both legs below the knees and in a lesser degree above them. A pin prick is felt as pain. The patient at this time stated that she remembered suffering a considerable amount of pain in her limbs in the latter part of pregnancy and soon after the birth of her child. She could bend her knees when her foot was supported on the bed. She could also lift either leg off the bed.

Dr. C. B. Potts kindly examined the patient to determine the condition present in the palsied muscles with regard to their electric excitability, with the following result:

Left leg: The calf muscles (gastrocnemius and solens) respond to very strong faradic currents, as does also the adductor magnus; none of the other muscles responds at all. The anodal contraction is stronger than the cathodal in the tibialis anticus and peroneal muscles, while in the calf muscles the cathodal is greater than the anodal closure, about eight milliamperes being required to cause contraction, and even then the response is very slow.

The thigh muscles gave no contraction to any current that the patient would stand (8 milliamperes used).

Right leg: Marked fibrillary contraction in the muscles of the right thigh when irritated or struck; all muscles respond to very strong faradic currents except those of the posterior part of the thigh; at times there is quite marked twitching of the muscles when patient is at rest. The peroneal and calf muscles, the tibialis anticus and extensors of the toes give a greater cathodal than anodal contraction. The anodal closure is greater relatively than normal, contractions are slow; the muscles of the anterior part of the thigh give a greater cathodal than anodal closure; the contraction is not as slow as below the knee but slower than normal; muscles of the posterior part of the thigh do not contract to any current which the patient can stand.

The patient remained in the hospital for several weeks and left without any marked improvement. Unfortunately she has since that time been lost sight of, but we are safe in believing that improvement to say the best will be slow.

CASE II.—The patient was seen some two months after her delivery. She came to the Gynecean Hospital because of a complete tear which had not been repaired. Labor had been difficult and forceps had been used, she had had decided pain in her right leg after delivery and was unable to walk for some time afterward because of pain and weakness of the limb. When I saw her first she still had a slight limp and some weakness of the muscles; there was nothing in the pelvis which could explain her condition and I believe that prolonged pressure by the fetal head on the lumbosacral plexus was the cause of the loss of power.

I operated to repair the lacerations and when the patient left the hospital her loss of power was greatly improved; this was undoubtedly due to the rest in bed subsequent to the operation.

For a long period of time it has been known that women during pregnancy and the puerperium are more or less often the subjects of various paralyses, and a considerable literature has developed on this subject which, however, has received but scant mention in the greater number of textbooks, the authors evidently believing that the subject could be better handled by neurologic writers. Many years ago Churchill published a paper in which were collected a considerable number of cases of nerve lesions associated with some period of the child-bearing process. As the majority of these appear to have been cases of uremia, and as no definite facts as to presentation or pelvic measurements are included, their value is nil, except for the fact that the author states his disbelief in the influence of difficult labors or forceps extraction as causative factors, and rather in advance of his time attributes them to autoinfection.

On the other hand, Basedow, in 1838, asserted his belief in the efficacy of head pressure upon the pelvic nerves, as a cause, in certain cases which he had seen. His paper leaves but little to be desired so far as his description of his cases is concerned. Coming to our own period we find that observers are not agreed as to the cause of the condition, and this can be explained

by the fact that various types of cases have been seen by different men. Thus one will attempt to explain all cases on the ground of autoinfection when perchance he has only seen cases of general or diffuse neuritis, while another's experience will have been limited to local lesions in the arm or the leg, and he will claim for pregnancy some such influence as is shown by lead or the toxins of diphtheria in the production of local paralyses. Still another with a large experience in the use of forceps in difficult cases of labor will attribute the laming of the limbs to nerve-pressure. While all these reports are founded on good and sufficient grounds, as a careful study of the reported cases will show, no one of them alone will explain, as has been attempted, all or nearly all of the cases encountered.

In considering the etiology we find that the classification which various authors have made use of is of considerable interest; thus Ross and Bury divide all cases into two general classes: (1) Those due to injury or disease of the pelvic nerves either as a result of trauma or inflammation; (2) those due to multiple neuritis. Tuillant divides all cases into two classes: (1) Those general in type due to an autoinfection; (2) those showing local lesions which he supposed to be due to a poison from without.

It is of interest to note that in the cases of general involvement reported by this author there was a very frequent association of marked vomiting in pregnancy together with muscle weakness, and he considered that both were the results of the same cause.

Möbius confines his paper to arm injuries alone but mentions that all the cases that he has encountered in which the legs were involved were due to inflammatory pelvic changes.

He also expressed the belief that the enlarged uterus or the forceps might cause direct injury to the ischiadic nerve.

Hünemann assembles all cases under one of the following heads: (1) The influence of pregnancy upon an unstable nervous organization; (2) pelvic exudates; (3) severe puerperal infections which may play the same part in the production of paralysis as do scarlet fever and diphtheria; (4) those cases due to the pressure of the fetal head or the traumatism of the forceps. Regarding his fourth division he says that the head of the child is much more often operative than are the forceps, particularly if the presenting part be well flexed and attempting to enter a pelvis contracted in all its diameters. He also emphasizes that the duration of the labor, the degree of disproportion and the strength of the pains are factors determining the gravity of the nerve injury.

Mills who approaches the subject from the standpoint of the neurologist classifies under the heads: 1. Traumatic paralysis of the peroneal type usually associated with severe neuritis. 2. Sacral neuritis aggravated by disease or displacement of the pelvic organs or tissues. 3. Septic or other infections which may cause either local or multiple forms. 4. A special class, peculiar to this author, due to phlebitis of the pelvic veins and therefore to be classed as septic. 5. Myelitis due to some infection.

Windscheit, quoted by Thomas arranges these cases under the following heads: 1. Neuritis gravidarum (etiology not known, probably toxic). 2. Infections. (General pyemia may cause neuritis of all nerves of the body.) 3. Mechanical injury. 4. Puerperal (localized or general).

Eulenberg considers but two groups, basing the distinction between them simply on the extent and severity of the lesions presented, and so divides them into first, the less severe and localized forms, while in his second class he groups the severe diffuse forms, which may simulate at times Landry's paralysis, or may even be found involving the cerebral nerve areas. It may here be mentioned, that Sottas, Lutz, and Eulenberg

have all reported cases simulating the paralysis of Landry. My preference in so far as the etiologic classification is concerned, would be as follows: 1. Those cases supposedly due to some toxemia. 2. Those cases arising from a septic process. 3. Those cases resulting from some mechanical agent operative during labor or in the early puerperium.

These three classes include all cases which can in any way depend on pregnancy as the causative factor. It should be remembered that myelitis or other disease of the nervous system may show the first signs during pregnancy, and that in such cases the influence of pregnancy is not to be considered as causative except as any other marked strain. With regard to the first division, namely, the toxic group, we know but little. Quite a number of cases have been reported which it is difficult to explain under any other supposition. Of course, these are most usual in pregnancy, though rarely they are also encountered in the puerperium. As regards their true causation we know practically nothing; they may either be general or limited to special nerves. I consider that my first case falls under this division as to causation, but I cannot be sure whether it was really a case of puerperal neuritis or whether its inception occurred during the latter part of the pregnancy. Until we become more familiar with the true nature of autointoxication we will, I think, be unable to explain these cases. The second division (the septic) is decidedly easier to explain. It is perfectly justifiable in the light of our knowledge of septic processes to consider that either by continuity or contiguity there may be involvement of the trunks of the pelvic nerves, as in the case of exudate, or abscess, or that by transference through the blood or lymph channels any group of nerves may be involved. Furthermore, we know that the gravity of these cases depends upon the individual susceptibility and the virulence of the poison, these factors either determining a simple transitory neuritis, an ascending myelitis, or any of the lesions intermediate between them.

Of course, from the nature of things, sepsis is more often operative during the puerperium than in pregnancy, and so we are less liable to meet these cases during pregnancy. We now come to the consideration of the last division, according to the above classification; this is probably by far the most frequent variety.

The second case reported is a mild form of this type; a considerable number of authors have considered that instrumental interference is the most prolific cause of this group, but investigation shows that such is not the case, but rather that the delay in the advancement of the presenting part, which occasions the employment of instruments is of itself the reason for the palsy. In order to understand the true etiology of this class, the mechanical, we have only to turn to the anatomy of the sacral plexus. The nerve-supply to the lower leg is derived from the terminal branches of the great sciatic nerve, and the latter is derived from the lumbosacral plexus and the first, second, and third sacral nerves. The external popliteal or peroneal nerve takes its origin from a certain special group of filaments which are derived chiefly from the dorsal portion of the lumbosacral plexus, while the filaments which form the internal popliteal arise from the ventral portion of the same nerve. From the arrangement of the nerve fibers with reference to the bones and muscles of the pelvis, it will be seen, on reference to fresh dissection, that the lumbosacral plexus is the only portion of the plexus which is exposed to direct violence between any passing body, the remainder of the plexus being guarded by muscular fenders. While the lumbosacral plexus traverses the pelvic brim near the base of the promontory, *i. e.*, in the sacroiliac notch, it may nevertheless be easily exposed to pressure under certain conditions. Finally, the filaments to the peroneal nerve take their origin from the dorsal segment of the cord, and they are therefore in a position which will subject them to increased chances

of pressure, lying, as they do, directly on the bony ridge known as the iliopectineal line.

These anatomic facts will explain the most usual form of neuritis associated with pregnancy, namely, that involving the peroneal nerve on one side and resulting in a motor and to a less degree sensory paresis of the muscles of the anterior portion of the lower leg and dorsum of the foot. Now as to the factor which occasions the pressure in the majority of instances: A glance at any pelvis will show that the forceps cannot be held as the responsible agent, since the situation of the lumbosacral plexus cannot be injured by their blades in any proper application; we question, indeed, whether injury could occur to this nerve by any, even an improper, instrumental operation, as its position guards it so well from assault in any direction except one, namely, by a force operating directly upon its anterior surface. Moreover, symptoms of nerve injury occur after labors that are easy and rapid, and in which no forceps have been used. This is difficult to explain, but it certainly shuts out the necessity of instrumental causation; on the other hand, it is unquestioned that such injuries are more likely to occur in labors that are difficult, especially if such difficulty be due to a small pelvis, of the generally equally contracted variety. The simple flat and the rachitic flat pelvis do not show the same tendency to produce this condition, since in these types of deformity the projecting promontory serves as a protection to the lumbosacral plexus. In addition, it should be remembered that it is not the extreme grades of contraction which give rise to this lesion, since for the head to impinge upon the lumbosacral plexus it is necessary for it to be able at least partially to engage. Those generally contracted pelvises with a true conjugate of from 8.5 cm. to 10 cm. are the forms of deformity which give rise to the greater number of cases of palsy of one or both limbs. It is possible that in severe cases there may be an ascending inflammation which will be transferred through the cauda equina or the cord itself to the nerves of the opposite leg, and there give rise to a more or less complete paraplegia. It is even claimed by some that there may be a true degeneration of the cord secondarily to peripheral neuritis. This then is the principal cause which explains a neuritis in the puerperium with consequent palsy of one leg, namely, a combination of a medium grade of contracted pelvis, usually of the generally contracted variety, together with a presenting part which either with difficulty passes or is unable to be delivered without instrumental aid. As an additional factor may be mentioned the strength of the expulsive pains, since the greater the *vis a tergo* the more pressure will be developed by the presenting part upon the nerves. It may be mentioned that the after-coming head has been known to produce the same injury as has just been ascribed to head-first presentations.

Aside from the influence of direct fetal pressure upon the nerves there are other causes which have been considered operative in certain cases; these are a decidedly enlarged uterus (this we doubt), a perimetritis, a previous severe laceration of the supravaginal tissues, with resulting scar formation, any pelvic inflammatory collection, and, finally, a phlebitis of the pelvic veins.

An instance of the latter causation occurred two years ago in my service at the Maternity Hospital. The patient was delivered with forceps, and symptoms which occurred afterward led us for some days to believe that the woman was suffering from an incidental typhoid fever. Her temperature range was typical, there was a slight splenic enlargement and a little abdominal distention; in addition, a very few atypical spots were found. The repeated use of the "Widal" test, however, failed at any time to substantiate this diagnosis, and in a few days the true etiology was disclosed by the development of phlegmasia alba dolens. After a tedious period of convalescence the patient recovered, with,

however, a decidedly noticeable dragging of the left leg in walking. The patient was seen once, three months after delivery, and was heard from one year later, and the dragging spoken of was still present.

I do not desire to consider the treatment of these cases of neuritis as such, as this is within the special province of the neurologist, but I feel that a study of the prophylaxis of the condition points out some very important facts which practical obstetricians may well take cognizance of. I refer to the treatment in cases of delayed labor, whether due to contraction of the pelvis or not, for it will be remembered that while cases of neuritis may occur from toxic causes which we cannot govern and after easy labors, by far the greatest number are the result of delayed labor from some of its many causes. The necessity is therefore enforced that pelvic examinations be made before labor in order to determine whether or not there be any factor, such as contraction, which will tend to produce delay and that when labor has once begun that an accurate diagnosis of position be made and forceps applied when indicated. The use of chloroform to diminish spasm of the pelvic muscles and thus decrease their bulk would seem to be also an important agent. As regards the application of forceps, it is well to remember that while their use is advised in proper cases it is presupposed that they are intelligently applied and used, for while we do not feel that the lumbosacral plexus is at all likely to be injured by even a faulty use this does not hold good as regards the lower sacral nerves. It is hardly needful to emphasize the importance of asepsis as the production of a neuritis from pelvic foci of infection is but one of the many evils resulting from its neglect.

As regards the prognosis, it may be said that in all probability in a considerable number of mild cases of peripheral neuritis the patients recover without any diagnosis of the condition having been made, as the period usually spent in bed after delivery would be amply sufficient for this in such cases. In the more severe forms, the prognosis is doubtful or good, according to whether the reactions of degeneration are present or not. In any event, considerable time frequently elapses, even under careful treatment, before a cure results.

The symptomatology of these cases varies, of course, according to the severity of the lesion, and careful inquiry will sometimes be rewarded by the history of the inception of the trouble having occurred in pregnancy. This may be true of the forms of pressure neuritis, as well as of the toxic and septic. In the former the mere friction of the presenting part in the latter part of pregnancy upon the nerves at the pelvic brim is at times sufficient to produce at least their transient irritation. The time of onset may then be in the latter part of pregnancy, during labor, or at any time subsequent for a period of several weeks; the cases due to intrapelvic fetal pressure occur promptly after labor as a rule, and also generally show a considerable amount of pain during the labor, while those due to sepsis occur later according to the special development of the case. As regards the actual symptoms, it will be found that they vary from a transient pain often ascribed to rheumatism, etc., and without any localizing nerve signs to a symptom-complex resembling "Landry's paralysis" or myelitis. The usual type of case is one intermediate between these extremes, presenting some pain, loss of power, perhaps some sensory disturbances as paresthesia and atrophic changes. The nerves involved are in less severe cases the median or ulnar, or if the leg be affected, the sciatic, the gluteal, and especially the external popliteal, the peculiar symptom of the latter being the presence of the so-called foot-drop. In the grave cases threatening life there is a general involvement of all the nerves of the body. The symptomatology of the secondary involvement of the cord and brain, which rarely occurs, does not need to be considered here.

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CLINICAL REPORT OF A CASE OF LITHOGENOUS ICTERUS.

BY

BYRON ROBINSON, B.S., M.D.,

of Chicago.

A diagnosis of hepatic calculus rests chiefly on the historic clinical symptoms. The operative procedure may be of the most simple nature or so difficult as to test the best skill of one who has devoted a lifetime to abdominal surgery. The prognosis is favorable in the majority of cases, yet the experienced are well aware that with lithogenous icterus a mortality as high as 30% may occur. The following case, referred to me by Dr. Wm. Reese, of Dodgeville, Wis., presents many facts of interest:

The patient, a woman of 44, had been afflicted with attacks of hepatic colic for more than 10 years. She had seven living children. In the first years icterus and the attacks were both light; the attacks occurred at intervals of two to five months. During the later years the hepatic colic seizures were more frequent and severe, as well as the icterus. For the past two months the attacks have been quite frequent and the icterus intense and continuous. For seven weeks she has been very ill in bed with a very irregular temperature, 99° to 105°; respirations, 20 to 24; pulse, 95 to 120. The peculiarity about the clinical course was that one or more times during the 24 hours the temperature would suddenly rise from 100° to 105° and rapidly sink to 100° again. Vomiting had been severe and some of the vomitus was bile, according to the report by Dr. Reese and the family. The pain for 10 years was occasionally strong, but for the past eight weeks it has been severe most of the time. The pain radiated toward the right scapula. Constipation with clay-colored stools existed. Appetite was defective. The patient was so ill for six weeks that she did not wish to be turned in bed.

Condition presented four days previous to the operation: The patient was fairly well nourished. The face showed rather grave suffering. There was marked icterus of the scleras and general body, which had been continuous for seven weeks. Examination of the abdomen was negative, except in the right proximal quadrant a distinct local resistance could be felt. Liver was not enlarged. The distal border could not be palpated. There was pain on pressure in the region of the cholecyst. Abdomen was flat, soft, no ascites. Bimanual vaginal examination was negative, except for a slight pelvic peritoneal exudate from the left side. Urine showed albumin, pus, hyaline and granular casts; daily quantity 40 ounces. Bowel evacuations were clay-colored. Temperature 102°, pulse 95, respirations 24. Blood: Hemoglobin 80%. The diagnosis indicated calculus in the common bile duct. The pain accompanied with icterus favored this view. The long course of the disease (10 years) was against carcinoma, as well as the fairly good color and panniculus adiposus. The right-sided pain and tenderness on pressure, and the constipation, indicated adhesions of the duodenum, colon and omentum, due to infectious invasion through the tunica mucosa and tunica muscularis into the peritoneum. I was doubtful as to whether any bile had passed. She was prepared for operation by the careful drainage of every visceral tract for five days.

Operation.—An incision was made from the costal arch along the external border of the rectus abdominis for 5 in. Muscle was slack and friable. After peritonectomy the liver came in view. It was dark, elastic, and atrophic. By reflecting its sharp edge proximally, a solid mass of adhesions could be observed, consisting of the omentum, duodenum, and the transverse colon. The contracting adhesions had drawn the left half of the stomach in contact with the liver. No cleavage was possible. Separation of the viscera was performed by the knife or tearing. After careful separation and incision of adhesions, I finally came to a solid rod-like cord, 1½ in. in diameter, extending from liver to pancreas, consisting of hepatic artery, portal vein, cholecyst, and bile ducts. In the midst of this solid mass a still more solid mass existed, 2 in. by 1 in. in dimension. This was the calculus in the bile

duct. No trace of the cholecyst could be found; it was obliterated. With the aid of a finger and a blunt instrument the solid mass was exposed, but the portal vein, hepatic artery, or choledochus could not be recognized. Anatomy teaches that the bile ducts are located on the right, the portal vein lies in the middle, and the hepatic artery is located to the left, but anatomy had ceased to exist in this case; it was replaced by pathologic anatomy. The membrane covering the calculus was incised for an inch, and the calculus extracted from its securely

the subject of hepatic calculus is early diagnosis from symptoms and early removal of the calculus. Surgery does not indicate removal of hepatic calculus before symptoms arise, for in 600 postmortem abdominal inspections, I found hepatic calculus present some 70 times but no symptoms having arisen, neither patient nor physician was aware of the calculus, the pa-



Fig. 1.—A röntgen ray of the ductus pancreaticus (I to V), ductus choledochus (I to II), ductus cysticus (II to III), and ductus hepaticus (I to III). Ductus pancreaticus was injected with cellulidin and red mercury sulfate. The biliary channels were injected with red lead and starch, after which the specimen was röntgen rayed and sketched as a model. Dorsal view.

imbedded channel. It measured 2 in. long by $\frac{3}{4}$ in. in diameter, and was uniformly rod-shaped. A considerable quantity of dark, bloody bile followed. The calculus extended in the choledochus, well through the head of the pancreas and dorsal to the duodenum. The choledochus was amply large in diameter for exploration of the finger. The choledochus was drained by thin strips of gauze introduced into its dilated lumen. Also large strips of gauze were introduced on each side of the ductus choledochus to meet in Winslow's foramen. The abdominal wound was closed by silk-wormgut sutures. The operation lasted 50 minutes. Pulse was strong, 130, face somewhat pale. The patient continued in good condition until some 12 hours subsequent to the operation when she was seized with great pain; the pulse rapidly increased in frequency until it could not be counted, and soon after could not be felt in the wrist. The temperature rapidly rose to 105°; respirations, 30; she died some 15 hours after the operation. No autopsy was held, however; I think she died from the distribution of septic emboli. That septic foci existed was proved by the frequent rise and fall of temperature for 7 weeks and the continuous rapid pulse. The operation, though severe, was not of such traumatism as to invite any form of collapse. She was not shocked, as she conversed with me in comfortable condition, pulse 100, two hours after the operation.

Courvoisier's law that in 80% of the cases of obstruction in the common bile duct due to calculus there is contraction of the cholecyst, while in 90% of cases of distention of the cholecyst the obstruction is due to causes other than calculus, was confirmed in this case. No trace of the cholecyst could be recognized. It is doubtful whether any considerable quantity of bile could pass the choledochus obstructed by a calculus 2 in. by $\frac{3}{4}$ in. and the atrophy of the liver added further proof. I am aware that experience teaches that in acute cases with icterus and calculus in the choledochus, operation should not be performed, but our patient was in the best condition of a 7 weeks' attack. Beside I believe that in all benignant cases the patient should have the right of complete operation when possible though it may border on the line of danger, trauma and shock. With the anatomy of the bile and pancreatic ducts before us demonstrating their direct continuity and consequently that the bile and the pancreatic fluid must mix it is evident that the infection of the liver is carried into the pancreas by it direct and vice versa. Continuous hepatic infection sooner or later ends in pancreatic infection. However, I found no fat necrosis present. The greatest advantage to

tients dying from intercurrent diseases. The accidents accompanying operations, chiefly from emboli, furnish the surgeon's life with ample agony. However, useful surgery is built on its faults. Without operation my patient would have died a lingering, septic and painful death. After a painstaking diagnosis and thorough preparation of the patient with conscientious execution of the operation we had hoped vainly for success.

POSTERIOR GASTROENTEROSTOMY, WITH ENTERO-ENTEROSTOMY: A STUDY OF CONDITIONS FOUND AT AUTOPSY.

BY

W. L. WALLACE, M.D.,
of Syracuse, N. Y.

In *American Medicine*, February 20, 1904, p. 312, I described the steps of an operation used in a case of pyloric stenosis.

The relations of parts at the close of this operation are indicated in Fig. 1. The jejunum, about eight or ten inches from the duodenojejunal angle, had been passed through the transverse mesocolon and united by silk stitches with the posterior wall of the stomach and the two arms of the jejunum had been joined together by a Murphy button about three and one-half inches from their communication with the stomach.

The operation was performed December 10, 1903. The man made a good recovery, the Murphy button appearing on the twelfth day. Three days later he left the hospital. From this time he had no gastric distress or vomiting, and was able to eat and digest large quantities of food. In the middle of January, after morning and afternoon temperature had been normal for weeks, he had an attack of pneumonia, involving the base of his left lung—a typical case—with chill and prune-juice expectoration. In the early part of February, he was greatly weakened by pulmonary hemorrhages, and he died February 17, ten weeks after his operation, from anemia following a hemorrhage.

An autopsy was performed February 18 by Dr. H. S. Steensland, director of the pathologic laboratory of Syracuse University Medical College. The left lung contained a cavity at the base posteriorly; otherwise the lungs were large and sound. Heart, liver, spleen, pancreas, and kidneys were normal. The stomach contained a tumor, which involved the pyloric portion; a hard, white mass, one inch in thickness, surrounding and closing, to the size of a probe, the pyloric orifice. No softening

or ulceration and no enlarged glands or metastatic growths could be discovered.

A study of the specimen removed at autopsy shows interesting anatomic conditions following the operation. These are illustrated by Fig. 2.

The opening from the stomach into the intestine, while large and ample, stood closed, as if by muscular action, the stomach containing at this time about 1½ pints of liquid food in good condition. The fine silk ligatures were still in place, the anastomosis was smooth and perfect, and no inflammation was apparent around the stitches. The proximal and distal arms of the intestine had fallen together and become adherent, forming a double-barreled tube (3' 4'). The food which originally passed 1, 2, 3, 3', 4' to 4, now passed from the stomach by 3' and 4' to 4. The partition between the proximal and distal arms of the intestine had been cut by the Murphy button at 5, short-circuiting 3 and 4, and allowing the bile to pass directly on into the intestine, thus avoiding the danger of its passing up into the stomach and being vomited.

Two fingers easily passed through the opening from the stomach into the intestine, then both could be passed through either arm 3' 4' to the point 5 where the Murphy button had been used, or one finger could be passed through the proximal arm 3' and the other through the distal 4', meeting at 5.

I could find no difference in the caliber of the two tubes 3' 4' leading from the stomach; the bowel 3 from the duodenojejunal angle to the enteroenterostomy 5 was somewhat smaller in diameter than the arm 4 continuing into the ileum, which seemed somewhat enlarged.

The passage 3, 5, 4 was distended with gas like the rest of the intestines, but the tubes 3', 4' were collapsed, so that although when straightened they were about 3½ inches long by 2 inches in diameter, at the time of the autopsy they were wrinkled together, closed and very short.

The direction of the tubes 3' 4' from the stomach was down and somewhat to the right in the direction of the flow of the food and bile, and this inclination, with the collapsed condition of the tubes would seem to exclude any possibility of regurgitation of bile from the intestine into the stomach. I have seen it proposed to obliterate the proximal arm 3' in order to be sure that the bile could not pass out into the stomach, but the findings in this case would seem to prove that there was no such liability when an enteroenterostomy was used, and, moreover, if the danger did exist, it would be equally great in both arms of the intestine.

The opening made by the Murphy button was so satisfactory that the bowel 3 passed to 4 by way of 5 as if this passage had always existed, no scar or indentation being visible on the outside or diaphragm on the inside. However, the anastomosis made with the silk was very much stronger than that made with the Murphy button. Both had stood the test of 10 weeks, and undoubtedly would have been permanently successful, but as the button was recovered on the twelfth day, it probably gave no support after the eighth or tenth day, and yet the repair even at the end of 10 weeks could be pulled apart by very slight traction. On the other hand, the anastomosis made with the silk was still supported by the stitches and by an exudate around the stitches, and must have been very secure from the beginning, and 10 weeks after the operation seemed as strong as any other part of the alimentary canal. The double tube of bowel 3' 4' passed from the lower portion of the posterior wall at about the middle of the inferior border of the stomach, through the transverse mesocolon. The mesocolon was adherent to this tube all around, but did not constrict its caliber. The transverse colon ran across in front of the anastomosis, in its usual position.

The pathologic report of Dr. Steensland, shows that the tumor at the pylorus was a simple stenosis, a hypertrophy of the submucosa and muscular coats. Before the operation the nature of this tumor was doubtful; while it was apparently a cancer, several conditions were against this diagnosis; the patient did not have cachexia, and the family history was good, the examination of the stomach contents showed free HCl present and lactic acid absent; and the blood contained 4,700,000 reds, 8,000 whites, and 70% hemoglobin. In favor of cancer we had this large tumor closing the pyloric opening, which had developed within a few months, in a man of 40, with no history of ulcer, with vomiting three to four hours after every feeding, and with loss of 50 pounds in weight. At the time of the operation, it looked and felt like cancer, and was so large and fixed that its removal was out of the question. At the autopsy, it had all the macroscopic appearance of cancer. While the pathologic report ought not to have occasioned much surprise, it teaches that unless a case is undoubtedly cancer, an operation offers hope. The tumor was smaller at the time of the autopsy than at the operation, and as it was only a hypertrophy it would probably have continued to diminish in size.

In making a gastrointestinal anastomosis a point on the intestine should be used at a great enough distance from the duodenojejunal angle so that 5 can sag toward 4 in the direction of the flow. If 3 were short, 5 would be dragged to the left of the stomach opening, and the flow of food from the stomach would meet the flow

of the bile, and the bile coming through 3 might be inclined to pass through 3' 4' into the stomach. Bearing this point in mind, it might be well not to fasten the jejunum to a point in the stomach exactly opposite the opening in the transverse mesocolon, but to select a point on the stomach wall well to the left of the opening in the transverse mesocolon.

When a Murphy button is used, it would seem safe to reinforce with a few stitches, and when the gastroenterostomy is also made with a Murphy button a large enough size should be used at 5 to allow the upper button to pass without straining the repair, if the button should happen to come down the proximal arm 3'; or the suggestion should be followed of ligating the proximal arm.

The safe and rapid operation would seem to be a posterior gastroenterostomy with silk, after some such method as was described in my previous article, together with a Hartley enteroenterostomy, reinforcing the Murphy button repair by a few silk stitches.

The autopsy report, by Dr. H. S. Steensland, is as follows:

Autopsy number, S.U., 04.12. J. C., aged 41. White. Autopsy 12 hours postmortem in a private house. Body embalmed. Body of a slender, rather poorly-nourished man. In umbilical region, immediately to the right of the umbilicus, is the scar of an operative incision 11 cm. long.

Peritoneal Cavity.—Omentum is adherent to the scar of the incision. Gallbladder and various regions of peritoneum are

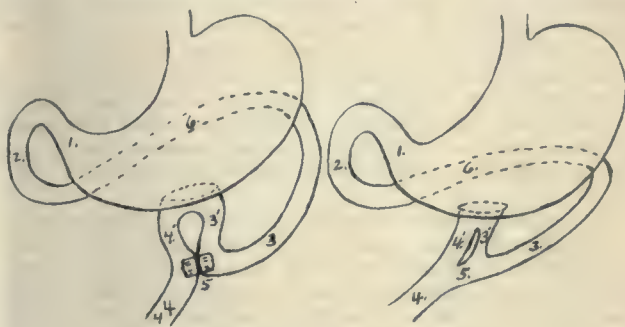


Fig. 1.

Fig. 2.

1, tumor at pylorus; 2, opening of common bile duct; 3, 3', proximal arm of jejunum; 4, 4', distal end of jejunum; 5, opening between 3 and 4, made by Murphy button; 6, transverse duodenum behind stomach.

markedly emphysematous. Stomach is united to the liver by a few fibrous adhesions.

Pleural cavities are almost entirely obliterated by fibrous adhesions.

Lungs.—At base of left lung is a large cavity about 9 cm. in diameter, with brownish necrotic walls. (This cavity was regarded as tuberculous, but the subsequent examination of a smear from the wall of the cavity made at the time of the autopsy showed no tubercle bacilli.) Bronchial lymph-nodes large and necrotic.

Stomach.—Wall at pyloric orifice from 1.8 cm. to 2 cm. thick. Mucosa and submucosa from 1 cm. to 1.5 cm. thick. Muscularis from 0.4 cm. to 0.6 cm. thick. Serosa from 0.1 cm. to 0.3 cm. Mucosa emphysematous, but no evident ulceration. Pyloric orifice patent.

Microscopic Examination.—Frozen sections of wall of pylorus stained with Löffler's methylene-blue show numerous mast cells and numerous bacilli of the morphology of *Bacilli aerogenes capsulatus*. Sections through three different parts of the pylorus are examined. The mucosa has undergone marked postmortem change. The submucosa, greatly thickened, consisting of a dense only very slightly cellular and vascular connective tissue. The cells are largely spindle-shaped, and there are a few lymphoid cells. The muscle fibers of the muscularis are divided into large groups by wide bands of stroma. The muscle fibers seem large. The serosa consists of a fairly dense connective tissue. No evidence of necrosis is seen.

ANATOMIC DIAGNOSIS.

Scar of surgical incision. Adhesion of omentum to scar. Hypertrophic stenosis of pylorus; gastroenterostomy; enteroenterostomy; emphysema of gallbladder and various regions of peritoneum; chronic adhesive pleuritis; tuberculosis with cavity formation in the left lung (?); tuberculosis of bronchial lymph-nodes (?).

SPECIAL ARTICLES

OBSERVATIONS ON THE DUTY OF THE PHYSICIAN TO HIS PATIENT THROUGH THE SURGEON.¹

BY

HENRY SEWALL, PH.D., M.D.,

of Denver, Colo.

One of the distinctive intellectual marks of the present age is the close relation which exists between the medical profession and the community at large. Human ailments that were formerly permitted to run their natural course unaided are now placed under the ministration of the medical adviser. This is the age of hospitals; through no single means has the efficiency of the medical armamentarium been more enhanced. More and more they are regarded by the public as homes for the relief of the suffering, and by the medical profession as institutions offering every means for the exact observation, diagnosis, and treatment of disease. These betterments in the facilities for good work correspondingly magnify the responsibilities of the medical practitioner in his chosen field.

The increased confidence of the public in the ability of the physician and of the surgeon is the resultant of the general evolution of biologic science. The bacteriologic laboratory was the cradle of antiseptic surgery and has been the main source of the surgeon's success. Scientific medicine, trusts less and less to drugs in therapeutics but seeks rather to prevent disease through the application of the principles of hygiene; while looking forward with confidence to a future when the great class of infectious disorders may be subdued through specific principles like diphtheria antitoxin.

Therapeutics, the physician's ancient ally in the conflict against disease, lags painfully behind in the march of science, and the physician, and much more the surgeon, must constantly readjust himself to the changing conditions of his practice.

In a recent essay on the progress of medicine Dr. Osler said: "The battle against polypharmacy, or the use of a large number of drugs (of the action of which we know little, yet we put them into bodies of the action of which we know less), has not been fought to a finish. There have been two contributing factors on the side of progress—the remarkable growth of the sceptical spirit fostered by Paris, Vienna, and Boston physicians, and, above all, the valuable lesson of homeopathy, the infinitesimals of which certainly could not do harm, and quite as certainly could not do good; yet nobody has ever claimed that the mortality among homeopathic practitioners was greater than among those of the regular school. A new school of practitioners has arisen which cares nothing for homeopathy and less for so-called allopathy. It seeks to study, rationally and scientifically, the action of drugs, old and new. It is more concerned that a physician shall know how to apply the few great medicines which all have to use, such as quinin, iron, mercury, iodid of potassium, opium, and digitalis, rather than a multiplicity of remedies the action of which is extremely doubtful." Dr. Clifford Allbutt says: "It has been one of my aims as a teacher to keep before the mind of the student that a disease is a figment of the mind; that there is no such thing; the things are men in particular states, no two of them being exactly alike. So it is with therapeutics, which is a collection of abstract rules; the thing is the physician. Clinical doctrines are a sort of *memoria technica* which in the particular case remind us what to look for, but do not pretend to contain all its peculiarities; so therapeutic doctrines remind us of the tools we may use, but by no means tell us all we can do with them in the individual instance. Many and many a time I have seen patients cured or relieved by unwearied solicitude and timely manipulation of this common remedy or that, in the hands of country physicians of no great pretensions to learning or conversation with the broader and more ingenious principles of the consultants whose diagnosis was abstract, and whose treatment was abstract; abstraction embracing abstraction to infinite sterility."

However much we may differ in detail from the positions taken by these masters in medicine, it must be granted that medical treatment of disease, pure and simple, is hardly worthy of the life energies of a man with scientific impulses. But when that treatment is based upon a comprehensive grasp of physiology, pathology, and etiology, and I may add psychology, when it is applied as the final test of a differential diagnosis, then therapeutics becomes a worthy branch of the greatest of natural sciences.

Though medical treatment, which for the most part seeks to modify cellular activity directly, lacks nearly everything in exactness and certainty, there is a form of treatment of disease which deals not with cellular vitality directly, but chiefly with mechanical hindrances to the proper functioning of that vitality, and this kind of treatment approaches mathematic precision in its calculations. It is the field of the surgical operator. And as medical therapeutics is vain without diagnosis founded upon pathology and etiology, so the operative manipulation is disastrous without the thought that runs before.

It has seemed to me that a useful purpose might be served by attempting to define anew the relations of the physician to the surgeon in handling the patients whom both seek to serve. And there is a certain appropriateness, in that one who is fitted neither by attainments nor inclination for surgical practice, should venture to discuss these relations from the standpoint of the internist.

Every votary of our art probably views with bias, based on his individuality and educational environment the cases committed to his care. His very enthusiasm, that indispensable spur to thorough work, is often the practitioner's chief impediment to a judicial attitude in weighing the propriety of radical measures of relief. He must constantly bear in mind that, on the one hand, precipitate surgical interference furnishes the surest and most humiliating rebuke of a mistaken diagnosis; while on the other, a misinterpretation of true conservatism leads to those fatal delays wherein, *e. g.*, a relatively harmless inflammation may become a general septic conflagration. It is a trite saying that, in affections in which the only relief can be found through the surgeon's knife, the physician should at the earliest possible moment call in consultation, the surgeon. I consider it a self-evident absurdity to proclaim that from a medical standpoint the proper treatment of a patient is by certain measures but that from a surgical point of view opposite procedures are best. There can be but one best method of treatment, and so far as the patient is concerned the medical and surgical viewpoints are identical.

It seems to me that the time has come when the physician who ponders upon any case of disease whatever should consider whether surgical interference is demanded in its treatment. When the operator and anesthetist are sufficiently skilled the normal human body almost always reacts from the narcosis and the mutilations of the knife. Most surgical lesions in their incipency are local, and when abolished leave normal tissues to react. But the longer operation is delayed the more reduced is cellular vitality, the more intense is general intoxication and the less able is the organism to respond to the strain the operation throws upon its powers of resistance. It is self-evident, then, that if surgical interference is demanded for the relief of symptoms, it is the physician's duty to call for it at the earliest possible moment.

One of the chief functions of the thoughtful physician today is to determine what classes of symptoms demand surgical interference for their relief. For nothing is clearer in the light of recent surgery than that medical practitioners are now often vainly attempting to relieve by medical means organic conditions which, in their very nature, can yield only to the knife. While the conscientious physician recognizes that a large and increasing proportion of the cases under his care properly belong to the domain of the surgeon, he must in turn demand of the surgeon the possession of a soundness of judgment and operative skill, which at once puts out of action a certain fraction of the operating fraternity. Efficient dexterity in this or that operation requires constant practice, and the physician is loath to devote his patients as material for training. Though the physician occupies the position of a mere onlooker by the operating table, he is nevertheless bound to exercise an independent

¹ Read before the Denver County Medical Society, April 19, 1904.

critical judgment as to the expediency of this or that surgical measure. He knows that it is the nature of all progress, and preeminently of surgical progress, that its pathway shall be strewn with obsolete fads, the cast-off misfits of the torch-bearers of science.

The past generation of women suffered from the fad of ovariectomy, and now that the physiology of the internal secretions has been established, we regard much that was done in the high tide of gynecologic section work as abominable mutilation. We hear but little now of the treatment of reflex disturbances through operative fixation of the movable kidney. It is painfully borne in upon us that decapsulation of the kidney for the relief of nephritis has not the wide range of usefulness that at first was hoped for it.

The demand for diagnostic skill on the part of the physician has greatly increased since the surgeon has learned to cure what were once considered as "medical diseases." The opinion is becoming more and more general that appendicitis is a purely surgical disease, and that operation should be performed when practicable.

But the physician who contemplates referring his case must also bear in mind, what Gerster has recently pointed out, that operation on even the quiescent appendix may set free an infective thrombus and lead to fatal liver abscess, or put in action divers other causes of fatality.

Few would now deny that the presence of gallstones is an indication for surgical interference, but, practically, the medical man often misses the meaning of his patient's symptoms until they have complied with the demands of textbooks written in comparative ignorance; when the diagnostic symptoms have reached this stage the surgical condition is often incapable of amelioration.

There is a class of liver disorders presenting few local symptoms, probably due to nonsuppurative infection of the gall ducts within and without the liver, which medical drainage by means of cholagogues is not able to relieve. Such cases are not treated of, so far as I know, in the textbooks as yet. They are apparently cured by temporary drainage of the gallbladder. It is to be suspected that this class of patients is a very large one; certainly the surgeon, through whose help alone they can hope for recovery, rarely sees them.

The time is scarcely past when gastric disorders invited the attention of the surgeon only for relief of the distress caused by cancer, or when there was danger of fatal bleeding from ulceration. But very lately the relation of surgical treatment to the manifold symptoms of dyspepsia incident to gastric or duodenal ulceration and to dilations of the stomach, especially with obstruction, has become, perhaps, the most prominent medico-surgical question of the day.

All physicians know the tedious and unsatisfactory course under medical treatment of many cases of dyspepsia due now to suspected ulceration, now to stagnation of food within the dilated stomach.

The patient may, indeed, be relieved, but the relief is often conditional upon the patient's pursuing the straight and narrow path of a strict dietary and the avoidance of innocent pleasures which help make life worth the living. Now comes the surgeon and claims to cure once and for all many such sufferers and to replace them among the ranks of healthy people. Mr. Moynihan, in a recent address before the American Surgical Association, speaking of gastroenterostomy in the treatment of ulcer of the stomach, says: "Inveterate dyspepsia is in itself an ample warrant for surgical treatment." A distinguished surgeon recently said to me, in effect, that he considered any chronic condition of the stomach marked by undue retention of food with pathologic results, to be an indication for gastroenterostomy. Dilation of the stomach is a condition so commonly found that a reference of all such cases to the surgeon would lead to a veritable operative orgy. It is the business chiefly of the physician to discriminate between those cases in which relief can only be hoped for through surgical interference and those in which operation offers not only little hope for cure but the possibility of harm. With the comparatively small experience at present available in this field of treatment, it would seem to be a conservative rule to recommend for operation practically all those cases of dilation accompanied by obstruc-

tion at the pylorus and possibly also cases which (the patients possessing sound nervous systems) are characterized by simple atony of the stomach and in which cathartic medical treatment has, after a prolonged trial, failed to relieve the dyspepsia. But it would seem unwise to refer to the surgeon any case of atonic dilation of the stomach until it is apparent that medical treatment is unable to bring the patient to a normal plane of life. The mistakes in the near future are likely to arise from surgical intervention in the gastrectasis so commonly accompanying neurasthenia; cases in which it is so often difficult to estimate whether the state of the stomach is primary or secondary to the general nervous instability. In a letter recently received from Dr. W. J. Mayo, he says: "We have not intentionally operated upon any patients with neurotic dilation. We fight pretty shy of that class in a surgical way." Another very large order of cases to which the surgeon's attention may be conservatively called is that in which persistent or recurring epigastric pain refuses to yield permanently to medical treatment. The symptoms are usually due to gastric or duodenal ulcer and find a happy relief in operation.

SUMMARY.

It would seem to behoove us who assume to practise internal medicine to look upon abdominal pain and accompanying symptoms with a new and enlightened interest. The female pelvis, the appendix, the gallbladder, the kidneys, the duodenum and the stomach present an array of disorders meeting us on every hand. It is possible in many cases, through a careful review of the history and a study of the symptoms of the disease, to make a correct differential diagnosis.

The affections under consideration admit of but incomplete palliation under medical treatment and such temporizing may jeopardize the life of the patient. Expert surgery is capable of curing these diseases, and when operation is undertaken while the organism at large is still normal, the danger of fatality is very small. Every abdominal symptom should suggest to the physician the expediency of operation. If careful consideration points to a "surgical condition" the diagnosis of the definite seat of the lesion is a minor matter and, as has been said elsewhere, may well be left to the exploratory section.

To wait for the development of certain classic symptoms, such as jaundice with gallstones, or hematemesis in gastric ulcer, will, in the majority of cases, disturb the aim of the physician—the relief of his patient.

Discriminating diagnoses and early operation when indicated must greatly increase the percentage of cures. The confidence of the public will thereby be welded to us and patients will trust themselves to our advice while their vital forces are still capable of responding to every therapeutic endeavor.

It is far beside the mark of my observations to palliate in any way the crime of indiscriminate surgical operation.

True conservatism may demand now action, now delay. No one understands better than the true surgeon that surgery often demands that he watch and wait. The spirit of what I have meant to say is that all rays of light come from the one focus—Diagnosis.

"Paupers" Have Means of Support.—Thus far in the investigation ordered a month ago by Judge Barrett, it has been ascertained that 450 patients maintained by the city in the Norristown State Insane Hospital as paupers have relatives of sufficient means to support them. The city now pays \$1.75 a week for each of them, while the State pays an equal amount. The investigation concerning this matter arose upon the application for his discharge of a patient who had been supported as a pauper when investigation proved that he had money in the bank and owned several pieces of real estate. Liberty was refused this patient on the ground that he recently made accusations against his wife and daughters, which, taken together with the circumstances, proved him clearly insane. Judge Barrett, in rendering his decision concerning this patient, concludes his opinion as follows: "The duty which devolves upon the court of remanding to an asylum for the insane a man who seems to have all his mental faculties upon matters that have no relation to the subject under discussion, and who undoubtedly appreciates liberty, and must be sensitive as to his position, is an exceedingly sad and difficult one; but in the interests of the relator as well as of those who might suffer serious bodily harm by a mistake in this matter the duty is a plain one."

THE SANTA CRUZ MOUNTAINS OF JAMAICA, WEST INDIES, FOR THE TUBERCULOUS.

BY

MR. LOGAN RUSSELL,
of Kingston, Jamaica.

Fellow of the Royal College of Surgeons, Edinburgh; Magistrate of the Courts of St. Andrew; Government Visiting Justice to Prisons and Jails; and formerly Resident Physician to the Brompton Hospital for Consumption and Diseases of the Chest and Throat, London.

AND

Climatology of the Mountain Heights of Malvern Range.

BY

LESLIE ALEXANDER, ESQ.,
of Malvern.

Among the diseases affecting the human system none demands such close observation and practical study as that of pulmonary tuberculosis.

There is no malady so insidious at its commencement and so fatal in its termination. It has been recognized from time immemorial as the "wasting disease," and too surely and steadily does it waste its victim, even to the very death.

It is not the malady peculiar to the occupant of aristocratic circles or the pauper. It knows no distinction in rank or station. The monarch on his throne, surrounded with every luxury that art or science can furnish, fed on the choicest products of the soil, clothed in the most costly raiment, protected from every fitful gust that blows, is by this disease treated with the same reckless and unrelenting hand as the pauper, far removed from such protection, poor, unknown, uncared for, and whose constant thought is for the sustenance of the day and some friendly shelter for the night.

The plague, with its awe-spreading and frightful ravages, can bear no just comparison to this, for though it decimates the ranks with an alarming and certain precision, its time is, at the most, limited, and its departure sudden and permanent, or at least, so permanent that after the expiration of many years it is forgotten and may never return. Pulmonary tuberculosis *lives*¹ among us. It has its hot-bed in our midst, where it is nourished and expanded to its utmost limits, doing its work from day to day with a certainty unrivalled by any malady. It rests not as a simple malady departing with the death of its selected victim, but passes its seed of contagion to the offspring who, unless placed under favorable hygienic influence may, and probably will, at an early age in life develop the characteristic symptoms.

It becomes our duty to examine into, collect, and diffuse such knowledge as we have obtained, trusting the same may tend to check or mitigate the sufferings of those who are affected with this disease.

With this in view, we trust these observations may prove of beneficial assistance to the numerous readers of *American Medicine*, many of whom being in doubt as to a suitable locality for the recommendation to those under their care.

Many and varied are the drugs that have from time to time been tried and lauded as beneficial, and in not a few cases marked, "specific," for pulmonary tuberculosis, and while these have in many instances proved of great advantage, we find on extended experience that the great prophylactic is that dispensed by Mother Nature, free of any charge and obtainable at all hours and at all places, fresh air. Fresh air naturally differs, and while that of a locality may prove of beneficial service to a special class of diseases, resulting in convalescence and early, absolute recovery; to another class convalescence may be tardy, so much so that removal to a higher or lower altitude is ordered, when speedy and satisfactory results follow.

¹ The word *lives* among us, is intended as general to such climates that are subject to sudden transitional changes. Locally, we may say, we have no pulmonary tuberculosis other than those cases generated by ignorance and persistent refusal to regard the general and simple hygienic law of acquiring as much fresh air as possible. Some persons have so decided a fear of the "night air" entering their rooms that every window is shut, and each crevice carefully guarded; as a result in a short time the pure air becomes exhausted and nothing is left but the prebreathed carbonaceous waste; life maintained on that will certainly produce pulmonary tuberculosis.

Many who have arrived afflicted with pulmonary tuberculosis have gone to the higher ranges of the Island, and by carefully avoiding alcoholic drinks and leading proper lives, have recovered and lived to ripe years.

I do not write to imply that every patient with pulmonary tuberculosis who arrives, will certainly be cured, but simply wish to direct the attention of the profession to the great advantages to be derived in incipient cases, and in well-selected cases. But such patients must not remain in or about this city (Kingston) for here the heat is tropical. The dust in circulation from constant and heavy road traffic is excessive at times, and decidedly aggravating to impaired pulmonary and bronchial tissues. The best spot in the Island is Malvern, located in the Santa Cruz Mountains at a height of 2,350 feet above sea-level.

The climate of Malvern is such that the open-air treatment of pulmonary tuberculosis can be uninterruptedly carried on throughout the entire year. The Island is gradually being recognized as a health resort, and increased steamship facilities that have been established within the last few years have done much toward bringing the Island before the notice of the traveling public.

For a distance of over 16 miles the Santa Cruz range runs parallel to the sea, ending abruptly in the Southfield district with a cliff 1,550 feet high and less than half a mile from the seashore. At no spot does the range diverge landward further than 8 miles from the sea, a feature which contributes largely to the dryness of the atmosphere. The most central portion of the range is "Malvern heights," where an ideal climate is found, one in which there is a mixture of mountain and ozone-laden air, very dry, and with a most equable temperature. A careful record during a period extending over 10 years shows the average maximum temperature to be only 72½°. The average minimum 63½°, and an average range of 9½°. The following figures represent the average temperature for 1 year:

	Minimum.	Maximum.
January.....	59°	66°
February.....	57°	64½°
March.....	59½°	66°
April.....	61°	71°
May.....	62°	72°
June.....	62½°	74½°
July.....	66°	76°
August.....	68°	80½°
September.....	68°	79°
October.....	64½°	78°
November.....	64°	74°
December.....	61°	73°

The average rainfall as shown by the records of the government gauges during the past 4 years has been only 55 inches. Malvern may therefore boast of a unique and exceptional climatic reputation, ranking, as a recent expert opinion puts it as a "wonder of the world."

During the past 10 years only once did the rain fall for 3½ whole consecutive days, and that was in 1899, a year in which floods occurred in every one of the 13 parishes of the Island. The rainy months are May and October. In May, two whole consecutive days may be looked for, the fall never exceeding ½ in. in any 1 day, and not more than 8 in. for the month. In October, afternoon rains of a couple hours' duration may be looked for, and generally during the latter part of the month. In this month the mornings are bright, sunshiny, and bracing. Owing to the limestone formation of the range, and consequently perfect drainage, one can enjoy walks along the well-kept mountain roads within an hour of the heaviest rain.

There is literally no forest land in and around Malvern. The entire range of mountains is a pimento region, a product which grows in open common pasture where there is absence of shade and humidity. So with the temperature at 52° or 54° in the morning in the months of January and February, no mist is to be seen, and out-door exercise is very enjoyable. Scores of patients have obtained a new lease of life by a residence here. In all throat and lung troubles, laryngitis, bronchitis, pulmonary tuberculosis, asthma, catarrh, the climate produces marvels.

Dr. Charles Reinhardt has been here recently, at the instigation of Sir Alfred Jones, with the view of establishing a sana-

torium for lung diseases. Dr. Reinhardt was the first physician to advocate the open-air treatment in England. He gave the following opinion:

The climate of England is no bar to the success of the open-air treatment for pulmonary tuberculosis. At the same time its discomforts are unavoidable. The great changes which occur in temperature make it inevitably a little uncomfortable, though much less so than the patients fear. Persons suddenly stricken down with pulmonary tuberculosis dread the English climate more than they would if they had experience. Those fears must be reckoned with, and the only climate in the world in which the open-air treatment can be carried on summer and winter without discomforts is that of the Santa Cruz Mountains.

I am familiar with the climates of many health resorts, especially with Swiss and Austrian Alpine regions, which are recommended for the tuberculous.

The treatment at these places must necessarily be intermittent, because when you get the winter season the patient has to move off, and this frequently does considerable harm. There is a class of patients who should live continuously in a rarefied atmosphere, who could not live anywhere else, and who break down as soon as they move to another climate. For this type the climate of Santa Cruz, being identical with an English summer in its best mood, would be free from the disadvantages. Before coming to Jamaica, I had interviewed several patients who had been previously sent to the Santa Cruz Mountains and had returned to England. I have also interviewed several patients now there, and in every case the results have been good beyond all expectation. * * *

On the Santa Cruz Mountains you have the wonder of the world, and in all my experience there is no such place that I have ever heard of where there is so exceedingly equable and so pleasant a climate. * * * I think the day cannot be far distant when the English-speaking world will recognize Malvern as a place in which to seek and find renewed health.

Such is the opinion of one of the leading specialists of the world, who has studied the climate.

The history of a resident at Malvern interviewed by Dr. Reinhardt may be summed up as follows:

Ten years since while at work on the plains I was stricken with lung trouble. Seven local physicians advised change to Malvern, which I did during the summer months for 3 consecutive years, and the climate worked wonders. I resigned my appointment in the government service. I have been here since October 4, 1897, and have entirely recovered except for a slight huskiness of voice. I had lost 24 pounds, but now maintain a standard weight of 147 pounds and have had no illness for 4 years. I live on the humblest fare. I was a flautist, but had given it up. I can now play for 3 or 4 consecutive hours without the slightest discomfort. I can walk from 6 to 8 miles any morning. I keep an apiary of 100 odd colonies, one which I attend without any assistance. The people here cure themselves of tuberculosis while continuing their avocations.

There are in and around Malvern and within a radius of 2 miles of the post and telegraph offices, 4 reputable boarding-houses and a hotel.

All American and English groceries and foodstuffs are to be had at Malvern.

In conclusion we would say there are hundreds of charming sites in the Santa Cruz Mountains suitable for the erection of sanatoriums by government or private enterprise, local or foreign.

Elks Endow Beds.—The Society of Elks, in New York City, has endowed two beds for the Postgraduate Hospital. Champe S. Andrews, exalted ruler of the New York lodge, in his presentation of the two beds, said that since 1868 the mother Lodge of Elks had dispensed in volunteer charity nearly \$250,000.

Pulmonary Tuberculosis in Relation to Life Insurance.

—T. D. Lister states that the normal danger to the office arising from pulmonary tuberculosis is made up of three factors: Inherited vulnerability, largely diminished after middle life—i. e., decreasing with age. Acquired vulnerability increasing with age. Infection, equally likely at all ages. The sum of these three factors causes the normal danger from pulmonary tuberculosis to be the same at all ages, but as age advances the percentage of deaths from pulmonary tuberculosis out of the total number of deaths diminishes with growing rapidity, owing to the large number of other causes of death which occur in the later years. All additions for any extra risk from pulmonary tuberculosis must, therefore, be larger in early life, but especially so with the danger decreasing with age. An excessive danger from pulmonary tuberculosis may be inferred in an individual when he has inherited vulnerability, acquired vulnerability, or a risk of infection (or two of these) in a degree greater than average healthy members of his own class. Personal condition is an important factor in determining this degree.—[*Indian Medical Record.*]

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

May 21, 1904. [Vol. XLII, No. 21.]

1. Intestinal Perforation in Typhoid Fever. B. B. DAVIS.
2. The Operative Treatment of Eclampsia. CHARLES SUMNER BACON.
3. The Use and Abuse of Hypnotics. W. BLAIR STEWART.
4. Our Serotherapeutic Measures. H. T. RICKETTS.
5. The Apostoli Treatment: The Final Results of its Use in some Cases of Fibroid Tumor of the Uterus. G. BETTON MASSEY.
6. Complications and Degenerations of Uterine Fibromyomas: A Pathologic and Statistical Study of 280 Cases. ELLICE M'DONALD.
7. The Treatment of Fibroid Tumors of the Uterus. CHARLES P. NOBLE.

1.—Intestinal Perforation in Typhoid.—B. B. Davis calculates a total of 8,333 persons whose lives might be saved annually in the United States by timely operation. Operation requires only 20 or 30 minutes, and deaths from shock are very few. A large proportion of the operations that have been done have been for general peritonitis instead of mere perforation. It is for this reason mortality has been so high. Keen opposes operation in the first 12 hours, but analysis of cases will probably show that the greater mortality at this period was due to the greater severity of the disease in the cases he operated on, stupor having masked the perforation until peritonitis occurred. Those operated on in the second 12 hours are those probably who were not so very ill from the disease—with minute perforations, little leakage, and insusceptible to peritoneal irritation. If shock is prolonged beyond the time necessary to prepare for operation spreading infection is more dangerous than operation and the latter should not be delayed. The most marked symptoms of perforation are sudden abdominal pain, localized tenderness, thoracic breathing, and muscular rigidity. Leukocytosis is unreliable. There is a sudden rise in blood-pressure. Operation should be done at the house. The best incision is along the right semilunar or through the outer border of the rectus. A mattress or running suture of fine silk, parallel with the bowel should be used, no paring of the edges, but simple infolding being all that is necessary. Resection is too formidable. If several perforations are crowded together an artificial anus may be established or gauze may be packed about the loop to sequester it. The extravasated matter if still localized should be wiped away, irrigation often spreading infection. Anesthesia may be discontinued as soon as the perforation is found, the closure and peritoneal toilet giving very little pain. [H.M.]

2.—Operative Treatment of Eclampsia.—C. S. Bacon states that as labor is frequently the exciting cause of convulsions, any operation having the effect of a severe and prolonged labor should be avoided. Abdominal cesarean section is done in contracted pelvis. All operations should be under complete ether anesthesia. Ether is not more dangerous to the kidneys and is safer for the impaired heart. Morphin is much better than ether to control convulsions. When the cervix is effaced, we have three methods of dilation, incision, digital, and bag dilation. For incision, the posterior lip is first caught on each side of the median line and cut to the vaginal junction, and then the anterior lip in the same way. When the cervix is not effaced, these incisions are not sufficient and vaginal cesarean section will probably secure the best results. A longitudinal incision should be made from behind the meatus urinarius to the external os through the vaginal mucous membrane, the bladder being separated by gauze sponges. Then cut the cervix through to the median line with scissors, making traction with vulsellum forceps to bring more of the anterior uterine wall in reach. Then push up the vesicouterine fold of peritoneum. If the child is at term it may be well to split the posterior cervical wall in the same manner as the anterior. Unless the head is in the pelvis, delivery is best accomplished by version and extraction. If there is no hemorrhage, the incision in the uterus should be closed before delivery of the placenta, expressing the latter before suturing the cervix and vagina. [H.M.]

3.—Hypnotics.—W. B. Stewart emphasizes the importance of ferreting out the causes of insomnia before treating, and advocates the use of other than drug treatment, whenever possible, such as hypnotic suggestion, head massage, hot drinks on retiring, warm baths, and avoidance of exciting work in the

evening. Sleep from alcohol is not restful. Sulfonal and trional among drugs have the least harmful after-effects. We should never fall into the rut of prolonged administration of any drug. [H.M.]

4.—Serotherapy.—H. T. Ricketts reviews the discoveries which led to our present knowledge, lists the prophylactic and curative injections, describes Ehrlich's side-chain theory, and summarizes the practical results of serotherapeutic measures. Success depends on administration as soon as possible after infection. The writer has recently studied reactions, leading him to the belief that cytotoxicity may be accomplished by a reduction process which may lead to important results as to the chemistry of immunity. [H.M.]

5.—The Apostoli Treatment.—G. B. Massey states that a prolonged observation of cases of fibroid tumors of the uterus under this treatment teaches that three-fourths of the cases will be practically cured, as attested by inquiries made from three to 16 years after the cessation of treatment. The cases that respond poorly are not harmed by it when properly applied, and heroic measures may then be used. Hemorrhagic and interstitial fibroids are best adapted to the treatment, while subperitoneal or degenerative fibroids and those complicated with pyosalpinx are least so. But one of the seven deaths among 110 patients has been due to progress of the growth itself, proving the nonmortal character of this affection. Of the remaining six, one died of a totally unconnected affection, one of septicemia under electric treatment, and four under operation with the knife. [H.M.]

6.—Complications and Degenerations of Uterine Fibromyomas.—E. M'Donald believes all fibroids producing symptoms and all except those designated as small (especially when subserous or intramural) should be removed, because risk from operation is less than that of the tumors themselves from sarcomatous changes, carcinomatous associations, and complications. Thorough pathologic examination should be made for evidence of malignancy. Particular study should be devoted to those tumors which are necrotic, cystic or both, as among these are found the largest proportion of malignant changes. [H.M.]

7.—Treatment of Fibroid Tumors.—C. P. Noble has estimated that because of degenerations, 16%, and because of complications, 18% of patients would die without operation. Others would die of intercurrent disease contracted because of the resulting reduced state of health. If there is any class of fibroids which does not require removal it is the subserous and intramural group. It is more than doubtful whether it is conservative to advise against the removal of a fibroid in any instance, unless owing to disease in other organs an operation would be hazardous. An analysis of reported cases shows the following facts: Sarcoma developed in 1.5%, adenosarcoma of the corpus uteri in 2.5%, carcinoma of the cervix in 1%, necrosis in 6.1%, cystic degeneration in 3.4%. One third of women having fibroid tumors die unless the tumors are removed. The risk of radical operation in uncomplicated cases is not more than 1% or 2%; in the average of cases it is about 5%, rising to 10%, 20%, or 30% in the gravely complicated cases. [H.M.]

Boston Medical and Surgical Journal.

May 12, 1904. [Vol. CL, No. 19.]

1. Hysteroneuroses and their Relation to the Physical Examination of all Women Patients. DANIEL H. CRAIG.
2. Tuberculous Meningitis in Adults. HENRY JACKSON.
3. Claudius' Iodized Catgut. HORACE BINNEY.
4. Concerning Danger of Infection to Attendants of Tuberculous Patients. LOUIS FAUGERES BISHOP.

1.—Hysteroneuroses.—D. H. Craig quotes Engelmann's definition of these as "Those phenomena which simulate a morbid condition in an organ which is in an anatomically healthy state and which are due not to structural changes in the organ in which they appear, but to morbid or physiologic changes in the uterus or ovaries." In studying his own recent private records he finds that in 14% these cases had been misinterpreted by other physicians on account of lack of thorough physical examination. No symptoms should be accepted as a hysteroneurosis until every other cause has been rationally excluded. A thorough search for extrapelvic causes of symp-

toms often makes an intrapelvic examination unnecessary and in doubtful cases in single women the therapeutic test may often seem justifiable. With a supersensitive patient nothing so greatly facilitates pelvic explorations as nitrous oxid. [H.M.]

2.—Tuberculous Meningitis in Adults.—H. Jackson mentions trauma, syphilis, cerebrospinal meningitis, meningitis secondary to pneumonia and sepsis, and tuberculous meningitis as having many symptoms in common. The fever, headache, malaise, and often leukocytosis are usual in other diseases. A high white count may occur but is uncommon in tuberculous meningitis and when present will eliminate typhoid. We may base our diagnosis on the pulse-rate and paralyzes of various muscles especially of the eye and face. If the pulse is irregular or intermittent as well as slow it furnishes greater cause for alarm. A pulse in harmony with the general symptoms is presumptive proof the case is not cerebral. There is rarely paralysis of any of the larger muscles; deviations of the eye muscles may be so slight as to suggest merely a permanent cast. Lack of evidence of preexistent tuberculous trouble is no strong evidence against the probability of tuberculous meningitis. It is common, however, to find at postmortem healed processes insusceptible of clinical diagnosis. In many cases the writer has found the onset abrupt. The prodromal symptoms in all were indefinite. In only one case was headache a prominent symptom. In adults the disease is not usually marked by the same headache, photophobia, cerebral cries, and extreme restlessness that make the picture in childhood. In eight cases of lumbar puncture the fluid spurted, showing pressure, but in only one was the bacillus found. Retraction of the head, Kernig's phenomenon, and opisthotonus are less frequent than in cerebrospinal meningitis. [H.M.]

3.—Claudius' Iodized Catgut.—Horace Binney states that the ordinary so-called sterilized catgut is often not sterile. Gut prepared by the cumol method is sterile, but the method is very expensive. The method suggested by Claudius has been tried by Binney in nine different instances with satisfactory results; in eight of these, the catgut was used in the fascia in closing the laparotomy wounds. From experiments with rabbits and a few clinical tests it has been found that the iodized gut corresponds closely in duration with plain catgut in the time required for absorption. Schon has used the iodized catgut in 17 resections of the breast with perfect healing resulting in every instance. His conclusions are: Catgut prepared by Claudius' method is superior to other catgut in that: 1. It is invariably sterile. 2. It is readily absorbed in the tissues. 3. The ease and simplicity of its preparation enables the surgeon to prepare his own sutures with a minimum of trouble. 4. It is comparatively cheap. For details of Claudius' method see *American Medicine*, Vol. VII, No. 21, p. 831. [A.B.C.]

May 19, 1904. [Vol. CL, No. 20.]

1. Enterostomy in Peritonitis. ROBERT B. GREENOUGH.
2. A Comparative Study of the Deaths for the State of Massachusetts for the Years 1850, 1875 and 1900. WILLIAM F. WHITNEY.

1.—Enterostomy in Peritonitis.—Robert B. Greenough considers this question at length, giving abstracts of 41 cases, and concludes as follows: (1) The obstruction of the intestine in diffuse peritonitis is the result of a combination of causes; (2) the most important cause is suspension or paralysis of peristalsis; (3) paralysis of peristalsis is due to inhibition, to toxic paralysis and to the paralysis of distention; (4) mechanical causes such as infiltration of the bowel wall and light adhesions in certain cases contribute to this paralysis; (5) pure mechanical obstruction due to adhesions is the result of chronic or local peritonitis of at least some days' duration; (6) enterostomy is indicated in addition to other operative measures in the graver forms of diffuse peritonitis; (7) its greatest advantage is the drainage of the gases and decomposing contents of the bowel and the relief of paralysis of peristalsis; (8) by enterostomy the surgeon obtains direct control over the intestine for lavage and for the introduction of stimulants, nourishment, fluids and cathartics; (9) for the relief of paralysis of peristalsis primary enterostomy is to be preferred to the secondary operation; (10) enterostomy is best performed by the use of the Mixter tube; (11) the cecum is the most satisfactory part of the bowel for a primary enterostomy, and the jejunum

is to be avoided; (12) spontaneous closure of the fistula may be expected when the cecum is opened, if the opening is kept below the level of the parietal peritoneum; (13) by the systematic use of enterostomy in the graver forms of diffuse peritonitis the number of patients dying on the second, third and fourth days after operation is reduced; (14) the symptoms of visible peristalsis and spasmodic pain in intestinal obstruction indicate a mechanical cause for the obstruction; (15) the persistence of these symptoms, unrelieved by enemas and cathartics, is an indication for operation; (16) under these circumstances the cause of the obstruction should be removed if possible by operation; (17) in advanced cases of obstruction of this form enterostomy of the coil of intestine nearest above the obstruction should be done. [A.B.C.]

2.—Old and New Deathrates in Massachusetts.—In conclusion, a comprehensive view of the picture shows the expectancy of life in 1850 was better for children than it is now. They stood a better chance of reaching the end of their first year, while from that time on the infectious diseases claimed many victims. But those who reached 50 could look forward more confidently to an old age. In 1875 the new era of medicine had only just begun, and with the passing away of the quieter and simpler modes of living, with the crowding out of fresh air and sunshine, the natural checks upon infection were broken down, and the result was what would be expected. But, fortunately, today preventive medicine and hygiene have been able to minimize infection, and thus to more than offset the evil effects of our concentrated, high-pressure civilization up to 50; after that period modern science appears to be powerless against the diseases of old age, to which the survivors of this strenuous existence seem more readily to succumb. [A.B.C.]

Medical Record.

May 21, 1904. [Vol. 65, No. 21.]

1. The Treatment of Pneumonia. JOSÉ M. FERRER.
2. Renal Redecapsulation. GEORGE M. EDEBOHLS.
3. Operative Surgery Applied to the Seminal Vesicles: A Demonstration of Some New Principles. EUGENE FULLER.
4. Who is Treated? HEINRICH STERN.
5. Tetanus Treated by Intraneural Injection of Antitoxin. JOHN ROGERS, JR.
6. Multiple Gonorrheal Periarthritis in a Child, Probably Due to Inoculation Through a Wound. HENRY HEIMAN.

1.—Treatment of Pneumonia.—J. M. Ferrer reviews the treatment of a quarter of a century ago. Later years have witnessed the complete triumph of the expectant plan. Hygienic measures, good nursing, active interference if necessary, avoidance of fussing, discretion in diet and supporting measures, attention to the bowels, and relief of pain, fever, and restlessness constitute about all we know of treatment. Salicylates and iodids have proved ineffectual. Creasote compounds he uses only in catarrhal cases. Quinin seems to have a decided effect on temperature. A sunny room, responsible nursing, quiet, a temperature at 75° to 80°, and disinfection are matters that he insists upon. For the initial chill he uses hot bottles; for nausea and vomiting, reduced diet, mustard plaster, cerium oxalate, or calomel; for pain, ice-bags, or preferably heat. In intense pain nothing will take the place of morphin. Mortality is increased by bleeding. Tympanites may be relieved by calomel, irrigation, change of diet, or turpentine. Sponging is grateful with a temperature over 103°. Oxygen seems to allay irritation. Heart stimulants should be postponed until indicated. Hypodermoclysis is sometimes efficacious. In diet, the patient's inclinations should carry great weight, even solid food being allowed when there is no intestinal indigestion. [H.M.]

2.—Renal Redecapsulation.—George M. Edebohls states that one invariable effect of renal decapsulation is the formation of a new capsule proper, which is always more succulent and more vascular than the original. He reports an instance in which he did a redencapsulation upon a patient, who, two years previously, underwent an operation for double renal decapsulation at his hands, the trouble being chronic Bright's disease. Following the primary decapsulation for chronic Bright's disease on a male patient of 26, there was primarily no improvement in the condition of the urine. The patient then went abroad, to a number of health resorts and for a time there was some improvement, but the whole period was a rather stormy

one. Finally, about two years after the primary operation, the renal condition becoming worse, the patient returned to Edebohls, who did a double renal redencapsulation with the hope of affording relief. He states that both kidneys were of the same size at the second operation as when he operated primarily and were distinctly less dense and friable than at the original operation. The patient, who was in a uremic condition at the time of operation, failed to rally and died five hours afterward. The stripping off of the capsule in the last instance was not difficult. [A.B.C.]

3.—Operative Surgery Applied to the Seminal Vesicles.—Eugene Fuller states that he formerly operated with the patient lying on his abdomen with the buttocks over the raised end of a Trendelenburg table. This position he has abandoned for one in which the patient is placed on a flat table with the knees flexed sharply under him, and the shoulders so depressed that the side of the face rests on the table. His later experience encourages the belief which he formerly entertained in operative procedures applied to surgical conditions of the seminal vesicles. Up to the present time he has operated on 21 patients without a death. The surgical method which he claims to have originated for seminal vesiculitis consists in seminal vesiculotomy with exposure of the cavity of the vesicle by means of a free longitudinal incision. The surgical treatments which he claims to have introduced are drainage of the cavity, curetment, and the removal of the intravesical neoplasms, and also the freeing of the organ through peripheral dissection from surrounding inflammatory adhesions. His 21 cases he divides pathologically into 5 groups: Group 1 consists of extremely chronic cases of seminal vesiculitis; group 2, consists of instances of seminal vesiculitis less marked than the preceding; group 3, cases of acute diffuse periseminal vesical abscess; group 4, adenoma and involving the wall of the vesicle; group 5, tuberculous involvements of the seminal vesicles. He claims that his method is superior to that of (1) perineal section with median incision through the trigonum; (2) incision through the rectal wall; and (3) perineal incision through the prostate. [A.B.C.]

5.—Tetanus Treated by Intraneural Injection of Antitoxin.—John R. Rogers, Jr., states, that after the development of the symptoms of tetanus, subcutaneous, intravenous, or intracerebral, injections of antitoxin are manifestly useless. Experiments show that the most minute abrasion of nervous tissue is sufficient for the entrance of the toxin, therefore the usual lumbar puncture offers a reasonably safe and sure method of obtaining the desired result. He reports the case of a boy of 12, who suffered a wound of the left palm from a toy pistol; four days later the family physician removed some portions of wadding; 14 days later initial symptoms of tetanus appeared, and two days later were very distinct, there being trismus, lockjaw, opisthotonus, and tonic muscular contractions. Under either the brachial plexus was exposed, and the inner and outer halves of the median nerve, the trunks of the ulna, musculospiral, musculocutaneous, and circumflex nerves were punctured by an aspirating syringe and 5 m. to 10 m. of antitoxin injected into it. At the same operation, the needle was introduced between the third and fourth lumbar vertebrae and 1 dr. of the antitoxin injected subdurally. The palmar wound was thoroughly curetted and cleansed. There was a distinct change for the better in the patient's condition. A second lumbar injection was given on the day following; the patient completely recovered. The author holds that this was not necessarily a chronic case, but one conforming to the type termed "delayed acute," which is quite as fatal as the ordinary acute form. [A.B.C.]

6.—Multiple Gonorrheal Periarthritis in a Child.—Henry Heiman calls attention to a recent article on the "Gonorrhea of Infants," by Kimball, in which he notes the prevalence of gonorrhea in infants and children occurring in epidemic form in institutions, describing six such cases, and suggests that infection occurs by way of the upper air passages or mouth. Heiman refers to a previous paper by himself, in which he reported some cases in infants in which one or both of the parents were simultaneously suffering with the disease, and mentioned cases of vulvovaginitis and arthritis in which the mode of entrance of the gonococcus to the body was unknown. In the present paper he reports the case of a male

child of 4 years, which had been a healthy and well-developed child; he suffered a slight injury to the sole of the right foot; five days previous to this time the father had been treated for gonorrheal urethritis, prostatitis and epididymitis; somewhat earlier the mother was treated for vulvovaginitis. The child's illness began with pains in the foot; he was unable to stand; there was a temperature of 101°; both great toes and the left wrist were red, swollen and excruciatingly painful. On the inner side of the sole of the right foot was a puncture 1 cm. in diameter discharging seropus. Scurvy, osteomyelitis, acute rheumatic fever, etc., were thought of and excluded. Three weeks after the onset there was suppuration about the metatarsal phalangeal joints; the suppurating parts were treated surgically. Cover-glass specimens were prepared and cultures taken; the gonococcus was unmistakably found. [A.B.C.]

New York Medical Journal.

May 14, 1904. [Vol. LXXIX, No. 20.]

1. The Vasomotor Center in Inhibition of the Heart. CHARLES E. DE M. SAJOUS.
2. Intussusception. JOHN F. ERDMANN.
3. Prostatic Crisis. SAMUEL H. FRIEND.
4. Mucous Colitis with Special Reference to Treatment. F. J. RUNYON.
5. Experimental Researches on Resuscitation after Death from Chloroform. ROBERT COLEMAN KEMP and A. W. GARDNER. (Concluded.)

2.—Intussusception.—J. F. Erdmann maintains that this disease, barring a few accidental cases, is one that demands prompt surgical interference. We should not temporize with air inflation or water injections. He believes that the symptomatology, as given in former textbooks on diseases of children, etc., should be rewritten with a view of placing all stress upon blood or bloody mucous stools, and not upon the presence of a sausage-shaped tumor. In over 60% of a series of 26 cases seen by him, in 23 of which he operated, no tumor of any kind was palpable per rectum or through the abdominal wall. He has not found a single instance in which blood, bloody stool, bloody mucus, or bloody serum was not found, either upon the diaper, in the commode, or expelled from the anus after digital examination. Sudden pain is almost invariably the first symptom the child manifests, then a degree of shock varying in intensity and efforts at defecation take place; these are followed by manifestations of spasmodic pains; a peculiar whining cry or fits of crying. In the first hour or two the abdomen is lax and no marked evidences of pain are produced upon palpation; tumor is not felt unless the intussusception is of considerable extent and is taking place rapidly. After a few hours, depending entirely upon the degree of obstruction, abdominal distention and evidences of complete obstruction occur. When a tumor is felt it is not usually the proverbial sausage-shaped tumor, but is more apt to be round or nodulated and moderately movable. Rectal enemas in the first few hours are not productive of harm, but may, though rarely, be followed by reduction. Admitted that one secures occasionally reduction by use of enemas, still an important fact must be remembered, *i. e.*, that the whole mass may be reduced but the ileocecal junction and one or more inches of the ileum, then all the symptoms clear up for a time. They again return and necessitate operative interference at a time when the conditions of this region are not nearly so favorable. Two cases are reported, one of spontaneous reduction several hours after enema, and one of a subacute variety of over six days' duration with recovery after operation. [C.A.O.]

3.—Prostatic Crisis.—The object of the paper by S. H. Friend is to show that one of the early symptoms of tabes, the perineal pain, is located in the prostate gland. He believes that this pain should be named "prostatic crisis." [C.A.O.]

4.—Mucous Colitis.—F. J. Runyon believes that this condition is the result of mechanical irritation, irritation resulting from chemic processes in the intestinal canal, or from fermentative processes, the result of germs in the intestinal tract. It is most important in this affection to obtain the confidence and cooperation of the patient, for in many cases suggestion is of great value, and should be constantly employed. If the case is at all severe, if there is present much abdominal pain and soreness, if much mucus is discharged, and especially if this is blood-tinged and diarrhea is present, the patient should be put

to bed and kept there until acute symptoms at least have subsided. When these have well subsided the patient should be forced to be up and out. If constipation is present, the diet should preferably be liquid. Milk should not be given. Runyon prefers beef juice and broths, and these made more nutritious by the addition of bread or some of the cereals, and subsequently strained; or powdered beef peptonoids can be added to this. Many of the prepared foods here serve a useful purpose. When there is diarrhea, he prefers usually rather a dry diet, as beaten biscuit, toasted soda biscuit, or toasted light bread and crackers, rice, etc.; boiled meats in moderation. If the condition is due to irritation, epsom salts are indicated. At night, an hour before retiring, he directs the patient to take, in the recumbent position, an injection of just enough normal salt solution to cleanse the bowel. Then an hour later an injection of an ounce of sweet almond oil containing about 5 gr. of iodoform and 10 gr. of bismuth subnitrate in an ounce of hot water is used. Fluid hydrastis may be used, in either event the last injection should be retained all night. [C.A.O.]

Medical News.

May 21, 1904. [Vol. 84, No. 21.]

1. Lesions Peculiar to the Pancreas and Their Clinical Aspect. EUGENE L. OPIE.
2. The Prophylaxis and Medical Treatment of Diseases of the Pancreas. GLENTWORTH R. BUTLER.
3. The Classification and Symptomatology of Diseases of the Pancreas. CHARLES G. STOCKTON.
4. Renal Decapsulation from the Pathologist's Point of View. JOSHUA M. VAN COTT.
5. Cancer of the Intestine. J. G. SHERRILL.
6. Fracture of the Base of the Skull as a Cause of Epilepsy: Report of Case. CHARLES J. ALDRICH.

1.—Lesions Peculiar to the Pancreas.—Eugene L. Opie, in an interesting paper on this subject, states that diseases of the pancreas may be conveniently separated into those affecting the secreting apparatus of the gland, and those which have their seat in the islands of Langerhans and interfere with the influences which these structures exert on carbohydrate metabolism. Pawlow and his pupils have shown that the pancreatic juice contains three ferments, which have a preeminent part in the digestion of the three most important constituents of the food. Fatty necrosis for the surgeon may often serve as an index to pancreatic disease, and, recognized during the course of an exploratory laparotomy, frequently explains an otherwise obscure case. The various forms of pancreatitis are dealt with at some length. A considerable number of cases of hemorrhagic pancreatitis are associated with gallstones. Opie has collected 41 reported cases, in which gallstones have been found in association with acute pancreatitis; in seven of these instances a calculus was lodged at the duodenal orifice of the common bile duct, dragging the bile into the pancreatic duct. Gangrenous pancreatitis is usually associated with suppuration, limited to the lesser peritoneal cavity. Chronic pancreatitis is discussed. Fitz has collected from literature 29 cases of pancreatic disease in which fatty stools were noted during life; in 14 of these cancer was present; in 7 calculi; in 2 the pancreatic duct was obstructed; the small number indicates the infrequency of fatty stools in diseases of the pancreas. Clinical observations begun by Thomas Cawley, as early as 1788, have shown that diabetes mellitus is frequently associated with grave diseases of the pancreas, but the relationship of the pancreas to carbohydrate metabolism has not been clearly recognized until von Mering and Minkowski succeeded in completely extirpating the organ in dogs. Of the pancreatic lesions, which have been often associated with diabetes, the most common is chronic interstitial inflammation of that organ. Opie suggests that the pancreas may bear some such relation to diabetes mellitus as the thyroid gland bears to myxedema. Pancreatic extract administered in cases of diabetes mellitus, however, has not yielded the brilliant results that thyroid extract has in myxedema. [A.B.C.]

2.—Diseases of the Pancreas.—G. R. Butler points out that prevention of these lies in an appreciation of their causes, including syphilis, tuberculosis, arteriosclerosis, alcoholism, cardiac, pulmonary, and renal disease, acute and chronic infections, obesity, diabetes (not of pancreatic origin), proximal neoplasms, catarrhal and bacterial diseases of the intestine, and

affections of the liver and gallbladder. Disease is rarely recognized *intra vitam*. Various remedies have been used with reported good results, but the correctness of the diagnosis is in each case open to doubt. Iron, nitromuriatic acid, chlorin, calomel, and corrosive sublimate have been lauded. Pancreas therapy has been disappointing, in that disease of the organ has not been modified, though some pancreatic preparations have measurably improved the digestion of fats and proteids. Treatment is confined to a relief of symptoms. In the presence of pancreatic calculi, injection of pilocarpin increases pancreatic secretions. [H.M.]

3.—Classification and Symptomatology of Diseases of the Pancreas.—Charles G. Stockton states that tumors of the pancreas occur as carcinomas of various forms, adenomas, tuberculosis, syphilis, and cysts, the last being divided into at least three varieties: Retention cysts, proliferation cysts, and hemorrhagic cysts. The inflammatory diseases of the pancreas are chronic pancreatitis, which is usually described as indurated, although fatty degeneration and ingrowth of adipose tissue often form a considerable part of the mass. When induration involves the head of the pancreas it may, from pressure, obstruct the common bile duct and give rise to phenomena that suggest malignant growth or cholelithiasis. If the common duct escapes there may still ensue symptoms of more or less importance depending upon interruption of the pancreatic function. If the disease invades the islands of Langerhans, diabetes may arise, but if these regions are spared, nothing more than a persistent glycosuria could be expected. The symptoms are those of intestinal indigestion, occasionally fatty stools, lipuria, sialorrhea, emaciation, and in some instances severe anemia. Robson classifies inflammatory disease of the pancreas as acute, subacute, and chronic; Fitz describes pancreatic hemorrhage, acute hemorrhagic pancreatitis, gangrenous pancreatitis and suppurative pancreatitis as well as the chronic forms. The symptomatology of acute pancreatitis is dwelt upon at some length. [A.B.C.]

4.—Renal Decapsulation from the Pathologist's Point of View.—Joshua M. Van Cott and Archibald Murray carried out a series of experiments for the purpose of determining the effect of renal decapsulation upon normal kidneys, and also the relation of the renal collateral circulation to atrophic conditions of the kidney. Sixteen operations were performed upon eight cats; in some instances the kidney was delivered through an incision in the back, close to the vertebral column, the capsule stripped, ablated, the kidney returned, and the wound sutured; in others the kidney was delivered in the same manner, decapsulated and returned between the muscles and the superficial integuments, for the purpose of gaining a larger capsular blood-supply. In both of these operations the artery alone, the vein alone, and both vessels together, were ligated in secondary operations, time being allowed for the healing of the primary wounds. The uniform result was a positive injury to the normal kidney. Their conclusions are that (1) on teleologic grounds the renal circulation can not be restored by decapsulation; (2) no amount of renal circulation would restore the integument of the cortex; (3) chronic nephritis being a local expression of a general disease will yield only to such treatment as is calculated to cure the general disease. [A.B.C.]

5.—Cancer of the Intestine.—J. G. Sherrill states that primary cancer of the intestine occurs more frequently than is usually believed. Hemmeter has collected 69,083 reported autopsies with 5,796 carcinomas (8.4% of the whole number); of these 1,296 were of the intestine. DeBovis gives carcinomas of the small gut, 6.3%; sigmoid, 11.9%; colon, 20.4%; rectum, 49.2%; which leaves 12.2% for cecum and appendix. Nothnagel's 12 cases of sarcoma show one involving the duodenum, 3 the jejunum, 4 the ileum, 3 the cecum, and 1 the rectum. The most common symptoms of the disease are tumor, which appears in every case, lasting for any length of time, and cachexia, together with the symptoms of chronic obstruction. The author reports in detail two cases. In the first the patient was a woman of 26, a laparotomy upon whom revealed a carcinoma of the cecum and ascending colon, and the other was a man of 54 with a carcinoma of the cecum and ascending colon. The first patient died; the second was suffering a recurrence at last report. [A.B.C.]

6.—Fracture of the Base of the Skull with Resulting Epilepsy.—C. J. Aldrich reports that at the age of 18, a young man fell into the hold of a vessel, a distance of 12 feet, striking squarely on his feet; he was unconscious and blood flowed from the mouth, nose and left ear; it was found that he sustained a fracture of the base of the skull; there were no marked contusions on the body. Four weeks following the injury he was completely unconscious and at times delirious. Consciousness returning his mind was a complete blank. He had forgotten everything and had practically to relearn what he had forgotten. Eight months after the injury he returned to a sailing vessel but did not appear to fully regain his faculties for over a year. One year after the injury he was seen to have a "spell," which was undoubtedly an epileptic convulsion; 11 years later (1899) he had another epileptic convulsion and since then he has suffered repeated attacks. The attack is not preceded by an aura; the patient is a perfectly healthy man, weighing 190 pounds, without the least sign of degeneration, has no history of alcoholism or syphilis. Aldrich has been able to find reported but one other instance in which epilepsy has resulted from fracture of the base. This was the case of Golebiewski. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

The Clinical Importance of the Appearance of the Tongue.—The importance of the symptomatology of the lingual mucous membrane has been recognized by physicians from the earliest recorded date of the practice of clinical medicine. Whatever other attentions may be expected by the average patient on the approach of a physical examination, he always anticipates that his doctor will feel his pulse and look at his tongue. One of those items of research revealed the state of the circulatory, the other of his digestive organs. The physicians of olden times also looked at the urine; but, it need hardly be added, the further chemic and physical examination was absolutely defective. Having regard to the state of the physical sciences down to within less than a century ago, it was a very natural consequence that the physician of former times attached an undue importance to the value of these three series of phenomena; on which his diagnosis and prognosis—and, of course, his treatment—were inevitably based. For him the tongue was the mirror of the stomach. Its mucous membrane being an essential, and a specially sympathetic, portion of the lining of the digestive tube, its condition unfailingly indicated that of the latter—more particularly of the stomach, to which was attached the leading role in the process of digestion. If the tongue was heavily furred, the gastric surface was also loaded with detritus, and an active emetic was required to free it of its objectionable coating. This often gave considerable relief, but when it failed to do so, as frequently happened, the process was repeated again and again, sometimes with gruesome consequences. In a recent communication,¹ Drs. Mathieu and Roux have critically examined the value of lingual diagnosis, and clearly pointed out the reasons of its frequent failure. They point out, following Lasg  , that the tongue is really a muscular mass, covered by mucous membrane. And they further proceed to indicate the important fact that the investment of this organ is really a false mucous membrane, derived from an invaginated process of the external layer of the blastoderm, and not, like that of the gastrointestinal surface, from the inner layer of that structure. Accordingly, in pathologic processes, it comports itself more like a portion of skin than of mucous membrane. On this account, the physician must be guarded against attaching too much importance to the information yielded by the time honored examination of the tongue. The general conclusions at which

¹ Gazette des H  pitaux, September, 1903.

Drs. Mathien and Roux have arrived are: (1) The lingual mucous membrane is really a process of the cutaneous investment of modified structure; (2) its furred condition is the result of an "excessive abundance" of filiform papillas, which form a dense thicket over its surface; (3) its (raw or) desquamated condition is usually the result of a form of superficial dermatitis.

REVIEW OF LITERATURE

Immunity in Variola and Vaccinia.—C. A. Hodgetts¹ reports several cases that throw light on the question of immunity caused by variola or by vaccination. The first is the personal experience of an English physician, who was vaccinated in April, 1893, had an attack of discrete variola the following December, was successfully vaccinated in 1897, and had an attack of variola in 1903. Three personal cases are as follows: An unvaccinated woman had smallpox in 1901, transmitting the disease to six other persons; in 1902 she was vaccinated in two places with vaccine from two sources; both were effective. The two other cases were instances of a second attack of smallpox within six weeks in one, and 11 weeks in the other, after the first attack. Hodgetts believes that the mild form of the disease that has prevailed in his province during the past few years confers but slight degrees of immunity when the person is brought in contact with variola in its more virulent form. It is perhaps inferior to that of a successful vaccination, and he thinks it extremely dangerous to allow such persons to remain unvaccinated after such an attack. [A.G.E.]

Therapeutics of Sea Voyages.—Martyn Westcott² says, on a sea voyage there is plenty of open sunshine and light, the air is uncontaminated by organic particles, passive motion takes the place of exercise for the feeble, tissue change is hurried, and theoretically we have a condition well suited to the convalescent, but for many patients the voyage proves anything but restorative. As a tonic and restorative and sedative for worn out or brain-fagged people a sea voyage is well suited, but for tuberculous patients, subject to pleurisy, a sea voyage is unsuited, especially in the tropics. The fast going steamers are not so well suited to convalescent patients as are sailing vessels, except that the latter are generally not provided with the conveniences required by patients, and even in the former these are of sufficiently meager character for surgical patients. On shipboard there is an entire absence of all the facilities for dressing and care needed. Dyspeptics who require a specialized diet, the aged or nearly bed-ridden people, and those with chronic rheumatoid arthritis should not be recommended to travel at sea. [A.B.C.]

Cause of Chronic Habitual Constipation.—H. Lorisch³ finds that the cause of habitual constipation probably lies in the too complete absorption of the food in the intestinal canal. In cases of constipation the solid matters of the feces are much less in amount than under normal conditions. This is due to an extraordinarily complete absorption of the nutrient substances taken in. The feces are thus rendered poor as a nutrient medium for the intestinal bacteria. The digestive and decomposition products are thus greatly reduced, and an important stimulus to intestinal peristalsis is therefore lost. This accounts for the sluggishness in intestinal movements which is probably the cause of the constipation. [B.K.]

Acute Leukemia.—A. Gilbert and P. E. Weil⁴ report two cases of this affection, one in a woman of 25, the other in a child of 9, both having previously been in good health. They insist particularly on the form pharyngeal of the disease; their former buccopharyngeal type they now divide into two—the anginous and the pseudoscorbutic; the latter is rare. The other types of the disease are the hemorrhagic, anemic, and the typical; in the last the lymphoid enlargement is sufficiently marked to make the diagnosis plain. The typical form is most rare and has an evolution that is subacute. The blood picture of acute leukemia, while apparently lymphocytic, is in reality myelocytic in origin. The writers consider that no cause is at present known for either acute or chronic leukemia. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

EDITORIAL COMMENT

The Prognosis of Radical Operations for Hernia.

—A glance through some important recent articles on the radical cure of hernia will reward the surgeon with a number of valuable suggestions, and afford most convincing proof of the rapid increase in popularity of operative treatment. Whereas ten years ago the use of trusses was almost universal, even with surgeons, and reports of a series of 200 operations from a single clinic were extremely uncommon, there are now many clinics where over 200 operations for the radical cure of hernia are performed in a single year. The almost perfect safety of operation in the hands of competent men gives confidence to the surgeon and the patient which now leads so many to undergo operation. Most striking proof of the safety of operation is given in the statistics of Pott,¹ who, continuing a statistical study which was awarded a prize at the University of Berlin in 1901, gives the results of a study of over 200 monographs published in recent years dealing with this subject. In 3,532 operations which he has tabulated from the reports of prominent surgeons since 1895, he finds a deathrate of a half of 1%. He quotes Borelius, who collected 650 operations by representative Scandinavian surgeons in 1895, without a death; and Champonniere, of Paris, who in 868 operations performed between 1881 and 1901 had only five deaths. Hilgenreiner² reports no deaths during the first six years in a series of 828 operations performed in Wölfler's clinic in Prague and one death from postoperative pneumonia in the last year during which 421 patients were operated upon. The question of greatest interest, next to the safety of operation, is the probability of permanent cure, and in this respect modern results are most encouraging. Halsted³ reports no recurrence in a large series of operations done by him personally since June, 1892. He attributes his success to improvements in methods of operating, such as the utilization of the cremaster muscle in closing certain cases; excision of the veins of the cord when much enlarged; and transplantation of the lower part of the rectus muscle in cases in which the conjoined tendon is obliterated or very weak. Transplantation of the rectus muscle was first introduced in Wölfler's clinic, and Hilgenreiner⁴ reports almost 2% improvement in the small percentage of recurrences (now 6.7%) since this method was introduced. Another important factor in preventing recurrence in recent years has been the freedom from infections. Both Halsted and Hilgenreiner specially mention the great things which the introduction of operating gloves has done in bringing about this improvement, and they find it possible to limit the number of infections to less than 1% since gloves have been used. We believe Ochsner⁵ deserves much credit for emphasizing several indispensable conditions for obtaining good results, among them the importance of one of the great principles of surgery, that there should be no tension in suturing in connection with the operation for the radical cure of hernia. The rapid increase in the use of local anesthesia by many surgeons is another noteworthy point. Goldner⁶ states that in Hochenegg's clinic in Vienna most operations for the radical cure of inguinal hernia are now done under local anesthesia, the number of cases in 1899-1900 being 130. Local anesthesia not only relieves the patient of the disagreeable necessity of losing consciousness, but greatly lessens the

¹ Deutsche Zeitschrift für Chirurgie, November, 1903, Vol. lxx, p. 556.

² Beiträge zur klinische u. Chirurgie, 1904, Vol. xli, p. 373.

³ Bulletin of the Johns Hopkins Hospital, 1903, Vol. xiv, p. 208.

⁴ Loc. cit.

⁵ American Medicine, 1901, Vol. ii, p. 853.

⁶ Archiv für klinische Chirurgie, 1902, Vol. lxxviii, p. 1.

¹ Canada Lancet, April, 1904.

² The Lancet, March 19, 1904.

³ Deut. Arch. f. klin. Med., Bd. lxxix, p. 383.

⁴ Arch. de Med. Exper. et d'Anat. Path., March, 1904.

danger of postoperative pneumonia; by eliminating vomiting after anesthesia it prevents strain on the wound and the tearing out of stitches. The most important factor of all is the care and experience of the operator. While recent reports from a number of clinics show almost entire freedom from recurrence, Coley, whose personal results have been strikingly good, reports 361 recurrences which came under his observation at the New York Hospital for Ruptured and Crippled. Almost all of these failures could probably have been avoided had the patient first consulted a man thoroughly acquainted with the best methods. Considering the extent to which patients are hampered by wearing a truss, its discomfort and the ever present danger of strangulation if it is removed even only for a bath, and on the other hand, the freedom from danger and a practical certainty of permanent cure by the radical operation, it would not seem that there should be any question in the minds of intelligent practitioners as to the course of treatment which it is desirable to advise for patients who are suffering from hernia.

REVIEW OF LITERATURE

Deep Ulnar Nerve Paralysis.—Tennyson Patmore¹ reports that a carpenter of 27 was struck by a hammer over the left lower radial region while the ulnar edge of the hand sustained the counter blow. Two weeks after the accident he noticed the ulnar fingers were commencing to become bent, later he found it impossible to pick up small objects with the left hand; four months after the accident the hand was markedly smaller than its fellow and the intermetacarpal space distinctly hollow, there was waste of the thumb and small finger muscles and the two fingers were markedly clawed. He had complete sensation in the ulnar portions of the hands and fingers. The peculiarity was with complete deep ulnar paralysis we have still remaining a good rough hand-grasp; we have the thumb opposing powers and flexion powers derived from the median and we have the lost adductors supplanted to a useful degree by extensor and flexor muscles. It is important to differentiate complete destruction from incomplete destruction, though both are serious. Operation was recently done on the patient in question, but the results had not become apparent. [A.B.C.]

The Newer Methods for Diagnosing Unilateral Kidney Lesions.—M. Krotoszyner and W. P. Willard² detail the results of studying eleven cases. They find that none of the methods for determining the functional capacity of the kidneys are accurate enough to determine that a kidney should be removed; their value is in comparing the two organs. A necessary condition for the application of these methods is ureteral catheterization, preferably of both ureters. If both urines thus obtained are subjected to cryoscopy, phloridzin test, urea examination, and microscopic study a fair idea of the functional value of either kidney may be secured and safe conclusions as to operative procedures adduced. The writers believe that urinary segregators should be restricted to the very few cases in which cystoscopy is impossible. In one case of contracted, sensitive bladder where a small quantity of fluid rapidly became cloudy, spinal anesthesia allowed satisfactory filling and examination. Infection from ureteral catheterization must be a very remote danger. The phloridzin test was found fully as valuable as was cryoscopy; its true value lies in comparing the results on the two sides. [A.G.E.]

Fractures of the Skull.—Louis B. Rawling³ concludes his second lecture concerning fractures at the base of the skull. With reference to prognosis and treatment, he says, the discharge of cerebrospinal fluid does not materially influence prognosis; large quantities of the fluid may be lost without producing any striking effect and the danger of infection does not appear to be materially increased, since the outflow tends to wash away any microorganisms present in the external meatus. Battle records 36 cases of fracture at the base with a

mortality of 25%, and another writer 11 cases with a mortality of 27%. The general mortality in all cases of fracture at the base is estimated at 32%. It is most inadvisable to syringe out the ear, as a stream of fluid is driven into the middle ear and often further, if the tegmen be extensively comminuted and the danger of infection is proportionately increased. The meatus should be merely swabbed out with some strong antiseptic, a little iodoform powder lightly blown in, and absorbent protective dressing applied, the whole being maintained by a firm bandage. Frequent change of dressing may be necessary, the patient must be watched carefully to prevent attempts to interfere with the bandages. When the fluid escapes from the nose or into the nasopharynx little can be done to lessen the risk of infection, and as a result meningitis is most commonly secondary to fracture of the anterior fossa. [A.B.C.]

Open Treatment of Wounds by Exposure to Sunlight and Dry Air.—As long ago as 1886, O. Bernhard¹ noticed the excellent influence of the mountain air and sunshine upon wounds of all kinds. Tuberculous patients, by simply changing their abode from the valleys to the mountains, often improve so much as not to require operation for glands, joints or other processes. He always exposes such individuals first to light, air and sunshine for a definite time, to note their action on them before proceeding to operate. Of wounds, the most suitable for open-air treatment are the granulating wounds, also the invisible diseases lying near the surface. Deep pockets also diminish quickly in size. The patient's wounds are exposed daily, even in cloudy weather, for some hours to light and air and in the meantime are protected only by a gauze dressing. The secretions of the wound rapidly dry under the influence of the dry air and the wound becomes covered by a parchment-like skin, which protects it very well. This must be lifted up at times to permit the wound to be treated directly. A series of photographs well illustrate the effectiveness of the method. [E.L.]

Case of Double Gangrene following Mild Attack of Enteric Fever.—A. Dodds² reports that a man of 22 suffered from enteric fever, going through a typical mild attack, the temperature never rising above 101°. Two weeks after admission he complained of pain in the right calf, which later became hard, but was not inflamed, though there was an area of anesthesia on the outer surface; two days later the dorsum of the right foot showed some discoloration, which later extended up to the ankle, and there was great pain in the calf. At the same time the patient complained of similar pain in the left leg and anesthesia on the outer side of the left calf, and the following day discoloration likewise appeared in this leg, while the discoloration of the right had extended almost to the knee. Treatment aiming to combat the gangrene was of no avail; from the very beginning no pulsation could be felt below the popliteal space in either leg. There being no line of demarcation, and the patient being in poor condition, amputation was advised but refused until three weeks after the onset of symptoms of gangrene. Then double amputation was done, though with small hope of saving the patient's life. Accordingly the right leg was amputated in the middle third of the thigh, and five days later the left; two days after the last amputation the patient died. A necropsy showed that the stumps were doing reasonably well, but evidently the systemic poison had reduced the patient's vitality to such a degree that a fatal termination ensued. [A.B.C.]

Renal Skiagraphy.—L. H. Harris³ has examined 328 patients suspected of having renal or ureteral calculi; from them 50 correct positive results, proved by subsequent operation, were obtained, and 7 mistakes were made. Two of the mistakes were made on thin patients. The best results are secured with soft tubes and long exposures. The negative contains all the reliable information. Of the 50 calculi found, only 2 were ureteral. Harris believes that Leonard's figures of 50% for ureteral calculi are entirely too high, and that his findings of 4% is much nearer the true frequency of ureteral as compared with renal calculus. [A.G.E.]

¹ British Medical Journal, March 12, 1904.

² American Journal of the Medical Sciences, May, 1904.

³ The Lancet, April 16, 1904.

¹ Münchener medizinische Wochenschrift, 1904, II, 18.

² British Medical Journal, November 14, 1903.

³ Australasian Medical Gazette, March 21, 1904.

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

The Chlorid Reduction Treatment of Chronic Parenchymatous Nephritis.—F. Widal and A. Javal¹ give in detail the results of 72 days' treatment of a case of parenchymatous nephritis during which the amount of chlorids in the diet was suddenly changed nine times; in this way they produced alternately five times a discharge of chlorids and four times their retention. The hydration or dehydration of the system was obtained at will and according as the hydration was pushed they produced either simple increase in weight or edema. The degree of albuminuria followed the oscillations of the chlorid retention curve. Widal and Javal assert that salt is the dangerous foodstuff in certain cases of chronic parenchymatous nephritis and a chlorid reduction cure must at times be insisted upon. The favorable effect of milk in nephritis is largely due to its relative poverty in chlorids; foodstuffs hitherto considered harmful may with advantage partially or wholly replace milk if sodium chlorid be not added to them. Among these are meat, bread, sugar, potatoes and butter. Rice and pastry, if made without salt, will give similar results. The nature of a food is less important than the question of its salt content. It is not the albumin in a meat diet that is harmful but the salt that is added to it. In the experiment cited it was only the addition of sodium chlorid to the meat and potato diet that gave rise to the retention of chlorids, hydration and albuminuria. [A.G.E.]

Massage in the Treatment of Constipation.—Among contributing causes of chronic constipation, says J. K. Mitchell,² are: Weakness of the abdominal walls; inefficient peristaltic action; deficiency of intestinal, pancreatic, or biliary secretions; irregular habits of defecation; and accumulation of feces in the intestine, causing dilation and consequent enfeeblement of the intestinal muscular walls. Inability of the rectum to contract with power enough to expel feces is another occasional cause of fecal retention. In the treatment of these several states the masseur must discriminate. When the abdominal walls are very relaxed and weak, as, for example, after frequent pregnancies at short intervals, their muscles will need manipulation, and active exercises to strengthen them should also be prescribed. To general abdominal massage the operator should add, in persons of constipated habit, several manipulations of the abdomen—fist-kneading, cart-wheel movement (knuckle-kneading), and deep digital-kneading along the colon in the direction of movement of the intestinal contents. The hand-grasp of the abdominal walls should be as deep as possible and pick up as much of the walls as can be retained, while the thumbs are used to perform friction along the large intestine. General pétrissage of the abdomen with one or both hands, sharp tapotement (slapping or clapping), and, finally, vibration of the whole abdomen complete the sitting. The effect is to stimulate the muscles of the abdominal wall, and in time to strengthen them. The peristaltic movements of the intestine are stimulated and increased both directly and reflexly, and so are the secretions of the intestinal glands. The circulation, venous and lymphatic, is hastened, thus adding to the amount of intestinal liquid, and, lastly, the accumulations of feces are broken up and their passage along the intestine mechanically hurried. When the conditions point to a lack of biliary secretion, special manipulations, chiefly vibration and tapotement, in the neighborhood of the liver and gall-duct, should be performed. For atony of the rectum or impaired action of the ileocecal valve vibration movements must be applied; for the former condition the fingers held pyramidally together are pressed deeply down in the left iliac fossa, so as to approach as near the head of the rectum as is possible, and strong rapid vibratory movements are then imparted to the hand by contracting the forearm muscles. To stimulate the relaxation of the ileocecal valve and allow the propulsion of intestinal contents from the small into the large

intestine, a similar movement should be administered at the point of junction of these two portions of the intestine. Vibration applied directly to the anal orifice is said to have a stimulating effect on rectal contraction. Vibration given at the ileocecal junction and also about the head of the rectum, if well done, will frequently produce an evacuation of the bowel within a few minutes.

Antimalarial Work.—Frederick F. Mossell¹ reports results of two seasons' work against malaria at Fort Washington, Md. The fort is an isolated community of 400 people, mainly soldiers, on the left bank of the Potomac, 13 miles below Washington. The reservation comprises 365 acres, and there are a number of ravines and wide marshes which have been favorite breeding places for mosquitos. In July 1901, war was waged against the mosquito by the use of mineral oil and illuminating oil in the destruction of the larvas. Little seemed to be accomplished the first season. Before the attempt to exterminate the mosquitos, the malarial cases for 1898, 1899, and 1900 ranged from 16% to 19%. The second year the warfare was extended, and the pools and breeding places were treated with petroleum from the first of April, twice a month, to the end of the season. The most effective treatment was by the drainage of the swamps and marshy localities. The improvement is well shown by the monthly average of cases which within two years has dropped from 19% to 4%. [A.R.C.]

"Migranin" (Antipyrin) Poisoning.—H. Henneberg² reports the case of a girl of 20, who on account of severe headache, had taken a "migranin" powder. "Migranin" is a powder composed of 85% of antipyrin, 9% of caffein, and 6% of citric acid. She took the usual dose, 1.07 gm. (16½ gr.), on an empty stomach. She vomited immediately, and shortly after lapsed into unconsciousness. When Henneberg first saw her, her lips were blue, face pale, pupils dilated, her limbs cold, and her pulse could be felt with difficulty. She was still unconscious. While her stomach was being washed out she came to, and by the next day she was perfectly well. He cites similar cases from literature; in some of them symptoms of poisoning were noticed after even smaller doses. As the ability to take this compound varies so much in different individuals, Henneberg advises: (1) To begin with smaller doses; (2) never to take it on an empty stomach; (3) to prohibit its sale except on prescription. He has seen violent vomiting and dizziness after taking small doses of pyramidon. [E.L.] [The coaltar products are all and always dangerous. Their use as palliatives for headache is worse than foolish; their use as antipyretics in the light of present knowledge criminal. Migranin is one of the worst of the proprietary combinations with fancy names. S.S.C.]

Treatment of Hemoptysis.—J. Penn Milton³ states that the cases of pulmonary tuberculosis with hemoptysis should be divided into four classes: 1. That in which the hemoptysis occurs early and is the first initial sign of tuberculosis before consolidation can be demonstrated. In these cases exercise is a valuable remedy when counterindications do not exist. The rationale is that the bloodvessels in all parts of the body become dilated and take a certain quantity of blood away from the lungs: this compensates for the extra amount of blood, which, induced by exercise, passes through the lungs. The treatment must be applied individually and not generally. The counterindications are fever, loss of blood sufficient to weaken the patient and nervousness. 2. That in which the disease has existed for some time and physical signs reveal decided consolidation. Here the treatment should be directed toward strengthening vitality and improving nutrition by sanatorium treatment and forced dieting. 3. That comprising advanced cases of the disease in which cavitation is present. Hemoptysis is here serious, and apt to be copious, and terminate in death from ulceration into a large bloodvessel. Treatment consists in rest, lessening the heart-beats and lowering blood-pressure. 4. That comprising plethoric subjects. The treatment indicated here is to lower blood-pressure. A full amount of exercise, provided there are no counterindications, and a modified diet are indicated. [A.B.C.] [Exercise during bleeding cannot be commended. S.S.C.]

¹ International Clinics, Vol. I., Fourteenth Series, 1904.² System of Physiologic Therapeutics, Vol. VII.³ Journal of the Association of Military Surgeons, March, 1904.² Therapeutische Monatshefte, 1904, xviii, 50.³ British Medical Journal, March 19, 1904.

American Medicine

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The Patent Medicine Frauds and the Postoffice.

—*American Medicine*, as our readers know, has been very persistent in pointing out the fraudulent character of many of the so-called "patent medicines," the nauseating literature of which fills the cheap newspapers and the United States mails. Some of our subscribers have even thought we were unwise in being at least among the first, and surely the most insistent, in advocating the restriction of the evil by means of the law and some government control. The Women's Christian Temperance Union, and especially that tireless Superintendent of the Department of Nonalcoholic Medication, Mrs. Allen, deserves the congratulations and gratitude for the noble work done. A method, simple and practicable, has been found whereby, if courage does not fail the United States Government officials, the shameless scoundrelism may be vastly lessened, if not extinguished. Every physician, every one of the more than 100,000 physicians of the land, should write his word of hearty encouragement, and in all ways support the postal authorities in their purposed crusade against the fraudulent nostrum vendors. With the assistance of government scientists, the department seeks to bar from the use of the mails the host of patent medicine concerns and exploiters of proprietary medicines and nostrums which chemic analyses show are harmful or are incapable of performing the wonderful cures claimed for them.

Government Analyses of "Nonalcoholic" Nostrums.—We have often published accounts of the absurd claims of the patent medicine vendors, and the analyses of many of these preparations which have been made by the Massachusetts State Board of Health, etc. The U. S. Governmental chemists, at the request of the post-office authorities, have recently published reports of their own analyses of some of these concoctions. Joining the two lists, we have the following results:

	Percent alcohol.
Lydia Pinkham's Vegetable Compound . . .	20.61
Warner's Safe Tonic Bitters	35.7
Hostetter's Bitters	44.3
Colden's Liquid Beef Tonic	26.5
Kilmer's Swamp Root	7.23
Parker's Tonic	41.6
Drake's Plantation Bitters	33.2
A Famous Catarrh Remedy	27.3
Howe's Arabian Tonic	13.2
Schenck's Sea-weed Tonic	19.5

	Percent alcohol.
Hooiland German Bitters	25.6
Whiskol	28.2
Kaufman's Sulfur Bitters	20.5
Goldcura No. 1	41.11
Goldcura No. 2	28.22
Peruna	28.59
Vinol	16.77

These cheats, it must be remembered, are often if not always recommended as "cures for alcoholism," "cures for inebriates," "not a rum drink," "entirely harmless," "free from alcoholic stimulant," "nonintoxicant," "whiskey without its sting," "for the alcohol habit," "for the liquor habit," etc. Thus are they not only manifestly fraudulent, not only increase inebriety, but they fix the habit under the plea of curing disease in those who have not been addicted to it. Could meanness and outrage go further? It is time that the people and their government should crush the hideous crime.

Some Nonalcoholic Frauds.—Sins of omission, lies, and deceptions of many kinds may be almost as harmful as the positive alcoholic trickeries. The proprietors of the White Ribbon Remedy were more cunning than those of the "Bitters" and alcoholism cures. There was no alcohol, indeed no active substance whatever in the stuff, and water could not have been more inert than the milk sugar and ammonium chlorid it contained. Among the remedies which have been analyzed by the Bureau of Chemistry of the Department of Agriculture the following are noteworthy: "Mormon Bishop pills" were found to contain "red pepper, starch, and a bitter principle." "Tuberculozyne," two preparations, was found to consist of water, alcohol, sodium phosphate, tartaric acid, and glycerin; also water, alcohol, copper oxid, and glycerin. The chemists say of them: "Not one of the ingredients, or a combination of the same, contained in the two packages examined is of any recognized service in the cure of tuberculosis." "Sir John Hampton's Vital Restorative" consisted of pills composed, one of saw palmetto and licorice, the other of methylene, which latter produces an effect calculated to frighten the patient. "Tissue Food" consisted of an emulsion flavored with lavender. The Department says of it: "There is no such virtue in this article as claimed for it in the advertisement." "Dr. Ferris's Medicine" and "Four Special Prescriptions," also from Dr. Ferris,

contained chiefly starch. The Department says of them: "It is perfectly evident that starch paste is of little value as medicine."

Newspaper Debauchery.—Thousands of newspapers, surely 99 out of 100 of those of the whole country, will probably rise in open warfare against the attempt of the United States postal officials to exclude from the mails even the vilest and most patently fraudulent of patent medicine literature. It should not be forgotten that the fraud order will apply logically and necessarily to the newspapers whose chief and most certain income is derived from the wretched advertisements. One must doubt if there is so much virtue in any body of politicians as the actual carrying out of the order would require. It would seem as if no political party could live, or continue its officials in power with thousands of newspapers furious at financial loss and at the politicians who would allow it. There is no sort of question as to the righteousness and justice of the movement, and some time and in some way it must be actualized. The great body of the religious press, profoundly irreligious in such matters, will also join in the hue and cry, and every devotee of eddyism and of a thousand similar types of humbuggery will not be silent, each in his and her way. All faith cures whether by means of nostrums, "thought," occultisms, vibrations, healings, metaphysical or intensely physical, are at heart united in the common bond of hating science and loving non-science and nonsense. The professional duty is not a whit the less clear. However hopeless it may at first seem, reform may come in strange and unexpected ways. Far more important than any political question which now motives party action is the patent medicine disgrace, and it is more harmful to the people than any abuse "denounced" in the platforms of national conventions. If they "mean business" let a thoroughly united profession hold up the hands of the Postmasters General and of the administration which supports them.

Medical Advertising Again.—At last the sense of the community seems to be waking up to the unfortunate evils that inevitably underly medical advertising. Certain newspapers throughout the country that are under the control of one very wealthy man, the policy of whose editorial utterances is always keyed at a high note of sympathy for the poor, have been especially flagrant in this matter. These newspaper enterprises have unfortunately become, because of the success which they have achieved, the models for many other newspapers throughout the country. It is especially interesting then to find that attention is being called to the fact that in the midst of all this pretense of care for the poor there is what is practically a combination for money-making purposes with certain forces of evil that make for the cheating of the poor out of their hard earned wages.

One of these papers published in New York city is known for the editorials in many kinds of type with abundant use of capitals, which are supposed to educate the poor man to a knowledge of his rights. A New York contemporary, *Collier's Weekly*, for May 21, 1904,

suggests a special editorial in medical advertising as something that would be likely to tell at least one great truth to hosts of sympathetic readers much more honestly than is usually the custom on the editorial page. The suggestion has all the features of display type and punctuation peculiarities that characterize these newspaper efforts along the same general lines, and as presidential campaigns make men sensitive to a degree not always noted at other times perhaps it will have a good effect. As it expresses some very telling truths in very straightforward manner we give it:

LISTEN.

To the billion readers in our Hearst family ONE WORD.

Let them EXAMINE this paper.

They will find over a page of advertisements by quack doctors, of a kind which reputable papers will not print.

They will find masses of advertisements of patent medicines. One contains 44 percent of alcohol. One, advertised as "safe," contains over 35. We KNOW they are poison.

We aid and abet clairvoyants, palmists, astrologers, and card-readers. Why do we carry all these schemes to CHEAT THE POOR?

Did you ever study proportion?

Neither has the poor savage of Australia, but we have, and our morality is determined by the ratio of cost to what we get out of it.

As it is in these petty swindles, so is it in the larger bunco games of politics.

We defend the poor when it PAYS.

We cheat the poor when it PAYS.

THINK IT OVER.

Physicians will be interested in this brief but pointed exposition of the policy of newspapers that pretend to be doing good to the poor. It might be well for members of the profession generally to carry a copy of this scathing rebuke so as to spread the light of truth with regard to the difference between editorial pretense and the stern realities of editorial policy as manifested by the advertising department of newspapers. The present lamentable abuses in this matter will never cease until an enlightened public opinion has condemned them. In this as in many other things physicians must be leaders and moulders of public opinion, and then we can look for the amelioration of present conditions which ought to be expected from our twentieth century civilization. Then perhaps too there will be less half-hearted action on the part of those who recognize the evil yet compound with their consciences as regards the milder manifestations of it. For *Collier's* itself is not above carrying medical advertisements the character of which is of more than dubious honesty even as medical "ads" go.

State Supervision of Water-supplies.—Dr. Benjamin Lee says that if Butler has slain her hundreds, Philadelphia in like manner has slain her thousands, and has gone on with her massacre with a cold-blooded, diabolic unconcern almost incredible for more than a generation, in spite of tears, petitions, remonstrances

and importunities. The Butler Water Company must bear the heaviest burden of responsibility for the typhoid epidemic in that city. The lessons to be learned from the Butler epidemic, Dr. Lee concludes, are as follows:

1. The necessity for the enactment by the next Legislature of a law establishing a health authority in every county and in every township, amenable to the central health authority, but possessing ample power to enforce its own regulations.
2. The adoption of legislation compelling the reporting of deaths and communicable diseases in all cities, boroughs and townships, and the registration of the same at the Central Bureau of Vital Statistics.
3. The passage of laws for supervising the construction and inspection of all dams and of all waterworks.
4. The moral obligation resting upon physicians, entirely apart from legislative enactment or compulsion, to report to the health authorities with the utmost promptness every case of communicable disease occurring in their practice.
5. The danger of using any surface water without filtration.

The chief criticism of the present Township Health Board act, and that which nullifies its effect for good, is that it is only permissive, not mandatory. Until there is compulsory supervision by the large central authority there will be no reform of the present deplorable conditions which entail so much unnecessary illness and so many needless deaths.

"The Man Who Made Consumption Pay."—A professional consumptive, or mendicant, a church and hospital "rounder," is up for trial in New York. It seems that this fellow of many aliases has made a good living for at least 12 years by appeals to the selfish charity givers. He has "operated" upon at least 20 church organizations and societies. To his virtues and vices he has, of course, added larceny. From a woman who had just given him \$20 he had the poor judgment to steal \$5 more, and now his victims are combining against him. His scheme was to join a church, attend its meetings, and make acquaintances personally and through the "year book," which generally gives the names and addresses of contributing members. Soon he had a stock in trade of reminiscences of meetings and personal words to pass around from one person to another, telling that he was sent by such and such a personal friend. The trouble always was that he had consumption and must go to a warmer climate. When one church began to wake up to his plan he flitted to another. Only by the methods of investigation of the charity organization societies, or better, through these societies themselves, can society be ridded of these pests, who are more numerous than is supposed.

The work of the Philadelphia Pediatric Milk Commission, for the years 1902 and 1903, gives evidence of a peculiarly valuable combination of science and benevolence. The profession and citizens of Philadelphia should take pride in and give encouragement to the unselfish labors of the members of the commission, and other cities may well study the methods and results attained here. The commission now certifies to seven milks and four creams, the products of six dairies. This shows an increase of the demand for certified milks. A

standard of 25,000 bacteria to the cubic centimeter of cream has been settled upon although the vast majority examined have a less bacterial content than 15,000. A high bacterial content is now almost always traced to some specific cause. In the standard of 20% cream a variation between 18% and 22% is allowed. The standard of milk proteid is 3.5%, with a variation between 3% and 4%. The variation for the fat content has not been changed, but the commission now certifies to 5% fat milks. These results emphasize several facts. It is possible to produce milk and cream having a fairly constant fat content; the proteid content of a large number of standard milks, determined by the Kjeldahl method and examined at irregular intervals, at all seasons of the year, over a long period of time, is very close to the present accepted average of 3.5%; the variation of the fat content is much greater than that of the proteid, and both vary sufficiently to produce decided daily variations in the percentages of our milk modifications. The committee regrets that there has not been a proper demand for clean milk. "If any of the ordinary uncooked foods were prepared under as unhygienic conditions and contained the filthy products that the ordinary market milk contains, we would not tolerate them."

The Therapeutics of Morbid Emotion.—The chief component of mind is feeling, says a great modern philosopher, and suiting the action to the word, in a double sense, the superintendent of a modern psychopathic hospital finds one of the best methods of treating his patients to be through the medium of the emotions themselves. The effect of peace, quiet, woods, and country life upon the diseased mind is undoubtedly great and the huddling of thousands within the crowded walls of city hospitals should show a higher rate of incurability and mortality than when the institution is located "far from the madding crowd." Another illustration is suggested by the question if much of the good derived from medical calisthenics does not come from the rhythmic movements of the drill. "No less potent on the emotions is the influence of the recurrent attitude of the head, limbs, and body which express cheerfulness, hope, courage and other expansive feelings. Especially is this true if the exercises are given in a pleasant gymnasium before an enthusiastic instructor who injects into the figures the spirit of play with plenty of mirth and laughter. This physical attitude begets corresponding emotions, which react happily on the organic sensations, completing in this manner the circuit of reaction which in its recurring round of excitation lifts the mental invalid to the level of restored health."

The medical pension examiner, according to report has made himself too much of a politician. Is the criticism just? There are said to be about 4,500 such examiners scattered throughout the whole country, each, so it is said, appointed by the locally dominant political party, leader, boss, or authority. They are called "politician-doctors," charged with securing their appointment through partisanship, and using their

influence to uphold their appointers. It is even said that the trouble caused by the pension examiners, the expense and worry in getting one suspended and another appointed who will be a better vote-getter, etc., is responsible for much of the demand for a straight-out service-pension.

A congressman, so the report goes, expects the commissioner to dismiss a doctor who does not give him or his party a cordial support, and substitute somebody who will. If the commissioner balks, the congressman makes his life a burden. I have known one of these gentry to carry his protest and appeal first to the Secretary of the Interior, and then all the way up to the President himself, where a commissioner has refused to make a change he demanded. This sort of thing keeps us in a hurly-burly all the while; and as for a commissioner's temper—you never saw one that could stand it through a whole administration, no matter how good natured he was when he entered office. I shouldn't wonder at Commissioner Ware's welcoming any system that would give the doctors least to do, and us least to do with the doctors!

All of which, of course, if true, becomes a professional matter, as the whole body is judged by these representatives and the public estimation is lowered by such practices. But, again, are the criticisms and charges deserved?

EDITORIAL ECHOES

Health and Morality in Porto Rico.—The population of Porto Rico during March was 953,243, and the number of deaths was 1,852, or 23.4% per 1,000. This is 3% higher than the deathrate of New York city, according to the last United States census, and 5.6% lower than that of New Orleans. Sanitary conditions are better here every year. Fever is not feared as in former years, and, all around, there is a decided sanitary improvement. The mortality from anemia was 313 for the month. This is the scourge of the island, the poor half-starved native falling an easy victim to it, and, in fact, inheriting it from father and mother. The Insular Government is doing all that it can to stamp out the disease, but economic conditions will have to change before radical cures can be expected. Of the deaths on the island, 50% are entered under the head of "All other diseases." It is an open secret that most of these were natives—children mainly, who died like dogs with little or no attendance, except what a "voodoo" doctor may have been called upon to give for a few pennies. The little value placed on human life—where death comes from no political excitement or trouble that may excite the passions—is evidenced in the method of burial. Hundreds of Porto Ricans are buried every week with neither coffin nor decent burial clothes. The coffin—when one is used—is hired for the occasion, and at the grave the body is dumped out into the earth without the slightest covering. The coffin serves on many another occasion. Of the 9,170 births on the island during March, 38% were illegitimate. These figures among the natives—both of high and low degree—neither astonish nor beget a desire to improve the deplorable conditions. That nearly 4,000 children should have no right to a father's name is considered not even a piece of bad luck. The mother is neither held very much disgraced nor degraded from any circle in which she may be accustomed to move. Her mother and grandmother before her probably passed through the same experience, and were not ostracized. A shrug of the shoulders is all the return obtainable when a protest against the immorality is advanced.—[Special Correspondence *Evening Post*.]

AMERICAN NEWS AND NOTES

GENERAL.

Great Crusade against Baby Farms.—It is reported that the American Medical Association will take action upon this practice which is apparently prevalent all over the country. Aroused by the exposure made in Philadelphia, the American Medical Association, when it meets in Atlantic City, June 6, will make an attempt to rid the country of baby farms, mal-practitioners and unlicensed physicians. Since the crusade was started against these law-breakers by the police and the Philadelphia County Medical Society many cities have taken similar action.

Prizes Offered to Women.—The Naples Table Association, which has for its object the promotion of scientific research by women, has announced at Boston the offer of a prize of \$1,000, to be awarded in April, 1907, for the best thesis, submitted by a woman, on a scientific subject involving laboratory research. This is the third prize to be offered by the Association. The first prize was awarded in April, 1903, to Dr. Florence Sabine, of Johns Hopkins Medical School, for a research on the origin of the lymphatic glands. Mrs. Ellen H. Richardson, of the Massachusetts Institute of Technology, is chairman of the Prize Committee.

Candidates for Annapolis Must be Perfect Physically.—This announcement has been made by the Navy Department. Owing to the vital importance of obtaining young men who are practically perfect physically, the physical examination of candidates for admission to the Naval Academy has been committed to a medical board specially appointed for that purpose, and their decision will be held in every case final. No appeal will be entertained by the secretary. This rule was determined upon by the President at a Cabinet meeting recently. This places the physical qualifications, which in the naval service are of the utmost importance, upon the exact basis of the mental qualifications, which by statute must be finally determined by the academic board of the Academy.

The Discovery of Anesthesia by Ether.—Mrs. Elizabeth Morton, the widow of W. G. T. Morton, of Boston, to whom is attributed the discovery of anesthesia by ether, died on April 21, from pneumonia, at the Hotel Martha Washington. Mrs. Morton, whose maiden name was Whitman, was born in 1826, in Farmington, Conn., and was married to Dr. Morton in 1844. Soon after marriage her husband began that series of experiments which ended in the famous public demonstration that by the inhalation of ether vapor surgical operations could be rendered painless. It is a sad illustration of the proverbial ingratitude of republics that the American Government never admitted that Mrs. Morton had any claim on it, although the reports of six Congressional committees during her husband's lifetime had recommended that an appropriation of several hundred thousand dollars should be made in recognition of the value of ether anesthesia during the Civil war.

Disease Lurks in Canal.—Dr. Richard P. Strong, director of the biologic laboratory at Manila, P. I., has a paper in the fourth annual report of the Philippine commission showing how the Panama canal may become a factor in introducing yellow fever into our eastern possessions and the entire Orient. He shows that the Hawaiian Islands, Guam, and the Philippines will be exposed to the importation of cases of yellow fever or of infected *Stegomyia fasciata*, unless the disease can be banished from Panama. The disease often follows the lines of commercial maritime travel, and many instances are on record of its introduction by vessels into hitherto uninfected regions. It does not seem improbable, therefore, says Dr. Strong, that unless extreme precautions are taken against vessels passing from these regions and bound for ports in the far East, infected ships, and even cases of yellow fever will be conveyed from the above mentioned cities to Honolulu, or even directly to Guam, Hongkong, and the Philippine Islands.

Fighting Tuberculosis.—The spur given to research work for the extermination of the plague of tuberculosis has constant demonstration in the published discoveries of reputed remedies. The latest announcements emanate from New York, where a reputable physician has found that massage has a notable curative influence by removing obstructions to normal breathing and by increasing the patient's respiration; and from St. Louis, where two enterprising doctors declare they have found the secret of overcoming the "white scourge," to inhale in the plan of injecting a very powerful proteid found in healthy blood, thus increasing its carrying power in the patient and throwing off the disease. Another recently promulgated idea is that of the Italian physician, Dr. Maragliano, head of the University of Genoa, who is the foremost exponent of the plan to vaccinate consumptives with the tuberculosis serum, and who, it is stated, has inoculated fully 2,500 patients, with good effect. There is the essential element of hope for the sufferer in the cheerful activity of the medical men in their determined search for the antidote to the tuberculosis poison.—[*Boston Transcript*.]

Miscellaneous.—Philadelphia: The annual commencement of the Jefferson Medical College was held in the Academy of Music, Philadelphia, May 28; 165 men received degrees. The degree of LL.D. was conferred upon Professor Albert Hoffa, the professor of orthopedic surgery in the University of Berlin. The address was delivered by George F. Baer, president of the board of trustees of Franklin and Marshall College, and president of the Reading Railroad.—A report summarizing the result of the medical inspections of the schools, which was recently sent by Director Martin to the committee on hygiene of the Board of Education, showed that out of nearly 200,000 children examined but 5 were unvaccinated and only 1 had tuberculosis. Six cases of diphtheria, 11 of scarlet fever, and 30 of measles were also discovered, and those suffering from them were sent home. Defective eyes and ears were the main causes of pupils being sent home. During the month 4,956 children were excluded from schools because of minor ailments, and the medical inspector visited upward of 200 homes where school children were detained because of some slight affliction.—Dr. J. L. Faure, the distinguished Paris surgeon, conducted the clinic at the Jefferson Hospital, May 24.—Dr. Albert Hoffa, the famous orthopedic surgeon, of Berlin, conducted clinics at the Jefferson Hospital, May 26 and 27.

Conditions in the Philippine Islands.—The monthly report of the Manila Board of Health for January affords some interesting glimpses of physical and social conditions in the capital of the Philippines. The board estimates the population of Manila, basing its figures on the preliminary rough count of the census of 1903, at 219,941. The Americans number 4,389; the Spaniards, 2,528; other Europeans, 1,117; Filipinos, 189,782; Chinese, 21,230; all others, 895. The deaths in the month covered by the report numbered 826, of which 443 were without medical attendance. Infant mortality appears to reach a startling proportion in Manila, being 59.6% of the whole number. Our surprise disappears, however, when we turn to the summary of the sanitary inspection service and find that from the office of the sanitary engineer 178 orders were issued for the amendment of conditions of dwellings, while in the suburban districts the inspectors carried on a most vigorous overhauling of houses. In Manila there appears to be a contest in progress between modern sanitation and oriental fatalism, which must have great influence for good on the future of the Filipinos. How great is the need of autocratic supervision of people who never knew what sanitation was before we came appears from the record of the health board's fight against the cholera. In Manila in the calendar year 1903 there were 5,574 cases of cholera, and 4,378 deaths. In January, 1904, but four cases of cholera were reported in the city.—[*Boston Transcript*.]

EASTERN STATES.

Additional Hospital Buildings in Boston.—Two new buildings have been opened at the Boston City Hospital. One contains the surgical out-patient departments and the other contains three wards for patients who, because of the nature of their disease, need special treatment in isolated wards. The new surgical out-patient building contains a surgical service for men and boys, a surgical service for women and children, a surgical service for genitourinary diseases, a gynecologic service for women, a throat service and an eye and ear service. The building was laid out with the cooperation of the gentlemen composing the medical and surgical staff, and is well adapted for the treatment of different diseases by modern scientific methods. The upper story is occupied by bedrooms and sitting-rooms for the junior members of the house staff and subordinate officers, orderlies and other employees. The lower floor of this building is quite important, as it affords some additional means never before at the Boston City Hospital's command, such as admitting wards where suspicious cases of eruptive diseases may be cared for without risking the infection of a ward; rooms for the reception and treatment of cases of sunstroke, as well as lockers, toilets and robing rooms for physicians, house staff, nurses and orderlies. The surgical out-patient department building, with its substantial equipment, cost \$140,000, and Wards K, L and M, inclusive of furnishings, \$130,000.

NEW YORK.

Blood Poisoning an Accident.—Death from blood poisoning, following the cutting of a corn, is as much an accident as if the victim had died as the result of any other unforeseen catastrophe, according to Judge Buffington. He rendered an opinion to this effect recently in the United States Circuit Court, when he refused a new trial in the case of Katherine Nax against the Travelers' Insurance Company, in which Mrs. Nax recovered judgment on a \$5,000 accident insurance policy on the life of her husband, Leonard Nax. Nax, who lived at 1515 Diamond street, made a fortune in the manufacture of wooden pipes. In April, 1902, he pared a corn on his right foot. He cut too deep, blood poisoning resulted, and he died on June 22, 1902. Three months after his death, Mrs. Nax, in going over his papers, found an accident policy for \$5,000, issued by the Travelers' Insurance Company, and pressed her claim as widow. The company contested the claim, on the ground that Nax's death was not due to an accident. When the case was tried before a jury, in the Circuit Court, a verdict was returned in favor of the widow.

Would "Corner" Opium.—One of the firms in New York city which deals in opium and essential oils has sent out letters to rich men and those who are supposed to be interested in anything that permits of a corner, explaining that the supply of opium is far below the normal. The price per pound today is \$2.70, duty paid, while last year, when stocks were larger, the price was \$3.20 per pound. The firm does not believe that the demand has slackened sufficiently to warrant this drop in price, and expresses the belief that if any one cares to start to corner the market he would be successful. The firm says that a million or so in cash would not only suffice to control all the Turkey gum opium for two years, but would thereby enable the purchaser to put the price as high as the demand would permit.

New York's New Bath Houses.—The Milbank Memorial Baths, which will soon be open to the public, will provide the East Side with bathing facilities of almost Roman luxury. The abundant use of marble, the adoption of the most improved fixtures, and the greater provision for privacy render them superior to others. The flat dweller of 20 years ago would have envied those who are thus supplied free of charge with a convenience that can be obtained only at a high rental. Much has recently been done to remove from New York the reproach of inadequate bathing accommodations for the poor. We have been lamentably behind London, where the borough of Westminster provides its 185,000 residents with five large bath-houses and seven swimming pools with public laundries attached. The Milbank baths, on which \$150,000 has been spent, will accommodate 4,800 patrons a day. The bath in West Sixtieth street, on which work was begun in March, has room for about 5,000. The eagerness of the public to utilize free baths where they are made easy of access is indicated by the attendance of 1,500,000 at the five Brooklyn swimming baths during the three months of last summer. Mrs. Anderson's gift for the Milbank baths is philanthropy of an especially desirable kind, because of the sanitary form it assumes.

A Paradox in the Deathrate in Various Districts in New York.—By the last weekly report of the Board of Health the number of deaths in the Tenth ward was less than in the Eighteenth ward with its much smaller population, and in a year there are 1,200 deaths on an average in the Tenth ward and 1,500 in the Eighteenth. The same rule of disparity prevails generally through the wards of New York, the actual deathrate being least in those which are most thickly populated and largest in those less thickly inhabited. The Seventh ward includes the territory north of Catharine and south of Grand street between Division street and the East River. It has a present population of 90,000. Its area is 198 acres, or 450 persons to the acre. The Twentieth ward, on the West Side of town between Twenty-sixth and Fortieth streets, has a like population of 90,000, but in an area of 440 acres, or 202 persons to the acre. By the last published Board of Health report, for the third week of April, there were 30 deaths in the Seventh ward and 63 in the Twentieth. In a year there are 1,300 deaths in the Seventh ward and 2,000 in the Twentieth. Thus, while the overcrowding of population ought naturally to have the effect of increasing the mortality, and the absence of overcrowding ought greatly to improve hygienic conditions, the exact contrary appears to be the result.

PHILADELPHIA, PENNSYLVANIA, ETC.

Will We Have a New Insane Hospital?—It is stated that Director Martin will ask for \$1,000,000 to build a new hospital for the insane if a permanent loan for municipal improvements is submitted to the vote of the people next November. The item was included in the recent loan before it was cut to \$16,000,000. The State Hospital for the Insane at Norristown has 1,300 patients, for whom the city is paying \$1.80 each per week. Dr. Martin argues the city could save \$190,000 a year if it had hospital accommodations for them.

SOUTHERN STATES.

Smallpox and Vaccination in Baltimore.—Mayor McLane has agreed that extraordinary measures to stamp out smallpox in Baltimore be taken. Accordingly, Commissioner Bosley announced that he would engage 25 physicians to assist the 24 health wardens in vaccinating Baltimoreans. This extra force will be kept employed for at least 60 days. The 25 extra vaccine physicians will be selected from the ranks of the young members of the medical profession, who will be able to give their entire time to the work. These auxiliaries to the regular force of health wardens will be formed into bands and assigned at first to those sections of the city where smallpox has developed its presence. One of the greatest handicaps the Department has in its fight against smallpox is the indifference and unwillingness of the public to be vaccinated in advance of the disease making its appearance in their immediate neighborhood.—[*Baltimore News*.]

WESTERN STATES.

Doctors Advocate New Laws.—At a recent session of the Michigan State Medical Society a committee was appointed to act with the State Bar Association in its effort to secure State legislation for more desirable expert medical testimony in

courts. The Legislature also will be asked to establish a State sanatorium for the treatment of early stages of tuberculosis; to make a law to compel the registration of births as well as deaths; to pass a measure to prohibit the manufacture and sale of toy pistols; and a law to limit the times when suits may be started for malpractice to one year, instead of three, as at present, after alleged injury occurs, and that suits may not be started after the patient's death.

To Fight for Purer Milk in Chicago.—The Bulletin of the Chicago Health Department for the week ended May 21, states that the most frequently employed methods for the adulteration of milk are by skimming it, or diluting with water, or adding various adulterants for coloring the milk, and adding various preservatives, the most frequently used being formaldehyd, salicylic acid, or boric acid. Notes from the Laboratory: The success of the crusade for pure milk last summer has stimulated the Department to even greater efforts and energy this season. Not only the quality of the milk itself continues to be examined, but the inspectors also enforce the sterilization of bottles, etc., in accordance with sanitary regulations. What the Department is aiming at is the prevention of an increase of intestinal diseases among children during the hot weather. To this end the sterilization of all milk bottles is to be insisted upon. The city water is generally impure at present and if milk dealers are allowed to wash bottles in ordinary tap water an increase of intestinal diseases is very likely to result.

Decrease of Infant Mortality in Chicago.—The Bulletin of the Chicago Health Department, for the week ended May 21, says this is the most favorable season in the history of the city for the life and health of infants and young children. Since the first of the month there have been recorded 1,553 deaths at all ages, of which number 339 were of children under 5 years of age—a proportion of 21.8% of the total. During the corresponding period last year there were 1,922 deaths at all ages, including 510 under 5—a proportion of 26.5% of the total. These figures show a decrease of 17.7% in the deathrate of the under-5-year age group this year from that of 1903—which was about the normal. The cause of this condition is the phenomenal infrequency of the contagious diseases. At the close of the week a total of 599 deaths from the diseases most seriously affecting child life had been reported since the first of the year. For the same period of 1903 there were 1,169 such deaths reported—an excess of 570, or 95%. Among the most striking decreases are the deaths from diphtheria, measles, scarlet fever and whoopingcough—from diphtheria this year, 156, last year, 300; from measles this year, 9, last year, 190; from scarlet fever this year, 91, last year, 167; from whoopingcough this year, 8, last year, 186.

FOREIGN NEWS AND NOTES

GENERAL.

Japanese Military Hospitals.—News from Tokio, Japan, under date of May 25, states that Drs. Hashimoto, Sato, and Kikuchi, three of the most eminent surgeons of Japan, have been appointed superintendents, respectively, of the Tokio Hiroshima, and Matsuyama Military Hospitals. The government is securing the best talent available, and is carefully equipping hospitals for the treatment of both Japanese and Russian wounded. Dr. Hashimoto is the Emperor's physician.

Bovine Plague in Egypt.—In addition to bubonic plague it is reported that bovine plague is very widespread in Egypt. Severe precautionary measures are being taken, but owing to the nomadic character of the population the results, it is said, are unsatisfactory as far as the cattle disease is concerned. According to reports Egypt is also menaced this year with an invasion of locusts. In certain districts the government has ordered the destruction of the eggs left by the clouds of these insects that have already made their visitation. Under the direction of experts sent out by the ministry of the interior almost the entire population of some sections of Egypt are engaged in destroying the eggs.

World's Finest Hospital Train.—The Empress' hospital train started from St. Petersburg to the far East a few days ago. The train is the finest railway hospital ever constructed. The first section is composed of 14 ambulance cars, fitted with every appliance for the comfortable transportation of the ill and wounded. The second section contains two operating cars, supplied with every adjunct of the modern operating-room, with tiled interiors capable of instant cleansing, disinfectants, stores, instruments, bandages, and adjustable operating tables. There is also a library, chapel, and bath-rooms, including a special electric bath, a röntgen ray car, with dynamos and all apparatus, and a kitchen car, from which all the patients are fed. There are also cars containing a dispensary, sterilizing, and disinfecting apparatus, a water distilling plant, and ice manufacturing machinery. There went out with the train three doctors, four Sisters of Mercy, and three assistants. The Empress not only furnished the entire train, but furnishes \$500 monthly to aid in the purchase of delicacies for the sick.

Antivenomous Serums: Paris.—M. Calmette, of Lille, who has just been elected a corresponding member of the institute, read an important paper on May 5 before the Academy of Medicine upon the above subject. As is well known, the discovery of antivenomous serum is due to M. Calmette. But on continuing his researches, he found that the venoms of different serpents were not all of the same type. There are two main species to which all the others conform, cobra venom and viperine venom. The first is especially toxic, the second produces hemorrhages. M. Calmette has succeeded in preparing one polyvalent serum, which acts equally well in both kinds of poisoning. By studying the action of the neurotoxins, which serpent venom contains upon the globules of the blood and upon gelatin, M. Calmette has devised a method for standardizing the toxicity of venom with accuracy.

The Pestiferous Tramps.—According to accounts, recently, when disease was rife in England and Wales, inquiries were made by a medical officer as to the source of the infection, with the result of showing that tramps brought smallpox into 72% of the 63 large towns from which returns were received. More recently replies received from 125 cities and boroughs having populations of 20,000 or over confirm the conclusions drawn from the former inquiry. Of the 125 places, 111 had been visited by smallpox, and 51% of these places derived it from "the harmful and unnecessary tramp." Again and again when stamped out the disease has been reintroduced by the peripatetic loafer. "The disease," says the London *Telegraph*, "was introduced at least 305 times by vagrants into 58 places where it had already made its appearance. Twenty-three times it was carried into Sheffield in this manner, 24 times into Manchester, 31 times into Wakefield, and 34 times into Liverpool."

The Hygiene of Health Resorts, Berlin.—At a recent meeting of the Association of Government Medical Officers one of the subjects discussed was the hygiene of spas and health resorts and finally a series of definite recommendations was made, of which the following is an abstract. A sanitary commission ought to be formed in every spa and health resort. The notification of scarlet fever, measles, diphtheria, enteric fever, and pulmonary tuberculosis ought to be made compulsory. In the smaller spas and health resorts, where there is no hospital, arrangements ought to be made with a hospital of the neighborhood for the reception of patients, especially those suffering from contagious diseases. Ambulances and premises for the isolation of doubtful cases ought to be provided in every spa. The medical officers of health should be authorized to inspect the hygienic arrangements of dwelling houses and places of public resort at least once a year during the bathing season and to order unsatisfactory conditions to be corrected. In the ensuing discussion Dr. Behrend of Colberg rightly observed that not only the spa but also the public had obligations to fulfil in the interests of the general welfare; he especially drew attention to the fact that parents took their children when suffering from whoopingcough to crowded spas, although these children as a rule did not derive the least benefit from the change and were a source of danger to the healthy children whom they met there.

OBITUARIES.

T. M. Drysdale, at his home in Philadelphia, May 27. He had been ill for two weeks with pneumonia, and was 70 years of age. He was graduated from the Philadelphia Medical College in 1852. In 1856 he was made professor of chemistry of Wagner Institute of Science. In 1862 he was appointed a lecturer on microscopy for Franklin Institute. In 1863 he became a surgeon in the First Pennsylvania Infantry, where he served for the remainder of the Civil war. He was made consulting gynecologist at the Medico-Chirurgical Hospital, and in 1875 was elected president of the Philadelphia County Medical Society. He was one of the founders of the American Gynecological Society, and was a member of the International Medical Congress in 1876. In 1887 he was elected president of the Philadelphia Obstetric Society, and later vice-president of the American Academy of Medicine. He was a fellow of the College of Physicians and a member of the British Medical Society. He was the author of numerous papers on medical subjects.

F. Savary Pearce, at the home of his father, Steubenville, Ohio, May 27, aged 37; a graduate of the University of Pennsylvania in 1891. At the time of his death he was professor of neurology in the Medico-Chirurgical College, Philadelphia. He was the author of several works on nervous diseases, was a diligent student, and one of the most popular young physicians in Philadelphia. Dr. Pearce was a member of the American Medical Association, being secretary of the section on nervous and mental diseases. He was also a member of the County Medical Society, the Medical Club, the Neurological and Pathological Society, and a fellow of the College of Physicians. He belonged to the Pennsylvania State Medical Society, and was an honorary member of the Eastern Ohio Medical Association. He was also a member of the American Climatological Association, the Historical Society of Pennsylvania, the University Club, and the Loyal Legion.

Edwin Gallaird Mason, of New York, at the home of his father, Dr. A. S. Mason, in Hagerstown, Md., May 23, aged 39. He was a graduate of Bellevue Medical College, after which he was made assistant professor of nervous diseases of the Polyclinic School of New York. He was for several years editor of the *Gallaird Medical Journal*.

W. His, the noted professor of anatomy at Leipzig, in that city, April 30, aged 72; one of the founders of the *Archiv f. Anthropologie* and of the *Zeitschrift f. Anatomie*, of which latter he was editor until it was combined with the *Archiv f. Anatomie und Physiologie*.

Cornelius Van Evra, from apoplexy, at his home in Vineland, N. J., May 19. He was for a number of years a practitioner in Philadelphia and later in New York, where he retired from his profession, and moved to Vineland. He was married six times.

Peter F. Stokes, at his home near Branchville, S. C., May 16, aged 83; a graduate of the Medical College of the State of South Carolina, Charleston, in 1846; member of the South Carolina Legislature in 1852, and of the Secession convention in 1860.

Wm. A. McCoy, at his home in Madison, Ind., May 8, aged 60. He was a graduate of the Medical College of Indianapolis, Ind., in 1872; member of the American Medical Association and secretary of the Jefferson County Medical Society.

E. Duclaux, professor of biology and chemistry in Paris and director of the Pasteur Institute, May 3, aged 64. His work in biology, chemistry, physiology, bacteriology has made him famous all over the world.

Charles W. White, Jr., at his home in Fairhaven, Mass., recently. He was a graduate of Harvard College, and also of the University of Heidelberg. He was a member of the staff of physicians of St. Luke's Hospital.

Albert Nassau Cooper, at his home in Bisbee, Arizona, April 27, aged 25; a graduate of the College of Physicians and Surgeons, San Francisco, in 1901; member of the American Medical Association.

Henry H. Critchfield, of Hunter, North Dakota, at a hotel in Minneapolis, from heart disease, May 13, aged 43; a graduate of the Minnesota Hospital Medical College, Minneapolis, in 1885.

Daniel W. Tyndall, at his home in Taylor, Mo., May 16, aged 67; a graduate of the University of Michigan, Ann Arbor, in 1864; surgeon of the Federal army during the Civil war.

D. P. Jackson, at his home in Binghamton, N. Y., May 23, aged 63. He was one of the best known physicians of the city and at one time health officer in his home town.

Thomas J. Fitz Morris, at his home in New York, May 20, aged 35. He was a graduate of Bellevue Medical College in 1891, and at one time Alderman of the city of New York.

John N. D. Cloud, at the Duval County Hospital, Jacksonville, Fla., May 7; a graduate of the College of Physicians and Surgeons, New York city, in 1883.

Dayton R. Black, from pneumonia, at his home in Terre Haute, Ind., May 15, aged 55; a graduate of the Medical College of Indianapolis, Ind., in 1875.

Alvin Morris Woodward, at his home in New York, May 20, aged 68. He was a graduate of the New York Homeopathic Medical College in 1861.

A. Nash Johnson, at his home near Natural Bridge, Va., May 10, aged 55; a graduate of the Medical College of Virginia, Richmond, in 1878.

Hugh H. Davis, from heart disease, at his home in Sonoma, Cal., May 8, aged 62; a graduate of the University of Pennsylvania in 1878.

Benj. J. Clevenger, at his home in Red Key, Ind., May 10, aged 55; a graduate of the Medical College of Indianapolis, Ind., in 1873.

Cyrus Truman Meaker, at his home in Carbondale, Pa., May 9, aged 57; a graduate of Dartmouth College, Hanover, N. H., in 1887.

R. G. Coleman, at his home in Monarch, Mo., May 12, aged 60; a graduate of the Medical College of Ohio, Cincinnati, in 1897.

John F. LeRoux, at his home in Montreal, May 14, aged 55; a graduate of Laval University, medical department, Quebec, in 1883.

Henry W. Strong, at his home in Byron Center, Mich., May 9; a graduate of the University of Michigan, Ann Arbor, in 1864.

Elbert Wallace Clark, from paresis, at his home in St. Albans, W. Va., aged 55; a graduate of the Rush Medical College in 1871.

Wm. E. Garnett, of Cave City, Ky., at Stamford, Ky., May 4, aged 65; a graduate of the University of Louisiana in 1869.

Nelson Fanning, at his home in Catskill, N. Y., May 17, aged 63; a graduate of Albany, N. Y., Medical College in 1859.

Albert G. Pottle, at his home in Canaan, Vt., May 5; a graduate of the Medical College of Maine, Brunswick, in 1871.

John B. Curtis, at his home in Columbus, May 12, aged 83. He was a veteran of the Mexican and Civil wars.

W. O. Alexander, at his home in Washington, aged 58. He was a graduate of the Georgetown University.

Wilbur Flak Templeton, at his home in Glover, Vt., May 7, aged 68. He was of New York city.

J. A. Halteman, at his home in Espanola, New Mexico, May 6, aged 60.

SOCIETY REPORTS

AMERICAN GYNECOLOGICAL SOCIETY.

Twenty-ninth Annual Meeting, Held in Boston, Mass., May 24, 25, and 26, 1904.

[Specially reported for *American Medicine*.]

FIRST DAY.

The society met in the Boston Medical Library under the presidency of Edward Reynolds, of Boston.

An address of welcome was delivered by Charles M. Green, of Boston, and was responded to by Henry T. Byford, of Chicago.

Officers.—The following were elected: President, E. C. Dudley, Chicago, Ill.; vice-presidents, Henry D. Fry, Washington, D. C., and Henry C. Coe, New York; secretary, J. Riddle Goffe, New York; treasurer, J. M. Baldy, Philadelphia. Niagara Falls, N. Y., was selected as the place for holding the next annual meeting.

The Treatment of Gallstones Found as a Coincidence in Abdominal or Pelvic Operations.—JOHN G. CLARK (Philadelphia). This paper will appear in a future issue of *American Medicine*.

Discussion.—R. STANSBURY SUTTON (Pittsburg) said if gallstones were encountered during the course of another operation they should be removed, if the patient's condition warranted it. GEORGE M. EDEBOHLS (New York) operated on a woman at one time who presented marked dyspeptic symptoms. In addition she had movable kidney, chronic appendicitis, and induration in the region of the gallbladder. He anchored the kidney, removed the appendix through a lumbar incision, pulled the gallbladder into the lumbar wound, and found a stone about 4 cm. or 5 cm. in length, pear-shaped, and nearly filling the gallbladder. The attending physician was positive that the gallbladder did not produce symptoms of stone in it. He would not let him remove the stone from the gallbladder. A year later he opened the woman's abdomen for some other condition, making an incision near the gallbladder. He investigated the gallbladder, found it was healthy, and that the large stone had either passed or had been dissolved. The treatment after the previous operation consisted of the use of olive oil for about a month, and whether this had anything to do with the passage of the stone he did not know. A. PALMER DUDLEY (New York) believed that stones were formed in the liver ducts themselves, and that from a stagnant circulation cholesterol nuclei formed and that only a small proportion of stones was found in the gallbladder. He would not hesitate to explore the center of the liver in some instances. He cited a case in point. BROOKS H. WELLS (New York) said that in the last few years he had used practically the same measures as those outlined by the essayist. A number of patients coming under his observation had complained of obscure symptoms of so-called functional indigestion. In them he found either disease of the gallbladder, an over-distended gallbladder from obstruction elsewhere, or trouble referable to gallstones. By making a small or large incision, as seemed necessary, cleaning out the gallbladder and draining it, the patient had obtained remarkable relief from the symptoms that were supposed to be due to functional indigestion. SETH C. GORDON (Portland, Me.) said that when the abdominal cavity was opened for other purposes and he was quite sure the patient could stand it, he would examine the gallbladder thoroughly, and if gallstones were found he would remove them. HIRAM N. VINEBERG (New York) said that under the influence of the teaching of Kelly he had been in the habit of doing what had been advocated by the essayist, but after hearing a discussion on gallstones in the common duct and in the gallbladder by one of the Mayos, he had changed his method. Simply opening the gallbladder and removing the stones did not effect a cure, as was proved by three or four cases that occurred in his own practice. If the gallbladder was diseased, however, it should be removed. J. M. BALDY (Philadelphia) said that gallstones existed in the gallbladder for years without causing any material discomfort, but that when infection occurred trouble was liable to ensue. With reference to removing gallstones when operating for some other intraabdominal condition, the surgeon should consider the physical condition of the patient, the surroundings, etc., and as to whether the patient was willing to shoulder the additional risk of a second incision for the gallbladder operation. WALTER P. MANTON (Detroit) quoted Ochsner as saying that he had tried almost everything in so-called cases of chronic dyspepsia without affording relief; yet after opening the gallbladders of these patients and removing gallstones which were found, they were cured. Manton had seen a number of such cases and contended that the removal of gallstones, or the gallbladder if diseased, was the thing to do. He did not believe there was any solvent ever invented which would dissolve gallstones. BEVERLY MAC-MONAGLE (San Francisco, Cal.) stated that when the abdomen was opened for some pelvic or abdominal trouble the operator should investigate the gallbladder. If gallstones had been making the patient ill, or if there were adhesions around the gallbladder, one should operate. The conditions that arose in

the pancreas as a consequence of gallbladder disease and of gallstones were serious, and if the surgeon could do something of a prophylactic nature, without adding to the risk of the patient's life, it was a wise thing to do. CLARK, in closing, said the formation of gallstones through bacteria had been clearly demonstrated by experiment. He did not believe anyone would strongly advocate operation unless the gallstones were producing symptoms.

Ovarian Pregnancy.—J. CLARENCE WEBSTER (Chicago) reported a case in which there was a right ovarian irregularly rounded swelling, measuring 7 cm. by 8 cm. There was no evidence of rupture into the peritoneal cavity. The adhesions were recent. Sections of the ovarian swelling consisted mainly of extravasated blood and disseminated fragments of the chorion. No evidence of transformation of ovarian connective tissue into decidua was noted. It was certain that the pregnancy did not start in a Graafian follicle.

Discussion.—J. WHITRIDGE WILLIAMS (Baltimore) said ovarian pregnancy was the rarest of all forms of extrauterine pregnancy. While there was no doubt that Müllerian tissue might be found in the ovary, as mentioned by the essayist, and confirmed by numerous observers, it was going too far to advance that view in explanation of every case of ovarian pregnancy. JOHN T. THOMPSON (Portland, Me.), referred to a case of ovarian pregnancy he had reported at a previous meeting of the society, and called attention to the nature of the structures in which pregnancy occurred, and to the frequency with which rupture might occur in the early days. EDWARD P. DAVIS (Philadelphia) removed an ovarian pregnancy about a year ago. The indications were that the pregnancy did not originate in the Graafian follicle. LAPHORN SMITH (Montreal) had diagnosed ectopic pregnancy by the clinical symptoms, had operated, and found hematoma of the ovary. He had said to students that his diagnosis was wrong, because authorities maintained that there was no such thing as ovarian pregnancy, but after hearing what had been said he was convinced there was.

Uterolithotomy.—J. WESLEY BOVEE (Washington, D. C.) gave the history of this operation, discussed the size and number of calculi, and the routes for reaching and extracting uterine calculi. All uterolithotomy wounds should be drained, because the urine was practically never normal, therefore rendering wound infection probable. The possibility of urinary leakage subsequent to operation afforded another positive indication for drainage.

Nephrectomy for Primary Tuberculosis of the Kidney.—HIRAM N. VINEBERG (New York) said that tuberculosis of the kidney, both primary and secondary, was more frequently met with in women than in men in the proportion of about two to one. It was different from what occurred in man; renal tuberculosis in women was rarely associated with tuberculosis of the genital organs. A cystitis in women that resisted the topical applications of the silver nitrate solution by the Kelly method should be looked upon with marked suspicion as being of a tuberculous character, even though repeated examinations of the urine should show an absence of the tubercle bacillus. The differential diagnosis of a nontuberculous from a tuberculous cystitis with the aid of the cystoscope was not as reliable as the therapeutic test outlined in the preceding sentence. Pronounced reddening of ulceration about the mouth of one of the ureters, with absence of other bladder changes, was held by some authorities as pathognomonic of tuberculosis of the corresponding kidney; while the sign was an important one, too much weight should not be attached to it in women. In most cases the removal of the diseased kidney would bring about practically a cure of the descending cystitis. He doubted the wisdom of the advice to cure the cystitis before undertaking the removal of the kidney. The prognosis of nephrectomy in renal tuberculosis in women was very good. Of the writer's four cases operated upon, seven, five, two, and one and a half years ago respectively, all were alive and in good health.

Discussion.—JOSEPH E. JANVRIN (New York) reported the case of a woman who had been ailing for two years with what was supposed to be a renal calculus. The kidney was removed, and it was found that its pelvis was infiltrated with tuberculous deposits in the very early stage. She made a good recovery and was well today. J. WESLEY BOVEE said, as to the indications for operation on tuberculous kidney, the surgeon should be sure that the opposite kidney was capable of carrying on the function of excreting urine for the whole body before he decided to remove one tuberculous kidney. A nephrotomy might be done, and the kidney most markedly diseased drained, without taxing the other kidney to a great extent. PHILANDER A. HARRIS (Paterson, N. J.) said that in cases of tuberculosis of the kidney it was difficult, where the bladder was corrugated and changed by the pathology present, to find the urethra; but by painting the entire field of the bladder with some solution, as Prussian blue, he had succeeded in finding the ureters, in the case of a girl, which he could not otherwise locate. SETH C. GORDON operated on a man, removing a kidney, which was situated low down in the abdomen, painful, and bound down by adhesions. The patient died 11 days after the operation, and postmortem examination revealed that the man had no other kidney. Two years afterward he removed a very large kidney from a woman, who lived 28 days after operation. For 12 hours she did not have a single uremic symptom, nor was a drop of urine secreted, and

she died in full possession of her faculties. Postmortem examination revealed that she had no other kidney. J. M. BALDY said it was not uncommon to have practitioners ask if the ureters had been catheterized in cases of supposed kidney disease, and not infrequently a healthy kidney was palpated and found on one side which utterly failed to secrete with the patient under an anesthetic or without it. In some instances this failure on part of the kidney to secrete was undoubtedly brought about by the influence of the anesthetic. He had had exactly the same experience a number of times in patients whose ureters he had catheterized, but to whom no anesthetic had been given. GEORGE M. EDEBOHLS advocated that before removing a kidney, an incision should be made on the opposite side to determine by actual inspection and palpation the presence of another kidney and its probable health, so far as could be determined macroscopically, before removing the diseased kidney. He had adhered to this rule in all nephrectomies performed since that time, and in one case he had saved a woman's life by so doing. J. RIDDLE GOFFE, (New York) reported a case bearing on the removal of the ureter in connection with tuberculosis of the kidney, the patient having been operated on by him in 1896. She was a woman of 22, who had a very large tuberculous abscess of the right kidney. He removed the kidney and three inches of the ureter. She made an excellent recovery. The patient was now a graduate nurse and in perfect health. EDWARD REYNOLDS (Boston) gave his experience of 10 nephrectomies for tuberculous disease, seven of them being complete nephro-ureterectomies, all successful, so far as operative mortality was concerned.

Hypertrophies and Inflammations about the Urinary Meatus.—ROBERT L. DICKINSON (Brooklyn) said that their frequency, and the suffering caused, gave them an importance out of all proportion to their minute size. They were overlooked because hidden among folds of mucous membrane. They were explained by embryology. A tiny ribbon ran from the rear of the vaginal opening forward, on each side of the vaginal and urethral openings, across the vestibule to disappear beneath the clitoris. This fold was persistent in those cases where the hymen ran forward of the meatus, or the meatus seemed to open on the anterior vaginal wall. This fold was enlarged by friction or traction to produce flaps or labia hanging out each side of the meatus. They were found only with corrugated labia. Dilated or dilatable urethra often accompanied them. The urethral glands opened near the apex of the flaps. They were long, running down into the anterior column of the vagina. Swelling from infection differed from hypertrophy. The cure of chronic inflammation was only feasible by obliteration of the glands. A fine probe passed to the bottom of the gland rendered the vestibulovaginal surface tense; the cautery wire cut out the probe. For piles of the meatus, the cautery wire was used after cocaine. For prolapse or dilation of the urethra, resection of the anterior vaginal wall or paraffin injections into the urethrovaginal septum produced a sigmoid profile.

Surgery of the Female Urethra.—ELY VAN DE WARKER (Syracuse, N. Y.) said the term sacculation was regarded as better than urethrocele. Its major cause was mechanical, as inflammation alone was not adequate to its production. The urethra might be said to belong to the perineal rather than the pelvic zone of organs. The walls of the canal depended in a measure upon the support of the perineal body. It was often associated with long standing rupture of this part. Restoration of the perineum was therefore essential to treatment of the sacculation. When large, an elliptic flap of the walls of the urethra was removed, and the edges brought together by fine silk sutures. Prolapse of the mucous lining of the urethra the author had generally associated with long standing urinary troubles of various kinds. After removing the prolapsed portion there was a marked tendency to recurrence unless the conditions which gave rise to it were treated and cured. Bladder incontinence and dribbling were often life-long conditions. That this was due to a defective action of the sphincter vesicae was more than doubtful. Dribbling was one of the symptoms of hysteria, of which a striking case was given in illustration. Stricture of the urethra was common in women. Any condition that tended to produce linear or annular thickening led to stricture. Specific urethritis might produce stricture, but it was not the frequent cause alleged by some writers. Stricture of large caliber might be located and measured by the Otis bulbs, but never by the sound, as recommended by old systematic writers. Annular stricture of the meatus was the form most commonly met with. These strictures ought to be incised and made to heal in an open condition by the frequent passage of the sound. Dilation alone was too painful and required too much time. The prototype of eversion of the mucous membrane at the meatus was the fusiform stricture of Otis, and its surest cure was by dilation. Caruncle of the urethra was common. Removal, involving the whole thickness of the mucous membrane, being careful not to leave a stump, was an effectual cure.

Pyelitis Complicating Pregnancy.—EDWIN B. CRAGIN (New York) said the occurrence during pregnancy of a marked rise of temperature, with pain and tenderness on the right side of the abdomen, was always a source of anxiety to the obstetrician. Although several able articles describing the condition had appeared, it was not generally recognized that pyelitis was

a not infrequent cause of the above symptoms. It might be confused with appendicitis, typhoid fever, or salpingitis. It occurred almost, if not quite, invariably on the right side. It was due to pressure on the ureter by the pregnant uterus plus an infection. This infection was usually descending, and was usually due to the colon bacillus. The urine was acid, contained at first albumin and perhaps a few casts, soon followed by pus and bacteria. The prognosis was usually good. Induction of labor was seldom indicated. The medical treatment by urotropin, or allied drugs, with ice-bag over the kidney; fluid diet, and large draughts of water was usually sufficient.

A Second Case of Puerperal Eclampsia Successfully Treated by Renal Decapsulation.—GEORGE M. EDEBOHLS (New York) said the first case, reported to the society a year ago, illustrated the immediate cure by renal decapsulation of puerperal convulsions, recurring with great and increasing violence after the birth of the child, a period at which the hitherto final resource of forced delivery was, of course, no longer available. In presenting the case the opinion was advanced that resort to renal decapsulation in the undelivered woman suffering from puerperal eclampsia might obviate the necessity of forced delivery. The case now reported illustrated the correctness of that opinion. Renal decapsulation was performed upon a woman pregnant near term, suffering from puerperal eclampsia, and almost complete suppression of urine. The convulsions were arrested, the flow of urine was reestablished, and a threatened death from uremia was averted. Two days after all this had been accomplished, labor began spontaneously and living twins were born. One child died soon after birth. The second child and the mother were in perfect health four and a half months after the termination of pregnancy. Renal decapsulation thus became a rival of forced delivery in cases of puerperal convulsions of renal origin in the undelivered woman. In puerperal convulsions, occurring or recurring after delivery, it constituted the final resort when all other measures had failed.

SECOND DAY.

Primary Repair of Lacerations of the Cervix Uteri.—EDWARD P. DAVIS (Philadelphia) read the first paper of a symposium on this subject. The number of cases under the author's observation was 53. In these, good union occurred in 45; fair union in 6; no union in 7; while infection developed in none. In 84.9% the operation was successful; in 11.3% it was moderately successful; and in 3.8% the operation failed. The percentage of infection was *nil*. He pointed out the objections which were commonly urged against this operation, after which he said that in appropriate cases in his experience immediate closure of the cervix had given no inconvenience to the mother, and had been followed by excellent results. This operation was not advised for those who did not practise obstetrics with good surgical technic, and who were not competent to operate on the genital tract.

The Practice of Cervix Suture on the Fifth Day after Delivery.—ROBERT L. DICKINSON (Brooklyn) said that no complicated or considerable perineal injury should be repaired at the close of labor, but three to five days later. This had an important bearing on lacerations of the cervix, as this was the ideal time to restore such injuries. Whenever possible, the cervix should be sewed on the fifth day. The author described the conditions under which the cervix should be repaired at the close of labor, and also the conditions under which it should be repaired several days after labor. He drew attention further to the alterations produced by granulation and contraction in these wounds when left alone, so that the scarred, swollen, everted, or cystic cervix months or years after injury gave uncertain indications for accurate restoration to the original condition.

General Considerations of Laceration of the Cervix Uteri.—J. M. BALDY (Philadelphia) stated that as a matter of clinical fact, let the cervix uteri be torn deeply, and if the parts were preserved from infection, the greater part of the wound would heal spontaneously, and the rest of it would remain perfectly healthy. The lips would remain uninfiltated, of normal size and thickness, with no eversion and no erosion of the lining mucous membrane. In such a case, there would be no untoward symptoms and no bad effects whatever. There was a tendency among obstetricians to repair these lacerations primarily. The objections to such practice were manifold, and these he pointed out. Whatever might be ideal surgery under the exigencies of actual practice, the treatment for recent lacerations of the cervix remained, and he believed would remain, namely, rigid local cleanliness, excepting where there was sufficient hemorrhage to demand a ligature. There was one belief prevalent which would warrant, nay, demand, a repair of every lacerated cervix—the belief that lacerations of the cervix produced carcinoma. In this belief he took no part, and no one had, to his knowledge, as yet brought forward a scientific fact which would uphold such a theory. In 20 years' work he had not seen a single case of cancer develop in a laceration of the cervix which he had refused to repair.

Intrapelvic Hematoma.—J. WHITRIDGE WILLIAMS (Baltimore) reported a case of intrapelvic hematoma following labor, and made some remarks on the treatment of incomplete rupture of the uterus.

President's Address.—EDWARD REYNOLDS (Boston) stated that the use of the printed abstract published beforehand had of late become increasingly prominent in many societies,

and in the British Medical Association this use of the abstract had reached its highest point. It was seldom wise to adopt wholesale the regulations of other organizations. It was usually better to let changes follow a more gradual and natural evolution under the needs of the individual assembly, but the methods of the English association were worth a passing consideration. He said that a Fellow of the British Medical Association who desired to present a paper at one of its meetings must put it in the hands of the secretary complete and in the form in which he desired its publication, a number of weeks before the meeting, and the communication might be of any length he chose. A paid secretary, a qualified and experienced medical author, then abstracted each paper in the form and length which he considered best fitted for its public delivery. This official then read the abstracts to the society as they called on the program. Such a reading inaugurated each discussion, and the member whose ideas had been thus succinctly set forth before his associates, took part in the discussion and closed it. The ideas of individual members by this method were better and more intelligently presented than if they had read their complete papers. Time was economized, full debate was encouraged, and the members had the advantage of publishing to the world, papers in which their points were set forth at the fullest length and without time limitation. He recommended that the society give this method or a modification of it a year's trial.

Symposium on Injuries to the Perineum: The Preventive Treatment of Pelvic Floor Lacerations.—J. CLIFTON EDGAR (New York) said that the factors which tended directly or indirectly to produce pelvic floor lacerations might be arranged, for the sake of convenience, in three major classes, namely, (1) too rapid expulsion of the fetus, so that tearing instead of stretching resulted; (2) relative disproportion in size between the presenting part and the parturient outlet; (3) a faulty mechanism of labor, whereby the larger circumference of the head and shoulders than necessary passed through the parturient outlet. From an extended clinical experience, the author could speak most enthusiastically of preliminary digital stretching of the vulval outlet in primipara, and especially in elderly primipara, as a prophylactic measure in perineal protection. He then discussed episiotomy, head delivery, and cleidotomy. He had been most successful with the following method of shoulder delivery, and either the lateral or dorsal posture of the patient could be used at will. This method was not new: 1. The delivery of the shoulders was delayed, if possible, until nearly complete rotation of the bisacromial diameter had taken place. 2. The fetal head was taken in the hand and gently raised or pushed, so as to bring the anterior shoulder well up behind the symphysis, thus giving the cervicoacromial diameter of the fetus at the outlet instead of the bisacromial. 3. The posterior shoulder was now allowed to pass out spontaneously and whenever possible manual extraction should be avoided, as this increased the risk of perineal rupture. 4. During the detention of the anterior shoulder behind the symphysis, the fetal hand of the opposite arm lying across the fetal chest would usually soon appear in the vulva. He had found that delivery might be safely assisted by slowly flexing this forearm and arm out through the vulva, and thus delivering the posterior shoulder by slight traction on the posterior arm. 5. Should the foregoing be impracticable and delay in the expulsion of the posterior shoulder occur, he had found gentle traction upon the head, the fingers encircling the neck, to be preferable to traction with a finger in the axilla. 6. Should there be delay in the delivery of the anterior shoulder, after expulsion of the posterior, it was best remedied by making traction directly downward, with the hands placed on the sides of the head, taking care not to make too great pressure on the perineum. As a last resort, traction might be made by a finger in the axilla.

Immediate Repair of Lacerations of the Perineum, with Special Reference to Placing the Sutures before the Lacerations Occur.—LAPTHORN SMITH (Montreal). This paper will appear in a later issue of *American Medicine*.

Immediate Repair of Injuries of the Pelvic Floor.—HENRY C. COE (New York) said that he had selected this topic in order to emphasize the fact that by careful attention to puerperal lesions at the time of their occurrence, the patient could be spared much future trouble. He assumed that it was the usual practice of modern accoucheurs to repair injuries to the pelvic floor at once, but it was one thing to suture visible tears and another to repair deeper lesions. Even when perfect union of the lacerations was obtained the occurrence of prolapsus, cystocele and rectocele months afterward proved that there had been some fault in the technic. The fact of the separation of the fascia and levatores ani muscles must be recognized as well as the superficial tear, especially after difficult instrumental deliveries. An illustrative case from the writer's practice was cited. The tendency of the accoucheur after a tedious instrumental case, in which both physician and patient were exhausted, was to spend as little time as possible in repairing lesions of the soft parts, trusting to aseptic technic to insure perfect healing. The writer was firmly of the opinion that it paid to do the work thoroughly at the time unless the patient's condition was such as to render delay advisable. He had had such good results from immediate operations that the intermediate did not appeal to him.

[To be concluded.]

CLINICAL NOTES AND CORRESPONDENCE

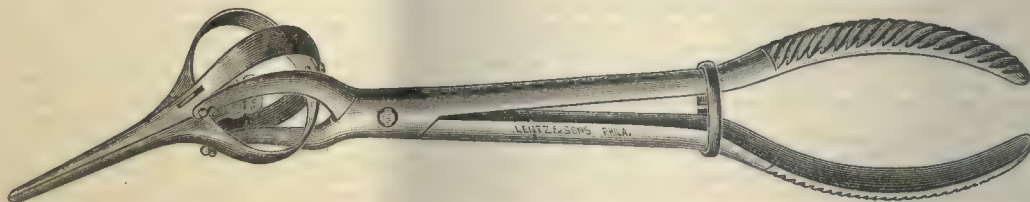
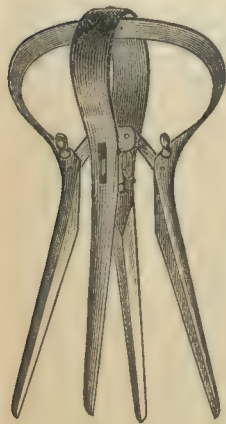
[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

A MODIFIED AND IMPROVED METRANOIKTER.

BY

B. C. HIRST, M.D.,
of Philadelphia.

Although Schatz presented his metranoikter at a meeting of the Leipsic Obstretical Society as long ago as the autumn of 1881, it has apparently found little favor in his own country, and is scarcely known elsewhere. It is not mentioned in the index of Veit's Handbuch, and is dismissed in a paragraph in the "Encyclopädie der Geburtshilfe und der Gynäkologie" by a writer who disapproves of it. My attention was called to the instrument by an article by Daniel and Schneidersievers,¹ who recommended it highly. In a number of cases in my hospital service this winter I have found that the dilator accomplished all that its inventor and advocates claim for it, but as the four-branch principle has proved its superiority in all metal dilators



for the cervix, I had an instrument maker construct a dilator on the Schatz model, but with four instead of two blades. With this instrument a wider and more permanent dilation of the cervix can be secured than with any other that I know of. If the dilation is performed for dysmenorrhea and sterility, I have used (1) a Baer's modification of Goodell's dilator; (2) a heavy Wathen's dilator; (3) the four-branched Cleveland dilator; then have curetted the uterus, washed out the cavity, inserted the metranoikter, and packed the vagina with sterile gauze. The metranoikter remains in the uterus 24 hours. If the instrument is used for diagnostic purposes, only enough dilation is secured with a light dilator to permit its insertion. In multiparas no preliminary dilation at all may be required. At the end of 24 hours, when the metranoikter is withdrawn, it is possible to insert the forefinger to the fundus uteri, and to palpate with perfect ease the whole uterine cavity. The metranoikter does more than uterine tents can do, without danger of infection and without pain.

A METHOD OF NATIONAL RECIPROCITY.

BY

JAMES L. TAYLOR, M.D.,
of Wheelersburg, Ohio.

To the Editor of *American Medicine*:—With regard to the subject of reciprocity discussed in last week's editorial columns, the statement there made that the Federal Government has no jurisdiction in the matter is certainly true. But might not the Federal Government initiate action within the

constitutional prerogative that would eventually lead to reciprocity? The Federal Government has no authority for naming a certain day of the year to be observed as a general Thanksgiving. Yet, in a matter pertaining much more to sentiment than to practical politics, the mere recommendation of the President is promptly followed by executive adoption in all the States. Suppose the Federal Government should prescribe a certain examination or a certain diploma as a condition for appointment to medical positions in the Army, Navy, and Marine-Hospital Service, would not the State Medical Boards promptly recognize such a Federal license without examinations, whether the holder was engaged in the public service or not? A definite professional standard being thus recognized for government service, would not a practical basis for reciprocity result, eliminating the multitude of standards now held to by the various State Boards? Great Britain concedes to the possessor of a certain London diploma, granted on examination independent of any particular medical school, the right to practise in any part of the British Empire. Would not the adoption of a definite professional standard here for federal purposes easily lead to general uniformity for such as desire it,

and be sanctioned by the different States as a happy solution of a problem now impossible to work out with our existing dissimilar standards?

[Why may not the different States now sanction each other's definite professional standards, whenever they are equally high? Why not actually reciprocate? The power to do so usually lies in the hands of the profession.—Ed. *Am. Med.*]

PERVIGILUM.

BY

JAMES A. SPALDING, M.D.,
of Portland, Me.

To the Editor of *American Medicine*:—As I was reading your article on "Pervigilium," published April 30, an old gentleman came to consult me. After the consultation we entered into conversation and I asked him if he ever knew of any one going long without sleep and in reply he told me of the following case:

The subject was a very old man who lived to be 90, and he was very proud of telling about a saw mill which belonged to several people, each of whom took turns in using it according to the money they had contributed toward its purchase, for village uses. The old man happened in this way to obtain the use of the mill for a week and when his turn came he decided to make the most of it. So he hauled from his wood lot an abundant supply of lumber and began sawing at one minute after midnight on Sunday and he operated the saw until the following Saturday at midnight without sleeping. He never suffered from any trouble afterward and as before stated he lived to be over 90.

I must admit that I am surprised that he did not suffer from tinnitus the rest of his life.

¹ Journal of Obstetrics and Gynecology of the British Empire, 1902, p. 280.

ORIGINAL ARTICLES

THE CONSERVATIVE TREATMENT OF ACUTE APPENDICITIS.

BY

A. W. MORTON, A.B., M.D.,
of San Francisco, Cal.

Professor of Surgery, College of Physicians and Surgeons; Surgeon-in-Chief, Morton's Hospital; Visiting Surgeon, City and County Hospital; Consulting Surgeon, California General Hospital; Consulting Surgeon to German Hospital; Surgeon to the Santa Fe Railroad.

The subject of appendicitis has been more thoroughly discussed by medical men and the laity during the past decade than any other medical topic. Regardless of this, there still remain a wide difference of opinion as to the treatment, and a grave mortality, which is evidence that we have not thoroughly mastered the subject.

The disease is far more prevalent than is generally supposed. Observers have found in postmortem examinations that from 30% to 40% of the subjects give evidence of having had appendicitis during life.

I do not bring this subject before the profession because I have any thing new to offer, but to make an appeal to be more conservative in the time selected to operate.

The disease of the appendix was observed by many writers during the past century, but was not accepted by the medical profession until 1886, when Dr. Fritz of Boston convinced it that most of the cases of peritonitis were caused by appendicitis.

The appendix is located in the right iliac fossa and seldom wanders from that location. It is attached to the lower end and back part of the cecum and is very similar in structure, except that it is poorly developed on account of not having any special function, and a poor blood supply. Its location corresponds to a point about two inches from the anterior superior spine of the ilium directed to the umbilicus—McBurney's point.

The causes of appendicitis have varied to suit the opinions of different authors, from foreign materials to a meat diet. The most rational cause is that of defective drainage from mechanical obstruction, or preexisting disease, which leaves the appendix in an unhealthy condition, making a proper soil for *Bacillus coli communis*, or some pus infection, which under ordinary conditions would be harmless. Typhoid fever, dysentery, indigestion, and many other diseases may act in preparing the way for the germ, which is always associated with the disease.

Appendicitis is generally divided into various classifications which simply represent different stages of the disease, whether it be catarrhal, suppurative, or gangrenous.

The symptoms of acute appendicitis are of such marked character that any one who has had any experience with the disease should readily make a diagnosis. The four cardinal symptoms—pain, tenderness, gastrointestinal disturbance, and rigidity of the muscles, in conjunction with the constitutional symptoms, will be of great value. The pain is generally acute and first felt in the region of the umbilicus and radiating over the entire abdomen. After the pain lasts a few hours it becomes more fixed in the region of the appendix. The tenderness soon becomes localized at the region of the appendix. The disease is often ushered in by vomiting, the vomitus consisting of the food in the stomach, and later the secretions from the upper part of the intestinal tract. The rigidity of the abdominal muscles over the appendix is a very valuable symptom, not only for diagnosis, but because it differentiates it from other abdominal lesions. The pulse and temperature are valuable signals as to the condition of the patient, but only in conjunction with the cardinal symptoms are they valuable in arriving at a diagnosis.

The leukocytes are of importance in conjunction with

the other symptoms, in not only arriving at a diagnosis, but in differentiating it from other diseases, as typhoid fever. It is of much value in indicating the severity of the disease. J. DaCosta¹ claims when it reaches 20,000 or more, that pus has formed and immediate operation is required. I believe that 20,000 or more not only indicates that pus has formed, but in conjunction with other symptoms, that it has passed beyond the confines of the appendix, and that there is an effusion into the peritoneal cavity, and that it is one of the symptoms that not only confirms the diagnosis, but should deter the surgeon from operation as long as the count remains above 20,000; the pulse remaining above 116, and the other symptoms exaggerated, are special indications that operation should be postponed until the general condition is better. This is the hopeless class of patients which give the ever ready surgeon his mortality. The surgeon generally says he will give the patient the last chance (operation), which is too often true.

Operation at this stage will generally find the pus free in the peritoneal cavity. You may succeed in removing the ruptured or gangrenous appendix, but not the infection, as it is now a constitutional sepsis, and not local. The infection has not only spread over the abdominal cavity, but the operation produces trauma of the peritoneum and omentum, which are the life preservers of the abdominal cavity, and it inhibits their action in antagonizing the infection, to say nothing of the depressing effect of the anesthetic.

Many of our best medical men and surgeons, as Osler, Deaver, Price, and Murphy, have considered appendicitis a surgical disease at all stages, and have recommended operation as soon as diagnosed, regardless of the stage. I believe such teaching as this has done, and is doing great harm. Many physicians under unfavorable circumstances, and without the proper amount of experience, and often at the time the case becomes very serious, will operate, because they have been led to believe that surgery offers the only hope of relief. There is possibly no place where this advice has been more used or abused than in this country.

I believe all surgeons agree, that to operate early in the disease and under favorable circumstances offers more hope than any other form of treatment, and that it is the only method which will cure the disease. The mortality at this time should be very low, as there is practically no danger of infection so long as the pus is confined to the appendix. I believe in not limiting this period to 24 or 48 hours, which is the preferable time in acute cases, but if the patient's condition is reasonably good, judged by the pulse, temperature, leukocytes less than 18,000, and general symptoms, which convince me that the pus is confined to the appendix, I always operate. If the patient has passed into the stage of sepsis, when the pus is no longer confined to the appendix, and it is impossible to remove the sepsis, the pulse is rapid, the abdomen tympanitic, there is vomiting, with all the local symptoms exaggerated, and leukocytes above 20,000, I do not operate, as it is this class of patients from which we get the heavy mortality. McBurney has said, "often the surgeon is called too late for an early operation, and too early for a late operation." The statistics of Richardson² in operation for acute appendicitis show a mortality of 18%; Deaver,³ 16%; Broca,⁴ 33%.

If the experienced surgeons under favorable surroundings have this mortality, may we not expect even a heavier mortality with the less favored ones, if acting under the same teachings? Surgeons seem to be a unit in the belief that acute inflammation should be treated by rest in every part of the body, except the abdominal cavity, and here under all conditions we are to give cathartics, such as magnesia, which keeps up the peristaltic action of the bowel, and constantly irritates the inflamed appendix, which not only keeps the effusion from becoming walled off, but may carry it over the general peritoneal cavity, and even break down

adhesions which have formed. In my opinion rest is especially indicated in the treatment of appendicitis, and I believe that all acute cases could be carried through the attack and the patients operated on in the intervals with a mortality of less than 4% which has been the statistics of Ochsner.⁶

This treatment is to give the patient nothing by the mouth in the way of food, or cathartics until his condition makes the operation safe. All forms of food administered by the stomach have a tendency to start peristaltic action of the bowels; water can generally be administered in small doses, per mouth. If the patient is vomiting, gastric lavage should be used, which will stop the vomiting and relieve the pain and distress. Nourishment is kept up per rectum by using salt solution or some predigested foods in small quantities every few hours. If the lower bowel is full I generally empty it by enema. I have seldom found it necessary to keep up rectal nourishment longer than a week, as the patient's pulse, temperature and general vitality improve by this time. During this period the patient is rendered more or less immune to the infection, and the pus is not so virulent, as it has been walled off, and the patient has passed beyond the condition when operative procedure gives such mortality.

During the past two years I have treated 45 patients with acute appendicitis (not chronic or recurrent cases), and 27 of the patients were operated upon during the first to the fifth day, with one death. Two were treated through the attack and refused operation. Sixteen of the patients were treated from four days to two weeks, and then operated on, with one fatality.

The first fatality occurred in a young man of 22, who had been sick 3 days when he entered the hospital with acute appendicitis; pulse 116; temperature 103.5°; leukocytes 27,000, and with all the local symptoms exaggerated, with vomiting. The consultant demanded immediate operation, which was done. We found a ruptured appendix, with a small amount of pus which was not walled off. The appendix was removed and drainage established; the patient died 5 days later with general peritonitis.

I am confident that if this operation had been delayed and the patient treated by rest, he would have been saved.

The second fatality was in Mr. D., aged 45. I saw him the second day of the attack in consultation; he was suffering with all the symptoms of appendicitis. Immediate operation was advised, but refused. He was placed under the rest treatment and improved by the end of the first week, when we insisted on operation, but were again refused. Patient was started on a liquid diet per mouth, but immediately began to grow worse; the food was stopped and rectal nourishment resorted to again; but his symptoms continued to grow worse. On the twelfth day of his illness I opened the abdomen and found the pus from an appendix abscess had burrowed beneath the liver. This is a type of case in which the patient was in excellent condition for operation when first seen, and again at the end of the first week; after that the abscess began to wander which was indicated by the renewal of the acute symptoms with an increased leukocytosis. This is one of the dangers we may meet in this form of treatment.

I take one history from the cases in which operation was delayed on account of the severity of the disease:

Miss M., aged 21, had suffered several attacks of appendicitis, and had been sick three days when I was called in consultation. She had suffered very severe pain the night before and had been given a dose of morphin to relieve her; temperature was 105.5°; pulse 125. The abdomen was very sensitive, especially over the region of the appendix; leukocytes, 27,000; hemoglobin, 80. The patient was sent to the hospital, placed on rectal nourishment and a little water was given per mouth. On the fourth day of the treatment her pulse was 84; temperature 99°; leukocytes 10,500. Patient's condition was so much improved that consultant thought we had been mistaken in the diagnosis. One day later the abdomen was opened and we found the abscess walled off with the entire appendix sloughed; this was removed *in toto* and the cavity drained. Patient made a complete recovery.

In all cases in which operation was done after delay, the diagnosis was confirmed. Before adopting this method of selecting the time for operative cases, I followed the accepted teachings, to operate when the diagnosis was made, and especially when the case appeared hopeless. When I found the appendix gangrenous, or a

large quantity of pus free in the abdominal cavity, and following this a heavy mortality, I satisfied my conscience with the thought that the patient could not have recovered with any other form of treatment.

I am now convinced that the rest or Ochsner treatment will assist the surgeon in carrying his delayed acute cases to a safe period for operation. The medical man can safely treat his cases until he has proper surgical assistance.

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- ¹ American Journal, Medical Science, November, 1901.
- ² Boston Medical and Surgical Journal, January 9, 1902.
- ³ Journal Amer. Medical Association, December 13, 1902.
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- ⁵ Sections of Surgery and Anatomy, American Medical Association, 1903.

THE LEISHMAN-DONOVAN BLOOD PARASITES (A SYNOPSIS).*

BY

JOSEPH McFARLAND, M.D.,
of Philadelphia.

The specimens that I have the pleasure of presenting to the society this evening were sent to me by Dr. Low, of the London School of Tropical Medicine, at the request of Sir Patrick Manson, to whom I had previously written, stating that our hematologists, having no opportunity to see them, were nevertheless much interested in the Leishman-Donovan blood parasites. Assuming that the honorary members of our society would be sufficiently interested in its work to make occasional contributions to its meetings, I begged Sir Patrick Manson, should it put him to no personal inconvenience, to send us some stained specimens showing the parasites, and I am glad to say that my request met prompt and generous response.

In order that the best possible use may be made of the specimens, I have thought it appropriate to synoptize briefly what is known about the interesting objects, in order that their examination may be profitable to all.

They seem to have been first described by Major W. B. Leishman,¹ professor of pathology in the Royal Army Medical College, London, in a paper entitled, "On the Possibility of the Occurrence of Trypanosomiasis in India." The parasites were first observed in cases of what Leishman called "dumdum fever."

Dumdum is a station about seven miles from Calcutta, and is notoriously unhealthy, malarial fevers of all types, dysentery, and enteric fever being rife. It is excessively damp, and, in the rains, is practically a morass from the fact of its lying so low; it is said to be even a few feet below the level of the Hoogley, which flows within a mile or two of the cantonments.

Leishman had a short personal acquaintance with this station in 1890, and the memoranda contained in his first paper, refer to the features of this form of Indian fever as represented by soldiers invalided on account of it from Dumdum to the Royal Victoria Hospital, Netley, during the past three or four years.

"The cases were, as a rule, regarded as having been malarial in origin, and on admission to Netley, the patients presented an extreme degree of cachexia; it was, in fact, the severity of this cachectic condition and the frequency of its association with Dumdum—and, more rarely, its immediate neighbors, Calcutta and Barrackpore—which gave rise to the idea that we were dealing with a specific type of fever, whose cause was unknown. Clinically, these cases presented no very definite features distinguishing them from other and commoner forms of tropical cachexia, the chief symptoms being an irregularly remittent type of fever, grave anemia, progressive muscular atrophy, and great enlargement of the spleen. Digestive and bowel derangements were frequent, the latter often a legacy of previous dysentery. In none of these Netley cases were malaria parasites found in the blood, nor were there any records of their having been found at an earlier stage of the disease. The difference then between these cases of dumdum fever and other cases of tropical cachexia, associated with a low form of fever, was chiefly one of degree, and this was so marked that one of the first questions one asked a patient suffering from a particularly severe

* Paper read before the American Society of Tropical Medicine, at its meeting on March 21, 1904.

form of cachexia was as to whether he had served recently at Dumdum."

On making smear preparations from the spleen pulp, in one of his cases of dumdum fever, Leishman was struck by the curious appearance among the spleen cells and red corpuscles

"of enormous numbers of small round or oval bodies, two or three microns in diameter, which corresponded to nothing I had previously met or had seen figured or described. They stained faintly with methylene-blue and with hematin, showing with these stains a sharply contoured circular or oval shape, but no detailed structure; but on staining them by Romanowsky's method, they were found to possess a quantity of chromatin, of a very definite and regular shape, which clearly differentiated them from blood-plates or possible nuclear detritus. This chromatin appeared in the form of a more or less definitely circular mass or ring, applied to which, though apparently not in direct connection with it, was a much smaller chromatin mass, usually in the form of a short rod set perpendicularly or at a tangent to the circumference of the larger mass. The outlines of the sphere or oval enclosing these masses of chromatin were only faintly visible by this method of staining. These little bodies were scattered freely among the cells, as a rule isolated one from the other, but here and there aggregated into clumps composed of 20 to 50 members."

The bodies were not present in all cases, as Leishman mentions two fatal cases of dumdum fever in which he was unable to find anything of the same nature in the spleen. The original article continues with a speculation as to the nature of the parasites, in which Leishman unfortunately falls into error, and supposes the bodies to be degenerating trypanosomes.

On July 11, 1903, the *British Medical Journal* published a letter from Captain C. Donovan, Second Physician, Government General Hospital, Madras, regarding the bodies just described. In this letter he says:

I wish to state briefly that I have noted bodies similar to those described by him (Leishman) in smears taken postmortem from enlarged spleens of patients—natives of India—said to have died of chronic malaria. I obtained them in three consecutive cases on April 9, 23, and 24, 1903. In the first instance, I thought I had discovered the long sought for resting-stage form of the malarial parasite in man, but could not compare them with any analogous stages in the sporozoa. However, on again procuring the same bodies in the two other cases, I changed my views, and considered they were probably postmortem degenerations of the nuclei of the splenic pulp cells. On reading Major Leishman's paper, I at once recognized the similarity of his so-called degenerations of the trypanosomes to those found by me in the spleens of the cadavers mentioned. Yesterday (June 17) I had occasion to puncture *intra vitam* the spleen of a native boy, aged 12, suffering from irregular pyrexia, with no malarial parasite in his peripheral blood (careful examination of stained films on four several occasions), and found identical bodies in the blood from the spleen, thus removing any doubt there was as to the products being due to postmortem changes. It is unwise to theorize on the insufficient grounds at present in hand. I hope to contribute something more definite on the subject after further and more prolonged study of these organisms. My films were stained by the Maurer-Romanowsky method. I am familiar with the appearance of trypanosomes—*T. evansi*, *T. lewisi*, and a doubtful species occurring in the blood of the common Indian squirrel (*Sciurus palmarum*). There was nothing resembling trypanosomes in the peripheral blood of the boy in question.

Major Ronald Ross,² professor of tropical medicine, University of Liverpool, published a paper entitled, "Note on the Bodies Recently Described by Leishman and Donovan." Having obtained some stained specimens of the bodies from Captain Donovan, Major Ross examined them with great care and publishes the following brief notes in verification of the previous papers:

All these preparations contain bodies agreeing exactly with Leishman's description, and he himself admits the similarity after having been so kind as to examine the specimens.

In Donovan's specimen of April 9 (postmortem) the bodies number about 30 in a field and measure about 2.5 microns. They are disconnected from each other, but often lie fairly close together in groups of 10 or more. In the specimen of June 17 (*intra vitam*) they number only about 1 in 12, they are in fields, but are slightly larger—up to 3.25 microns. In that of July 4 they are also large, and number about one in every field or so; while groups of from 2 to 12 of them can often be found embedded in what seems to be some kind of matrix which stains a faint bluish-gray color, and which has an oval contour measuring up to 8 microns in the long diameter. Some of the bodies

appear even to be intracorpuscular, but this may be due to accidental superposition.

Both large and small nuclear masses are almost invariably present, and both are always stained a deep vivid crimson. The smaller one is very often rod-like and pointed at the large one, just as Leishman describes, and stains somewhat deeper than it. The bioplasm is generally colorless, but its contour is reddish in the specimens made *intra vitam*.

In none of the specimens can I find either entire trypanosomes or the remains of dead ones, such as the characteristic flagella.

Major Ross finds it difficult to adopt Leishman's view that the bodies are involution stages of trypanosomes in the postmortem spleen, believing that the stained flagella are always to be seen in degenerating trypanosomes yet are never to be seen in the Leishman's bodies.

If, then, these bodies are nothing but disintegrating trypanosomes, we should certainly find a few of the flagella among them. Then, again, neither the large nor the small nucleus in the preparations seems to me to recall those of trypanosomes; and they are, moreover, approximated in a much more regular manner than, I think, we observe in dead trypanosomes.

Lastly, as Donovan observes, his two preparations made *intra vitam* exclude postmortem changes altogether, and should, therefore, contain some unaltered trypanosomes. *Prima facie*, then, I am strongly inclined to think that we have to do with some quite novel organism. As it has already been found in eight cases of fever and cachexia, it promises to be a common and important one.

The next note seems to have been published by Laveran,³ to whom Captain Donovan also sent specimens. He admits that the bodies are parasites, but does not regard them as either trypanosomes or hematozoa, but believes that they belong in the genus to which he has given the name *Piroplasma*, and which includes such parasites as *Piroplasma bigeminum*, which causes Texas fever in cattle, and the recently discovered *Piroplasma hominis*, causing the tick fever of the Bitter Root Valley.

According to Laveran the bodies are found contained in the red corpuscles, and are sometimes pyriform. No one else seems to have observed the parasites in the corpuscles.

Major Ross⁴ published a paper entitled "Further Notes on Leishman's Bodies." In this contribution Ross calls attention to the very important fact that in preparations of the Leishman's bodies made *intra vitam*, the organisms appear under two distinct conditions, *viz.*, free, and embedded, to the number of one up to twelve in a matrix. In the majority the contour is elliptic, but it is occasionally nearly circular. The two chromatin masses are generally situated at the extremities of the minor diameter of the elliptic cell. The larger mass often seems to bulge beyond the cell wall. He thinks that both masses are always present, but that the smaller one may be occasionally hidden by the larger. All of the free forms seem to have a most definite size and structure. The bodies embedded in a matrix are found only in preparations made *intra vitam*. They are much less numerous than the free forms. However, the contour of the little cell is generally much less distinct in the embedded organisms than in the free ones, although the chromatin is stained just as deeply and the two chromatin masses bear just the same relations to each other as regards position and distance. What he calls the matrix is always stained very faintly in these specimens, much more faintly than the red or white corpuscles. In Romanowsky specimens, the tint is violet, or more rarely mauve. The structure appears cloudy, or perhaps granular, or even stromatic; but is too delicate for expression in the drawings. The form is generally a more or less regular oval, but sometimes the mass appears to be shapeless or torn. The outline is sharp, but it is important to note that there is never any contour line suggestive of a cell wall, as with the Leishman bodies themselves. Also there is never any suggestion of the hemoglobin of the red corpuscles, or the nucleus of the white corpuscles, to be seen in this matrix.

The size varies in my specimens from about three microns to eight microns in the long diameter, and there is a rough but only a rough correspondence between the size of the matrix and the number of Leishman bodies it contains. Sometimes a considerable part of the matrix is empty, and sometimes a rather large matrix holds only one of the bodies. It may contain as many as twelve.

In discussing the nature of the bodies, Ross says that after having examined some thousands of them, he has seen only two or three lying in contact with red blood-corpuscles, and therefore believes the cases mentioned by Laveran, in which they were found in the red blood-corpuscles, to have depended upon accidental superposition. He did not find any distinctly pyriform bodies in his preparations. The matrix of the embedded forms does not present any of the characteristics of a red blood-corpuscle altered by parasitic infection.

Instead of accepting Laveran's classification of the organism among the piroplasmas and accepting the name given—*Piroplasma donovani*—Ross believes the parasite belongs to another new genus, for which he suggests the name *Leishmania*. Should this name be accepted, the full name of the parasite would be *Leishmania donovani* (Laveran).

In the same number of the same journal, we find an additional note by Donovan, stating that up to November 5, 1903, he had found these parasites in 16 cases, in all of which they were obtained by punctures in the spleen and liver during life.

Briefly synoptized, the symptoms with which the parasites were associated were enlarged spleen and liver, irregular pyrexia, paroxysmal edema of the feet, congestion of the lungs, occasional subcutaneous hemorrhages, and cancrum oris. Medication by quinin, arsenic and sodium salicylate proved ineffectual.

The most recent contribution appears in the *British Medical Journal* for January 23, 1904, under the title "The Leishman-Donovan Body and Tropical Splenomegaly," by Sir Patrick Manson and George C. Low, of the London School of Tropical Medicine. In this paper the writers notice that over and above the malarial cases and those of leukocythemia, cirrhosis of the liver and other well-recognized pathologic conditions associated with enlargement of the spleen, there is a considerable residuum of cases of tropical disease in which enlargement of the spleen is a prominent feature, and which hitherto have not been adequately recognized or explained.

Clinically these cases fall into two categories, the subacute and the chronic. In the more acute forms there is a history at first of a malaria-like condition with recurring attacks of high fever, which after some months, and in spite of liberal dosing with quinin, leads to the development of a very definite cachexia. This cachexia is characterized by quotidian fever, afternoon chill, followed by high temperature and profuse sweating, and terminating by the following morning in a subnormal temperature and anemia. Although in some instances there may be intervals of apyrexia of several weeks' duration, in others there is little variation in the quotidian recurrence of fever, which is absolutely uninfluenced by quinin. In time the spleen enlarges, and the anemia becomes intense. According to their experience, the patients die in a few months. The fatal event is brought about sometimes by pure asthenia, sometimes by cerebral thrombosis, sometimes by diarrhea, sometimes by other intercurrent disease.

The second type of febrile splenic enlargement to which they refer, resembles the foregoing, only the fever is much milder, rarely exceeding 101° F., the splenic tumor and the anemia being less pronounced. There is, however, always a malaria-like initial stage, and just as in the other type, this and the subsequent course of the disease are unaffected by quinin. What the ultimate fate of these more chronic cases may be, is not known,

but it seems probable that these patients drift along as valetudinarians until they are ultimately cut off by some other affection, to which their persistently enfeebled state renders them specially liable.

In both types of the disease the tongue is clean, the appetite good, and, but for weakness, the patient feels fairly well. Occasionally, as might be expected, in persons coming from malarial localities, attacks of genuine malarial fever may be interpolated. In this event there may be considerable gastric derangement, and quinin may be of temporary service.

In certain instances the skin becomes deeply and fairly uniformly pigmented. Owing to this latter circumstance, and because most of the cases which have passed under the observation of Manson and Low, have come from Assam and the Indian Terai, they have arrived at the conclusion that the disease is none other than what is known by the natives in Assam and India as kala-azar or kala-dunkh. They have seen an exactly similar condition in a patient from South Africa, but whether his case and the Indian disease are identical, they are not prepared to say.

Manson and Low were fortunate enough to be consulted by a patient from the neighborhood of Darjeeling, who was persuaded to enter the tropical wards of the Seamen's Hospital. From the enlarged spleen of this patient two tapings were made. In the material thus secured, microscopic examination revealed a great number of the Leishman-Donovan bodies, many fields of the microscope showing dozens of them.

Their studies of the bodies confirm and supplement the descriptions of the earlier observers, and seem to disprove completely Laveran's statement that the bodies are parasites of the red blood-corpuscles, and a species of piroplasma; although the parasites were frequently encountered superposed on or underlying a red blood-corpuscle, nothing was at any time seen to suggest that they were inside the corpuscle. The Romanowsky stain gave by far the best results. Fuchsin was a complete failure. The somewhat lengthy description of the different appearances presented by the parasite adds very little to what had already been described. Different-sized, oat-shaped, elongate and spheric bodies with a nucleus and centrosome (?), arranged as described by Leishman, similar bodies enclosed in rounded, zooglea-like masses, sometimes singly, sometimes in large clusters, and zooglea masses containing no parasites were found. They do not doubt that the frequency with which the body was found by Donovan and the frequent occurrence of chronic febrile splenomegaly, indicate that this parasite is important in tropical pathology.

Judging from the appearances met in our preparations, it seems fairly safe to assume that once in the spleen it multiplies by simple division. Certain of the parasites, after being liberated from the zooglea masses, are destined for passage into another phase outside the body, others for endogenous multiplication. The latter on becoming free in the splenic pulp probably conjugate, and throw out a material which ultimately forms the matrix of the zooglea masses within which the parasites divide for some five or six generations. This goes on indefinitely, apparently.

Thinking that the blood might be the medium by which the parasite travels toward its exogenous phase, we made repeated and prolonged examinations of peripheral blood obtained from the patient at regular intervals of two hours during the day and night. Although two expert assistants worked at these films for several days, no Leishman-Donovan body, with one doubtful exception, was ever found by them or by ourselves. Neither in these examinations of the peripheral blood nor in those of splenic or hepatic blood did we ever encounter malarial parasites or malarial melanin.

It is evident that the parasite must get out of the body somehow, and that the blood is the most probable channel. We thought that possibly the parasite was filtered out from the splenic blood as the latter passes through the liver in the portal circulation. Accordingly, we tapped our patient's liver, and found in the small quantity of blood so obtained, numerous single or double parasites, but no zooglea masses. This discovery seems to point to the biliary ducts as the channel through which the parasites escaped to gain subsequent freedom by passing out of the body with the feces, but repeated examinations of the feces were negative. Similarly, centrifuged urine

also yielded no parasites. A curious feature about the parasites from the liver was that in quite 90% of them the nucleus was either extruded and swollen, or was in process of extrusion. Possibly this phenomenon was owing to the blood having been diluted with normal salt solution. An attempt to cultivate the parasites in blood agar failed.

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VARICOCELE.¹

BY

HENRY DAWSON FURNISS, M.D.,

of New York City.

Instructor in Gynecology, New York Postgraduate Hospital.

The structures which form the spermatic cord, namely, nerves, lymphatic vessels, a thin fibrous cord (the remains of the peritoneal pouch), arteries (the spermatic, the cremasteric, and the artery of the vas), and veins, converge at the internal abdominal ring and together pass down the inguinal canal to the testis and epididymis. The spermatic artery, a branch of the aorta, passes down in the inguinal canal with the vas; it divides into several branches, two or three of which accompany the vas and supply the epididymis, and anastomose with the artery of the vas; other branches supply the testis after piercing the tunica albuginea. The cremasteric artery, a branch of the deep epigastric, accompanies the cord, supplies the cremaster and other coverings of the cord, and anastomoses with the spermatic artery. The artery of the vas, a branch of the superior vesical, accompanies the vas, ramifying upon its coats, and anastomoses with the spermatic near the testis. Thus it is seen that there is a free communication between the three arteries of the cord.

The lymphatic vessels of the scrotum terminate in the lumbar glands.

The nerves supplying the cord are from the spermatic plexus of the sympathetic, joined by filaments from the pelvic plexus, which accompany the artery of the vas. The spermatic veins, which are numerous, emerge from the back part of the testis, receiving tributaries from the epididymis, to form the pampiniform plexus of veins, which constitutes the chief mass of the cord. These veins ascend the front of the cord, and below the external, or superficial abdominal ring, unite to form three or four veins; these then pass upward along the inguinal canal, and after entering the internal, or deep abdominal ring, unite, forming two large veins, which join to form a single vein. On the right side the vein enters the inferior vena cava at an acute angle, while on the left the venous blood is carried to the left renal vein, the junction here being at a right angle. The spermatic veins throughout their course are provided with valves. Rivington has demonstrated that there is usually a valve at the orifices of both spermatic veins. On the left side, when no valve is present at the junction of the left spermatic vein with the left renal vein, valves are generally present in the renal vein on the vena cava side within a quarter of an inch of the junction.

The disease known as varicocele is a varicose condition of the veins of the spermatic plexus. Without going into the question, it is sufficient to say that an analogous condition occurs in the veins of the broad ligament in the female. Upon examination it will be found that not only are the veins in this condition, but also all the other structures of the cord are thickened. After the dilation has become at all marked, there is a relative incompetency of the valves of the veins of the plexus; when this occurs, the back flow of the blood is augmented, with consequent further dilation. In marked cases there

is adhesion between the different veins of the plexus; sometimes a communication between two or more branches, and occasionally the formation of a thrombus. The thrombus may be the source of emboli, infected or noninfected, dependent upon whether the thrombus has been infected or has remained sterile; it may organize, and if it has been an occluding thrombus and a sufficient number of branches have been involved, may cause a spontaneous cure of the varicocele; the organized thrombus may become calcified, giving rise to a phlebolith. A phlebolith through erosion of the veins may cause a large extravasation of blood into the scrotum. Fortunately, thrombus formation, with its sequels, multiple emboli and phleboliths, is rare.

Some authorities contend that varicocele may be due to a congenital weakness of the veins, or an abnormality in the number and size of the veins that go to make up the pampiniform plexus. Anatomically, there are several reasons for the frequent occurrence of varicocele, namely, the imperfect support afforded the veins by the loose structure of the scrotum; their great length; their vertical course; their dependent position; their plexiform arrangement in the scrotum, with their termination in one small vein in the abdomen; their few and imperfect valves; the fact that they may be subjected to pressure in their passage through the abdominal wall; that in the scrotal region they are not surrounded by muscles whose contractions may assist in the return flow of the blood; the feeble *vis a tergo*, since the spermatic artery is of small size. On the left side are additional anatomic reasons for the occurrence of varicocele, namely, that in the passage of the left spermatic vein under the sigmoid it is liable to pressure, especially in constipated individuals; that on the left the spermatic vein empties into the left renal vein at a right angle, this giving a greater hydrostatic pressure on the vein than on the right side, where the junction with the inferior vena cava is at a lower level, and the angle of the convergence of the two veins is here acute; the left side of the scrotum is usually longer than the right; that in right-handed individuals the contraction of the abdominal muscles is greater on the left side. Lately it has been asserted that the left spermatic veins in the fetus and the young child are more numerous than on the right side. Treves states that the left side is affected 25 to 30 times oftener than the right, and that both sides are affected in about 7% of cases. On the right hand, Pick, and other authorities, state that varicocele of the right side alone is almost unknown.

Varicocele is a disease usually of puberty and early manhood, most of the cases occurring between puberty and 30. It rarely originates after 35, and in a large proportion of the cases it disappears spontaneously after this age. As a reason for its occurrence at puberty, is ascribed the naturally greater varicosity, due to developmental changes physiologically present at this age. Unsatisfied sexual desire is given a place in the etiology, because of the greater frequency of the trouble in unmarried persons, and the disappearance of the varicocele after marriage. Often varicocele, with a long and relaxed scrotum, seems to be part of a general lack of muscular tone or development. For some reason it is less frequent in the negro; some contend that his relative immunity is due to the fact that he does not have to contend with unsatisfied sexual desire; yet it may be due to the fact, that generally, the muscular tone of the negro is better developed than that of the white man.

The diagnosis of varicocele is usually easy, but sometimes its association with inguinal hernia and hydrocele may render the diagnosis more difficult. The enlarged veins may be seen through the scrotum, forming an irregular mass. To the touch they feel like a bunch of worms; to this mass an impulse on coughing is imparted. Upon assuming the recumbent posture the veins slowly empty, to refill again upon regaining the erect position; this occurs, but more slowly, even after

¹ Read at the February, 1904, meeting of the New York Postgraduate Hospital Alumni Association.

pressure of the arteries at the internal, or superficial abdominal ring.

The large majority of people with varicocele, present no subjective symptoms, and the presence of the large mass of swollen and tortuous veins is the only noticeable feature. Next in frequency are those individuals who are made aware of the trouble by a sense of weight and dragging in the scrotum. In a very neurasthenic individual this causes marked mental distress, though assured by competent authority that this is of little or no consequence; in these the mental impression made, with ideas of approaching impotency and sterility, is the chief symptom. As is often the case, the softening of the testicle on the affected side, and its being smaller than its fellow, lends weight to their fears. With some the pain is actual, extends along the cord into the inguinal region, and often causes backache, and a feeling of weakness in the lumbar region. This pain is made worse by long continued standing. Occasionally, as mentioned before, there may be thrombus formation with its sequels, and the symptoms dependent upon this will be, according to the termination of the thrombus, multiple emboli, infected and noninfected, in different portions of the body, and hemorrhage into the scrotum from erosion of a vein. The varicocele in nervous patients may cause impotency, which is not always amenable to treatment, encouragement and suggestion. Should atrophy not occur at puberty, or early thereafter, it is improbable that it will.

Treatment.—In a palliative way, in suitable cases, the improvement of the general muscular tone of the body, by good food and plenty of outdoor exercise, combined with cold baths may be effective. The baths, beside their general tonic effect, act locally as a stimulant to the scrotum, causing contraction; with the shortening consequent upon the contraction, the veins are relieved of much of the backward pressure of the column of blood, and more readily empty themselves. In cases of varicocele, in which the dragging is not marked, and there is no pain, it is doubtful if it is advisable to wear a suspensory, as the scrotum would become too dependent upon this support, and upon discontinuing the use of the support the subsequent condition might be worse than primarily. In summer the use of the suspensory is very uncomfortable, and absolute cleanliness is necessary to prevent chafing; yet this is the time of the year when varicocele is most troublesome. As a palliative measure when there is pain and dragging the suspensory is very serviceable.

Operation should not be undertaken except for good and sufficient reason, for it is more dangerous than is generally supposed. Those desiring to enter the army, the navy, the police and the fire services are required to be rid of varicocele, though causing no symptoms, by operation. Operation is not advisable unless the mental condition is distressing, or there is beginning atrophy of the testicle (and not for this unless there are other good reasons), or the dragging sufficient to cause marked inconvenience, or the pain actual and not relieved by palliative measures, or both sides affected. In the event of thrombus formation, when there is reason to expect more serious trouble dependent thereon, operation is not only justifiable, but is indicated. This conservative stand in regard to the operation for varicocele is taken, because I have seen more bad results from it than from any other one operation of election. It may be urged that the bad results are due to improper technic, but these mishaps have occurred in the hands of men regarded competent by the profession. This should lead the inexperienced to regard the operation with some apprehension, and make the experienced more careful. Fortunately, up to the present time, I have escaped having any bad consequences from the operation.

The report of the following cases will show that the operation is more dangerous than generally supposed, and will also illustrate some valuable points.

CASE I.—Varicocele, left side. Open operation with incision over left and front side of scrotum. Veins isolated and separate branches tied with seven ligatures of No. 2 chromic catgut, after resecting about one inch; ends of upper and lower mass united; wound closed with plain catgut; wound broke down and testicle sloughed out; under treatment five weeks before recovery; here there were too many knots, the catgut too large, and chromicized.

CASE II.—Double hydrocele and varicocele on left side. Sac on each side opened through incision over side and front of scrotum; sac sutured to margin of wound and packed with gauze. On the left side, a portion of the veins was resected. Wound broke down on left side, and the greater portion of the testicle sloughed away. It was five weeks before the wound was completely healed.

CASE III.—Varicocele, left side. Incision over side and front of scrotum, veins isolated from vas, and 1½ inches resected. In dividing the veins the vas with its blood supply was severed. Wound closed with plain catgut. On the tenth day the wound broke down, and the testicle sloughed. This illustrates the fact that after the blood supply of the testicle has been destroyed, it should be removed. If desirable, a celluloid testicle may be inserted at the time of operation.

The following cases I did not see, but they have been reported to me by friends who knew I was interested in this subject:

CASE IV.—In this case the subcutaneous method of operation was chosen, and the vas accidentally ligated. Necrosis of the testicle necessitated its removal.

CASE V.—Varicocele, redundant and relaxed scrotum (left). Ablation of scrotum, and resection of varicose veins by open operation. After the operation there was considerable hemorrhage from spermatic artery of the left side, necessitating opening of the wound. Testicle sloughed, and convalescence was protracted.

CASE VI.—Varicocele, left side. Resection of veins by open operation. After the patient had been put to bed there was considerable hemorrhage into the scrotum, necessitating opening of wound and ligature at bleeding point. (History does not give source of hemorrhage.)

CASE VII.—Redundant scrotum. While this is not strictly relevant to the subject of varicocele, it is included, for the operation for redundant scrotum is often undertaken at the same time as one for varicocele. Under the anesthetic the proper amount seemed to have been ablated. Wound closed with plain catgut. In 36 hours the scrotum had so contracted that the sutures gave away, there not being sufficient scrotal tissue to cover properly the testicles. These became exposed and the patient was under treatment five weeks before the granulating wound healed.

In consideration of the lessons taught by these cases, and from other experience, the following conclusions have been deduced:

Asepsis should be as complete as possible, and greater care is required in asepsis here than in other operations of seemingly greater importance. Operate with as little traumatism as possible, and ever be careful not to injure the vas and its blood supply, the testicle, and the epididymis. The subcutaneous ligation of the veins is objectionable, for a thickened vein may be isolated under the impression that it is the vas, and the vas be ligated with the other veins. The swelling is greater than after the open operation. A small vessel may be punctured, giving rise to an extravasation of blood into the scrotum that would necessitate incision and evacuation of the blood and ligation of the bleeding point. Such an extravasation, if left alone, forms an admirable culture medium for the development of pyogenic organisms.

The open operation is the operation of choice, and the high operation is better than the one in which the incision is made through the scrotum, for the following reasons: At the external or superficial ring the veins have united to form two or three large trunks, and the isolation from the vas is easier in this situation than in the scrotum (the higher one begins, the easier will be the isolation). By resecting the veins in such a manner that after the joining of the several ends this juncture will lie under the aponeurosis of the external oblique muscle, the pressure of the muscle will prevent the swelling that would occur if the resection had been made in the scrotum. In the scrotum this swelling lasts for a considerable time, and produces an unfavorable impression on the patient. Another good reason for the high operation is that there is less danger of the production of

traumatic hydrocele, a not infrequent sequel of the operation in the scrotum. Again, high up there are fewer veins to ligate; it is not necessary to ligate all of the branches that come from the testicle, but the main branches formed by their coalescence. This is analogous to the ligation of the saphenous vein for cure of varicose veins of the lower extremity.

In cases in which the veins are greatly enlarged with a patulous external abdominal ring, and in which it is supposed that there is a predisposition to hernia, Dr. W. B. DeGarmo advocates, beside the resection of the veins, the performance at the same time of the typical Bassini operation for inguinal hernia. The patient is in bed only a few days longer, and after the operation his abdominal wall is certainly stronger with than without the hernia operation. As a matter of technic after removing the portion of the veins between the double ligatures, the performance of the hernia operation is easier, if these are not united until after the transversalis and internal oblique have been sutured to Poupart's ligament.

In the ligation of the veins No. 2 plain catgut is sufficiently strong and lasts long enough to secure good results, while with the chromic there is more danger of infection, as it remains in the tissues longer as an irritant.

When the scrotum is very long, rather than resect a portion, I would prefer to make the cavity smaller by uniting with sutures of plain catgut the inner surfaces of the lower portion of the scrotum. This will decrease the size of the interior of the scrotum, and leave a redundant portion that will in time atrophy more or less. This can be done so that the redundant portion, which will be more or less flattened, shall run in a direction from before backwards and from left to right (it is here considered that the operation is on the left side), this allowing it to fit the thigh more comfortably, as most men dress on the left.

Operation.—The operation I prefer is a modification of the one described by Kocher in the "Vierte Auflage" of his "Chirurgische Operationslehre."

An incision over the external or superficial abdominal ring just above Poupart's ligament 2 inches long is made, the incision being parallel with Poupart's ligament, this extending through skin, superficial fascia, the process of fascia over the cord known as Cooper's fascia, and the fibers of the cremaster. The cord is then isolated and the enlarged veins separated from the vas with its vessels, the higher the better. An inch to 3 inches of the veins are resected after isolating them. The veins should be isolated for a greater distance than the amount of vessels to be resected, so that when the divided ends are united, there is not too great a kink in the vas. The veins are ligated with No. 2 plain catgut in two places, the distance between being proportionate to the amount to be resected. After resection the ends are united by tying the ligatures which have been left long for this purpose and with one or two stitches. This should be done as high as possible, so that the united ends will then slip up under the fascia of the external oblique. When the operation is done high, fewer vessels have to be ligated, and the mass included in the ligature is not so great. It is not necessary to ligate all of the vessels entering into these veins, but only the main trunks high up. This is analogous to the ligation of the saphenous vein for varicose veins of the lower extremity. All bleeding points should be controlled by ligature. The wound should be closed with a subcutaneous suture of plain catgut, and dry sterile gauze dressings applied. A point of great importance in the after-treatment, while the patient is in bed, is that the scrotum should be well supported by a good suspensory bandage. Perfect asepsis must be observed in this operation.

Effect of Rest in Bed on the Fever of Tuberculosis.—All tuberculous patients who have fever should remain in bed; experience shows that the fever is often lowered by this simple procedure in the early stages of this disease. Pickert, after studying the effect of the dorsal posture on the fever of tuberculosis, concludes that it is the congestive element which controls the fever. As in osseous tuberculosis we find local hyperemia provoked by the Esmarch bandage, so in pulmonary tuberculosis the blood stasis caused by the recumbent posture arrests the proliferation of the bacillus. This shows, according to Pickert, that it is the blood stasis and not the rest alone which influences the temperature. This is why the temperature rises if the patient is kept absolutely quiet, but is allowed to sit up with the legs elevated.—*Journal des Praticiens.*

THE RESULTS OF THE RÖNTGEN METHOD IN THE DIAGNOSIS OF RENAL CALCULUS.

BY

CHARLES LESTER LEONARD, A.M., M.D.,
of Philadelphia.

In order to be recognized as a valuable method of physical diagnosis, it was essential that the röntgen method should produce not only better results, but also results that could not be secured by any previously known method of diagnosis.

This has been accomplished. Greater accuracy and detail have been obtained earlier and with less inconvenience, pain and injury to the patient. This has been demonstrated in the diagnosis of fractures, dislocations and osseous deformities. It has gone far beyond other methods in localizing foreign bodies that have entered the tissues, and calculi that have formed within.

The application of the röntgen method of diagnosis to the detection of various concretions or calculi, that form in the hollow viscera, has been attended with marked success. These calculi are principally formed of inorganic salts, that ordinarily pass in solution through the organs in which they are found. Some slight derangement of function is apparently responsible for their formation, as a consequence they do not give rise to characteristic symptoms until they interfere mechanically with the function of the organ in which they are situated, or infection follows their depressant action. This is entirely in accord with nature's tolerance of all sterile foreign bodies. Such quiescent calculi are, however, a menace to the functional life and vitality of their host. The presence or absence of such concretions should be determined as soon as they are suspected. The indefiniteness of the symptoms does not always permit this to be done, but the present röntgen technic makes it possible in renal and ureteral lithiasis, and an improved technic will make it equally possible in other calculous conditions.

The absolute negative and positive diagnosis of calculous nephritis and ureteritis can be made with an error of less than 3%. This is greater accuracy than has been obtained by any other method, in this, one of the most obscure fields of surgical diagnosis.

The result has been felt in altered indications for operation, and modifications in operative procedures, that have rendered them more accurate and comprehensive, while lessening the danger and necessary operative trauma. These advantages, and others that follow the employment of this method in calculus diagnosis, will be realized more fully after a review of the results obtained in 320 cases that have been referred to me for röntgen diagnosis between March 15, 1898, and May 1, 1904.

Many of these cases have been reported or referred to in papers previously published, in which detailed descriptions of technic, the indications for operation, and the influence of this method upon treatment may be found.

A statistical study of the 320 cases examined shows that calculi have been found in 93 cases, or a little less than a third of the cases examined. In many of the cases in which a negative, or exclusion diagnosis was rendered, the patients had such slight symptoms as to render the presence of calculi possible, but not probable. In 47 cases the symptoms demanded operative intervention, and in all but one, the accuracy of the negative diagnosis was proved by the operation, as no calculi were found. In many of the cases of negative diagnosis in which there was no operation, the subsequent development of other conditions showed that the diagnosis had been correct. In three cases of negative diagnosis small calculi that had escaped detection were subsequently passed. Thus there has been a total error of but four cases in the negative diagnoses: One due to defective technic, and the others to inaccurate reading of the plates.

Of the 93 cases in which calculi were found there were four in which calculi were present in the kidney and ureter of the same patient. Including these cases, there were 33 renal calculi found and 64 ureteral.

Of the renal cases, 27 were removed by operation; four patients refused operation, and in two cases operation was not advised on account of the age of the patient and the chronic character and mildness of the symptoms.

Of the 64 ureteral, 26 have passed the calculi after expectant treatment (*American Medicine*, November 30, 1901) had been adopted as the result of the röntgen diagnosis. The ureteral calculi have been removed by operation in 15 cases. In the remaining 23 cases the patients have not had sufficiently grave symptoms to render operation necessary or advisable. Among them are many recent cases, in which the expectant line of treatment has been adopted, until further symptoms make operation advisable.

To the total of 93 cases in which calculi were found by the röntgen diagnosis should be added the four cases of error in the negative diagnosis, making a total of 97 cases in which calculi were present, in 320 cases examined.

The total amount of error, including these cases, has been nine cases, or less than 3%. There have been five cases of doubtful and positive diagnosis, which are included among the errors, in which the operator failed to find a calculus.

The patients were some of them exceedingly stout, and an absolute diagnosis had not been rendered; in others, the operation for a small stone was delayed a sufficient length of time for the calculus to have changed its position. In one case a large calculus was not found by one operator, but was subsequently removed by another, and the accuracy of the röntgen diagnosis confirmed. This case and others in which calculi have been missed by expert operators, and subsequently found by the röntgen rays, and later removed, show how readily the surgeon may overlook a small calculus. The greatest care must, however, be taken in reading the negatives in this diagnosis. The negative must first be recognized as having sufficient detail to show all calculi, as clear definition in bone shadows is not sufficient; contrasts must show in soft tissue shadows.

The negative diagnosis is based upon the axiom that "where shadows of tissue less dense than the least dense calculus are shown, no calculus can escape detection." In order, however, to be accurate, the negatives must be carefully studied, and experience in reading them increases the accuracy of the diagnosis.

The greater accuracy of this method over other methods of diagnosis, and even over operation, has been repeatedly demonstrated. In two cases calculi were found in a kidney that had previously been operated upon and a small calculus removed. In three other cases calculi were found in the ureter, blocking it and producing a urinary fistula from a kidney that had previously been operated upon. Again in three cases calculi were found in the second kidney, after the other had been operated upon and calculi removed.

Such cases as these illustrate the greater accuracy, precision and completeness of the röntgen diagnosis. They show that it renders the operative intervention thorough and complete, while reducing to the minimum the amount of operative trauma. They guard the patient from the danger of operation upon the wrong kidney; of operation upon the kidney when it is the ureter alone that is involved; and of any calculi remaining behind to necessitate a second operation. The accuracy of this method localizes to the exact seat of the calculus the operative intervention, decreasing the trauma and necessary shock.

One of the gravest complications of nephrolithiasis is anuria. Unilateral anuria threatens the functional activity of the kidney involved. Bilateral or complete anuria threatens the life of the patient. Both demand

immediate operation to remedy a most serious condition. The question in complete anuria was, formerly, which kidney to operate upon, and how to find and relieve the obstruction? This query can now be answered accurately by the röntgen diagnosis. But a condition almost as serious, and more difficult to diagnose is present in unilateral calculous anuria. The great danger and difficulty lies in the insidiousness of the symptoms. It is a condition that threatens the functional life of the kidney involved, because it totally obstructs the urinary flow, this finally leads to degeneration of the secreting substance of the kidney. The symptoms are not open and frank, they simulate recovery, while they actually mean destruction. When the ureter is completely blocked, the intrapelvic urinary pressure soon equalizes the intranephritic blood-pressure, the kidney ceases to act, there is no longer distention of the pelvis of the kidney, and of the ureter above the calculus and hence no more pain. The patient has apparently recovered from the attack. Unless a calculus has been passed and detected, or the presence of a bilateral urinary flow has been proved, the patient, after the cessation of symptoms following an attack of renal or ureteral colic, is in grave danger. This cessation of symptoms may mean total obstruction of the ureter. The röntgen diagnosis renders it possible to relieve such a situation of all its danger, and renders rational and safe an expectant line of treatment, that will often result in the passage of a calculus by natural channels, avoiding the necessity and dangers of an operation.

Every patient who has suffered from an attack of renal or ureteral colic, unless a stone has been passed, should be examined by the röntgen method. If the symptoms have entirely subsided and a calculus is present, the existence of a bilateral urinary flow ought to be ascertained.

The value of this diagnosis, and of the expectant line of treatment that can be based upon it, is illustrated by a series of 26 cases, in which this line of treatment had been suggested, after the detection of small calculi in the ureter. It is not wise, in any application of this method of diagnosis, to depend entirely upon it in shaping the course of treatment. All the knowledge that can be gained by every possible method of diagnosis should be employed in each case. In no class of cases is this more true, than in calculous nephritis and ureteritis. The study of the symptomatology, combined with the findings of the skiagraph, have led to this more rational and safe method of conservative treatment, and these 26 patients may be said to owe their recovery without operation, to the röntgen method of diagnosis.

In only three cases in which this conservative treatment has been suggested, have the symptoms become so severe as to demand immediate operation. In all, the accurate localization of the calculi facilitated the operation, rendering it successful, and aided materially in producing in each case a favorable termination. Purely medical, or expectant treatment is unwise and irrational without the aid of this method, which safeguards the integrity of the kidney and makes accurate, effective operation possible when the symptoms demand it.

Beside forming the basis for new indications for operation, and rendering the operation more complete, it has freed it from some of its graver dangers. Multiple and bilaterally situated calculi are detected, and the operation freed from the danger of overlooking them, or of operating upon one kidney or removing it, when the other is the seat of calculous disease. That these dangers are real ones, is shown by the detection of multiple calculi in 12 cases.

The accuracy which has been secured in the negative diagnosis leads to the opinion, that when an operator has attained the essential accuracy, and his skiagraphs show no calculi in the kidney, an incision into the kidney in the search for calculi is not justifiable, unless

some macroscopic pathologic lesion is present as an indication.

In favorable cases greater detail can now often be obtained that suggest greater possibilities in renal diagnosis. Thus pyonephroses and hydronephroses, displaced kidneys, tuberculous kidneys, and surgical kidneys have been demonstrable or suggested in some negatives, and have afterward been found at the operation.

The röntgen method has been of great advantage in differentiating calculous nephritis and ureteritis from other conditions in surrounding organs or in the kidney itself, that simulate the symptomatology of renal lithiasis so closely as to render a differential diagnosis very difficult.

Thus a calculus lodged in the right ureter, where it crosses the iliac artery, a very common seat for impaction, may suggest appendicitis or ovarian disease. The appendix has been removed, when the true condition was an impacted ureteral stone, by some of our best surgeons, who afterward removed the calculus. The ovary has undoubtedly been removed or operated upon in a similar way. This possibility is easily conceivable when we consider that the röntgen method of diagnosis has shown that more than half the calculi that form in the kidney do not give rise to symptoms of moment until they reach the intrapelvic portion of the ureter.

I have recently examined two patients whose cases forcibly illustrate this point. In the first, appendectomy had been performed by one surgeon, and nephropexy by another. The symptoms still persisted, and were shown by the röntgen diagnosis to be due to a small calculus in the juxtavesical portion of the ureter, where it was found and removed by operation. In the second case the appendix had also been removed. Here a small ureteral calculus was found in the parasacral portion of the ureter.

The results of the röntgen method of diagnosis in conditions of renal lithiasis have, therefore, been the more ready differentiation of calculous conditions from other pathologic processes in the kidney and surrounding organs, by a method that is more accurate, precise and comprehensive, while it is without danger, inconvenience or pain to the patient. It has facilitated operation by giving the exact size, location, and number of all calculi, thus confining the operation to the position of the calculus and decreasing the operative trauma and shock. It has freed operation from the danger of doing unwittingly a nephrectomy upon the kidney, or other serious surgical intervention, while the second kidney is the seat of calculous disease: The wrong kidney cannot be operated upon for calculus, or calculi left behind when multiple calculi are present.

It affords a solution for the grave problems of complete and unilateral calculous anuria, and has rendered rational and safe a conservative expectant line of treatment, that without it would be dangerous. It has already saved many patients from the dangers of operation, guaranteeing their safety until they have been restored to health.

The negative diagnosis has been proved to be as accurate as the positive. It renders unnecessary any incision into the kidney during exploratory or other operations, unless there is some further visible pathologic lesion to justify it.

These demonstrated results make the use of this method imperative in all cases in which calculus is suspected. After an attack of apparent renal colic, no course of treatment can be correctly or conscientiously undertaken, without the determination of the presence or absence of stone. It must be employed before every nephrolithotomy or ureterolithotomy to determine whether operation is, or is not indicated, to free it from as much danger as possible, to localize and limit the operative trauma, and finally to render the operation comprehensive and complete.

NEUROSES OF NASAL ORIGIN.¹

BY

G. HUDSON-MAKUEN, M.D.,

of Philadelphia.

Professor of Defects of Speech in the Philadelphia Polyclinic and College for Graduates in Medicine; Laryngologist to St. Mary's Hospital and the Frederick Douglass Memorial Hospital, Philadelphia.

In attempting to discuss so comprehensive a subject in the brief time allotted to me (10 minutes) it will be necessary to take many things for granted. I may say that my conclusions are based not alone upon rhinologic work, both in private practice and in 2 dispensaries, but also upon a careful study of the nasal conditions found in about 1,000 purely neurotic subjects. The fact that these latter patients consulted me not on account of nasal, but of nervous diseases, makes them peculiarly appropriate as a basis for these remarks.

There are 2 ways in which the nervous system may be affected by intranasal diseases: (1) By interference with normal respiration, and (2) by peripheral nerve irritation.

Free nasal breathing over normal mucous membrane is exceedingly important as a means of keeping the entire respiratory tract in good condition, and indirectly of giving tone to the general nervous system by the proper aeration of the blood; and perverted nasal breathing and mouth breathing are frequently causal factors in many grave neuroses and psychoses. Deviations and obstructions of the inspiratory air current caused by structural irregularities within the nasal chambers, and the vitiated air supply that results from breathing over diseased mucous surfaces are responsible in my opinion for quite as many nervous symptoms as accrue from peripheral irritation within the cavities of the nose.

The various sensory neuroses, such as disturbances of olfaction (parosmia, hyperosmia, and anosmia), many neuralgic pains of the head, pharynx, ear, and face, and some of the diseases of the eye, as for instance epiphora and conjunctivitis, can best be explained on the theory of interference with normal respiration by obstructive nasal lesions and catarrhal conditions. In a similar manner we may account for all those psychic phenomena, to which Guye, of Amsterdam, gave the name *aprosxia*. It was his opinion that intranasal and postnasal obstructions interfere by direct pressure with the normal cerebral circulation, and thus give rise to such psychic disturbances as listlessness, inattention, and incapacity for intellectual work. It is quite possible also that toxic disturbances of the cerebral functions may result from absorption of catarrhal and septic material within the nostrils and accessory cavities. If this theory is the correct one, and it is now pretty generally accepted, I see no reason why it should not be carried a step further and thus used to explain some of the more serious functional, and even organic diseases of the brain and nervous system. *Aprosxia* is a condition present in almost all cases of stammering and allied disorders of speech, and as I generally find the aforementioned nasal conditions associated with it, I have come to look upon them as a probable causal factor.

With reference to the reflex theory of nasal neuroses, I have always been more or less sceptical, and have felt that the rhinologist, like his neighbors, the ophthalmologist and gynecologist, has allowed his enthusiasm to carry him rather too far along these interesting lines. However, it must all result in much good by calling attention more emphatically to the importance of nasal conditions in general as possible factors, either causal or casual, in the diagnosis and treatment of nervous diseases.

Of all the peripheral and vesicular regions of the body, excepting only the eye, the nose is probably the most sensitive and susceptible to irritation. By means

¹ Read before the Medical Society of the County of New York, January 25, 1904.

of its own copious nerve supply and through the sphenopalatine, the gasserian and the superior cervical ganglion of the sympathetic, it has direct connection with the pneumogastric, and when we recall the wide distribution of this latter nerve throughout the thoracic, abdominal and pelvic viscera, we can well understand the possibilities of nervous disturbances in these regions due to peripheral nasal irritation, and we can also understand the rationale of their treatment by the removal of this irritation.

I should as soon think of treating dyspepsia without examining the tongue as I should of treating hay fever, spasmodic cough, asthma, cardiac insufficiency, albuminuria, dysmenorrhea, and certain diseases of the brain and spinal cord without examining the nose. Notwithstanding all this, we must keep in mind the fact that we are dealing in many instances with nervous phenomena that have no demonstrable anatomic or pathologic foundation, and because we know so little about them we call them neuroses, a term that is as indefinite as the conditions for which it stands. Who of us can define a neurosis? Is it not often a mere symptom of some hitherto undiscovered disease?

To illustrate, I have a boy of 12 under my care at the present time who has suffered with cough and asthmatic breathing for 3 years. About 8 weeks ago I removed a small exostosis of the nasal septum, and cauterized a single follicle on the pharyngeal wall, and he has had scarcely any cough or asthmatic breathing since that time. I cannot claim in this case to have cured a disease, but rather to have removed a symptom. If there is a disease I do not know what it is.

I have another patient, aged 7, that had severe choreic twitchings of the orbital and facial muscles until after the removal of adenoid vegetations and the resultant nasal catarrh, when the symptoms promptly ceased. Whatever of disease the patient had before my operation he still has, as is shown by the fact that the twitchings recur, to some extent, with every exacerbation of the nasal catarrh.

Another patient aged 26, has stammered during the greater part of his life, and under the usual treatment, which consisted in his case in the removal of a septal ridge causing slight intranasal pressure, and appropriate psychophysical training, his general condition improved satisfactorily and he acquired perfectly free speech; but as in the 2 cases cited before, we did not cure a disease, but simply removed temporarily a symptom, as was shown by the fact that when the crucial test came some weeks later, which chanced to be an attempt to read the scriptures at a church service, his tongue seemed to cleave to the roof of his mouth and although pregnant with words he was unable to deliver himself.

I have cited 3 typical cases, one of asthmatic breathing, one of choreic twitchings, and one of stammering. The patients are all of the so-called neurotic temperament. There is a general tendency to be irritated, and this tendency characterizes all cases of so-called reflex neuroses of nasal origin. It often takes the form of neurasthenia, hysteria, or aprosexia, and it may be the direct result of the nasal conditions which I have described, but it is almost never itself of purely reflex origin. To be quite sure of our diagnosis we must have, as Friedrich has aptly suggested, absolute clinical proof that the symptoms can only come from the nasal mucous membrane, that they can be completely arrested by anesthesia of the parts, and that they can only be finally cured by direct treatment of the offending area. A careful application of these 3 diagnostic tests would make it necessary to transfer many neuroses from the long list of those supposed to be of purely reflex origin, to the list of those having their origin in the interference with normal respiration, including intranasal pressure and toxic conditions resulting from the absorption of septic material.

To sum up briefly, I beg to offer the following con-

clusions: 1. It is reasonable to suppose, though not absolutely proved, that some of the more serious mental and cerebral diseases may be of nasal origin. 2. Many of the so-called reflex nasal neuroses may best be explained on the theory of faulty respiration and impaired cerebral circulation, due to direct intranasal pressure and the absorption of toxic catarrhal products through the blood and lymph circulation. 3. A careful examination of the nose is imperative in all doubtful cases of diseases of the nervous system.

THE IMPORTANCE OF A CORRECT DIAGNOSIS IN THE TREATMENT OF DISEASES OF THE STOMACH, WITH A SUMMARY OF 30 CONSECUTIVE CASES.

BY

ALBERT WOLDERT, M.D.,

of Tyler, Texas.

Both in hospital work and in private practice I have found that patients afflicted with diseased stomachs constantly present themselves for treatment.

While acting as assistant physician at the Howard Hospital, Philadelphia, where upwards of 10,000 patients were treated annually, and while in charge of the clinic for diseases of children at the St. Joseph's Hospital in the same city, I learned that a large proportion of patients who came to the clinics suffered from gastric trouble.

I learned, also, that some patients who complained of symptoms referable to the stomach, when a careful chemic examination of the gastric contents was made, little could be found that was wrong, while in other patients, with few such symptoms, a thorough examination of the stomach would show a considerable degree of abnormality.

Formerly I endeavored to arrive at a diagnosis, by depending upon the complete history of the case and by the clinical symptoms presented. My experience was that many of these patients would disappear, and later I would learn that some of them were being treated by other physicians; then they would reappear, complaining of the same symptoms as formerly.

I began to consider whether or not some of these cases had been diagnosed properly, and why the prescription of hydrochloric acid and pepsin, or of sodium bicarbonate and peppermint had not brought about the hoped for relief.

In one instance there would be a patient complaining of eructation of gas, or of sour or bitterish food; in another a complaint of a "bloated" feeling in the region of the stomach, a burning pain in the pit of the stomach; some complained of a thickly coated tongue, others of headache, and a great many of constipation.

Purgative medicines would sometimes ameliorate the symptoms, but I observed that such medication had a very transitory effect.

The question as to whether or not one should in any given case administer hydrochloric acid and pepsin, or adopt the opposite line of treatment of sodium bicarbonate, is encumbered with multitudinous chances, when one depends only upon the clinical symptoms and uncertain histories. Should one depend alone upon such evidence, he will surely go wrong in a very great many instances.

As to the administration of hydrochloric acid and pepsin in cases of stomach trouble, or what was formerly called "dyspepsia," it is only necessary to state that in this series of 30 consecutive cases of gastric trouble treated in private practice, 21 patients or 70% were secreting too much hydrochloric acid originally.

In order to overcome many of the fallacies which surround this subject, I think it will be admitted that the best way to secure competent evidence in the case would be to give a light test-meal to the patient, draw

off the gastric contents, filter, and proceed with the proper tests.

We have not yet learned all that is to be known in regard to the subject of gastric analysis, but I believe that if *labor omnia vincit* applies to other problems it also applies to this one.

It seems to be the current idea that because a patient suffers from a "bloated" feeling accompanied by eructation of "sour" food, that an alkali is needed to neutralize the excess of acid *presumed* to be present. To illustrate this point, the following case may be cited:

Mr. —, a patient of 42, had for years occasionally suffered from bilious spells, dizziness, and what he thought was "malaria." He had suffered from indigestion, following an attack of typhoid fever 4 years previously. At times he would have a sense of fullness in the region of the stomach, accompanied by the eructation of "sour" food. During these spells of gastric distress he would have a more or less depressed feeling, or a feeling of prostration, and a fear that "something was going to happen." A microscopic examination of the blood was made in this case, and showed that the patient did not have malaria, while the gastric examination showed *not even a trace* of hydrochloric acid present. I believe that the quinin and calomel which the patient had taken at intervals for his "touch of malaria" also did harm. Proper treatment in this case soon brought the free hydrochloric acid up to the normal of .073%, and the total acids up to 56%, and a relief from the symptoms enumerated.

The question of the administration of any drug directed to the relief of any diseased condition, depends upon the condition present. In many instances, the proper use of the stomach-tube, together with lavage, will do more genuine good than will drugs. The following case will illustrate this point:

A patient aged 23, had for 3 months suffered from eructation of gas (belching every minute or two), and from a "drawing" sensation with pain in the region of the stomach. At times he would awake at night with a sense of "smothering," accompanied by palpitation of the heart, and a fear of impending death. The heart and lungs were found normal, while a thorough gastric examination showed the hydrochloric acid to be totally absent. Lavage, with alternate douching of hot and cold water, within 3 days, and without the use of any drug for this condition, restored the free hydrochloric acid to .058%, and the total acids to 48%, or a normal percentage of each.

Recently it has grown to be the fashion for patients afflicted with diseased stomachs to go to certain health resorts, and to drink the mineral waters at those places. In fact, some of these patients after returning home have such mineral water shipped to them to be placed upon the table and taken *ad libitum*.

No one can doubt that a change of climate and relaxation from business cares will frequently accomplish more than drugs.

"And Certynly wher nature will not wirche,
Then farewell physik."

The fact should be impressed upon patients who go to "mineral" resorts, that they are simply taking drugs which may be purchased at the drug stores, and that such drugs when taken into the system produce definite results.

For instance, at Mineral Wells, Texas, there are located some wells, the waters of which contain as much as 306 gr. of glauher salt and 18 gr. of epsom salt per gallon. There are mineral wells at Sour Lake, Texas, which are surcharged with sulfuric acid; a mineral water at Saratoga, New York, which contains 143 gr. of calcium bicarbonate per gallon; a spring in California which contains 107 gr. of ammonium bicarbonate and 103 gr. of borax per gallon; one in Bohemia which contains 79 gr. of epsom salt and 17 gr. of glauher salt per gallon. Having an assortment of springs and wells containing such large quantities of drugs per gallon, some alkaline, and others acid, how is one able to decide by clinical symptoms alone where any given patient with gastric trouble should go? The following case will illustrate this point:

A man of 27 had for 5 or 6 years suffered from indigestion, accompanied by "soreness" on pressure over the region of the stomach; this was worse in the morning hours on awaking. He complained of eructation of gas after eating and suffered

from "biliousness" almost constantly, and from a bad taste on arising. He had suffered from constipation for years, and had taken all kinds of purgative medicines. During the year 1901 he had made 2 trips to one of the health resorts named, and had drunk the alkaline purgative waters there with temporary relief, but on returning home the bowels again became constipated, and soreness of the stomach returned. A gastric examination was made October 14, 1901, and the hydrochloric acid was found diminished to .01022%, or a fifth of what it should have been; the total acids were 40%. The stomach was greatly dilated (gastroptosis), the motor and absorptive powers deficient, and the gastric contents had a Paris-green color, indicating mold (gastrosia fungosa). He did not keep up the stomach treatments. Two years later the patient made 2 other trips to the same resort as before and drank the alkaline purgative waters there, but after returning home the old trouble returned, and mold was still present in the stomach. Restriction of the diet, with douching of the stomach with a weak solution of silver nitrate (1 to 1,000, as recommended by Einhorn), together with intragastric faradization, relieved the symptoms.

In a case of this kind it is evident that an alkaline purgative water might do harm, for the patient was originally suffering from a lack of acids in the gastric secretions.

The question of "what to eat" and "what not to eat" in a case of indigestion also demands close attention and study. Probably there is no other condition of the system on which the average person among the laity feels more competent to give a positive opinion and to prescribe a proper diet slip than cases of indigestion. And yet how such advice proves utterly valueless and tantalizing. Can the medical profession be blamed for the *opprobrium medicorum* heaped upon it by those who follow such advice?

Frequently, one sees patients who begin the circle by first denying themselves of this kind of food, then of that kind of food, finally reaching such a stage that they become afraid to take sufficient food of any kind to nourish the body, in consequence of which anemia comes on, soon followed by a collapse of the system generally.

In one case among this series it required considerable persuasion to get the patient's consent to eat a small amount of meat, although she was informed that the acids had been restored to normal, and that she could digest it.

It is clear that the best variety of food to be given in any particular case of gastric trouble necessarily depends upon the condition present and as determined by a thorough examination of the gastric contents.

One common symptom of gastric indigestion is summed up in the word "biliousness." This condition is more commonly met in the South than in the North. In the South it is frequently diagnosed "malaria," and in the North "abortive" typhoid fever. It is nearly always ushered in with loss of appetite, vague pains, thickly coated tongue, disagreeable taste in the mouth, headache, eructation of gas and food, and general restlessness. Slight fever may or may not be present. I have found that biliousness may occur both in patients who have not a trace of hydrochloric acid in the gastric contents, and in those who already secrete 2 to 3 times too much hydrochloric acid.

Method Used in the Treatment of These 30 Patients.—I endeavored to conform to a strict plan of examination (modified after Ewald) as follows: (1) To secure a complete and accurate history of each patient; (2) to determine the percentage of free hydrochloric acid; (3) to determine the percentage of total acids; (4) to determine the motor power of the stomach; (5) to determine the absorptive power of the stomach; (6) to determine the digestive power of the gastric juice on albumen (meats); (7) to determine the digestive power of the gastric juice for starch (bread); (8) the milk curdling ferment (rennin); (9) the presence or absence of bile; and (10) the size and position of the stomach.

To determine the percentage of free hydrochloric acid I used the decinormal solution of sodium hydrate. And to be sure that this solution was accurate I first standardized it with a decinormal solution of oxalic acid. The indicator used for the free hydrochloric acid was the

Töpfer reagent, in nearly every instance being confirmed by the tropeolin (heat) test. For the total acids I used the phenolphthalein test; for the digestive power of albumen, white of egg; for digestive power of starch, Lugol's solution; for the motor power in a few instances I used the salol test, but finding it inaccurate I used lavage. In one instance in which the salol test was used, no reaction with ferric chlorid could be obtained at the end of 75 minutes, while lavage 4 hours after a small breakfast showed rice and bread particles unchanged. For the absorptive power potassium iodid was used; for the milk curdling ferment (rennin) 2 or 3 drops of the fresh gastric juice to about 8 cc. of fresh milk; and for bile the nitrous acid test. The size and position of the stomach were determined by inflation with air, combined with gentle percussion.

In nearly every instance I procured a complete history of the case, and made a thorough examination of the heart, lungs, liver and renal excretion, and in some cases supplemented this by testing the eyesight, and by microscopic examination of the material withdrawn from the stomach.

ANALYSIS OF THE CASES.

Entire number of cases in the series, and treated in private practice, 30.

Free HCl normal (.040% .073%), 2.
Free HCl diminished (below .040%), 5.
Free HCl increased (above .073%), 21.
Free HCl totally absent, 2.

THE PERCENTAGE OF FREE HYDROCHLORIC ACID.

Free HCl above .073% in 21 out of 30 cases.
Free HCl above .10% in 16 out of 30 cases.
Free HCl above .15% in 6 out of 30 cases.
Free HCl above .20% in 2 out of 30 cases.

PERCENTAGE OF TOTAL ACIDS.

Total acids above 50% in 16 out of 30 cases.
Total acids above 65% in 4 out of 30 cases.

MOTOR POWER OF STOMACH.

Motor power of stomach was tested and found deficient in 16 cases or 53%.

Motor power of stomach was not tested in 14 cases or 47%.

The number of cases tested by lavage, and considerable amount of food remnants found 3 to 4 hours after a light meal, was 13 cases or 66%.

Salol test was given in 3 cases.

ABSORPTIVE POWER OF STOMACH.

Absorptive power of the stomach was found deficient (over 15 minutes) in 15 cases or 50%.

Absorptive power of the stomach was deficient (over 10 minutes, but time not determined) in 14 cases or 47%.

The absorptive power was not determined in 1 case.

The average length of time required before the iodine could be detected in the saliva was 24 minutes. The longest time required in any case was 40 minutes (in a case in which the HCl was totally absent); and the shortest time in which the iodine was detected in the saliva was 15 minutes.

DIGESTIVE POWER OF GASTRIC JUICE FOR ALBUMEN (MEATS).

The number of cases of hyperchlorhydria (?) (free HCl above .073%)¹ in which the digestion of albumen (meats) was good, was 20 cases out of 21.

Hydrochloric acid was diminished (though not absent), and the digestion of meats was good in 4 out of 5 cases. In one case the digestive power of albumen was not determined.

In the 2 cases in which the hydrochloric acid was totally absent there was no trace of digestion at the end of 3 hours, and in one of these no digestion at the end of 3 days.

DIGESTIVE POWER OF GASTRIC JUICE FOR STARCH (BREADS).

The number of cases of hyperchlorhydria (free HCl above .073%) in which the digestion of starch (breads) was good was 9 out of the 21 cases or 43%.

Hydrochloric acid was diminished (though not absent) and the digestion of starch (breads) was good in 2 out of the 5 cases. In one case the reaction was not determined.

In the 2 cases in which the hydrochloric acid was totally absent, the digestion of starch (breads) was good.

TESTS FOR MILK CURDLING FERMENT (RENNIN).

The milk curdling ferment (rennin) was active in 22 cases out of 25 or 80%; inactive in 3 cases or 12%. The reaction was not determined in 5 cases.

In the 2 cases in which the hydrochloric acid was totally absent the rennin ferment was active in one, and absent in the other case.

¹Some authors consider the free hydrochloric acid normal when considerably above this figure.

REACTION FOR BILE.

Bile was tested for in 29 cases out of 30, but was never present.

SIZE AND POSITION OF THE STOMACH.

The number of cases in which the stomach was found dilated (that is in which the fundus was found to project below the navel after dilation had been done) in a series of 27 cases, was 19 or 70%.

Hyperchlorhydria (free HCl above .073%) with dilation of the stomach was found in 12 cases or 44%.

HCl was diminished—hypochlorhydria (that is free HCl below .040%), or entirely absent with dilation of the stomach in 6 out of 7 cases.

Of the 2 cases in which the free hydrochloric acid was found to be totally absent, the stomach was found dilated in both instances, in one only slightly, in the other it was greatly dilated.

The size and position of the stomach were not determined, mainly on account of irritability in 3 cases.

SEX OF PATIENTS.

Of this series of 30 cases, 25 were males, and 5 females.

AGE OF PATIENTS.

Between 20 and 21 years (inclusive) there were 3 cases or 10%.

Between 22 and 35 years (inclusive) there were 10 cases or 30%.

Between 36 and 50 years (inclusive) there were 14 cases or 46%.

There were 3 cases in patients over 50 or 10%.

SEASON OF THE YEAR.

Of the series of 30 cases, 15 or 50% occurred during the fall months; 6 or 20% during the spring months; 5 or 16% during the summer months; 4 or 13% during the winter months.

Constipation occurred in 13 cases or 43%, and diarrhea occurred in 4 cases or 12%. The number of male patients who used tobacco in excess was 15 or 60%. Of 30 patients there were 2 who suffered from mold in the stomach (gastrosia fungosa). Of the 30 patients treated, 18 have been greatly benefited; 10 have been cured; and 2 have not reported.

MANIFESTATION OF NERVOUS SYMPTOMS.

Of this series of 30 cases nearly every patient suffered more or less from nervous symptoms, provided one includes actual pain under this heading. The symptoms most commonly met were as follows: Pains in region of stomach before or after eating, an uneasy feeling in the region of the stomach early in the morning on arising; pains in the back near the shoulder blades or spinal column, "smothering spells" principally coming on during the night, a "sinking" feeling on lying down at night, dizziness, fear as though "something was going to happen," symptoms of angina pectoris, a feeling of lassitude or "don't care what happens," a sense of uneasiness or self-conscious fear in appearing in public as at an opera house, or church, "intense" sick-headache, sleeplessness, frightful dreams, fainting spells, a "swelling up" or tightness about the stomach, and palpitation of the heart.

In studying this series of cases I have been impressed with the frequency with which nervous symptoms have been associated with gastric trouble. But whether or not the stomach disorders were a result of derangement of the nervous system or whether the nervous symptoms arose primarily from a disordered stomach I am not prepared to say, but this I do know, that frequently when the stomach was restored to a more healthful condition the nervous symptoms disappeared.

INFLUENCE OF OLD AGE, DIABETES, ARTERIAL SCLEROSIS, AND GOUT ON THE HEALING OF WOUNDS.¹

BY

WELLS P. EAGLETON, M.D.,

of Newark, N. J.

The subject matter of this paper was suggested by the following case:

Mr. W. H., aged 74, was a persistent drinker until within the last few years; he had frequent attacks of gout. He had general edema of the legs and abdomen 15 years ago. For the past three months he has had uninterrupted otitis media, with suppuration of the right ear, associated with vertigo, and pain in the head and back of the neck. Temperature was never above 99.3°. When first seen there was a profuse discharge from the right ear, coming from an opening in the posterior wall of the external auditory canal, through which a probe

¹Read before the Newark Medical and Surgical Society, November 19, 1903.

could be passed into the mastoid cells, and in which dead bone could be felt. The drum membrane was intact. The patient was almost entirely deaf on the affected side. There was no tenderness over the mastoid, but an almost incessant pain during the night. Temperature 99°. There was arthritic enlargement of several joints of both hands and feet. Urine examination was negative.

Operation.—The anesthetic used was ether. On exposing the mastoid the cortex appeared healthy, but on removing it the mastoid cells were found thrown into one large cavity, extending from the lateral sinus behind to the posterior wall of the canal in front. The entire cavity was filled with pus and granulation tissue, in the center of which was a rather large sequestrum perfectly detached. The granulation tissue was firm and offered an effectual barrier against the extension of the pus inward toward the lateral sinus.

The patient was catheterized on the following day because of retention of urine. Day succeeding, temperature 102.3°. Pulse was slow, urine somewhat cloudy, with a slight quantity of sugar. Within a few days, temperature became normal.

On the fourteenth day after operation, he was discharged from the hospital in good condition, except for pain and a slight edema of the right leg. *The wound, however, although clean and free from pus, did not granulate, and this unfortunate condition continued until his death.* Temperature varied but slightly from subnormal to normal, with the exception of one day, following a chill. On this occasion it rose to 103°. Eyesight failed gradually, he could not read, but ocular examination was negative. Seven weeks after operation gangrene of the ball of the great toe occurred, but not of the toe itself. Slight rise of temperature occurred, three days later, followed by unconsciousness, and death.

Diagnosis.—Either abscess of the cerebellum with septic thrombosis, or diabetic coma and gangrene.

Why did not the wound granulate? Was it due to his age, gout, arterial sclerosis, or diabetes? Or to the combination of them all? Each condition being, as it were a part or sequence of the other.

In the era which preceded aseptic surgery, the general recuperative powers of the patient were regarded as the important factor in determining upon the advisability of operating, but with the advent of Listerism, and the knowledge that nonunion of wounds was due to infection, the pendulum swung too far in the opposite direction. Now again we are becoming conscious that natural recuperative power plays a most important part in a small, but, as yet unsettled class of cases. Examination of the standard textbooks throws but little light on this subject.

The influence of age is generally dismissed with the statement that infants and old people stand operations badly. But why, how, or in what proportion, is not explained. Do wounds in old people heal slowly? The experience acquired in every eye hospital in regard to cataract extraction bears evidence that so far as corneal wounds are concerned, the union is as rapid, if not more so, in aged than in young persons. One of the first questions invariably asked, by friends of elderly patients on being informed that an operation for the removal of a cataract is necessary, is if the extreme age of the patient will not militate against him, and a negative reply is received with more or less incredulity.

Again, notwithstanding that failure to obtain a good result is usually attributed to the patient's age, it is a recognized fact that every ophthalmic surgeon approaches the extraction of a cataract in a young patient with much greater dread than he entertains when operating on an extremely old one. If then, this is the universal experience in ophthalmic surgery, why should it not also apply to operations on other parts of the body? The general experience with nonunited fractures of the head of the femur, in old people is, in a large measure, the cause of the belief that injuries to old people do not heal rapidly.

In 1884 Humphry maintained that granulation proceeds more rapidly in old people than in young, provided the tissue does not slough. He states, "The apparently opposite tendencies exist at this time of life; namely, the tendency to slough, and the tendency to heal quickly." He contends, and proves, by the report of 14 (?) cases and several specimens, that fractures of the head of the femur do unite in a small proportion of cases, and that when they do not unite it is not on

account of the age, but on account of the anatomic relations of the parts, the inability to coaptate the fractured surfaces, or to the inadequate treatment.

Gibson compiled statistics of 65 major operations on patients over 70, operated upon at St. Luke's Hospital, from 1860 to 1893, or during a period of 33 years, the mortality was 24.5%. This apparently high mortality is somewhat accounted for by the fact that many of these operations were performed in preaseptic days. Of the deaths 50% resulted from uremia after operation, the patients living from 11 to 37 days, or an average of 15 days. A large number of the operations were for the relief of suppurative diseases of the genitourinary tract, with diseased kidneys, a condition followed by a high rate of mortality at every period of life. Excluding the deaths from uremia, we have in Gibson's cases a mortality of about 12%. The majority of these patients died from shock.

Humphry says in 1886, "I think we must notice the difference manifested in the old between the little power they show of bearing up against the first impulses, or initial shocks of disease; and their power of recovering from its effect; between the power to withstand the tidal flow of disease, and the power of repair during its ebb. The depression associated with the oncoming malady is illy borne by the aged."

Can we not recall instances from our own experience of very elderly people rapidly sinking in a few hours, or even minutes, to the verge of death, and in a comparatively short time, returning to a normal condition? Humphry thinks that this inability to withstand shock, with rapid repair, may be accounted for by the "lowered irritability, or the lessened nerve susceptibility, which is a wellknown factor of the senile frame." Repair progresses best in quiet, and where there is but little excitement. The mental torpor, freedom from responsibility, and absence of worry in the aged, are the great factors. The essential consideration, then, in operating on old people, aside from damaged kidneys, heart, etc., is to guard against shock. This being eliminated, we can anticipate quite as rapid union as in younger patients.

Until recently the presence of diabetes was almost a positive barrier to operative interference of any kind; not only because diabetic patients are very apt to pass into coma following the anesthetic, but having passed that, the wound itself has not a tendency to heal, especially if repair is by granulation. That such instances do occur, there can be no doubt, but the danger of both complications has been greatly exaggerated.

Durham and Smith, Fisk, Phillips and Noble, have all compiled numerous cases, proving that, in a very large percentage of operations, both major and minor, union is as prompt in diabetes as in other diseases; and that in the cases in which union does not take place infection is the cause, coming from without, as in ordinary wounds. The evidence that the addition of microorganisms is necessary is furnished by the results obtained in the treatment of fractures.

Phillips says: It has been affirmed "that in diabetes, fractures do not unite properly, nonunion or delayed union being the rule." But his investigations contradict this statement, as he found only five such cases reported. This is a very small number indeed, when it is remembered how common diabetes is, and the frequency with which such fractures occur.

While the presence of microorganisms is necessary for nonunion of wounds in diabetic patients, the tissues are of a low grade of vitality, react but slowly to a stimulus, and consequently offer but slight resistance to infection. Why this is has not been fully explained, but possibly the reaction of the wound itself has something to do with it, although there is no evidence that such is the case. Stoker, in 1898, observed that nonhealing wounds were highly alkaline in reaction, in which condition wound-bacteria, *Bacillus fluorescens*, especially was present, while staphylococci had disappeared. But

on the wounds assuming a healthy granulation, their reactions were found to be but *slightly* alkaline, and this to be the normal state in all healthy wounds examined.

The influence of the actual presence of sugar on the growth of bacteria has been the subject of investigation by Bujwid, Nicholas, and Kurlinski. Their experiments demonstrate that while the presence of sugar increases the pus-producing properties of the microorganism of suppuration, it diminishes their virulence. Both of these deductions are entirely theoretic.

That trauma to the tissues makes them more liable to infection has been recognized for a long time, but this is frequently forgotten as the vitality of healthy tissue allows of frequent handling in retracting, sponging, etc., without injury. In diabetes, however, slight trauma is often the factor that prevents union. That avoidance of all trauma but what is absolutely necessary, results in as good union, as in nondiabetic subjects, is exemplified by the excellent results obtained in the extraction of cataract in these patients.

The nerve degeneration, and arterial sclerosis, both of which so frequently follow diabetes, add further to the liability of infection. The influence of nerve degeneration has received but little attention. This is shown by the omission to state the condition of the reflexes in the reports of patients operated upon although the frequent absence of the patellar reflex in diabetes has been observed for a long time.

On the other hand the danger of a complicating atheroma has been recently fully demonstrated, chiefly in causing, what was formerly called diabetic gangrene, but which is now recognized to be ordinary senile gangrene, in a diabetic patient. This has led to the adoption of high amputation far above the site of obstruction.

Wallace reports atheroma in 23 out of 24 cases of diabetic gangrene. He says: "It cannot be that the poison in the blood directly causes gangrene, for if this were the case we should expect to see gangrene in young subjects in whom diabetes is most active."

In approaching a case for surgical operation in a diabetic subject, what extra precautions are necessary to insure union? Paying less attention to the presence of sugar in the urine and more to the technic:

1. By remembering the especial liability of the tissues to infection and so practising absolute asepsis. Antiseptics have no place here.

2. By remembering the extremely low vitality of the tissues. All trauma not absolutely necessary should be avoided.

3. By remembering the frequent association of arterial sclerosis. Interfere as little as possible with the blood-supply.

4. By remembering the liability of nerve degeneration and preventing the possibility of even slight pressure over the site of operation.

The foregoing are simply the rules of aseptic surgery and admit of slight infringement in healthy individuals, but any violation whatever in a case of diabetes would probably terminate disastrously.

Epidemic of Diphtheria on U. S. Steamship Buffalo.—George E. H. Hermon reports that this vessel left the Navy Yard at Norfolk with some 750 men aboard, in October, 1902. A few months later an epidemic of diphtheria appeared on board and the vessel put in at Port Royal, S. C., where the men disembarked and the vessel was fumigated. Those who carried germs of diphtheria in their throats were treated with various local disinfectants, such as Löffler's and Dobell's solutions. The tenacity with which some of the cases held on under treatment was remarkable. In 12 patients the germs persisted for several weeks and these men were left at Port Royal because they were considered unsafe to take aboard. They developed no general symptoms of diphtheria, remaining apparently in perfect health while their throats contained abundant microorganisms. Antitoxin was employed in upward of 80 cases. The disease was not contracted by any man over 30, yet 18% of the ship's company were affected, while out of 137 cases there were but two deaths, and not a single death after antitoxin treatment was begun.—*Jour. of Asso. of Military Surgeons.*

SPECIAL ARTICLES

THE CARE OF THE INSANE.

BY

W. J. HOWELLS, M.D.,

of Medical Lake, Wash.

It is to be greatly deplored that the general public is so poorly informed regarding the actual needs and requirements of the insane. As a consequence, they often forget the duty they owe these unfortunate ones and supply their needs with a grudging and parsimonious hand, often feeling they have been unjustly imposed upon. Having once contributed to their support, many feel relieved of any further obligation toward them or interest in their welfare so long as they are kept out of their way. There has always been a feeling of superstition and dread in the minds of the more fortunate toward the insane, and as a result of this attitude, the insane have suffered much.

Up to the time of Hippocrates all was confusion regarding insanity. The belief that persons acting in a peculiar manner were possessed by spirits (good or bad, according to the actions of the afflicted person), resulted in the care and treatment of the insane being vested in the hands of the ecclesiastic authorities. The priests treated their charges by prayers and religious ceremonies to the different deities, the Egyptians going so far as to build a temple to Saturn for the purification of the possessed. The patient had to undergo purification, expiation, exorcism, and ablution with lustral waters or the blood of a sacrificed victim. Occasionally some hygienic practices were added to these religious ceremonies, such as promenades, a sojourn at the baths, and exercise in the gymnasium. It thus happened that some of the patients recovered, and as this was attributed to the appeasement of the malignant spirit, it necessarily involved the giving of valuable offerings to the priests.

About 435 B. C., Hippocrates, then about 25, began the study of the insane, his writings and studies earning for him the title "The Creator of Mental Science," as well as "The Father of Medicine." He advanced the theory that "mania," "melancholia," and "sacred disease" were due to overheating the bile and the whole body. He therefore combated the religious practices, and substituted in their place phlebotomy, purgation, baths, special diet, exercise, music, traveling, and the use of a few drugs, which included all the medical appliances available at that period. Very little advance was made during the Alexandrian period which followed, except in the study of anatomy and nerve physiology. However, from 80 B. C. up to 473 A. D. (the Grecian-Roman period) some advance was made in the treatment of the insane, although none of the noted teachers of this time got further than locating the seat of the disease in the different viscera, the majority believing it to be in the spleen and liver. Asclepiades divided mental disorders into acute and chronic, and treated them by the institution of a general intoxication. In 5 A. D., Celsus cast the first shadow on the treatment of the insane by advising the use of hunger, chains, and chastisement as measures to subjugate those whose acts and words were due to a want of reason. Galen, a celebrated physician of Pergamus, who followed him, confined himself to putting in form what had already been written about the disease, and recommending, in direct opposition to Celsus, that treatment be humane in the extreme, with exercise and the proper administration of medicine, and as little restraint as possible. From his time until the middle ages very little advance was made.

During the middle ages the study of insanity lost itself in the general chaos of the period; the return of superstitious beliefs, the reign of sorcery and treatment by exorcism and ceremonies, frequently ended in the condemnation of the unfortunate person and his punishment by torture or execution. Thus most of these unhappy victims of popular prejudice atoned with their lives for their loss of reason, not a single voice being raised in their behalf. During the sixteenth century there was a lessening of the prejudice which had governed the treatment of these unfortunates through so many centuries. The writings of Paul Zacchius, Sydenham, Bonel, and others exposing the fallacy of superstitious beliefs, placed the treat-

ment of insanity on a more substantial basis. Still the treatment could hardly be called humane, and it was not until 1660 that the French Parliament passed an act reserving two wards in the Hotel Dieu for the treatment of the insane. And even then, if they did not recover in a few weeks, they were called incurable and sent to the jails and placed in so-called asylum additions, where they were confined in cells and dungeons, clothed in rags, poorly fed, no attention paid to personal cleanliness, and the restless loaded down with chains and irons. About the only fresh air they received was when they were placed in iron cages and exposed to the view of the public, who, on the payment of a fee, were admitted on holidays to "view the sights" and tease them like wild animals through the bars of their cages. This continued until the time of Philip Pinel, who, in 1793, became Physician to the Insane at Bicêtre, where the male insane of Paris were kept. With his entrance upon the scene, a new era in the treatment of insanity began, which carries up to the present time. His first step on assuming charge was to remove the chains; substituting for bad treatment, violence and blows methods of repression and firmness combined with mildness and patience, thus laying down the first basis of the moral treatment of the insane. He demonstrated the necessity of creating special establishments adapted for their treatment, pointing out the principles that ought to govern their construction and management, suggesting the separation of the patients into different quarters according to the nature of their mental disease, or in other words, drew up the first rules for the hospitalization of the insane. Pinel met strong opposition in many quarters, and it was only by his persistent and earnest protests that he succeeded in the rehabilitation of the insane, and their elevation to the dignity of sufferers from disease, thus accomplishing what many centuries had vainly sought to do. While this was going on in France, similar efforts were being made in other countries, prominent among them being that of William Tuke, of York, England, who, witnessing the abuses that prevailed in the so-called asylums, influenced his coreligionists in the Society of Friends to found an institution where all severe measures and bad treatment should be abandoned. As a result the first stone of the York Retreat was laid in 1792, and this was the starting point of the humane treatment of the insane in England. Chiarruggi, in Italy, and Daquin, in Savoy, were also working along the same lines. But in all this work, Pinel stands out as the central figure, not only as a result of his persistent efforts, but also from his most excellent work as a result of his studies, which he published in 1809, and which is not only a medical work, but also a masterly discourse on philosophy and morals. From the time of Pinel there was a rapid improvement in the care and treatment of the insane, until at the present time the treatment of insanity has become one of the prominent branches of medicine. Hospitals for the care and treatment of the insane are now found in every country, and in our own country, in every State in the Union. With the continued study and observation of the insane, and the knowledge of the different forms of insanity, the treatment of each form has improved and broadened, until at the present time the care and treatment of the insane is more humane and more advanced than it has ever been in the history of the world.

The treatment of insanity at the present time is divided into the prophylactic or preventive, and the direct or curative. The prophylactic treatment aims to remove as far as possible all the exciting causes of the disease from the lives of the predisposed. The curative treatment is indicated for those who are already insane. The treatment of these sufferers is divided, first, into general agents, and second, into special agents. The general agents consist in (a) isolation either on farms or in hospitals for the insane where they may have as much freedom and fresh air as possible, with quiet and rest, both mental and physical; (b) travel to divert the mind; and (c) short residences at hydrotherapeutic establishments, etc. The special agents consist of (1) hygienic measures, including sanitation, habitation, raiment, food, sleep, etc.; (2) psychic measures, including moral influence, forbearance, suggestion, kindness, amusements, etc.; (3) physical measures, including hydrotherapy, electricity, massage, etc.; (4) surgical

measures, including operations on the brain and other organs, and last, but by no means least (5) medical measures, including the administration of such drugs as may be required in each individual case.

Before considering the responsibility of the State toward the insane, it might be well to bring to your attention some of the conditions that have to be met in the care of this class of patients. Insanity is now recognized as a disease. Many attempts to form a concise and complete definition of insanity have been made by alienists, but as yet none has been accepted as complete or satisfactory to all. Still all carry the fundamental principles, namely, that insanity is a disease of the brain, affecting the mental faculties to such an extent that the ability to reason and distinguish between right and wrong is partially or completely destroyed. It may be either acute or chronic. In the acute form, statistics show that from 70% to 80% recover. In the chronic form none recovers. The proportion of these forms admitted to institutions for the insane is such that about 33% of all those admitted recover. Of these, about a fourth return at a later period, thus giving 25% of permanent recoveries of all the patients admitted to our institutions for the insane. Very few, except those who have actually been in contact with the insane, understand their requirements and needs. In the first place, owing to a perversion of the mental faculties or a loss of the reasoning powers, or a complete loss of the mental faculties, which makes them unable to care for themselves in any way, they develop ideas which, while they seem perfectly normal to them, to the sound mind are not only absurd, but impossible for one living in the present era of civilization, to hold. Being controlled by these ideas, they act upon them and become a menace to society, at times going so far as to endanger the lives of others as well as of themselves. Many of them, through their perverted sense, imagine they hear voices, which they are unable to distinguish from real voices. They frequently think that these voices come from the Lord, and attempt to obey his directions. Others, through a perversion of their other special senses, imagine that things are being done to them by others to persecute them, and as a result they are liable to do injury to those whom they believe responsible for these persecutions. Some, owing to ideas of personal unworthiness which they develop, attempt to make way with themselves; while others, owing to their confused mental faculties, are unable in any way to care for themselves, and unless cared for by others, would wander off, become lost, and die by the roadside. Not being able to appreciate their condition, they naturally feel that they have been unjustly treated by being deprived of their liberty and placed in institutions where they cannot carry out their false ideas, which they frequently believe would revolutionize the world. So long as their mental faculties remain astray, they hold to their persecutory beliefs that they have been unfairly deprived of their liberty and legal rights, and unjustly compelled to lead a life of quiet away from the busy world, and would, if they had the opportunity, return to that life. It is therefore necessary to make provisions to prevent them from doing so. On the other hand, as patients who have been mentally afflicted recover their reason, they realize the conditions which have been, and feel very thankful, and appreciate the care and treatment they have received while suffering from this disease. Partly owing to hereditary tendencies, and the strenuous life that is being led in the large centers of population, there has been a gradual increase in insanity during the last century. With this, the steady increase in the number of chronic cases necessitates the building of frequent additions to the institutions already in existence, and new hospitals more conveniently located. As these unfortunately afflicted persons are a menace to society, it becomes necessary that laws be passed to protect sane individuals from the insane; and it is necessary to provide and maintain institutions for their care and treatment. This duty devolves upon the State as a natural consequence of the conditions which give the people the right to govern themselves that the law of this country gives to each State in the union. It is therefore the duty of each State to provide as many institutions as may be necessary for the care of the insane, and to appropriate and supply such money as shall be necessary to run these institutions and give the patients in them

all the care and treatment it is possible to give with the advanced state of medical science. The number of institutions and their size should be designated by the natural law of demand and supply, but unfortunately, as a rule, the demand has to become very urgent before the answering supply is received. As a consequence, in most institutions of this sort the cry of overcrowding and insufficient funds arises. While economy should be advocated, it should not be practised to such an extent as to deprive anyone so unfortunate as to become mentally unbalanced of any service, care, attention, or equipment that would facilitate recovery to a normal state of mind. Hospitals for the insane should be equipped with every appliance known to medical science for their care and treatment.

Hospitalization of the Insane.—By this term is meant the housing of the insane in specially constructed institutions, on the plan of a hospital, and adapted to their requirements, and where they can be treated as sick persons, and not as criminals. While we recognize the necessity of building institutions which will prevent those inmates who are not willing patients from escaping, the architecture and construction should be such as to emphasize this point as little as possible. The old asylum idea, with its four bleak walls and gratings on every hand, has given place to the modern cottage plan, which with its variety of design and embellishment, does away, as far as possible, with the prison appearance and surroundings. In planning an institution of this sort it is necessary to take into consideration the class of patients: (1) Whether acute or chronic cases; (2) the condition of the patients, excited, quiet, or infirm; and, (3) the equipment. It is generally recognized by alienists that it is desirable to separate the acute from the chronic cases. This can be done in two ways. 1. By separate departments in each hospital; these should be far enough apart to prevent the two classes from coming in close contact. 2. By the construction of smaller hospitals for the acute insane near the large cities, and a large hospital for the chronic insane centrally located.

If the first plan is carried out, it would be desirable to select a site which would be central, and where plenty of adjacent land for farming purposes could be secured. Having selected the site, the arrangement of the buildings follows. The group for the acute cases should be so situated as to have as good a perspective as possible. The grounds around the buildings should be parked, and with flowers and shrubs, made as attractive to the eye as possible. The group for the chronic cases should be located near the farm proper, and the grounds immediately surrounding the buildings parked. The farm should be large enough to supply all the fruit and vegetables needed by the hospital. As it would be worked by the chronic male patients, it would be run at a minimum cost. The group for the acute cases should be on the cottage plan, as this allows of better segregation. The construction should be separate cottages, planned according to the requirements of the class of patients; the variety of architectural style, design, and embellishment should give as little the appearance of an institution as possible—rather a group of homes. If desired, the buildings might be connected by one-story corridors. The cottages should not be more than two stories. Amusement grounds and groves should be within easy reach. This arrangement prevents the mild and excited patients being thrown together and a deleterious influence thereby exerted on the milder patients. The equipment of the group should be as complete as possible, as it is at this period, if at any stage of the disease, that a cure is effected. Every convenience and apparatus known to medical science for the treatment of the insane should be supplied, as well as games and amusements of all sorts to occupy the patients; also reading, billiard and music rooms, bowling alleys, entertainment and dance hall, gymnasium, plunge, etc. A larger corps of nurses is needed for the acute than for the chronic cases. As I said before, the group for the chronic cases should be located near the farm. It may be built on the same plan as for the acute. The buildings may be grouped closer together and be of larger dimensions. With this class of patients, having become incurable, the requirements are different. All that can be done is to make them as comfortable and their lives as pleasant and useful as possible. For the feeble and infirm, one-story buildings with

large verandas are better. A large proportion of the male population could be employed in the different departments and on the farm, where, under the directions of the employes, they would carry on the work, the women being employed in the laundry, sewing-room, and similar departments. This would mean not only a great saving of labor, but would give occupation to the patients, thereby making their lives useful as well as more contented, and it would also lessen their destructiveness. The farm, orchard, and berry patches would supply vegetables and fruit for the institution, and thereby materially reduce the cost of running it.

We now come to the question of separate institutions for acute and chronic insane. The fundamental principles of both plans are the same, with the exception that the second plan goes a step farther and draws the line of demarcation more sharply. The location of the different institutions is also important. The idea being to locate the hospitals for the acute insane within easy reach of the larger cities, and the hospitals for the chronic insane in a farming section, where the soil and climate meet the requirements of this class. The advantages of having the hospital for the acute cases near the large cities are, the resident staff could make arrangements with specialists and prominent physicians of the city to pay weekly visits to the institution, for consultation and assistance in operations, the convenience in securing talent for entertainments, etc., nearness to the base of supplies, besides the cheapness of transportation of patients to and from the hospital. The same considerations should govern the location, construction and equipment of the hospital for the acute insane as mentioned for the acute department in the hospital for both classes. The equipment should be absolutely complete in every detail. The grounds should be ample to allow sufficient exclusion, as well as room for the raising of plenty of fruit, a small farm and pasturage for a herd of cows.

Having located the acute hospital, we will now consider the selection of a site for the hospital for the chronic insane. The prominent points to be considered are the climate and hygienic advantages, the fertility of the soil, central location and accessibility. As I said before, all that can be done for this class of patients is to make their lives comfortable, pleasant and useful; therefore, the climate should be considered first. A mild, sunny climate, such as is found in the southeastern part of Washington, with its long summers and short winters, allows the patients to be out in the fresh air a greater part of the year, which is a great advantage in the treatment of these patients, and adds greatly to their enjoyment of life, there is also the advantage that less fuel is required to heat the institution. Many of this class of patients can be employed on the farm, thus rendering their lives more pleasant and useful. While their work is, as a rule, purely mechanical, and consequently has to be supervised by trained attendants, considerable work will be done by them under the directions of tactful employes. It would therefore seem advisable to select a site having a large area of fertile land which could be farmed by the patients. A large herd of cows could be kept and the other institutions supplied with butter made here, and a hennery could be made to supply fresh eggs to the other institutions. Owing to the large amount of supplies used in these institutions, it is necessary to have easy access by rail and road, yet, at the same time, enough isolation to prevent the idle, curious and meddlesome from bothering or making sport of the patients. Having selected the site, the construction and equipment must be considered. As stated before, comfort and convenience are the essentials; with suitable arrangements for passing the idle hours as pleasantly as possible. The grouping of the buildings should be so arranged that the noisy and restless patients would not disturb the old and feeble or the workers; enough space should be allowed between the groups for each class. In an institution of this kind there can also be a department for insane epileptics and mentally defective children. The grounds surrounding the buildings should be parked and made attractive to the eye.

Management.—Each institution for the insane should be in charge of a superintendent. This man should not only be a capable physician, but one who has had several years' actual experience in the care and treatment of the insane in a hospital. In his hands should be the entire management of the hospital,

both executive and medical. He should have a sufficient and efficient corps of medical men and trained attendants especially fitted for this work. The attendants should be of a kind and considerate disposition with an even temperament, patience, forbearance and a great deal of tact. They should also be intelligent and quick of observation. They should be responsible to the superintendent for the care of the patients in the departments under their charge, and should hold their positions only so long as their services would be satisfactory to him. The mechanical, culinary, and agricultural departments should be in charge of experienced men. Each employe should be responsible to the superintendent for the condition and efficiency of the department under his charge. These departments to include the engineering, carpentry, general workshop, laundry, kitchen, bakery, stock, farm, etc. The employment and discharge of all employes should be vested in the hands of the superintendent. It seems hardly necessary to speak of the pernicious influence of politics in the management of these institutions, for it is well known that when politics step in, efficiency, thoroughness and the humane treatment of the insane step out. In fact, all the abuses which occur in institutions of this sort are due directly or indirectly to political influence in the management. If there are several hospitals for the insane in a State, the general supervision of all should be in the hands of a Central Board of Lunacy, providing all political element could be eliminated from its formation and operation. This board should be composed of men selected because of their familiarity with the needs and requirements of the insane and their fitness for this work, and not because of their political standing and following in the State. The chairman should be, by preference, a physician who has had a number of years' experience in the care and treatment of the insane and a recognized authority on this subject, preferably an alienist. The advantage of having a central board composed of the right class of men is that they can bring the different superintendents together, and thus secure uniformity in the management of the different institutions, as well as stimulate the management of each institution to increased effort, thereby improving the treatment and giving the patients the benefit of every advance made by medical science in the care and treatment of the insane. At the same time they could purchase supplies in bulk, and thus furnish the needs of the institutions at minimum cost. The superintendent of each institution should be responsible to this board for the general management of the institution under his charge, and should make regular reports to it, including a discussion of the treatment of the patients under his charge and any recommendations as to the instigation of new special treatment, etc., as well as to changes in the construction and equipment of the hospital. It would also be advisable for the board to make arrangements for each superintendent to make a trip with it to the other institutions at least once a year, thereby observing the management of the institutions in charge of his colleagues, exchanging ideas and discussing the care and treatment of the insane with them. The salaries paid the members of the board, the superintendents, and assistants in the different hospitals should be large enough to secure the ablest men that can be found.

Vaginal Section for Delivering Child.—A. Dührssen reports a case of vaginal section for placenta prævia, and also discusses at length its use in eclampsia recommending it when there is immediate danger to the life of mother or child. He holds that the metreurynter with its constant pressure is the best method in all cases in which one can await delivery some hours, since the metreurynter, especially with the Champetier balloons, stimulates a kind of labor activity, widening the os sufficient for the passage of the child's head. If immediate delivery is indicated by danger to either life, Dührssen advises first the metreurynter if it is practicable, drawing the bag as quickly as possible through the cervix, the balloon being filled to the size of a child's head. But if this does not succeed the indication is for vaginal section when the cervix is not obliterated. The leading motive must always be the delivery of a living child without danger to the mother. In his opinion one is not justified in letting the child die because on account of obstruction from the soft parts it cannot be spontaneously born. In the hands of a modern gynecologist the conservative or radical vaginal section is a relatively safe method of delivery.—[*Zentralblatt für Gynäkologie.*]

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

May 28, 1904. [Vol. XLII, No. 22.]

1. Physical Signs of Pleural Effusions. WILLSON O. BRIDGES.
2. The Prevention of Typhoid Fever. RUFUS L. COLE.
3. The Abuse of Drugs. JOHN V. SHOEMAKER.
4. Prostatectomy: Report of 51 Cases Operated on from May 6, 1901, to February 28, 1904. (Continued.) JOHN B. MURPHY.
5. The Cultivation of the Surra Trypanosome of the Philippines. FREDERICK S. NOVY, WARD J. MCNEAL, and CHARLES E. HARE.
6. A Consideration of Speech Defects. JAMES M. BROWN.

1.—Physical Signs of Pleural Effusion.—W. O. Bridges reports cases diagnosed as tuberculosis, uncompensated mitral disease, etc., illustrating the importance of thorough chest examinations. The signs are less apt to be typical in inflammatory than noninflammatory cases. Two of importance in diagnosis are the bulging of the intercostal spaces in phonation and the absence of the phrenic shadow. Displacements of the heart must be differentiated from hypertrophy of the right or left ventricle. Absence or enfeeblement of vocal fremitus is said to be the rule, but vocal fremitus may be pronounced over a large effusion in children, and has occurred several times in the writer's experience over purulent effusions following pneumonia. The percussion note varies according to the amount of fluid. Alterations with change of posture are more noticeable in moderate accumulations, and may be absent on account of adhesions. The exploring needle clears up uncertainty. None but the largest should be used. Even this may sometimes fail, only a good-sized trocar demonstrating the fluid present. [H.M.]

2.—Prevention of Typhoid.—R. L. Cole states that in the absence of specific treatment, to stamp out typhoid requires the recognition of all cases, and destruction of all bacilli as they leave the patient. Typhoid exists in greater proportion in the country than in the city and propagation is generally from the country to the town. One of the most common mistakes is failure to recognize typhoid in children. We should not wait for positive diagnosis before instituting prophylaxis. In this way half the cases could be prevented from harming others, and atypical cases would become rarer. Sterilization of the excretions is all that is necessary. Students are very careless in handling typhoid urine. Bacilli are occasionally present in the sputum, sweat, and expired air. The writer considers carbolic acid 1 to 20 or bichlorid 1 to 1,000 with 0.5 to 1,000 of sodium chlorid the best disinfectants. Of the first 1.5 liters or of the second 200 cc. should be kept in a jar into which the urine should be emptied during the 24 hours, thus permitting sufficient time for thorough disinfection. Urotropin does not kill bacteria, but simply inhibits their growth. For feces, carbolic or milk of lime is best. The latter should be mixed with 8 parts of water and thoroughly stirred with the excreta an excess being used. The buttocks should be wiped with bichlorid solution, and bath water should be sterilized with 250 gm. (½ lb.) of lime to 200 liters of water. Sputum should be burned, clothes be soaked in carbolic solution, and dishes boiled. The nurse should wear a rubber apron when giving tubs and wear gloves or soak her hands in bichlorid. There should be fly screens in the windows. The room should be disinfected. Precautions should be observed at autopsies as to the hands and as to permitting rinsings to enter the sewer. [H.M.]

3.—Abuse of Drugs.—J. V. Shoemaker thinks we too often use medicines in place of natural remedies, nursing, diet, hygiene, exercise, and the therapeutic properties of water, electricity, etc. The public have a widespread habit of using drugs on their own responsibility. Prescribing druggists are a prolific source of drug-taking. A common form of abuse is constant reliance on purgatives, weakening the intestinal muscular fibers, irritating the mucosa, and in some cases causing cardiac weakness and anemia. The effect of stomach bitters is often to set up the alcohol habit. Constant use of preparations containing ginger has caused loss of sight. The medicinal malts are generally much more powerfully alcoholic than beer. Evils from the use of coal tar products are particularly rife among anemic and neurotic persons, especially women. The invariable tendency is to increase the dose and shorten the intervals. Rheumatism cures are similarly objectionable. It

is by the analgesics, anodynes, and hypnotics that the worst human wrecks are made. Physicians should be wary in prescribing alcohol; indicating always the exact liquor, dose, and time of taking. [H.M.]

5.—The Cultivation of the Surra Trypanosome of the Philippines.—F. G. Novy, W. J. McNeal, and C. B. Hare have found as the result of recent experiments and investigations that the trypanosome present in the Philippine surra can be cultivated artificially. Attenuated cultures of this organism can be obtained as in the case *Tr. brucei*. This trypanosome is differentiated by its cultural characteristics from *Tr. lewisi* and *Tr. brucei*. The Philippine surra is therefore a distinct disease, different from nagana, and this observation confirms the work of Laveran and Mesnil on the nonidentity of nagana and the surra of Mauritius. The morphologic differences between the Mauritan and Philippine trypanosome suggest the probability that these organisms are distinct species, and hence that the term "surra" covers a group of closely allied diseases. [H.M.]

Boston Medical and Surgical Journal.

May 26, 1904. [Vol. CL, No. 21.]

1. Sulfurous Acid and Its Salts as Food Preservatives, as Aids to Fraud, and as Possible Causes of Lesions of the Kidneys. CHARLES HARRINGTON.
2. Notes on Radium: Production of the Gamma Rays from the Beta Rays of Radium; Use of Radium in Some Diseases of the Eye. FRANCIS H. WILLIAMS.
3. Vaginal Section in the Treatment of Extrauterine Pregnancy. FRANK A. HIGGINS.

1.—Sulfurous Acid and its Salts as Food Preservatives.—C. Harrington states that these are used with fish, meats, sausages, fruits, dried vegetables, cider, and wines especially for their action in improving the appearance suggesting superior quality. Canned corn and asparagus are bleached to a uniform white and meats acquire the redness of arterial blood. The sodium salt is used chiefly in minced meat sold as "Hamburg steak" made from trimmings and inferior parts. It makes these look fresh even when swarming with bacteria and it acts as a deodorant. Stale specimens of meat however feel slimy and adhere to the fingers. Sodium sulfite as a preservative has little though appreciable influence. By itself at room temperature it has less effect than the low temperature of a refrigerator, but it can cause decomposing meat to have a normal appearance. For the desired effect 1% to 2% must be added, but often as much as 4% is found. Its use by meat dealers is the rule. The writer reports the percentage found in 50 specimens examined in Boston. It causes diarrhea, vomiting, eructations and general discomfort. Continued ingestion of small amounts causes serious injury to the organs without outward signs of sickness. Experiments on dogs and cats show nephritis as a constant result. [H.M.]

2.—Notes on Radium.—Francis H. Williams gives the technic for the employment of radium, particularly in the treatment of ocular affections. He states that it is hardly necessary to mention the great convenience of using radium as compared with the röntgen rays. The output of the rays from radium is uniform, and the rays may be easily applied. The greatest care should be employed when diseases of the lids or eyes are treated with this powerful agent. Radium is also of use as a test for determining whether or not the eyes of the practitioner are in a suitable condition for making fluoroscopic examinations. This test can be carried out by means of the spintharoscope, which contains a small amount of radium. If the scintillations appear bright to the practitioner, his eyes are ready for use; if dull, he must wait for a while longer in the dark room before attempting to make a fluoroscopic examination. [A.B.C.]

Medical Record.

May 23, 1904. [Vol. 65, No. 22.]

1. The Postgraduate Study of Medicine. D. B. ST. JOHN ROOSA.
2. The Army Medical Service. EDWARD L. MUNSON.
3. The Naval Medical Service. JOHN F. URIE.
4. The Public Health and Marine-Hospital Service. M. J. ROSENAU.
5. The Insurance Examiner. HENRY H. SCHROEDER.
6. Salaried Positions Open to Medical Men in the Larger Cities. HENRY A. HIGLEY.

7. The Railway Surgeon. WILLIAM W. SANFORD.
8. Medical Service in the Merchant Marine. JAMES FRANCIS DONNELLY and FREDERIC GRIFFITH.
9. Professional By-laws Open to Medical Women. EMMA E. WALKER.
10. Legal Rights and Obligations of the Medical Practitioner. ARTHUR N. TAYLOR.
11. State Medical Practice Laws. R. J. E. SCOTT.

New York Medical Journal.

May 21, 1904. [Vol. LXXIX, No. 21.]

1. The Surgery of Nephritis. GEORGE M. EDEBOHLS.
2. The Relation of the Röntgen Ray and Radioactive Solutions to Examination of the Stomach. SINCLAIR TOUSEY.
3. The Treatment Following the Bloodless Reduction of Congenital Hip Dislocation. DEXTER D. ASHLEY and FREDERICH MUELLER.
4. An Operation to Reach the Lower Ureter by an Extraperitoneal Route. T. C. WITHERSPOON.
5. The Vasomotor Center in Inhibition of the Heart. (Continued.) CHARLES E. DE M. SAJOUS.
6. A Case of Diabetes Mellitus, Gangrene of the Foot, Operation; Recovery. E. P. STONE.

2.—The relation of the röntgen ray and radioactive solutions to examination of the stomach is discussed by Sinclair Tousey. All his work with radium and radioactive solutions has been with radium of twenty thousand radioactivity, and the amount used in each case has been one decigram. The radioactive solution has been prepared by immersing such a quantity of radium, enclosed in a hermetically sealed glass tube, for four weeks in 16 oz. of normal saline solution contained in a stoppered glass jar. The fluorescent solutions employed were made according to suggestions from Kemp. The quinin bisulfate solution contains 10 gr. of quinin bisulfate and 5 minims of dilute phosphoric acid to a pint of water. The fluorescent solution contains an eighth of a grain of fluorescein, 20 gr. of sodium bicarbonate, and a dram of glycerin to a pint of normal saline solution. Tousey says in conclusion, that radioactive and fluorescent solutions as prepared above, are innocuous when given by the mouth or subcutaneously. They do not produce either singly or in combination, sufficient fluorescence to be of value in the examination of the stomach, without the use of some additional light to excite their fluorescence. They will in some cases be of great assistance in the röntgen ray diagnosis of and in the treatment of stomach lesions. [C.A.O.]

3.—Congenital Hip Dislocation.—D. D. Ashley and Frederich Mueller, in their second article, give a more extended description of the different types suggested in the first paper, and the proceedings necessary to meet the indications in each type. The first type considered is that in which the head rests securely within the acetabulum, moderate resistance felt in attempting to correct to a better walking position. This group represents the so-called "normal cases," in which the after-treatment does not meet with any special difficulty. The second type is that in which the head is in the proper location, but easily dislocated. The indication here is for the renewal of the cast in a very slightly modified primary position, extending the time of treatment in this position. In the third group the head is in the right location, but considerable rigidity is encountered. This rigidity may be explained either by the shrinkage of the muscles, or by the retraction of the capsule, if a third eventuality be not considered—that is, that the femoral head becomes walled around by osteophytes of the acetabulum. [C.A.O.]

4.—Extraperitoneal Route to the Ureter.—T. C. Witherspoon reports a case in which he combined the intraperitoneal examination and extraperitoneal exposure of the ureter, so that both could be accomplished at the same time and through the same incision through the abdominal wall. An incision four inches long was made over the lower end of the rectus, beginning at a point over its insertion into the pubic bone, and extending upward in a direction parallel with its fibers. The opening is directly over the route of the ureter, and allows a good view of that structure through a very small cut in the abdominal wall. It allows of a thorough palpation, through the peritoneum, of both kidneys and ureters, and at the same time of an exposure of the ureter on the side of the incision for extraperitoneal operation upon its lower end. A thorough palpation of the entire urinary tract can be made, and may be of

value. The field of operation is bloodless, and no forceps are in the way. Drainage may be carried through the lower end of the rectus, and does not leave the bright prospect of hernia which a para-Poupart incision does. The dissection is not difficult, and can be carried out by any reasonably prepared surgeon. [C.A.O.]

6.—Diabetes Mellitus, Gangrene: Operation.—E. P. Stone reports the case of a man of 65 whose first symptoms were noticed 21 years ago. During this time the presence and quantity of sugar in the urine fluctuated, but it was present most of the time. He began to have pain in the right great toe, and a small spot of discoloration appeared there. In spite of all efforts, gangrene spread until it involved the whole of the foot, and extended a little above the ankle, where a line of demarcation developed. The process was a dry mummifying gangrene, and was comparatively painless. The leg was amputated at the junction of the upper and middle thirds, under chloroform anesthesia. The patient made a rapid and uneventful recovery from the operation, the wound healing almost throughout by first intention. [C.A.O.]

Medical News.

May 28, 1904. [Vol. 84, No. 22.]

1. Some Notes on Vocal Fremitus. WILLIAM N. BERKELEY.
2. Results in Diffuse Septic Peritonitis Treated by the Elevated Head and Trunk Position. RUSSELL S. FOWLER.
3. Two Appliances to Facilitate Eye and Throat Work. EDWARD B. COBURN.
4. A Study of the Tuberculosis Problem in New York City. JAMES ALEXANDER MILLER.
5. A Remarkable Case of Gastric Cancer: Separate Involvement of Cardia and Pylorus: Gain of 35 Pounds in Weight within Three Months of Death. G. W. McCASKEY.
6. Postpartum Tuboovarian Abscess Causing Hydronephrosis. A. ERNEST GALLANT.
7. Ethyl Chlorid as a General Anesthetic. A. F. ERDMANN.

1.—Vocal Fremitus.—W. N. Berkeley states that the first and earliest sign of pneumonic consolidation, antedating bronchial breathing and pectoriloquy by 12 to 36 hours, is increase of fremitus over the suspected area. The oral resonance is greatest for tactile purposes when the sound of *oo* in soon or *oo* in foot is made or is sung in as bass a voice as possible, using words like good, boodle, rood, moon, avoiding combinations containing *p*, *ph*, *f*, *th*, *ch*, *sh*, or *s*, as these momentarily suspend the vibration of the chords. The patient should be told to speak in as deep a voice as possible and maintain the initial pitch and intensity. Palpation should be made with the hand most used and with the palmar surface of the four fingers. The side of the palm should not be used as its area is too small and it has fewer tactile nerve-endings. Fremitus is conveyed not only by the wind pipe and bronchi but also by the vertebral column and true ribs. Accumulations of fat and muscle on the exterior of the chest are not so destructive of fremitus as usually taught. It is larger over the right than the left side, especially from the tenth to twenty-fifth years. The ratio might be stated as 3 to 2 or 4 to 3. A greater than this is pathologic. Vibration over the larynx is to right subclavicular fremitus as 5 to 1 or 4 to 1. A wide variant from this is also pathologic. The causes of left-sided excess are left consolidation, any process on the right which dissociates the visceral from the costal pleura, obstruction of the right bronchus, or transposition of the viscera. Dilation of the air sacs with atrophy of their walls as in emphysema does not modify fremitus to any serious degree. [H.M.]

2.—Diffuse Septic Peritonitis Treated by the Reversed Trendelenburg Position.—R. S. Fowler and G. R. Fowler from October, 1899, to January, 1904, operated upon 100 well-marked cases of diffuse peritonitis, resulting from disease of the appendix. No case, however desperate, was refused operation. Of the 100 patients, 67 recovered. The technic is given in detail. The reversed Trendelenburg position was used in all instances after operation. The elevation should never be less than a foot. A folded pillow is placed against the buttocks, and through the fold of the pillow is passed a stout bandage, which is tied on each side to the head of the bed. This allows the patient to rest comfortably and maintains his position without exertion on his part. A saline enema is given every 3 or 4

hours for 4 to 6 times. Before their employment of the elevated head and trunk position in the after-treatment, they saved about 25% of this class of cases. At the German Hospital they operated upon 46 consecutive patients with but 9 deaths, 81.25% of recoveries; at the Methodist Episcopal (Seney) Hospital, 30 patients with 12 deaths, 60% of recoveries; at the Brooklyn Hospital, 22 patients with 12 deaths, 45.5% of recoveries. Of the 33 deaths, 17 occurred within 24 hours after the operation. The salient points in the treatment are as follows: 1. A small incision and the avoidance of eventration. 2. Thorough cleansing of the primary focus of infection and removal of the appendix. 3. Evacuation and cleansing of all accessory abscess cavities and the pelvis before washing out the peritoneal cavity. 4. A rapid systematic flushing of the peritoneal cavity with peroxid soda solution, followed by hot saline. 5. The continuance of the saline flushing until the sutures are placed, and for the most part tied. 6. The provision of proper drainage for the pelvis, either by means of a large glass tube containing a capillary drainage strip emerging through the lower angle of the wound or, in females, by a large caliber rubber tube filled with wicking passed through a posterior colpotomy incision. 7. The drainage of accessory abscess cavities with gauze or wicking. 8. The elevation of the head of the bed to accelerate the drainage of septic fluid into the pelvis, where it can be removed through the glass tube or, in case of a vaginal drainage, find a ready exit. [A.B.C.]

4.—Tuberculosis in New York.—J. A. Miller describes the institutions and agencies which influence the problem, showing how physicians may utilize them, and discusses the question of responsibility toward these patients. The institutions include those for education and prevention, and those for treatment. Among the former are the Health Department, the Charity Organization Society, the United Hebrew Charities, the Association for Improving the Condition of the Poor, the Diet Kitchen Association, the Nathan Straus Milk Depots, the Tenement House Commission, and numerous other smaller agencies. The various sanatoriums have a capacity for 640, hospital accommodations amount to 1,406 beds, and five dispensaries attempt a satisfactory treatment. The writer discusses the management of different classes of cases. The prospects of success in solving the tuberculosis problem are brighter than any other of the great problems of preventive medicine. The reduction of the deathrate in New York in 10 years by 40% has been largely due to Dr. H. M. Biggs and Dr. S. A. Knopf. [H.M.]

5.—Cancer of the Stomach: Gain in Weight before Death.—G. W. McCaskey reports the case. The patient was a man of 40 who had suffered with trouble in the gastric region for a year. This was characterized by pain in the region of the stomach, gas formation, pain between the shoulders, all of which became worse after eating. His normal weight was 220 pounds, but he had lost about 45 pounds. Test-meals revealed absence of hydrochloric acid and the presence of lactic acid. The liver was enlarged. Toward the end of his illness the stomach symptoms suddenly left him, his appetite became morbidly voracious, and he ate with impunity enormous quantities of meat, bread, potatoes and other solid food, and in three weeks his weight increased 35 pounds. There was no dropsy at that time and the phenomenal increase of weight was clearly due to tissue building. The gain did not last, however, the stomach symptoms recurring in three or four weeks; a little later marked jaundice supervened, and he died. At the autopsy the liver was found to be markedly enlarged, with a diffuse carcinomatous process, while the stomach was apparently normal, excepting in the pyloric and cardiac regions, where it was much thickened by malignant growth. The middle part of the lesser curvature was almost if not entirely free from the morbid process. [A.B.C.]

7.—Ethyl Chlorid as a General Anesthetic.—This is a very instructing article by A. F. Erdmann, in which he discusses the merits of ethyl chlorid as a general anesthetic, its relative safety, the proper method of administration, dosage, anesthetic phenomena, contraindications, etc. A short synopsis of the article cannot be readily given since it deals with various phases of a most important subject. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

EDITORIAL COMMENT

Genital Herpes.—Genital herpes has recently been made the subject of an interesting and instructive investigation by Drs. Ravant and Darré.¹ They report the conditions found in two consecutive cases of genital herpes which occurred in young women. In each there developed a series of symptoms resembling those distinctive of ordinary zona, and, had it not been for the bilateral development, such would have been the diagnosis arrived at. In each of the cases there were acute lancinating pains in the whole perineal and anal regions—extending to the adjacent inner surfaces of the thighs—for some days before the appearance of the eruption; exactly comparable to those which usually usher in an attack of zona. At the same time—in one of the cases more especially—there was fever, general feeling of exhaustion, acute cephalalgia and rachialgia, with a furred state of the tongue. These symptoms appeared eight days before the development of the eruption, and subsided pretty rapidly after that event. The eruption itself disappeared after about 20 days, leaving depressions which became gradually defaced. In both cases the eruption consisted of confluent vesicles, which covered a great part of the perineal region and the posterior portion of the perivulvar—stopping just short of the mucocutaneous margin. There were some vesicles on the labia majora, and on the inner aspects of the thighs. The analogy of the symptoms to those of zona drew attention to the nervous system, and induced the physicians to perform lumbar puncture. This was done, in the first case, four days after the appearance of the first vesicles, while some of the phenomena of fever and general constitutional disturbance were still present. They were surprised to find marked turbidity of the cephalorachidian fluid. Centrifugation gave a pronounced clot, which proved to be formed of lymphocytes in considerable number, among which were found some rare polynuclear specimens. There were no microbes; and attempted cultures gave negative results. There was also an abnormal proportion of albumin present. An examination made five days later gave a clear liquid, with much fewer cellular constituents. The lumbar puncture had also the effect of causing disappearance of the cephalic symptoms. In the second case the lumbar puncture was made eight days after the appearance of the eruption; the liquid proved to be clear, but there was an evident “reaction cellulaire,” which was found to exist, in lesser degree, 20 days after. Since these experiences, the writers have practised in the same way on 12 patients affected with different varieties of genital herpes, and have in every one found numerous cell-elements in the cephalorachidian fluid. Their conclusion is that the number of the latter is in direct proportion to the extent of the eruption, and the early date of the examination. Also, that their research offers an additional argument in favor of the implication of the central nervous system in certain forms of genital herpes.

REVIEW OF LITERATURE

Test for Albumin in the Urine.—Charles Murray² calls attention to the fact, long ago pointed out by Bence-Jones, that if too little nitric acid be added to urine (2 to 3 drops to 10 cm. of albuminous urine), or too much (30 to 40 drops), one may fail altogether to detect the presence of albumin, though it is present in an appreciable quantity. On the other hand, if 10 or 12 drops are added and the upper stratum of the fluid rapidly heated the test is positive. Murray states that very few published works point out these phenomena, nor can he find any sufficient explanation for them. Various other tests for albumin

are discussed, and the writer states that in the laboratory of the University of Aberdeen the test for albumin, which has been used for a number of years, is the salicyl-sulfonic acid test. This is done by adding a few drops of a saturated aqueous solution of salicyl-sulfonic acid to a small amount of urine (20 m. or 30 m.) in a very small test-tube; if no precipitate occurs, there is no proteid present; if there is a precipitate, the tube is boiled to distinguish between albumin, which does not clear up on heating, but coagulates from proteoses (primary), which do clear up, to reappear when the fluid cools. In the absence of precipitation on the addition of the reagent, boiling is unnecessary. There is no need for care as to the exact amount of the reagent used, no danger of overacidulation, and the reagent is noncaustic and exceedingly stable. It can be used in the form of crystals, and when so used one should proceed as follows: Half a dram or less of urine is taken in a small test-tube ($\frac{1}{8}$ in. in diameter and 3 in. in length); a few crystals of the salicyl-sulfonic acid are dropped in, and boiling, if necessary, can easily be done over an ordinary lamp or candle. No substance in the urine, except those of the proteid class, has been found to cause the reaction, which is an exceedingly delicate one. [A.B.C.]

Value of Cryoscopy in the Prognosis of Chronic Pleural Exudates.—Kétley and Torday¹ determined the molecular concentration of pleural and other fluid exudates, by ascertaining the freezing-point. Fifteen cases were thus investigated, and it was found that absorption of the exudate could only be expected when the lowering of the freezing-point was less than that of the blood-serum. This only applies in those cases which exhibit no symptoms of active pleural inflammation; for in cases where inflammation is still present, further production of exudate is to be expected. In cases of pleural exudate resulting from nephritis, the functioning power of the kidneys must be considered in making the prognosis. The absorption of tuberculous peritoneal exudates depends upon the same factors as pleural exudates; but cryoscopy can be depended upon for the prognosis only in cases which offer no mechanical obstruction to the absorption of the fluid. In all cases of fluid accumulations the condition of the heart must be considered, as well as the cryoscopic findings. Cryoscopy offers no help in the differential diagnosis of exudates from transudates. [B.K.]

Etiology of Rachitis.—Rowland G. Freeman² summarizes the experimental work done on this subject and reports the results of personal observations on three small groups of infants from hospitals and tenements in New York. In one immaculately clean institution, with good general hygiene, where the babies were fed mostly on breast milk supplemented twice daily by condensed milk, 91% of the 66 inmates showed evidence of rickets. In a series of 38 babies just received into another institution from the tenements or which had been there for some time and were all bottle-fed, the percentage of rickets was only 70. Freeman does not agree with Morse that unhygienic surroundings is the only influence in common in all cases of rickets. Experiments and clinical observations indicate that unsuitable food, and possibly bacteria or intestinal toxins, are capable of producing the condition. [A.G.E.]

The Fight against Malaria in German East Africa.—The draining of the swamps and the extermination of the mosquitoes is a thing well nigh impossible in East Africa, and knowing the insufficiency of such measures, the German physicians there have initiated a fight against the malaria organism itself. Souls³ studied their methods and reports concerning them. At the commencement of the campaign 50 out of every 100 Europeans were malarial, and all the European children had hematozoa and enlarged spleens. The plan of campaign was the following: The blood of all inhabitants, Europeans and natives, is examined for the organism, and whoever has it must submit themselves to systematic treatment with quinin until further examinations show the absence of the organism. For 2 days out of 10 quinin is given in daily doses of 1 gm. (15 gr.) and the blood is examined every 8 days. After the expiration of the first year many of those treated had lost the organisms; those still harboring them were treated the second year

¹ Gazette des Hôpitaux, October 15, 1903.² British Medical Journal, April 16, 1904.¹ Deut. Archiv f. klin. Med., Bd. lxxix, p. 563.² Archives of Pediatrics, April, 1904.³ Archives de Médecine Navale, 1904, lxxxI, 81.

on 3 days out of 10. The sexual forms of the organism are the most resistant, and are often found in latent malaria. The work is performed with a surprising regularity and simplicity and mostly by a few natives. After 2 years of treatment, cases of malaria among Europeans have fallen from 50 out of 100 to 10 out of 100, and no grave forms of the fever are now observed. [E.L.]

Coexistence of Typhoid and Scarlet Fevers.—F. Farnarier¹ has been able to collect 75 cases of typhoid and scarlet fevers occurring simultaneously in the same patient. In the vast majority of cases the typhoid infection preceded that of the scarlatina, the latter infection occurring either during the incubation or the course of the typhoid fever. The scarlatina may make its appearance during convalescence from typhoid, or the symptoms of the two diseases may be mingled with each other. In some cases the scarlet fever may make its appearance first, the fever may never fall to normal, and the typhoid symptoms develop after the disappearance of the scarlatinous rash. In a few cases the symptoms of both diseases seem to develop at about the same time. In making a diagnosis, the two sources of error are the scarlatiniform rashes of typhoid fever, and scarlet fever of a typhoid type. The prognosis of the combined diseases is remarkably favorable. The mortality in the collected cases was 10% less than the average mortality of the separate diseases. [B.K.]

Myelopathic Albumosuria.—Bruce, Lund, and Whitcombe² report the case. A woman of 51, by merely assuming a stooping posture, suffered a fracture of the left femur, which, after two months under proper treatment, had united; while in bed in consequence of the first fracture, a nurse, merely lifting the patient with the hand in the axilla, caused a fracture of the left clavicle. Somewhat later the patient, in endeavoring to reach something lying beneath her, fractured the left humerus; later there was fracture of the rib on the left side from muscular action. The patient was spare, anemic, debilitated, complained of pains in the chest, the back, right side and left hip; these were often severe and neuralgic in character, and nothing seemed to relieve them. During the eight months she was under observation her weakness increased, became extreme with marked anemia and emaciation, and death followed. A previous examination of the urine, the results of which are given in detail by the author, showed the case to be one of albumosuria. The interesting points in connection with the case, aside from the urinary condition, are: (1) The fragility of the bones; (2) extreme anemia and lassitude; (3) pains of neuralgic character varying in intensity and situation, aggravated by movement and accompanied by local tenderness; the presence of a semifluctuating tumor over the acromial end of the clavicle in connection with nonunion of that bone. The peculiarities of the case are: (1) The fractures occurring solely on the left side; (2) the occurrence of the disease in the long bones—humerus and femur; no disease in cranial bones; (3) absence of any prominence of the bones; (4) a sharp grating crepitus of the fractures resembling that produced by old dried museum specimens; (5) the fact that a firm union took place in the fractured femur although infiltrated with disease of a malignant nature; (6) the female sex of the patient, most reported cases being males. [A.B.C.]

The Relation of Typhoid Fever to Tuberculosis.—J. M. Anders³ quotes statistics from the Philadelphia, Episcopal, and Johns Hopkins hospitals to show the rarity of combined typhoid infection and acute tuberculosis. Only cases of typhoid coming to autopsy are included; of these 1.6% had associated acute tuberculosis; 7.6% had chronic tuberculosis. The notes of several cases are given. The clinical phenomena of the combined diseases are difficult to interpret; all of the cases coming to autopsy showed an incomplete or erroneous diagnosis. The typhoid symptoms are usually manifest before those of the tuberculosis; the temperature curve resembled closely that of typhoid, the pulse that of acute tuberculosis. Anders says that while the rarity of the combined diseases makes recognition important, it is a matter of much greater clinical importance to distinguish between typhoid fever and

acute tuberculosis, the latter so closely simulating typhoid as to offer the greatest clinical difficulty. The absence of the Widal reaction, of the characteristic eruption and of the comparatively slow pulse in miliary tuberculosis, are to be especially noted. [A.G.E.]

Heredity to the Disposition for Tuberculosis.—To determine the relative influence of hereditary disposition and postnatal infection in cases of tuberculosis, M. Burkhard⁴ has carefully investigated 250 histories of nontuberculous and the same number of histories of tuberculous patients; all of them were dispensary patients and in dubious cases physical examinations were made to determine exact physical conditions. In 66% of the tuberculous patients he found one or more of the family having been afflicted with the same disease, while among the nontuberculous only 42% could be found to have tuberculosis among their relatives. The relatives investigated were sisters, brothers, parents, uncles, aunts, grandparents, husband, wife and children. One fallacy exists, namely, it is easier to find tuberculous relatives among tuberculous patients because their attention is directed to the disease while that of the nontuberculous is not. Almost as great a frequency among one as among the others is seen and the theory of hereditary predisposition is made still more improbable by their careful statistics. If such investigations are made without prejudice they will be found to be more in favor of family infection than family heredity. [E.L.]

The Primary Seat of Infection in 500 Fatal Cases of Pulmonary Tuberculosis.—Syme and Fisher² give statistics in this series of cases. In 112 cases of tuberculosis under the age of 12 years, 11.7% were apparently definitely abdominal in origin; 55.8% definitely thoracic; 2.35% doubtful whether abdominal or thoracic, while exceedingly few were due to tuberculosis of bones or joints, skin and tonsils. In the post-mortem room they frequently noted the presence of calcareous nodules in the lower lobe of a lung, and this was frequently limited to such a lobe. It appears more commonly than is generally thought that the tubercle bacillus can acquire a temporary lodgment in some part or parts of a lower lobe, but they almost invariably cease to be able to materially advance and consequently basal pulmonary tuberculosis is extremely rare. To sum up, their statistics tend to show that during the first 12 years of life, tuberculous infection of the air passages is four times as common as by the alimentary canal. They also seem to show that the comparative frequency of infection through the alimentary canal during the second 12 years is equally common. Death in hospitals before the age of 12 years can hardly be taken to represent the average causation of death from varieties of tuberculosis for the whole population before that age, because cases of tuberculosis of the lungs are more chronic then at an early period of life, and are not usually admitted to ordinary hospitals. The proportion of abdominal to thoracic tuberculosis in the institutions from which the reports were taken were very small after the age of 24. [A.B.C.]

Different Radial Pulse in Heart Lesions.—The diagnosis of complex valvular heart diseases offers many difficulties, often insuperable. Hence the value of a new and reliable sign, first found by Popoff. It consists in a difference in the radial pulses, the left being considerably weaker than the right. This weakness is due to a number of causes, which need not occupy us here. The sign itself is found in stenosis of the left venous ostium, *i. e.*, in "mitral" stenosis. N. E. Kusheir³ has been enabled in two cases to make a correct diagnosis, confirmed by autopsy, of mitral stenosis, relying partly on Popoff's sign, which was marked during the stage of broken compensation, and appreciated by the palpating finger as well as demonstrated by the sphygmograph. According to Popoff, his sign is chiefly met with in young people, especially women, it being a wellknown fact that the latter are prone to develop mitral stenosis more frequently than men. [L.J.]

Imperforate Duodenum of Congenital Origin.—M. Voron⁴ reports the case of a newly-born infant, which invariably vomited several minutes after beginning to nurse. The

¹ *Zeitschrift für Tuberculose*, 1904, v. 297.

² *British Medical Journal*, April 16, 1904.

³ *Medizinske Obosrenje*, lxi, No. 5.

⁴ *Lyon Médical*, April 10, 1904.

¹ *La Semaine Médicale*, March 30, 1904.

² *The Lancet*, April 16, 1904.

³ *American Journal of the Medical Sciences*, May, 1904.

vomit consisted of the milk ingested, in a noncoagulated condition, and without any admixture of bile. The child died of inanition five days after birth. The stomach was found practically normal. The first part of the duodenum was somewhat dilated, and terminated in a blind pouch, which was fused with the head of the pancreas. The distal portion of the intestinal tract also terminated at the pancreas by a similar nonperforated pouch, which received the biliary and pancreatic ducts. Duodenal occlusion may possibly be diagnosed from occlusion further down by the promptness with which ingested food is vomited, and the absence of bile from the vomit. In esophageal occlusions there occur attacks of suffocation immediately after the administration of food. If the diagnosis can be made, experience has shown that a gastrointestinal anastomosis may possibly save the infant's life. [B.K.]

Chronic Brass Poisoning.—H. N. Moyer and J. M. Lavin¹ review the literature on this subject and report a case that occurred in a brass-polisher of 31. Because of conflicting opinions they state that dogmatic opinions regarding the disease should not be reached. That there is a definite form of poisoning among brass-workers is almost certain and that it is probably due to the copper in the alloy is equally sure. It is really copper poisoning. The general symptoms are those of a chronic metallic intoxication but differ from that of most metals in the development of chills which are strikingly like but lack the periodicity of malaria. These attacks are probably due to excessive ingestion of the metal. A green line on the gums serves to distinguish this from other metallic poisoning, but this sign is not constantly present, especially in those who take good care of the teeth. Organic affections of the nervous system, common in other metallic intoxications, are absent in this form. [A.G.E.]

Epidemic Sore Throat from Suppurative Mammitis in Cows.—Robert French² refers to an article by Pearce and Kenwood having reference to epidemic sore throat in connection with suppurative mammitis in cows. He holds that these epidemics are similar in nature, and, from their wide-spread and pernicious effect, more notice should be taken of their cause and treatment. The disease is ushered in by chilliness, malaise, the symptoms characteristic of follicular sore throat or beginning quinsy, diarrhea and cervical adenitis, high temperature, and neuralgia, particularly in the cranial nerves. French, observing that in a similar epidemic a patient suffering from not only these symptoms, but erysipelas of the face, was induced to try the antistreptococcic serum, after which the symptoms rapidly abated. Following this, he used the treatment in other severe cases of the epidemic. Without exception, the temperature fell to normal within 12 hours and the patient rapidly recovered. This suggested that the epidemic was undoubtedly caused by a streptococcic mammitis bovi and that serum treatment was the proper thing. Cultures taken from discharges were submitted for bacteriologic examination and the report substantiated his views. He therefore believes that the disease is of an erysipelatous affection of the throat, caused by those microorganisms which find their way into the glands of the neck and occasionally spread to the skin, causing a typical erysipelas of the face and head. They eventually find their way into the blood, causing the general septic infection, making their appearance in colonies under the skin and affecting the synovial membranes of the joints, also beginning the neuromalacia of nerves, which accounts for the acute pains in various parts. [A.B.C.]

Appendicitis and Pinworms.—A. P. Morkovitch³ reports an instance of this etiology of appendicitis. The patient was a young laborer, who presented the usual symptoms of the disease. Inside the removed appendix a large number of pinworms of all sizes and stages of development was found, besides many ova. Evidently the appendix often serves these parasites as a protected place of refuge, where they deposit their ova and breed their young. Our routine remedies against them are unable to reach this hiding place. In view of these facts, the accepted theory that pinworms leave the rectum in order to lay their eggs must be abandoned. [L.J.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

Postoperative Pneumonia, with Experiments upon Its Pathogeny.—W. Louis Chapman¹ gives a brief account of a few experiments upon the irritative effects of ether: (1) As applied to the frog's web; (2) upon the lung; (3) effects of ether anesthesia; (4) etherized rabbits plus pneumonia culture. From all of which he deems the following conclusions justifiable: 1. Prophylaxis. Care in ether giving lessened shock and respiratory irritation, which reach their maximum when an unnecessarily large amount of ether is given. 2. The disinfection of the mouth and oropharynx by peroxid before operation is a rational precaution. 3. Adequate air space is of even greater importance in surgical wards than in medical. 4. A careful auscultation and percussion of the chest should precede every operation, and if there be signs of disease, operations of election should be postponed until the chest condition is more favorable. 5. A complete clinical record of all cases of postoperative pneumonia, together with a record of the previous state of the patient, is most desirable and provide data of reference for the future. [A.B.C.]

Surgical Importance of Visceral Crises in the Erythema Group of Skin Diseases.—William Osler² says that the possibility of mistaking these crises for appendicitis or intussusception or obstruction of the bowel and referring the patient to the surgeon for operation is by no means remote. One of his cases previously reported was diagnosed as renal colic, another as appendicitis. A girl of 17, at present in his wards, presents intestinal crises, arthritis and renal features that make the diagnosis unmistakable. Three cases in which laparotomy was performed by English surgeons are cited. The conclusions drawn from these three cases are: "1. In children with colic the greatest care should be taken to get a full history, which may bring out the fact of previous attacks, either of skin lesions, of arthritis, or of intestinal crises. 2. Make the most careful inspection of the skin for angioneurotic edema, purpura, or erythema. It is also to be borne in mind that recurring colic may be for years the sole feature of this remarkable disease, in which the obscurity is not cleared up until after the final appearance of skin lesions." [A.G.E.]

External Esophagotomy for Foreign Bodies.—P. A. Baratsky³ pleads for early operation in foreign bodies lodged in the esophagus. External esophagotomy is an operation which every physician ought to be able to perform in emergencies. The comparatively high mortality attending this operation is due to the complications produced by the foreign body, and must fall when early relief will be offered. [L.J.]

Perineal Prostatectomy.—M. Rafin⁴ gives a report on a series of 25 perineal prostatectomies. The rectum was accidentally perforated in 3 cases, but without permanent result. The most frequent postoperative complication was orchitis, occurring in 9 cases. There were 2 deaths following operation; a very good record, considering the age of the patients and the bad condition of the bladder in many cases. In most cases there was a general improvement following the operation, this improvement not only continuing, but even increasing as the time passed. In 9 cases the residual urine entirely disappeared, and in all but one it was more or less diminished in amount. Micturition was rendered easier, but the frequency was very little diminished; nocturnal urination did not completely disappear in any case. Retention of urine did not recur in any of the patients. Operation was refused in patients considerably affected by age, also in those exhibiting simple dysuria without retention, and in those with a slight, aseptic residue of urine. Preparatory treatment is very important in those with infected bladders, and in those whose bladders are unduly distended. The line of treatment here consists of regular catheterism, with disinfection of the bladder if necessary. [B.K.]

¹ Medicine, May, 1904.

² British Medical Journal, April 9, 1904.

³ Russki Vrach, February 28, 1904.

¹ Annals of Surgery, May, 1904.

² American Journal of the Medical Sciences, May, 1904.

³ Russki Vrach, March 20, 1904.

⁴ Lyon Médical, April 3, 1904.

Intestinal Anastomosis.—J. G. Clark and J. W. Luther¹ contribute a critical review of the various methods of intestinal anastomosis with special reference to the Connell suture which they have employed in five cases, three for carcinoma of the colon, one for carcinomatous perforation of the stomach, and one for a wound of the sigmoid during a pelvic operation. The principles of this method are commended; the technic is slightly modified by the use of silk sutures and the closure of the final point by a Halsted quadrangular quilt suture. The Halsted suture should not be discarded, but for nearly all cases of intestinal resection the suture of F. G. Connell, the only successful suture with the knot within the lumen, should be employed. The writers reach the following conclusions: 1. The Connell intestinal suture is, without doubt, the most rapid and most perfect method of suture yet devised for end-to-end or lateral anastomoses. 2. For the closure of simple perforations or lacerations, or for exploratory incision into the hollow viscera, Halsted's rectangular quilt suture is easy of execution and quite safe, and is of decided preference. 3. All mechanical devices for intestinal anastomosis should be discarded in favor of the Connell suture. 4. Neither the suture within the bowel, as represented by the Wiggan-Connell method, nor the Lembert suture and its modifications should have the exclusive preference in intestinal surgery, for both are of the greatest value in special fields, and each should be at the command of the surgeon, to be used as his judgment dictates. [A.G.E.]

Pulsating Exophthalmos Due to Traumatic Aneurysm of the Internal Carotid Artery.—H. L. Barnard and Hugh Rugby² report that a man of 42 attempted suicide by discharging a revolver within his mouth; the ball passed upward and backward through the deeper side of the superior maxillary bone to the base of the skull, which was perforated and comminuted in the region of the left petrous bone. A whole series of resulting symptoms are enumerated, among which was a protruding pulsating left eyeball, over which a bruit could be heard. The left common carotid was ligated in two places and severed between the ligatures. The latter, the authors now believe, was a mistake. The bullet was located by skiagraph and removed two months after the wound was received. About the ball was an abscess; the patient died soon after. Autopsy revealed a large abscess in the temporosphenoidal lobe, which did not communicate with the abscess about the bullet. There was found a double sacculated aneurysmal dilation in the intracranial part of the internal carotid artery; there was no arterial communication with any sinus, and there was no noticeable dilation of the sinus or the ophthalmic vein. Their conclusions are: (1) That a traumatic sacculated aneurysm of the internal carotid in the cavernous sinus can give rise to the typical symptoms of pulsating exophthalmos; (2) that this lesion can follow a head injury without being caused by basal fracture; (3) that there is no evidence to prove that this condition does not always occur at first and a communication with the veins is a later and secondary consequence; (4) that the signs of pulsating exophthalmos are not necessarily due to the presence of arterial blood in the ophthalmic veins and need not be dependent on excessive dilation of these veins; (5) in young subjects and in traumatic cases seen early, ligation of the common carotid is the best treatment. [A.B.C.]

Extraction of Projectiles from the Brain under Röntgen Ray Illumination.—G. Holzknacht and P. Dömény³ describe a method devised by them, to remove projectiles from the brain under röntgen ray illumination, while maintaining the strictest antisepsis. Their experiments were first tried on the dead body, and then on living animals. The method consists of placing one röntgen ray tube beneath the head, as it rests on the operating table, and another tube to one side of the head. A trephine opening is made in a convenient situation, and the head is moved so that the shadow of the projectile is brought to the center of the shadow cast by the edges of the opening, the lower tube being used for purposes of illumination. A specially devised forceps is introduced in the axis passing through the opening and the projectile. The lower tube is then

extinguished and the side tube set in action. While observing the shadows cast by the projectile and the forceps, the latter can be manipulated until it reaches and grasps the former, when extraction becomes easy. [B.K.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

Treatment of Myoma Uteri.—J. Pfannenstiel¹ gives the following special indications of myoma operation: 1. The absolute size of the tumor without the presence of any pain; a size above a man's head may be the chief indication for operation, and much smaller in younger persons, especially if the tumor be nodular, as operation will be necessary sooner or later, and may be required at a time when the chances are far less favorable. 2. Tumors which evoke severe pain. 3. Submucous myoma with bleeding. 4. Deep-seated excentric growing myoma, especially subvesical, causing compression of the urethra and later threatening grave injury to veins, etc. 5. Pedunculated subserous tumors inclining to torsion of pedicle. 6. All rapidly growing tumors, on account of the possibility of becoming sarcomatous. 7. And complicated cases, insofar as the complication is conditioned upon the myoma. The best time for operation is the premenstrual period. Conservative myotomy may be employed for submucous myoma or polyps of the cervix. Large interstitial myoma, also multiple tumors and diffuse adenomyoma should be completely exterminated without reference to the functions of the uterus, as in such cases we must choose the method which best protects the patient. In regard to mortality, there seems to be no essential difference in favor of the vaginal over the abdominal total extirpation. [W.K.]

Technic of Abdominal Section.—F. Barrington² tabulates 100 cases of abdominal section for pelvic and abdominal lesions and emphasizes several points gained from this experience. He considers the tier suture to be the only scientific method of closing the abdominal wall. His rule is to avoid drainage as far as possible; if drainage be necessary it is done through the posterior vaginal fornix, drainage through the parietal wound having been entirely abandoned. Conservative surgery of the ovary is considered of much more importance than that of the tubes. Considerable space is given to the discussion of the treatment of the appendix in cases of pelvic disease. That organ should be removed whenever diseased or adherent to pelvic viscera; the appendix should always be investigated in recurrent attacks of right-sided pain; in operating for relapsing appendicitis in patients who have suffered from dysmenorrhea, the incision should be made internal to the right semilunar line in order to allow examination of the ovary and tube; in every case of appendicitis in the female a pelvic examination should be made before operation is begun. The only point raised in the postoperative treatment is the ensuring of early intestinal peristalsis. To secure this, Barrington now gives five grains of calomel one and a half hours before operation and in addition, if the case be septic, two drams of magnesium sulfate in lemon juice immediately before the patient is taken to the operating-room. [A.G.E.]

Postoperative Cystitis.—K. Baisch³ refers to the fact that after Wertheim's operation for uterine carcinoma, many patients died of cystitis. Investigation led to the conviction that the cystitis was due to the daily catheterization which necessarily followed the operation. Believing that the germs of infection were unavoidably carried into the bladder in the process of catheterization, a disinfecting irrigation of the bladder was used immediately after the catheterization in order to remove or destroy any infectious germs. This prophylactic treatment was employed in 30 cases after the Wertheim operation, with the result that the 5 which died within 8 days showed no symptoms of cystitis; that 22 catheterized for 18 days, under the irrigation treatment remained completely

¹ International clinics, Vol. 1, fourteenth series, 1904.

² Annals of Surgery, May, 1904.

³ Zeit. für Heilkunde, Bd. xxv, Heft 3, p. 59.

¹ Deutsche medizinische Wochenschrift, March 31, 1904.

² Australasian Medical Gazette, February 20, 1904.

³ Zentralblatt für Gynäkologie, March 26, 1904.

free from any cystitis; 1 had cystitis before the operation; and only the remaining 2 showed slight traces of irritation of the bladder with clouded urine in which bacteria coli were found. These diminished in a few days, and the patients recovered without any cystitis. Baisch commends this treatment. [W.K.]

Preservation of the Periureteral Arterial Plexus.—J. A. Sampson¹ describes at length the blood supply of the ureter, which he has investigated in numerous human and animal subjects. The main trunks of the plexus run in a longitudinal direction from the kidney to the bladder in the outer loose perimuscular fibrous coats of the ureter; from these arise smaller branches, forming the mesh-work of the plexus. It is possible to inject the entire plexus from the renal or internal iliac artery, and also probably from any vessel that furnishes a ureteral artery. The practical point deduced from this study is, that the ureter may be dissected free for considerable portions of its length without danger of necrosis if the plexus be allowed to remain intact. Sampson discusses this point with special reference to carcinoma of the cervix. If, when hysterectomy is performed the parametrium be removed mesial to the ureter, necrosis of the latter structure is slight, but cancer may be left; if the ureter be dissected free and the surrounding tissues removed, danger of necrosis is greater, but that of recurrence of the growth is less. In either case the periureteral plexus, and also the ureteral sheath, should be preserved. This is best done by resecting the lower portion of the ureters and implanting the renal ends into the bladder; this is the only operation justifiable when the ureteral sheath is involved. [A.G.E.]

Bladder Irritation in Girls.—W. D. Spanton² in examining, under the microscope, a fluffy mass passed by a child of three years, in whom micturition was painful from a tender urethral orifice, found it to contain woolen fibers entangled in mucus. Several similar cases presented themselves later. In all of these the trouble originated in the woolen combination suits, rather rough at the edges, which the little girls wore, some of the fibers from which had wormed their way along the urethra into the bladder by means of their barbed edges. Linen fibers being smooth, this accident cannot occur. With a change in garments and a diuretic for a few days all trouble disappeared. [H.M.]

Treatment of Puerperal Eclampsia by Combined Method.—J. Lithgow³ reports a case of eclampsia in which the patient survived after having had 69 severe convulsions, the fits appearing before labor, and continuing during labor and after delivery. As a primary step in accouchement forcé, he applied or introduced through the os a piece of lint saturated with cocaine solution. The time necessary thus to dilate the os was about the same as required by metal dilators, and all danger of laceration was avoided. The patient was put under chloroform and delivered with forceps, but as the convulsions continued, the rational treatment seemed to be to get rid of the poisonous material by venesection, the bleeding being allowed to cease of its own accord. This loss of blood was replaced by the injection into the cellular tissue below the breast of a pint of normal salt solution. The fits gradually subsided, and although she remained unconscious two days, the patient ultimately made a good recovery. A test of the liquor sanguinis gave 2½ gr. of urea to the ounce. [W.K.]

Central Pregnant Paralysis of the Mother.—R. v. Hosslin,⁴ in the term pregnancy paralysis, includes paralysis which develops during pregnancy, labor, or the puerperium. This may occur without any pathologic lesion as the result of hysteria or myasthenia gravis. He discusses the real apoplexy of pregnancy. The pregnant condition seems to have some causal relation to this as it appears usually in the later months or during labor. Hypertrophy of the heart accompanying pregnancy, greater pressure in the bloodvessels and changes in the vessels through toxic influences may each have its influence. An interruption of pregnancy is indicated, if there exists danger to the life of the mother and eventually cesarean section may be necessary. As the causal relation between the two con-

ditions of apoplexy and pregnancy is often doubtful so it is in cases of paralysis in pregnancy with albuminuria; and the paralysis is more likely to follow eclamptic attacks. Pregnancy exerts an unfavorable influence upon all serious diseases of the cord which develop in connection with it. Clinical experiences prove that brain and spinal diseases do not prevent conception, and in cerebral trouble pregnancy takes its usual course. In spinal affection, if severe, interruption of pregnancy is more likely to occur. Labor is seldom influenced by central paralysis, neither the activity of labor pains nor the sensibility to pain being changed. In spinal paralysis the labor is mostly normal, though frequently without much sensibility to pain. [W.K.]

Incarcerated Volvulus Obstructing the Birth Canal.—J. Saks¹ made a diagnosis of ovarian cyst twisted on its pedicle in the case of a woman who had been in labor for some hours, and in whom a vaginal examination was impossible on account of an obstruction. He believed the labor pains had pressed it downward and it had pressed the uterus upward. Instead of this, the laparotomy revealed as the birth impediment, a much distended loop of large intestine, twisted upon itself and incarcerated in Douglas' pouch. The infant delivered by cesarean section was dead; the patient died shortly after. [E.L.]

Treatment of Fresh Perineal Tears.—J. Eversmann² believes thoroughly in the immediate repair of perineal tears. They may heal, it is true, without any stitch; but since the firmness of the perineum depends upon a perfect union of the muscles, and it is the nature of muscle when severed to retract, unless this tendency is overcome by suture, there will not be a close and firm union, but rather a more or less wide separation of the edges of the wound. Of 132 cases of sutured fresh perineal tears, only two or 1.5% failed to heal properly. In no case was there much pain, and in only 45% a slight rise in temperature. Such experience speaks most eloquently of the suitableness of the suturing of fresh tears. Therefore he recommends this method most warmly. [W.K.]

Chorionepithelioma of the Bladder.—W. S. Devitski³ reports a unique case—chorionepithelioma of the bladder in a virgin, whereas such cases have hitherto been brought into etiologic relation to pregnancy. The patient was 75 and complained of hemorrhages from the vagina, painful micturition, cough with bloody expectoration and dyspnea. A fibromyoma uteri was diagnosed and curetage performed, after cutting the hymen. The patient died soon after and the neoplasm was found in the bladder at the autopsy, beside fibromyomas of the uterus. Metastases were present in lungs, liver and spleen. The author indulges in some speculation as to the origin of this mysterious neoplasm in a virgin. [L.J.]

Treatment of Retroversion of the Gravid Uterus.—G. Ernest Herman⁴ asserts that retroversion of the gravid uterus needs treatment because it produces retention of urine from the effects of which the patient will very likely die, the common mode of death being from extension of inflammation of the bladder up the ureters to the kidneys, causing what is known as "surgical kidney." Prolonged retention of urine may cause exfoliated cystitis, which, instead of tending to recovery after the retention has been relieved, continues until the dead mucous membrane is expelled or removed from the bladder. His experience of many years in London hospitals has convinced him that there is no foundation for the statement that retroversion of the gravid uterus tends to abortion; but that when abortion occurs it is due to uremia following retention of urine. The only dangers of retroversion of the gravid uterus are those which directly or indirectly spring from retention of the urine—cystitis, peritonitis, rupture of the bladder, pyelitis, uremia. The only necessary treatment is the catheter. This, if used in time, will relieve symptoms and prevent danger. Keep the bladder empty and the patient recumbent, and in over 90% of the cases the uterus will right itself. If it does not, pregnancy will still go on. Yet in many of these cases, reposition, though unnecessary, is desirable, as it avoids the long use

¹ Johns Hopkins Hospital Bulletin, February, 1904.

² Medical Press and Circular, February 24, 1904.

³ Brit. Med. Jour., March 26, 1904.

⁴ Münchener medicinische Wochenschrift, March 8, 1904.

¹ Münchener medicinische Wochenschrift, I, No. 51.

² Zentralblatt für Gynäkologie, February 27, 1904.

³ Medizinske Obzrenie, Vol. Ixi, No. 5.

⁴ Brit. Med. Jour., April 16, 1904.

of the catheter, and it will usually be found easy after the bladder is emptied to push the uterus up with the fingers in the vagina or rectum. In 20 years, in the two largest hospitals of London, not a case was met with in which the catheter could not be passed. Herman thinks the danger in abdominal section is greater than that of a week's frequent use of the catheter, and greater than that of letting pregnancy go to term with part of the uterus in the hollow of the sacrum. Neither does he advise induction of abortion. [W.K.]

Situation of the Corpus Luteum in Four Cases of Ectopic Gestation.—R. Worrall¹ reports four cases of tubal gestation in which positive or negative evidence showed that the ovum came from the ovary of the opposite side. In two of them a recent corpus luteum was found in the opposite ovary and none was present in the ovary on the side in which gestation occurred. In the other two the ovary of the affected side contained no corpus luteum which must have been on the opposite side, though that ovary was not examined. The inference drawn is that the ovum in all four cases must have reached the opposite tube by migration across the uterine cavity or by external migration across the pelvis. In one case the fimbriated extremity of the fallopian tube corresponding to the location of the corpus luteum was occluded, which leads Worrall to conclude that migration must in this case have been external. [A.G.E.]

Bossi's Dilator.—W. B. Armstrong² having used Bossi's dilator for some time, recommends it to the medical profession for the ease, safety, and rapidity with which the cervix can be dilated. He adopts the following method: Chloroform is administered to its full surgical extent, and the patient placed in the left lateral position. If the os be only slightly dilated, the cervix is carefully pulled downward with volsellum forceps, and the dilator, with the sheaths removed from its points, is introduced with a gentle screwing motion. Dilation is begun and gradually maintained until the os is the size of half a crown. The dilator is withdrawn and reintroduced with the sheaths adjusted to its points. Dilation is very gradually continued; the blades are frequently relaxed and their position changed circularly, so that all parts are uniformly pressed upon. When the os is fairly well dilated, the finger is used to assist. It is well to remember that the index of the instrument gives only very approximately the amount of the dilation. When dilation is complete the membranes are ruptured and the child delivered in whatever manner is indicated. [W.K.]

The Question of the Site of Impregnation.—H. Cripps and Williamson³ report a case of tubal gestation after the complete removal of the ovary on the same side, and consider this as a case of the external migration of the ovum from the left ovary to the right tube with impregnation somewhere in its course, possibly in the abdominal cavity with subsequent tubal gestation, the development of the trophoblast having reached such a stage that the ovum was able to bore its way into the tubal mucosa and gain an implantation before it reached the uterine cavity. In the second case pregnancy occurred after the ligation of both fallopian tubes, the lumen of one tube being completely obliterated, and considerably narrowed in the other, and yet the pregnancy was uterine. [W.K.]

Myomectomy on the Gravid Uterus.—If through a combination of pregnancy and fibromyoma it becomes necessary to operate, Condamin⁴ chooses, if the size and position of the tumor permit it, a myomectomy. In four cases of this kind reported by him he succeeded in not disturbing pregnancy twice, and twice the patients aborted, but in one case at least this was due to external conditions, which could have been prevented. Myomectomy during pregnancy may be performed if the following conditions are present: 1. If the condition is very painful. 2. If the position of the fibroma is bound to prevent normal delivery; in such a case the operation must be performed relatively early, to prevent the dangers of a probable abortion due to the tumor, as well as the complications possible during the confinement. 3. If the presence of the fibroid has already produced one or more abortions the operation certainly is justified. 4. Should the woman not be preg-

nant her wish to give her the chance to become pregnant as long as she is younger than 40, should be sufficient to choose myomectomy.

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Gelatin in Hemorrhage.—H. C. Wood, Jr.,¹ reviews the action and use of gelatin in the control of hemorrhage. It has been found of value in the treatment of hemoptysis, purpura hemorrhagica, various manifestations of hemophilia, especially epistaxis, and various uterine hemorrhages. Its value in hematuria is disputed, a number of authors believing it irritant to the kidneys and therefore counterindicated, while others have found the hemorrhage lessened by its use. Recent literature tends to show that gelatin is more likely to prove beneficial than harmful in hemorrhage from the kidney. In the treatment of aneurysm, gelatin is losing its popularity. Sargo points out that it is useful only in sacculated aneurysms, and if used in quantities large enough to have any powerful effect in causing intravascular clotting, there is grave danger of embolism. The most serious drawback to the use of gelatin is the difficulty in perfectly sterilizing it. This has been overcome by various manufacturers placing upon the market a 10% solution of gelatin, under the name of *gelatina sterilisata*, which is guaranteed to be sterile. The danger of infection and the difficulty in sterilization may be avoided by giving the remedy by the mouth. In menorrhagia and hemoptysis of the milder grades, the use of gelatin by the mouth shows as good results as can be achieved by its hypodermic injection. The use of gelatin tampons in metrorrhagia, and packing the nares with cotton saturated with a solution of gelatin in epistaxis, have also given good results. For hypodermic use it should be dissolved in warm normal salt solution in the strength of from 2% to 5% of which from 100 cc. to 200 cc. may be given as a dose. [L.F.A.]

Abdominal Massage.—J. K. Mitchell² finds that the chief difficulties encountered in applying abdominal massage are fat abdominal walls and irritable or strongly contracting abdominal muscles. The former obstacle can be overcome by deeper and stronger manipulation, using large hand-grasps, and for tapotement by stretching the skin and muscle tightly with one hand while the other performs the vibration. The latter obstacle can be influenced by persistence; the tendency to involuntary contraction lessening as the patient grows accustomed to the operation. When it is not thus lessened, changes of position may be tried. Instead of the usual supine position, with the shoulders a little raised and the knees bent, let the subject lie upon the right side, with the knees bent and the thighs drawn up to right angles with the trunk. Not only do the abdominal muscles lose their point of application of force to a certain extent in this posture, but the small intestines lapse toward the right and leave the rest of the abdominal organs more accessible to the touch. When persistent irritability of the abdominal rectus muscles continues in spite of these devices, it is worth while to try to rub the belly with the patient seated and leaning forward. A narrow chair with a high back should be chosen. The subject is seated astraddle of the chair, the arms are crossed on the top of the chair-back, and the head leaned forward upon them. The position makes contraction of the recti difficult, and although, owing to the narrowing of the accessible abdominal area brought about by the lowered rib margins, massage of the abdomen cannot be so thoroughly done, vibration and general up-and-down shaking of the abdominal contents may be readily accomplished by an operator kneeling behind the patient. Two to three months of massage will cure a great majority of cases of habitual constipation. Even a shorter course may serve, if suitable exercises be combined with massage and the patient will consent to reasonable modifications in diet and will forego drugs. [L.F.A.]

¹ Australasian Medical Gazette, March 21, 1904.

² British Medical Journal, March 26, 1904.

³ Lyon Médical, 1904, cli, 86.

¹ Therapeutic Review, Vol. I, No. 4, 1904.

² Massage and Exercise, Vol. vii, Cohen's System, Blakiston, 1904.

Diet in Hepatic Diseases.—Albert Robin¹ gives a review of the clinical signs of practical value in aiding the selection of a proper diet in hepatic disorders. Among these is mentioned urobilinuria. Urobilin in the urine indicates excessive destruction of the blood-corpuscles, and the complete transformation of the hemoglobin by the liver into biliary pigments is not effected. This, then, is not a true insufficiency, but only an indication that the liver is incapable of accomplishing a task which surpasses its normal capacity. Urobilinuria, then, is the result of hyperactivity of the phenomena of metabolism, rather than a functional insufficiency of the liver. Alimentary glycosuria gives contradictory results as regards hyperactivity or insufficiency of the liver, but it is an index to the functional sensibility of this organ. Finally, certain drugs act as stimulants or depressants to hepatic activity to such an extent that they may be used as a guide to functional disturbances of the organ. Milk is prohibited by Robin in simple jaundice, biliary lithiasis, and in atrophic cirrhosis, because it diminishes hepatic activity, which is already depressed in these conditions. In cases of diminished activity of the liver, he orders a milk-vegetable diet, the vegetables acting as stimulants to hepatic activity. In atrophic cirrhosis, the milk diet should be avoided, because the active elements of the liver need stimulation. The mixed diet should be used until forced to abandon it. In the early stages certain fish and white meats are allowed. [L.F.A.]

Surgical Tuberculosis Treated by Marmorek's Serum.—Alexander Marmorek² employed his serum in a series of cases of surgical tuberculosis, his reasons being that these forms are exceptionally favorable for the continuous observation of the effects of the serum, and that the lesions are relatively similar, so far as the effect on the entire system is concerned, to the initial manifestations of pulmonary and laryngeal tuberculosis. He effected a complete cure in several cases of Pott's disease complicated either by fistula, abscess, intestinal perforation, or by palsy of the lower limbs. He has caused diminution of glandular mass in the neck, groins, and the true pelvis, as well as secured the closing of fistulas which had long been open. When fistulas failed to close it was generally found that a sequestrum caused their persistence. In several instances he observed that the abscess at the seat of caseation was reabsorbed without surgical treatment; multiple granulomas of the skin refractory to treatment for years rapidly dried up and closed. The highest number of injections administered to any one patient was 52; the lowest seven. Marmorek states that in about 2,000 injections he observed a local abscess only three times. The serum does not ordinarily give rise to pyrexia or to any disturbance, local or general. [A.B.C.]

Blake's Antiseptic Soap.—Edward Blake (*Colitis, Appendicitis and Their Allies*, London, Glashier, 1904) calls attention to the conveyance of disease by the use of enema syringes. He advocates the abolition of the bulb syringe entirely and the use of a glass nozzle with the bag syringe. For cleansing these nozzles and other instruments, and also one's fingernails and hands he has devised a soap which is pleasant to use, leaving the skin soft and pliant. It does not stain. It consists of

Formalin	3 cc. (5 m.)
Strong ammonia water	3.75 cc. (1 fl. dr.)
Hebra's soap (spiritus saponis kalinus) 30	cc. (1 fl. oz.)

[S.S.C.]

A Clinical Study of Adonidin.—Reynold Webb Wilcox³ shows by sphygmographic tracings the value of adonidin in several cases of cardiac disease. Bearing in mind that the condition of the myocardium, the arteries and the valves, determine the value of any remedy, the conditions for which adonidin may be administered are mitral and aortic insufficiency, dilation, arrhythmia, precordial pain, and the symptom-complex known as tobacco heart. In fatty degeneration, pericarditis, simple and compensatory hypertrophy, and in certain atheromatous conditions it may safely be administered, when digitalis, if given at all, must be used with great caution. The pulse-rate is slowed, the cardiac energy increased, arrhythmia lessened, and the amount of urine increased under the influence

of adonidin. Wilcox concludes that the remedy seems to have a field of usefulness not entirely filled by digitalis; this is apparently in promptitude of action, and the possibility of long continued use without danger of cumulative effects or liability that the patient will become accustomed to the drug. The objection is that the irritation it causes may sometimes prevent long continued use. [A.G.E.]

Inoculation with Haffkine's Plague Prophylactic.—Chas. E. P. Forsyth¹ gives his results in 30,609 inoculations. He holds that this prophylactic treatment, while not meeting the success anticipated in India and elsewhere, nevertheless has been sufficiently encouraging to warrant its continuance, if done under proper regulations. Among the 30,609 patients inoculated, 329 were attacked by the plague; there were 50 deaths, showing a mortality of 15.1%. Forsyth says this reduction in a disease in which the case mortality may reach 70%, 80% or 90%, and which is usually about 50%, is worthy of note. In 50 villages having an aggregate population of 44,760, the uninoculated numbered 31,874 and the inoculated numbered 12,886, both classes living approximately under the same conditions. Among the uninoculated 4.5% were attacked by the plague, with a case mortality of 45.2%, while among the inoculated 1.3% were attacked, with a case mortality of 16.9%. This, Forsyth holds is proof of the usefulness of the treatment, and as to its freedom from ill-effects, it is stated that in the whole of 30,609 inoculations no serious consequences came to light. It is very important that the people of India be educated not only to accept inoculation, but also to be dissatisfied with it, unless it produces a pronounced reaction. If this could be attained and the system of prophylactic treatment be carried out systematically it is the belief of Forsyth that the plague ravages in India would end. [A.B.C.]

Treatment of Facial Paralysis by Nerve Transplantation.—Hackenbach² reports the case of a girl 8 years old, who suffered from facial paralysis for over seven years. Treatment consisted in implanting two-thirds of the spinal accessory nerve into a split in the facial. There was improvement after four and a half months; at the end of nine months the child could voluntarily draw the right angle of the mouth outward. Encouraged by this result, Hackenbach, in a case of infantile spinal paralysis, implanted a third of the tibial nerve into a longitudinal split in the peroneal nerve, which was totally paralyzed. Three months later there was still some weakness, especially as regards equinus. [L.F.A.]

Treatment of Gastric Ulcer.—M. Wagner³ writes concerning the views of Lenhart, who disagrees with the multitude of clinicians in giving his gastric ulcer patients an albuminous diet from the beginning, having achieved good results with this treatment for years. He has found that in individuals presenting symptoms of hyperacidity, such as nervous patients of all kinds, and chlorotics, all these symptoms disappear quickly if a diet rich in albuminous substances is given. The hyperacidity diminishes and the general condition improves much quicker than by milk diet. Because of these good results and because hyperchlorhydria, and anemia and chlorosis are usually the most important etiologic and concomitant factors of gastric ulcer, he advises the same treatment in this condition; if this treatment is begun early enough the ulcers will usually heal before the stage of hemorrhage is reached, but even should this have taken place he gives albuminous diet as only with it can the patient gain strength quickly and the ulcer be thus healed. He has never observed dangerous complications from this, and the pain always disappears quickly and completely. Occasionally a renewed hemorrhage would be seen, but no oftener than with other treatments. The following is his method of procedure: The patients must be put to bed and kept as quiet as possible; they must use the bedpan and must be encouraged to rest mentally as well as physically. An icebag over the stomach prevents distention, favors contraction, and relieves pain. On the first day after the hemorrhage the patients are given iced milk in

¹ The Lancet, December 12, 1903.² Annals of Surgery, December, 1903.³ Therapeutic Review, Vol. 1, No. 4, 1904.⁴ Münchener medizinische Wochenschrift, 1904, II, Nos. 1 and 2, January 5 and 12.¹ Bulletin Général de Thérapeutique, Vol. cxvii, No. 12, 1904, p. 447.² The Lancet, December 12, 1903.³ International Clinics, Vol. 1, fourteenth series, 1904.

spoonfuls up to 200 cc. and 300 cc. in the 24 hours, also several fresh eggs beaten up. He also gives bismuth subnitrate in $\frac{1}{2}$ dr. (2 gm.) doses with a little water three times daily, during the first 10 days. During the first week this ration is increased daily by 100 gm. (3 oz.) of milk and 1 egg, so that at the end of the week the patient is getting about 800 cc. of milk and 6 to 8 eggs. He never gives more than 1 liter of milk daily, because of possible gastric distention and to preserve cardiac strength, which is already at a low point. After the sixth day the patient also gets 35 gm. of finely cut, raw beef, mixed in with some of the eggs; this is increased in amount after a few days. After several weeks, if the patient does well, he is given cooked rice, farina, zwieback, cooked meat, etc., and after four weeks a mixed diet in gradually increasing quantities. Besides bismuth, Wagner prescribes Bland's pills and arsenic. Of 60 patients thus treated only one died; of the 59 patients only one had a recurrent hemorrhage after the treatment was begun. [E.L.]

Methylene-blue in Sciatica.—Baccelli¹ notes Klemperer's use of the above, which was effectual in 19 out of 27 cases so treated. The writer uses hypodermics of phenol with excellent results (just in what manner is not given). [T.H.E.]

Theocin as a Diuretic.—A. O. Dwiejilny² has studied clinically the action of theocin, and pronounces the drug to be a powerful diuretic, stronger than diuretin and agurin. The diuretic effect is seen inside the first 24 hours, and continues for two to three days, gradually abating after that time, though still noticeable for about one week. Repeated use results in much weaker action. The diuretic effect appears to be due to the action on the renal epithelium, as pulse and blood-pressure remain unchanged. The remedy is borne better in small doses, as 0.15 gm. (3 gr.). Gastric distress is unfortunately a frequent by-effect. [L.J.]

Marmorek's Antituberculous Serum.—Arthur Latham,³ of St. George Hospital, London, reports his experience in the treatment of 30 severe cases of tuberculosis, the treatment extending over a period of three months. He asserts that the short length of time during which the treatment was used and the relatively few cases make his conclusions only suggestive. As to the technic of administration, he states that so soon as the skin is prepared, as for a surgical operation, an injection of the serum is made and the area then covered with cyanid gauze, and subsequent injections are given by simply lifting the dressing and swabbing the skin with an antiseptic solution before inserting the needle. That this procedure is efficient is proved by the fact, that in 450 injections no sepsis has followed. A certain proportion of individuals is unable to support the serum, just as others are unable to support antistreptococci or plague serum. In such cases there may be rise of temperature, malaise, enlargement and tenderness of glands near the seat on injection, rashes, and joint affections. He states that it is quite clear that the use of the serum has its limitations; we cannot expect to obtain permanent relief in cases in which there is extensive disease of long standing or in which there are marked excavations and secondary infection, though some such cases under his observation have made steady progress under the Marmorek treatment. In the majority of instances improvement takes place. In three of the six cases of surgical tuberculosis treated, the pain and tenderness disappeared after a few injections. In the majority of cases of pulmonary tuberculosis, the first injections led to an increase in the weight of expectoration and to an increase of the number of moist rales; in a certain number this increase has been followed by a diminution in the weight of the sputum which has been progressive, together with a diminution in the number of rales. Latham states that it is too early to give a useful summary of the effects of the serum on the various symptoms, especially as the patients are still under treatment. A series of cases with reports appended are recited. [A.B.C.]

The Action of Poisons on Renal Bloodvessels.—W. W. Sakussow⁴ experimented with numerous strong poisons in regard to their action on the vessels of isolated kidneys. The

method is very ingenious, but we are concerned chiefly with the results. He found that: 1. Digitalin produces contraction of the vessels in dilutions of 1 to 1,000,000. 2. Strophanthin acts in a similar manner. 3. The vasoconstrictory action of convallamarin is very feeble. 4. Nicotin is a vasoconstrictor in strong solutions, while diluted to 1 to 100,000 it is inactive. 5. Atropin constricts the vessels at 1 to 10,000 and upward. No dilatatory effect has been observed, even from strong concentrations. 6. Cocain 1 to 10,000 was inactive. 7. Caffein caused considerable dilation in 1 to 1,000 strength, and very mild dilation at 1 to 10,000. 8. Chloral hydrate dilated the vessels at 1 to 100 to 1 to 10,000. 9. Physostigmin gave marked constriction at 1 to 20,000. 10. Adrenalin is a powerful vasoconstrictor, active in extreme dilutions, such as 1 to 1,000,000. [L.J.]

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 27, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	San Francisco..... May 8-15.....	1	
Dist. of Columbia:	Washington..... May 15-21.....	6	
Florida:	Jacksonville..... May 15-21.....	1	
Georgia:	Macon..... May 15-21.....	4	
Illinois:	Danville..... May 15-21.....	2	
Kentucky:	Covington..... May 15-21.....	1	
Louisiana:	New Orleans..... May 15-21.....	12	
		One Imported.	
Michigan:	Detroit..... May 15-21.....	1	
Missouri:	St. Louis..... May 15-21.....	11	
Nebraska:	Omaha..... May 15-21.....	3	1
New Hampshire:	Manchester..... May 15-21.....	4	
Ohio:	Toledo..... May 15-21.....	1	
Pennsylvania:	Pittsburg..... May 15-21.....	3	
South Carolina:	Charleston..... May 15-21.....	3	
Wisconsin:	Milwaukee..... May 15-21.....	8	
SMALLPOX—INSULAR.		Cases	Deaths
Philippine Islands:	Cebu..... Mar. 1-31.....	1	1
	Manila..... Mar. 27-Apr. 2.....	1	
SMALLPOX—FOREIGN.		Cases	Deaths
Brazil:	Rio de Janeiro..... Apr. 11-24.....	133	63
Canada:	Sydney..... May 15-21.....	1	
China:	Hongkong..... Mar. 26-Apr. 2.....	6	5
	Shanghai..... Mar. 25-Apr. 2.....	8	5
France:	Marseilles..... Apr. 1-30.....	1	
Great Britain:	Birmingham..... May 8-14.....	1	
	Bristol..... May 8-14.....	1	
	Edinburgh..... May 1-7.....	5	
	Glasgow..... May 7-13.....	25	1
	Hull..... May 1-7.....	1	
	Leeds..... May 8-14.....	3	
	Liverpool..... May 8-14.....	1	
	London..... May 1-14.....	40	1
	Newcastle-on-Tyne..... May 1-17.....	3	1
	Nottingham..... Apr. 24-May 7.....	8	
India:	Bombay..... Apr. 20-28.....	23	
	Karachi..... Apr. 18-24.....	9	1
Italy:	Catania..... May 6-12.....	1	
	Palermo..... May 1-7.....	2	
Japan:	Moji..... Apr. 1-9.....	Present.	
	Nagasaki..... Apr. 1-9.....	Epidemic.	
	Sasebo..... Apr. 1-9.....	Present.	
Java:	Batavia..... Apr. 10-16.....	11	1
Mexico:	Tampico..... May 8-14.....	1	
	Torreón..... May 8-14.....	5	5
Netherlands:	Rotterdam..... May 8-14.....	1	
Russia:	Moscow..... Apr. 24-30.....	7	4
	Odessa..... Apr. 11-24.....	5	1
	St. Petersburg..... Apr. 24-May 7.....	32	8
	Warsaw..... Apr. 10-23.....	53	
Straits Settlements:	Singapore..... Mar. 26-Apr. 2.....	1	
Turkey:	Alexandretta..... May 1-7.....	Epidemic.	
	Beirut..... Apr. 24-30.....	Present.	
	Constantinople..... May 2-8.....	8	
YELLOW FEVER.		Cases	Deaths
Brazil:	Rio de Janeiro..... Apr. 11-24.....	7	
Ecuador:	Guayaquil..... Apr. 24-May 4.....	5	
Mexico:	Coatzacoalcas..... May 11-17.....	3	
	Merida..... Apr. 24-30.....	Present.	
	Vera Cruz..... May 8-21.....	3	
CHOLERA.		Cases	Deaths
India:	Bombay..... Apr. 20-26.....	1	
	Madras..... Apr. 16-22.....	1	
Persia:	Kermanschah..... To Apr. 11.....	20	
PLAGUE—INSULAR.		Cases	Deaths
Philippine Islands:	Cebu..... Mar. 1-31.....	3	3
	Manila..... Mar. 25-Apr. 2.....	1	
PLAGUE—FOREIGN.		Cases	Deaths
Africa:	Johannesburg..... May 5.....	2	
	Port Elizabeth..... Apr. 17-23.....	2	1
Australia:	Brisbane..... Apr. 8-16.....	2	
Brazil:	Nichteroy..... Apr. 15.....	1	
	Praia..... Apr. 24.....	Still present.	
	Rio de Janeiro..... Apr. 11-24.....	5	

¹ Il Pollicinico (Rome), No. 19, 1904.

² Russki Vrach, March 13, 1904.

³ The Lancet, April 9, 1904.

⁴ Russki Vrach, April 10, 1904.

Chile:	Antofagasta	Apr. 19.....	9
China:	Hongkong	Mar. 28-Apr. 2....	3
Formosa:	.....	Mar. 31-Apr. 9....	229
India:	Bombay.....	Apr. 20-28.....	532
	Madras.....	Apr. 16-22.....	1
Peru:	Lima.....	Apr. 10-11.....	20
Straits Settlements:	Singapore.....	Mar. 27-Apr. 2....	1

Changes in the Medical Corps of the U. S. Army for the week ended May 28, 1904:

KUHN, CHARLES F., contract surgeon, is granted leave for two months, with permission to visit the United States.

HALL, First Lieutenant JAMES F., assistant surgeon, is relieved from duty in command of the casual detachment, Hospital Corps, Luneta Barracks, Manila, and will report on transport Seward for duty as transport surgeon, relieving First Lieutenant Perry L. Boyer, assistant surgeon, who will assume command of the casual detachment, Hospital Corps, Luneta Barracks, Manila.

AYER, IRA, contract surgeon, is granted leave for two months, with permission to visit the United States.

PHALEN, First Lieutenant JAMES M., assistant surgeon, is granted leave for one month, with permission to visit China and Japan, to take effect about April 15.

HALL, W. E., contract surgeon, is relieved from further duty at Camp Jossman, Guimaras, P. I., and will proceed to Camp Harbshorne, Laguan, Samar, P. I., for duty as surgeon at that station, relieving Contract Surgeon M. F. Marvin who will proceed to Manila, P. I., and report to the adjutant-general, Philippines Division, for further instructions.

The following named medical officers will proceed to stations set after their respective names for duty: Captain Weston P. Chamberlin, assistant surgeon, to Camp Gregg, Pangasinan; Contract Surgeon John L. Burkart, to Camp Morrison, Ilocos Sur; Contract Surgeon Leonard K. Graves, to Nasugbu, Batangas, relieving Contract Surgeon W. O. Cutcliffe, who will proceed to Bulan, Sorsogon, and relieve First Lieutenant George H. Scott, assistant surgeon, who will proceed to Camp McGrath, Batangas, for duty; Contract Surgeon Frederick H. Mills, to Camp Stotsenburg, Pampanga; Contract Surgeon Ralph W. Newton, to Legaspi, Albay; Contract Surgeon Edwin W. Patterson, to San Mateo, Rizal; Contract Surgeon Samuel A. Springwater, to Fort William McKinley, Rizal.

EBERLE, HARRY A., contract surgeon, is granted leave for two months, with permission to visit Japan, to take effect about April 15. At the expiration of leave he will be relieved from duty in this division and will report at Nagasaki, Japan, on the transport scheduled to leave for the United States June 15, for duty thereon en route to San Francisco, Cal.

MCALISTER, JOHN A., contract dental surgeon, is granted leave for one month, with permission to visit China and Japan, to take effect about April 15.

RIETZ, HUGO C., contract dental surgeon, is granted leave for two months, with permission to visit China and Japan.

KREBS, First Lieutenant L. LE ROY, assistant surgeon, is granted leave for two months, with permission to visit the United States.

PARKMAN, WALLACE E., contract surgeon, now on duty at Fort Worden, on being relieved by First Lieutenant Samuel M. Waterhouse, assistant surgeon, will proceed to Fort Assiniboine for duty.

HENDERSON, First Lieutenant ALBERT B., assistant surgeon will report on or before June 15 to Colonel Wm. M. Wallace, Fifteenth Cavalry, president of the Army Retiring Board at the War Department, for examination by the Board.

PECK, LUKE B., contract surgeon, now at Jersey City, N. J., will proceed to Fort Andrews for duty.

VAUGHAN, MILTON, contract surgeon, is granted leave for two months.

WILLIAMSON, Captain LLEWELLYN P., assistant surgeon, in addition to his present duties pertaining to the Louisiana Purchase Exposition, will report to the commanding general, Northern Division, for duty as attending surgeon at the headquarters of that division.

TRUBY, Captain WILLARD F., assistant surgeon, is granted leave for one month from about June 1.

STEER, Captain SAMUEL L., assistant surgeon, is granted leave for eighteen days, from about June 1.

BARBER, ERNEST C. A., sergeant first class, Fort McDowell, will report to the commanding officer, Company of Instruction No. 2, Hospital Corps, at that post, for duty.

MANSEAU, OSCAR A., sergeant first class, now at Louisville, Ky., upon expiration of furlough granted him from the Philippines Division, will report at the general hospital, Fort Bayard, to relieve Sergeant First Class Willard M. Barton, who will proceed to Fort McDowell, reporting to the commanding officer, company of instruction No. 2, hospital corps, who will send him to Manila, P. I.

ALBRIGHT, CHARLES W., sergeant first class, now at Camden, N. J., upon expiration of furlough granted him from the Philippines Division, will report at the general hospital, Fort Bayard, for duty.

BAHR, WILLIAM, sergeant first class, now at Shawnee, O. T., upon expiration of furlough authorized February 6, will report at Fort Sill to relieve Sergeant First Class Frederick Schumacher who will proceed to Fort McDowell, reporting to the commanding officer, company of instruction No. 2, hospital corps, who will send him to Manila, P. I., on the government transport sailing from San Francisco about July 1.

BUCK, First Lieutenant CARROLL D., assistant surgeon, in addition to his present duties with the battalion of Philippine scouts at the Louisiana Purchase Exposition, will attend the sick of the 119th Co., C. A.

GWINN, ARTHUR C., sergeant first class, Fort Sheridan, will proceed to Fort Myer for duty.

WOODBURY, First Lieutenant FRANK T., assistant surgeon, is granted leave for twenty days.

RAND, Captain IRVING W., assistant surgeon, Ord Barracks, Monterey, Cal., will proceed to the Presidio, reporting at the infantry cantonment, for temporary duty.

STEARNS, CHARLES H., contract surgeon, is granted leave for fifteen days from about June 19.

TITUS, FRANK H., contract surgeon, is relieved from duty in the infantry cantonment, Presidio, and will report for temporary duty at the depot of recruits and casuals, Angel Island.

CHENAY, ARTHUR, sergeant first class, is assigned to duty in the office of the medical superintendent, Army transport service, San Francisco, Cal.

EISENMAN, FRANCIS J., sergeant first class, will report to the commanding officer, company of instruction, hospital corps, No. 2, Fort McDowell, who will grant him a furlough for two months.

So much of orders of October 12, W. D., as direct Major Guy L. Edie, surgeon (now on duty in Washington, D. C.), to report to the commanding general, department of California, for transportation to the Philippine Islands, is revoked, and Major Edie will report to the surgeon-general of the Army for duty in his office.

KUHN, CHARLES F., contract surgeon, is assigned to temporary duty on the transport Kilpatrick until June 1, and is authorized to take advantage on that day of the leave for two months granted him by orders, Philippines Division, March 25.

WILSON, First Lieutenant COMPTON, assistant surgeon, is granted leave for one month.

SLATER, ERNEST F., contract surgeon, will proceed to Fort Howard for temporary duty, during the absence on leave of First Lieutenant Compton Wilson, assistant surgeon, and upon return of the latter from leave, will rejoin his station—Fort Hancock.

VOSA, First Lieutenant WILLIAM E., assistant surgeon, is granted leave for two months and twenty-three days, to take effect when relieved by another medical officer.

Changes in the Medical Corps of the U. S. Navy for the week ended May 28, 1904:

THOMPSON, E., surgeon, commissioned surgeon with the rank of lieutenant commander, from March 3, 1903—May 21.

LANGHORNE, C. D., passed assistant surgeon, detached from the Monongahela and ordered to the Denver—May 21.

BROWN, H. L., assistant surgeon, detached from the Lancaster and ordered to the Naval Station, Guantanamo, Cuba, with additional duty on the Monongahela—May 21.

IDEN, J. H., assistant surgeon, ordered to the Naval Hospital, Philadelphia, Pa.—May 21.

FLINT, J., assistant surgeon, ordered to the Naval Hospital, Chelsea, Mass.—May 21.

MAY, H. A., assistant surgeon, ordered to the Franklin—May 21.

HIBBETT, C. T., surgeon, detached from the Franklin June 1 and ordered to duty in charge of the Naval Hospital, Cavite, P. I., sailing from San Francisco, Cal., June 11—May 24.

WENTWORTH, A. R., surgeon, ordered to the Franklin, June 1—May 24.

LOVERING, P. A., surgeon, detached from duty in charge of the Naval Hospital, Cavite, P. I., and ordered home to wait orders—May 24.

FURLONG, F. M., passed assistant surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C., for temporary duty—May 24.

MCDONNOLD, P. E., assistant surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C., for temporary duty—May 24.

BELKNAP, J. L., assistant surgeon, ordered to the Naval Hospital, New York—May 24.

WHEELER, L. H., assistant surgeon, ordered to the Naval Hospital, Chelsea, Mass.—May 24.

EAGLING, E., pharmacist, having been examined by a Retiring Board and found incapacitated for active service, on account of disability incident thereto, is retired from active service, May 19, 1904, under the provisions of section 1453, revised statutes—May 21.

Changes in the Public Health and Marine-Hospital Service for the week ended May 26, 1904:

CARTER, H. R., surgeon, two days' leave of absence from May 26, 1904, under paragraph 189 of the regulations.

NYDEGGER, T. A., passed assistant surgeon, granted leave of absence for fifteen days from May 6, 1904, on account of sickness—May 20, 1904.

CLARK, TALIAFERRO, passed assistant surgeon, to proceed to Duluth, Minn., for special temporary duty—May 20, 1904.

ANDERSON, J. F., passed assistant surgeon, to proceed to Hartford, Conn., for special temporary duty—May 20, 1904.

DUFFY, FRANCIS, acting assistant surgeon, granted leave of absence for two days from May 25—May 23, 1904.

HOUGH, J. S., acting assistant surgeon, granted leave of absence for thirty days—May 23, 1904.

HUNTER, W. R., acting assistant surgeon, granted leave of absence for seven days from May 22—May 21, 1904.

WETMORE, W. O., acting assistant surgeon, granted leave of absence for seven days from May 17, 1904, under paragraph 191 of the regulations.

HALL, L. P., pharmacist, to report to the chairman of the Examining Board at Norfolk, Va., May 31, 1904, for examination to determine his fitness for promotion to the grade of pharmacist of the second class—May 23, 1904.

Boards Convened.

Board convened to meet at Washington, D. C., May 26, 1904, for the physical examination of candidates for admission into the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General W. J. Pettus, recorder.

Board convened to meet at Norfolk, Va., May 31, 1904, for the examination of pharmacist L. P. Hall, to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the Board: Surgeon J. B. Stoner, chairman; Assistant Surgeon J. S. Boggess, recorder.

American Medicine

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The 1904 meeting of the American Medical Association showed the great impetus given by the new plan of organization. The registration was unusually large during the early days of the session, and the proceedings of the deliberative body, standing clear as they do from the mass of detail which hampered under the old regime, were worthy in accomplishment. Particularly to be commended was the character of the work done in the sections and the large attendance in the scientific meetings despite the many distractions. The convocation possessed a unity of spirit, a compactness, a force unusual in the history of the Association, and which reflects honor upon the men whose devoted work is making it literally as well as theoretically the representative national body. The place of meeting was ideal, and there seems to be a growing sentiment that the convention should return at least every third year to Atlantic City, which lacks only a convention hall to be unique in its qualifications for such gatherings.

Memorial to Dr. Walter Reed.—The proposal to erect in the city of Washington a suitable memorial to the memory of Walter Reed, Surgeon, U. S. Army, should appeal strongly to the medical profession, and indeed to every philanthropic citizen of the United States. Concerning the great work planned and carried out by Reed and his associates, physicians have no need of details. "His," as we have previously said, "—was the master mind and he was the guiding spirit in an investigation whereby multitudes of lives have been saved, a pestilential malady robbed of its mysteries and terrors, and an annual expenditure of millions of money shown to be in large part, if not entirely, needless." The Walter Reed Memorial Association has been formed. The American Medical Association and the Association for the Advancement of Science have appointed committees which will no doubt cooperate, and subscriptions to the fund may be handed to any member of these committees or they may be sent to Mr. Charles J. Bell, president of the American Security and Trust Company, Washington, D. C., who has consented to act as treasurer. It is thought that at least \$25,000 should be raised, and it is probable that the exact character of the memorial will not be determined until a considerable portion of this amount is in the hands of the treasurer. While the nonmedical public should

contribute a considerable portion of the amount required, dependence is mainly upon physicians to arouse interest in the project by pointing out the important results of Major Reed's yellow fever investigations. The benefits conferred upon humanity by physicians are less often commemorated by monuments than those of other great men, and it is important that members of the medical profession, who by their training are best qualified to judge of the value of medical and sanitary achievements, should take the lead in movements to honor and perpetuate the memory of them.

The Execution of Criminals.—It has been and is still a much debated question whether people convicted of murder in the first degree should suffer the death penalty or not, but the medical profession is only interested in this discussion insofar as it involves the question whether a murderer *eo ipso* is or is not of unsound mind. The rest belongs to the domains of sociology and criminology. But the subject of the present remarks is neither one nor the other; it rather starts with the assumption that, in accordance with the present state of the law, the death penalty has to be paid, and raises the question as to the ethically least objectionable manner of carrying the sentence into effect. We do not think the death penalty is either good sociology, good economy, or good penology, but that is not the question. There is no doubt that the prevailing feeling among civilized nations culminates in the desire to take the life of the culprit as painlessly as possible. The development of kindlier thoughts in this respect has been gradual. Civilization has advanced from torturing to hanging and strangling, from hanging to the "drop," breaking the spine and causing instantaneous death; from the use of the sword or axe, with its attendant gruesome uncertainties, sprang the guillotine, and finally came the electric chair. That the latter device is by no means an ideal of perfection is admitted on all hands, and even if it were, there is still the harrowing time of preparing and pinioning the victim for execution which to him is worse than death itself. As long, then, as legal killing must be done, why not resort to anesthetics? The dose can be administered while the subject is asleep, it would induce absolute unconsciousness, there would be no pain whatever, while the actual transition from life to death would be left to scientific methods in a manner best

calculated to let medical science at least profit by the loss of a human life.

Accidental Deaths of Railway Employees.—

Since its establishment 17 years ago, the Royal Arcanum has lost 617 of its members who were railway employes, by accidents in their work. Of these there were 102 engineers, 39 conductors, 31 brakemen, 17 firemen, 10 yardmasters, 7 baggagemen, 5 switchmen, 4 mail agents, 5 car inspectors, 4 railroad agents, 4 flagmen, 3 superintendents, and 17 in sundry similar occupations. Of these 248 whose special duties were noted, the average age at death was 43 years, and the average duration of membership was 10 years. The natural hazard of the victim's occupation is thus highly exceptional in this kind of work. Such facts emphasize again the responsibility of our American railway officers and owners. In no other country is there such a disregard of the employes' lives. As insurance companies must more and more refuse these risks, it behooves the companies to undertake the duty themselves. If this were demanded by the law it would doubtless serve in an effective way to increase the safeguards which, now neglected, result in the deaths of so many brave and useful men. In general, during the last three months of 1903, on the railways of the United States, the casualties to passengers alone were more than 2,000, 175 being killed, while the casualties to employes numbered more than 12,000, no less than 1,000 being killed outright. Of the 175 passengers killed, 147 died in train wrecks due to either derailments or mistakes in operation.

Ill-health as a Cause of Suicide.—The Chief Medical Examiner of that excellent organization, the Royal Arcanum, reports that 103 members committed suicide during 1903. The causes, during four years, are given as follows:

	1903	1902	1901	1900
Domestic trouble supposed cause	16	9	12	7
Financial trouble supposed cause	26	30	16	21
Intemperance combined with financial or domestic trouble	2	2	3	3
Temperate and out of employment	10	7	12	5
Intemperate and out of employment . . .	9	6	2	1
Intemperance principal cause	12	5	4	7
In previous ill-health	31	23	25	19
Known to have shown signs of insanity	2	2	4	3
Supposed to have formerly shown signs of insanity	9	7	8	10
Supposed to have been temporarily insane	5	6	12	6
Illness from overwork	4	3	2	6
No cause, etc.	5	7	6	

The last five items may be combined, for to the physician insanity is in a medical sense ill-health. We thus find:

	1903	1902	1901	1900
Domestic troubles	16	9	12	6
Financial troubles	26	30	16	21
Intemperance	12	5	4	7
Out of employment	19	13	14	6
Ill-health	51	41	51	44

By this rearrangement of the table it comes out that disease is responsible for 187 suicides, and all other causes or unknown causes combined, for 232. It is also noteworthy that *previous* ill-health, not existing illness, is assigned in so large a proportion of cases. One clings to life more tenaciously, therefore, while sick than when

looking back upon sickness or facing the world with the fear of it before one. How much in any case depends upon medical science and preventive medicine!

The Morbidity and Mortality of Pneumonia.—

That pneumonia is increasing in both frequency and fatality is believed by many physicians. Statistical studies in support of this view are not lacking, one of the most recent being that of Dr. J. Hall Pleasants,¹ who discusses the situation in Baltimore. In that city the deaths from pneumonia, per 100,000 population, have increased from 35.5 in 1850 to 206.9 in 1903, with a maximum in 1900 of 253. Pleasants states that the Baltimore pneumonia curve fairly represents the general condition throughout the country, and directs attention to the fact, that the increase was gradual and steady from 1850 to 1890, a period during which influenza could not be assigned as a contributing cause. As factors to be considered in accounting for the increasing mortality, he enumerates increased density of population, general prolongation of life, climatic changes, large influx of immigration, the negro element in the population, more accurate diagnosis and more exact terminology in vital statistics, decreased deathrate from pulmonary tuberculosis, increased virulence of the pneumococcus, and influenza. If these do not entirely explain the increase, a part must be attributed to a cause as yet unknown. Pleasants rightly believes that physicians should be brought to realize the gravity of the situation, although he cannot see that it looks hopeful from the standpoint of general prophylaxis. In connection with these statements, we wish to call attention to a very suggestive discussion of the subject from the standpoint of prevention and treatment by Dr. N. S. Davis;² as the result of ripe experience his opinions are entitled to the most serious consideration, even though they cannot be construed as complimentary to modern therapeutic ideas. After stating that there can be no reasonable doubt that a part of the increased mortality from pneumonia is due to lessened resistance induced by the habitual use of alcohol and other narcotic drugs, Dr. Davis adds: "And yet, having carefully observed the actual results of the successive changes in the methods of treatment of pneumonia from the middle of the second quarter of the nineteenth century until the present time, I am fully satisfied that a part of the increased mortality is caused by the injudicious selection and use of remedies." He briefly outlines the now much-abused antiphlogistic and bloodletting treatment of pneumonia as practised by himself and other physicians during the second and third quarters of the nineteenth century with a lower mortality than has been secured by any other method of treatment, before or since. This consisted in the first stage of prompt venesection, followed by sedatives and alteratives; in the second, of slightly anodyne expectorants; and in the third, of more food, bitter tonics, and the maintenance of regular evacuations. Then came the decade of antipyretics, and finally, the adoption of the present theory, that "heart failure" is the chief danger in febrile and inflammatory affections, and the consequent

¹ Maryland Medical Journal, May, 1904.

² International Clinics, Vol. I, Fourteenth Series, 1904.

necessity of the early use of special cardiac and vasomotor tonics. Alcohol and strychnin are often combined and frequently lead to disastrous results. The employment, in conjunction with strychnin, of digitalis and ammonium carbonate instead of alcohol would save many patients. In closing, Dr. Davis states, that "from a long and ample clinical experience, in both hospital and private practice, I am certain that if the administration of alcoholic and other anesthetic drugs were omitted entirely from the treatment of pneumonia and the disease left to the judicious use of such other remedies as have been mentioned above, the present ratio of its mortality would be diminished one-half." These additions to the literature of pneumonia are instructive, and should stimulate investigation of a disease which, in its entirety, needs to be thoroughly studied; its ravages in recent years do not form a satisfactory chapter in modern medicine. To determine its true incidence, and, if possible, check its spread, the disease should be made notifiable.

The D.D., M.D., and Q. D. Businesses Combined.—This is a day of combinations and consolidations, but one of the oddest of the examples we have seen is that by the promoter, the Reverend T. C. Reynolds, D.D., M.D., said to be of Chicago. The gentleman's "sermon on epilepsy" is before us, published by "The American Humane and Scientific Association," which should if truthful put an *un-* or *in-* before each of the three adjectives. It is not said where this sermon was delivered but according to internal evidence, the preacher has been admitted to most of the secrets of God, and there is no doubt of his knowledge of the secrets of a certain manufacturing firm whose nostrum is a sure cure for epilepsy. Any doctor who says the disease cannot be cured is either ignorant, jealous, or does not wish to cure it. A number of famous physicians and of unfamed ones are approved but the — Medicine Co., is far superior to any or all of them. Laws should be enacted for "compelling the cure of every epileptic in the land," and the "law should take their earnings from them and pay them out for medical treatment until they are cured." Here is a new sort of governmental socialism or tyranny, at least a new method of combining into one, three businesses which have heretofore not been united so openly. The enterprising manufacturing company of cure-alls must henceforth have an advertising manager who is a doctor of divinity, of medicine, and of quackery, all rolled into one.

A Hygienic Suggestion as to Hygiene.—From a private letter we quote:

Recently the physician of the Board of Health came here to vaccinate the children. Usually that means rows galore with reluctant pupils and indignant parents, but this time I invented a new trick—I let the doctor vaccinate me. That was enough, 2,500 more docile youngsters you never saw. Those who needed no treatment mourned, for were they not out of the mode? Children are funny things—so very human.

But it is evident that to have such an influence over children the teacher must first get their respect and love.

AMERICAN NEWS AND NOTES

GENERAL.

Requests to Charity.—**Philadelphia:** Bequests aggregating \$50,500 are made to charity in the will of Mary J. Miller, of this city. Among other bequests are: Home for Incurables, for a free bed in cancer annex, \$5,000; Episcopal Hospital, free bed for children, to be called "Rose of Sharon," \$5,000; Hahnemann Hospital, free bed to be called "Faith," \$5,000.—**Chicago:** By the will of the late Thomas Brenan, St. Joseph's Hospital, St. Elizabeth's Hospital, Mercy Hospital, and Alexian Brothers Hospital, will each receive \$1,000.—**Rockland, Me.:** The Knox County General Hospital has received a gift of \$1,000, from Messrs. Francis and George W. Smith.

Miscellaneous.—**Philadelphia:** The surgical staff of the Wills Hospital has invited the delegates and members of the American Medical Association to attend a series of special clinics, to be held at the hospital June 13 and 14.—**New York:** Columbia University has received a gift of \$60,000 from Mr. Horace W. Charpentier for the chair of pediatrics. The Manhattan Eye, Ear, and Throat Hospital has received \$40,000 from Mr. E. R. Thomas, which makes available a conditional gift amounting to \$125,000. Dr. A. C. Kerr has been appointed professor of anatomy at Cornell University, and has been made secretary of the Ithaca Division of the Medical College.—**Maryland:** Dr. Frederick H. Howard has been appointed assistant professor in the department of anatomy and physiology in Williams College.—**Washington, D. C.:** A civil service examination will be held June 16 to fill the position of laboratory aid in physiology and pathology in the Department of Agriculture.—**Missouri:** Miss Eugenia Metzger, assistant in physiology at the University of Missouri, has been appointed to the woman's table at the Zoological Station at Naples for the summer months.—**Brookline, Mass.:** The new private hospital at Brookline, Mass., is now opened for the reception of patients. There are accommodations for 34 beds.

Reorganization of the Red Cross.—At a meeting of the trustees of the American National Red Cross in Washington, D.C., May 26, the way was paved for the early adoption of the recommendations of Senator Proctor's committee, which will prove entirely satisfactory to the remonstrants. On adjournment it was announced that another meeting of the trustees had been called for June 16, at which the election of such officers and trustees as may be necessary to fill vacancies which may exist on that date will occur. No information was vouchsafed as to the number of vacancies on the board of trustees which will exist on June 16, but it is learned that the trustees have given Senator Proctor to understand that there will be sufficient to insure the transfer of the control of the society from those now in power, which is all that the investigating committee or the remonstrants have insisted on. It was further determined to apply to Congress for the new charter drafted by ex-Secretary Foster, as soon as practicable, and to change that charter so as to delegate to the President the appointment of 12 of the 18 trustees who are to act for the first year after the new charter is granted. Afterward the President will have the appointment of 6 trustees, the organization will elect 6, and State organizations which it is proposed to form will elect 6, thus providing for the full board of 18 trustees, according to the terms of the new charter.

EASTERN STATES.

Boston Mortality Report.—The number of deaths reported to the Board of Health for the week ended June 4, is 206 as against 168 the corresponding week last year, showing an increase of 38 deaths, and making the deathrate for the week 17.80. The number of children who died under one year was 30; under five years, 50; persons over 60, 42; deaths in public institutions, 66.

NEW YORK.

Tuberculosis and Milk.—Extraordinary precautions are being taken by the Health Department to prevent the communication of tuberculosis through milk from diseased cows. Extra inspectors have been appointed and a strict examination will be made of the many herds producing the bulk of the city's milk supply. New rules are being formulated for the regulation of the traffic and the meat supply will be closely watched. Some physicians are quoted to the effect that many children are now suffering from tuberculosis contracted through milk from infected cows, but the Health Department officials declare no unusual number of cases has been found.

PHILADELPHIA, PENNSYLVANIA, ETC.

New Home for Nurses.—The cornerstone of the Home for Women Nurses at the Norristown Hospital for the Insane, for which the State appropriated \$55,000, was laid June 3. The home will be fitted up with sleeping rooms, recreation rooms, study hall, reading room, and gymnasium. The stonework and concrete work, the foundations being of the latter, will be done by male patients.

WESTERN STATES.

Chicago's Low Mortality.—According to the bulletin of the Health Department the month of May, 1904, had the lowest May mortality on record. During the 28 days that had elapsed when the count was made there was a total of 1,990 deaths—furnishing an annual deathrate of 13.44 per 1,000 population. The average rate of the previous decade was 15.63 per 1,000, so that the closing month's record will be about 14% lower than the average and nearly 2% lower than the previous lowest—that of 1901, when it was 13.70 per 1,000.

FOREIGN NEWS AND NOTES

GENERAL.

Cattle Plague in Egypt.—According to the London *Times* Dr. Koch has concluded his investigations into the question of the cattle plague in Egypt. His report, which was laid before the ministry on May 13, is disappointing to those who anticipated prompt and effectual measures for the eradication of the disease. The learned bacteriologist considers the plague an extremely mild form of rinderpest, and one more nearly allied to Texas and Transcaucasian fever; the germ conveying the infection bears also some analogy to the parasite found in coast fever in West Africa. His suggestions are confined to advising the government to pursue the measures already adopted, such as the application of injections and the isolation of infected animals.

Miscellaneous.—Foreign: The Naples Table Association, which has for its object the promotion of scientific research by women, has announced the offer of a prize of \$1,000, to be awarded in April, 1907, for the best thesis submitted by a woman on the scientific subject involving laboratory research. This is the third such prize offered by the Association.—Dr. George Oliver has presented to the Royal College of Physicians, London, the sum of \$10,000, to be held in trust for the endowment of a lectureship or prize to be called the Oliver Sharkey Lectureship or Prize, in memory of the late W. Sharkey, professor of physiology in the University College, London.—The University of Leipzig has received from the estate of the late Herr Puschmann 500,000 marks (\$119,000), for the study of the history of medicine.

Human and Bovine Tuberculosis Identical.—The Royal Commission appointed in August, 1901, to inquire into the relation between human and animal tuberculosis has found that human and bovine tuberculosis are practically identical. The commission reports that experiments proved that the disease produced in animals by tuberculous material, whether of human or bovine origin, was identical, both in its broad general features and in the finer histologic details. The report in effect refutes Professor Koch's much discussed theory, that tuberculosis cannot be communicated by animals to human beings, and is regarded by a majority of English medical men as of the highest importance as bearing out the possibility of infection through milk. It is believed that the investigations may lead to a strengthening of the regulations governing the sale of meat and milk.

OBITUARIES.

Ralph N. Isham, for nearly half a century one of the leading physicians of Chicago, at Lake Forest, Ill., May 23, aged 73. He was graduated from the Bellevue Hospital Medical College, New York City, in 1854. In 1859 he assisted in the organization of the Medical Department of Lind University, afterward the Chicago Medical College, now the Northwestern University Medical School. In this institution he occupied the chair of surgical anatomy, operative surgery, and surgery for many years. During the Civil war he served as a member of the United States Sanitary Commission and was for a time surgeon in charge of the Marine Hospital, Chicago. He was surgeon of the Jewish Hospital and trustee of the North Star Dispensary; chief surgeon of the Chicago and Northwestern Railway Company, consulting surgeon to Cook County and Presbyterian Hospitals, and delegate to the International Medical Congress in London, in 1881. He was a member of the American Medical Association, Chicago Medical Society and honorary member of the New York Medical Society.

F. C. Schaeffer, a wellknown physician of Chicago, suddenly, June 4. He was graduated from the Chicago Medical College in 1876; was professor of surgery in the Postgraduate Medical School and Hospital; surgeon-in-chief of St. Hedwig's Hospital, gynecologist to St. Elizabeth's Hospital; surgeon to the Charity, Chicago and Post-Graduate Hospitals; consulting surgeon to Mary Thompson Hospital; consulting general surgeon to the Illinois State Eye, Ear and Throat Hospital. He was a member of the American Medical Association, the Illinois State Medical Society, Chicago Medical Society, Medico-Legal and Pathological Societies.

Matthew Leeper, at Glen Cove, L. I., June 2, aged 50. When the Spanish war broke out Dr. Leeper enlisted as a volunteer surgeon and

he remained in the army until the close of the war in the Philippines. For the last year and a half he has been president of the Board of Health in the Island of Mandanao.

Anna E. Park, said to have been the first woman admitted to medical practice in New York City, May 31, aged 74. She was graduated from the Eclectic Medical College of Pennsylvania, Philadelphia, in 1860, and from the United States Medical College, New York City, in 1881.

Edward Gumpert, the oldest physician in Wilkesbarre, Pa., June 3. He was graduated from the University of Wurzburg, Germany, in 1853. He served as surgeon in the French army for many years and was with the Union army all through the Civil war.

Frederick C. Leber, in Louisville, Ky., May 18, aged 70. He was graduated from the University of Louisville in 1864; served as surgeon during the Civil war and was professor of theory and practice of medicine in the Kentucky School of Medicine.

Harry Hakes, at his home in Wilkesbarre, Pa., April 20, aged 79; he was graduated from the Castleton Medical College, Vermont, 1846. He was a member of the State Legislature in 1864 and then followed the profession of law.

George W. Weems, at his home in Huntsville, Mo., May 13. He was graduated from the University of Maryland, School of Medicine, Baltimore, in 1854.

John F. James, in Ionia, Mich., May 15, aged 38. He was graduated from the Western University, medical department, London, Ont., in 1895.

Theodore C. West, of Troy, Idaho, at Spokane, Wash., May 15. He was graduated from the College of Physicians and Surgeons of Chicago, in 1900.

Bushnell A. Wright, in Los Angeles, Cal., May 17, aged 81. He served as superintendent of the Toledo (Ohio) State Hospital for nine years.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended June 3, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
Alaska:	Hoonah.....May 17.....	3	
	Juneau.....May 15.....	1	
	Killsnoo.....May 17.....	2	
Florida:	Jacksonville.....May 22-28.....	2	
Georgia:	Macon.....May 22-28.....	3	
Illinois:	Chicago.....May 22-28.....	6	
Iowa:	Des Moines.....Apr. 1-30.....	8	
	Dubuque.....May 15-28.....	1	
Kentucky:	Covington.....May 22-28.....	1	
Louisiana:	New Orleans.....May 22-28.....	11	
	Two imported.		
Maine:	Jonesport.....May 25.....	23	
Maryland:	Baltimore.....May 22-28.....	5	1
Michigan:	Detroit.....May 22-28.....	2	
	Grand Rapids.....May 22-28.....	2	
Missouri:	St. Louis.....May 22-28.....	4	2
New Hampshire:	Manchester.....May 22-28.....	3	
New York:	New York.....May 22-28.....	1	
Ohio:	Bucyrus.....May 22-28.....	13	
	Cincinnati.....May 21-27.....	11	2
	Cleveland.....May 21-27.....	2	
	Dayton.....May 22-28.....	4	1
	Hamilton.....Apr. 24-30.....	6	
Pennsylvania:	Butler.....Apr. 24-30.....	1	
	Johnstown.....May 22-28.....	5	
	Philadelphia.....May 22-28.....	11	2
	Pittsburg.....May 22-28.....	1	1
South Carolina:	Greenville.....May 15-28.....	5	
Tennessee:	Memphis.....May 22-28.....	7	
	Nashville.....May 22-28.....	6	
Utah:	Salt Lake City.....May 15-21.....	2	
Virginia:	Pocahontas.....May 1-31.....	2	
Washington:	Tacoma.....May 17-23.....	1	
West Virginia:	Martinsburg.....Apr. 4-May 13.....	20	1
Wisconsin:	Milwaukee.....May 22-28.....	7	
SMALLPOX—FOREIGN.			
Austria-Hungary:	Prague.....May 1-7.....	4	
Belgium:	Antwerp.....May 8-14.....	2	3
Colombia:	Barranquilla.....May 2-16.....	3	
France:	Lyons.....May 8-14.....	2	
	Paris.....May 8-14.....	17	3
Great Britain:	Dundee.....May 8-14.....	2	
	Edinburgh.....May 8-14.....	2	
	Glasgow.....May 14-20.....	11	3
	Leth.....May 8-14.....	1	
	Liverpool.....May 15-21.....	1	
	London.....May 8-14.....	23	
	Newcastle-on-Tyne.....May 8-14.....	5	
	Nottingham.....May 8-14.....	12	1
	Sheffield.....May 1-14.....	4	1
India:	Bombay.....Apr. 27-May 3.....	17	
	Calcutta.....Apr. 24-30.....	5	
	Karachi.....Apr. 25-May 1.....	4	2
Japan:	Nagasaki.....Apr. 21-30.....	125	23
Java:	Batavia.....Apr. 17-23.....	12	1
Mexico:	Mexico.....May 9-15.....	7	2

Netherlands:	Amsterdam.....May 15-21.....	1	
	Rotterdam.....May 15-21.....	4	
Russia:	Moscow.....May 1-7.....	12	3
Spain:	Barcelona.....May 1-10.....		6
Straits Settlements:	Singapore.....Apr. 10-16.....		1
Turkey:	Constantinople.....May 9-15.....		3
	Smyna.....Apr. 25-May 1.....		2
YELLOW FEVER.			
Costa Rica:	Limon.....May 28.....	Present.	
Mexico:	Coatzacoalcos.....May 15-21.....	4	1
		Two imported.	
	Jalupan.....May 27.....	1	
	Merida.....May 15-21.....		5
	Tehuantepec.....May 15-21.....	3	1
CHOLERA.			
India:	Calcutta.....Apr. 23-30.....		103
PLAGUE.			
Arabia:	Aden.....May 31.....	Present.	
China:	Canton.....May 28.....	Spreading.	
	Fu Shan.....Apr. 13.....		50
	Sun U.....Apr. 15.....		20
Egypt:		Apr. 17-23.....	42
India:	Bombay.....Apr. 27-May 3.....		471
	Calcutta.....Apr. 24-30.....		270
	Karachi.....Apr. 25-May 1.....		242
New Zealand:	Auckland.....Apr. 27.....	Still present.	
Peru:	Payta.....May 30.....	Present.	

Changes in the Medical Corps of the U. S. Army for the week ended June 4, 1904:

SNODDY, First Lieutenant CARY A., assistant surgeon, is relieved from duty as surgeon on the transport Sherman, to take effect upon the next arrival of that transport at Manila, P. I., and will then report in person to the commanding general Philippines Division, for assignment to duty.

BROWN, W. E., contract surgeon, is relieved from duty at Fort Casey, and will proceed to Fort Walla Walla for duty.

MUHLBERG, Lieutenant-Colonel JOHN C., is granted leave for one month from about June 10, with permission to apply for an extension of one month.

GORGAS, Colonel WILLIAM C., assistant surgeon-general, is relieved from duty as chief surgeon, Department of the East, and will report to the president of the Isthmian Canal Commission for duty with the commission until further orders.

DEWITT, First Lieutenant WALLACE, assistant surgeon, is relieved from duty as assistant to Major Richard W. Johnson, surgeon, in charge of the medical department exhibit at the Louisiana Purchase Exposition, St. Louis, Mo., and will proceed to Fort Washakie for duty, relieving Harry H. Van Kirk, who will proceed to Fort Sill for duty.

DEWEY, FREDERICK S., contract surgeon, now at Oklahoma City, O. T., will report to the commanding general, Southwestern Division, for assignment to duty as attending surgeon and examiner of recruits at Oklahoma City.

MILLER, ALBERT L., contract surgeon, now at San Francisco, Cal., will report for duty on the transport Sheridan, en route to Manila, P. I., where he will report to the commanding general, Philippines Division, for assignment to duty.

ARNOLD, GEORGE H., sergeant first class, Fort Flagler, will be sent to Fort McDowell to arrive not later than June 25, reporting for transportation on the Buford, to relieve Sergeant First Class Frederick S. Simmons, who will be sent on the Buford to Seattle, Wash., thence to Fort Flagler for duty.

DARNALL, Captain CARL R., assistant surgeon, now on duty in Washington, D. C., is detailed as a member of the board of medical officers appointed for the purpose of making recommendations looking to the revision of the manual for the medical department.

FELTS, ROBERT L., contract surgeon, extension of leave granted May 7 is further extended one month.

COOKE, ROBERT P., contract surgeon, is granted leave for one month.

JONES, JOHN F., contract surgeon, will proceed to Fort Wood for temporary duty during the absence on leave of Contract Surgeon Robert P. Cooke, and upon the return of the latter, will rejoin his station, Fort Totten.

The following named assistant surgeons, recently appointed, will proceed from the places designated to the posts specified, and report as indicated: First Lieutenant Leartus J. Owen from Baltimore, Md., to Fort Myer for duty; First Lieutenant Stanley G. Zinke from Cincinnati, O., to Fort Riley for duty; First Lieutenant Robert M. Culler from Reading, Pa., to Fort Jay for duty; First Lieutenant Frank W. Weed, now at Fort McHenry, will report at that post for duty; First Lieutenant William A. Wickline from New York City to Fort Ethan Allen for duty; Contract Surgeon James H. McCall will be relieved from duty at Columbia Arsenal, and will proceed to Fort Moultrie for duty; Sergeant First Class Forest E. White will be sent from Columbia Arsenal, Tenn., to Fort Desota for duty. Contract Surgeon John T. Jones, now on temporary duty at Fort Wood, will report to the commanding officer, Fort Jay, for temporary duty.

Changes in the Medical Corps of the U. S. Navy for the week ended June 4, 1904:

KITE, I. W., surgeon, detached from the Maine and ordered to the Naval Hospital, Pensacola, Fla., for treatment—May 27.

FAUNTLEROY, A. M., assistant surgeon, detached from the Scorpion, and ordered home and to await orders—May 27.

RICHARDSON, R. R., assistant surgeon, detached from the Naval Hospital, Pensacola, Fla., and ordered home and to await orders—May 27.

TAYLOR, J. L., acting assistant surgeon, detached from duty with naval recruiting party, No. 6, May 28, and ordered to duty at the Naval Hospital, Pensacola, Fla.—May 27.

RICHARDSON, F. A., acting assistant surgeon, detached from the Naval Hospital, Newport, R. I., and ordered to the Scorpion, June 2—May 27.

MURPHY, J. F., assistant surgeon, detached from the Isla de Cuba, and ordered home and to await orders—May 31.

OWENS, W. D., assistant surgeon, ordered to the Naval Hospital, Newport, R. I.—May 31.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-fifth Annual Meeting, Held at Atlantic City, N. J., June 7 to 10, 1904.

[Specially reported for *American Medicine*.]

House of Delegates.

The House of Delegates, American Medical Association, convened at 10 a.m., June 6. The report of Committee on Credentials and Registration was largely that of progress, since at the opening of the meeting only a fair proportion of the delegates had registered.

The retiring president, Frank Billings, of Chicago, made the opening address, outlining the progress made during the past year, and detailing the advantages already perceptible in the operation of the new system of organization. His remarks were largely congratulatory in character, but related also to the further advantages to be gained as the plan became more compact and more easy in its working. The chief of the reforms advocated by Billings was probably that of the substitution of reference committees to do the work formerly assigned to the business committee, and which had proved exceedingly burdensome in its scope. The plan was adopted, and these additional committees appointed: Rules and Order of Business, Medical Education, Legislation, Hygiene and Public Health, Constitution and By-Laws, Report of Officers, Credentials, Sections and Section Work, Miscellaneous Business. Prompt adoption was also made of a suggestion of Billings, that the president-elect should have control of the scientific work for ensuing meetings of the Association.

The report of George H. Simmons, of Chicago, the secretary, showed that the American Medical Association has 15,039 members. In May, 1903, there were 13,545. Since then 2,413 names have been added and 919 dropped. The State medical associations have 44,362 members.

On motion, the report of the Board of Trustees was deferred until the meeting to be held on Tuesday at 2 o'clock.

The Report of the Business Committee.—EDWIN WALKER, chairman, detailed a most satisfactory condition, and outlined increasingly brilliant prospects for the future.

The Committee on Medical Legislation.—C. A. L. REED (Cincinnati, Ohio), chairman, made a detailed report, embracing the work done by the committee during the past year in stimulating and arousing interest on the part of the profession in the necessity for representation in the national deliberative and legislative bodies. Reed called particular attention to the fact that although medicine was a profession most directly and intimately related to the welfare of the nation, yet there was not a single member of Congress who could be counted upon as representing its interests and those interests of the people directly bound up with the profession. The committee organized a National Auxiliary Committee consisting of representatives, as far as possible, in every county in the United States, the appointments having been made through the State medical associations. By a referendum system these auxiliary members gave opinions and used their influence in connection with bills in Congress. Some of the measures they considered provided for the representation of the Medical Corps on the general staff of the United States army, a project for the appointment of a physician on the Panama Canal Commission, and referring to the Government Medical Staff the adulteration or misbranding of drugs. The report suggested the appointment of a committee of three from the Association to act as an advisory board. Reed stated that all of the States were interested in the matters under the general advocacy of the committee with the exception of Massachusetts and Alabama, and that through private correspondence, matters were in train in these two States. The ends striven for, it must be understood, were not selfish in that they had the general interest of the nation and of every individual citizen at heart, as well as the uplifting and dignifying of the profession of medicine.

In the absence of the chairman of the Commission on the Rush Monument Fund, the treasurer, H. D. Holton, of Brattleboro, made a brief report of the financial condition of the fund, showing an available balance of \$969.01, after the payment of all the expenses to date upon the monument.

The report of the Committee on Medical Education was then made by ARTHUR D. BEVAN, (Chicago) outlining in detail the work in hand for elevating the standards in the various colleges, to make educational requirements uniform in the different States, and to raise the standards of the profession, encouraging liberal education in connection with the special scientific training necessary in the equipment of the physician. Bevan said that the government assistance in this direction was improbable, and that it was a very large and important question. The committee suggested that the by-laws of the Association be amended so that a permanent council of five members be created to deal with the question. On motion, the report of the committee was referred to the Reference Committee on Medical Education.

L. S. McMURTRY then made a report on behalf of the **Committee on Association Medal**. He stated that the medal was founded in the hope of stimulating scientific research, but that the development of interest was less than had been anticipated. The last prize awarded was four years ago, and since that time, in the opinion of the committee, no essay had been submitted worthy of receiving the award. The demands for the medal were moderate, it not being desired that the essay should have too great a technical bearing, although the standard could not be set too low. The conditions, in the opinion of the committee, were not difficult to meet; still but one essay had been submitted during the past year, and that did not attain the standard of excellence set. The plan for offering the prize should be abandoned, since competition, although well advertised, did not seem to have achieved its desired object.

The report of the Committee on Transportation and Place of Session was deferred.

The report of the Committee on Revision of the Constitution and By-Laws was deferred, as not quite complete for presentation.

H. O. WALKER (Detroit), on behalf of a Michigan delegation, offered the following resolution:

"Clearing House for Medical Supplies of Unknown Composition."—WHEREAS, An exact knowledge of the composition and properties of substances used in the management of disease, is essential to a physician's best success; WHEREAS, Commercial push, by advertisement and drummers, persuades many physicians (often the very elect) to use and commend drugs, mineral waters, artificial foods, etc., of unknown composition and effects; WHEREAS, As it is impossible for the individual physician to verify the statements of sales agents, to separate fact from fancy, he often uses substances quite unlike those indicated, to the discredit of himself and his art; WHEREAS, The American Medical Association was organized to promote the exact knowledge and intelligent practice of its members; *Resolved*, That the Board of Trustees, American Medical Association, is hereby requested to provide for the analysis of medicinal substances of unknown composition and undetermined effects, and to publish promptly the results in the Association journal; *Resolved*, That the Board of Trustees be requested to appoint a "Journal Clearing House Commission," three in number, to serve without salary, with authority to have analyses made in reliable laboratories, by experts of recognized ability, or to equip a suitable laboratory and employ one or more competent experts, at a yearly expense not to exceed \$5,000. This preamble and resolutions were unanimously adopted by the Michigan State Medical Society at its meeting in Grand Rapids, May 25, 1904, and its delegates were instructed to present the same to the American Medical Association at Atlantic City, and urge their adoption.

HAROLD MOYER offered a resolution that the consideration of the resolution be deferred, and that it be referred to the Reference Committee, together with other matters germane to the subject.

ELIOT HARRIS (New York) stated that the resolution trenched upon the work of the **Provisional Committee on the establishment of a National Bureau of Medicines and Foods**, and in his opinion the consideration should be deferred until after the report of the committee and its recommendations had been read. The report of this committee followed. It recommended that a National Bureau for the standardization of medicines and foods should be established, to be composed of ten experts, physicians and pharmacists, whose duty it should be to examine all medicines and compounds submitted to them, and certify as to their quality, ingredients, and strength. It would probably be well to base such certification upon the openness of the product; in other words, since the action of this bureau could not be condemnatory, the privilege of examination and certification should only be extended to such products as would be submitted with a full formula. The committee was of the opinion that it was not practicable to put this labor in the hands of any existing department of the United States Government, at least not until further provision would be made by the Hepburn Pure Food Bill. It was, therefore, recommended that five directors be named by the Association, to act in conjunction with five appointed by the American Pharmaceutical Association, to consider the feasibility of the plan, and report at a future meeting. Good results might be obtained by including one member from the allied sections of the American Association, and it would be well, also, to have the plan receive further consideration before the end of the present meeting.

On motion, the report of the Provisional Committee and the resolution offered by the Michigan delegation were referred to the Reference Committee on Medical Legislation.

The first business before the afternoon meeting was the consideration of the report on **revision of the constitution and by-laws**. This report made a number of changes, looking toward the end of simplification and easy working. Its provisions received careful consideration at the hands of the Reference Committee on Constitution and By-Laws, and a detailed consideration will be given later.

The Committee on Miscellaneous Business, to whom the report on the **Association prize medal** had been referred, reported that they concurred with the suggestion that the prize be withdrawn. There was some opposition to the measure, but the resolution was finally carried.

The Senn competition for prize essay was continued. No essays had been submitted during the past year.

Report of the Committee on Sections and Section Work.—L. S. McMURTRY said: At the meeting held in Saratoga in 1902, Osler of Baltimore and Vaughan of Michigan and

myself were appointed on this committee which we mapped out at that meeting. We found that the section work of the Association, the importance of which could not be exaggerated, was very much in need of reconstruction. The committee undertook to bring the section work up to the standard of special organizations in the country which were engaged in similar work, and among the first things the committee realized was the importance in the selection of chairmen and secretaries of the sections, to get men who were familiar with the work, and especially to have the secretaries somewhat permanent. This in great part had been done. Many of the sections overlapped, many papers being presented in one section which properly belonged in another section, and there was no rule or regulation by which the officers of the sections cooperated to separate and classify papers so as to make the work effective. At the meeting in New Orleans the committee recommended that there should be a meeting annually, in the interim between sessions of the Association of the officers of the various sections together with the general officers of the Association. Such a meeting was held last October in Chicago. Nearly all the officers of the sections were present at this meeting, together with the general officers of the Association, and the work was gone over and arrangements made by which the officers of the sections could cooperate, one with the other, and increase the efficiency of the sections, elevate the standard of requirements for papers, and exercise some discretion in securing papers. Arrangements were made for the classification of papers of kindred subjects, together for discussions, and to arrange the work of the sections after the manner of the special organizations so that every section could of itself be a complete society, addressing itself to scientific research.

The **Committee on National Incorporation** made a report suggesting work to obtain the passage of an act of Congress enabling the granting of a charter to the Association, thus freeing it from the necessity of incorporation under the laws of any one particular State, with the necessary subjecting to corporation laws of that State. The report was made after a lengthy conference with Judge Ray, of New York, who decided that the plan was both legal and feasible. There was a strong recommendation that the charter be obtained from Congress at the earliest possible moment.

The **Committee on Public Health**, in its report, suggested the obtaining of an act of Congress making systems for the registration of vital statistics uniform in the Southern States. There was also a recommendation that a committee be appointed to secure uniform laws from various State Legislatures. The form which was embodied in the report was obtained through consultation with government officials. The committee reported that circulars advocating the movement had been sent out, reporting that measures had already been made in California and Iowa. The appointment of a second committee of five members to formulate plans for the establishment of the National Institute of Hygiene was also advocated, which should have for its object the distribution of information, and the planning of systems to make the study of hygiene more popular.

Committee on Organization.—J. N. McCORMACK said the prompt and cheerful acceptance of the plan of organization by States and counties in every section of the country, and the uniformly gratifying reports of the results secured under its operation, are gratifying. A member of the committee has attended the annual meetings in a majority of the States, and in a number of them before and after their reorganization. Since the New Orleans meeting the standard Constitution and By-Laws, with such modifications as were necessary to adapt them to local conditions, have been adopted in North Carolina, Indiana, New Jersey, New York, Rhode Island, South Carolina, Maryland, Oklahoma and Delaware, in the order named. In addition, Minnesota, West Virginia and Kansas, which had partially reorganized in 1902, have also adopted the standard plan. As Alabama and Massachusetts have long had most of the important features of the Association plan, Pennsylvania, Virginia and Georgia are the only great States still operating under the old methods. Michigan led the procession of States in this work last year, increasing the membership from 452 to about 2,100. Texas easily takes the banner this year, with an increase from 382 to about 2,510, although several States have quadrupled their membership. What is probably still more significant, as indicating the rapid growth of the movement, over 1,600 of the 2,880 counties in the United States are more or less completely organized. While these results are almost phenomenal when compared with the past, they seem small in the light of what remains to be done before our organization is really complete. Few States except Alabama have over 50% or 60% of the eligible physicians even enrolled as members. The work will cover every phase of professional work and interest, scientific, social, material and legislative, and in the very nature of things will never be completed. Instead, the assumption and proper discharge of these functions will constantly open up or develop new avenues of activity or usefulness. The real test of the plan of organization will come in each State when the first outburst of enthusiasm has passed, and county societies, the foundation for everything, are likely to disappear as rapidly as they have been formed unless their usefulness to the rank and file of the profession can be demonstrated in a very broad way.

[To be concluded.]

Section on Practice of Medicine.

FIRST SESSION.

Adaptation of Pure Science to Medicine.—ALEXANDER LAMBERT (New York), in his address as chairman of the section, spoke of the relation between the practising physician and the laboratory worker, these being the two classes into which the graduates of today may be roughly grouped. Many problems in medicine can be worked out only by the intelligent cooperation of the two. In outlining several of these, their present status was briefly sketched. The antitoxins are instances of laboratory discoveries; along this line are the bactericidal serums, some of which are yielding valuable practical results. Those for plague and cholera give more promise than do those of typhoid fever, pneumonia, and kindred diseases; in the former group 50% are protected by inoculation, and among those attacked the mortality is reduced to half. The Widal reaction is positive in about 95% of typhoid cases; late investigations indicate that it may serve as an index of the resistance of the individual or of the severity of the infection. In blood diseases the laboratory finding is the final arbiter in many instances. The study of the feces has not only cleared up many obscure conditions, but has added to the list of parasites infesting man. Numerous conditions formerly grouped under the term indigestion have been differentiated. Uremia and eclampsia are still to be explained. The former may develop when least expected, with or without the presence of anuria. Clinical and pathologic investigations are needed to determine the action of the kidneys in these cases. Eclampsia is even more puzzling. Is it primarily renal, or is a hepatic or other lesion the exciting cause? The ordinary methods of urinalysis are useless in solving this problem. In closing, Lambert emphasized the unfairness of sending a specimen to the laboratory without accompanying data. The full clinical history should in all cases be furnished, as it may be essential for rendering a correct diagnosis. The duration, rapidity, and manner of growth, and other points may help decide as to whether a tumor is a carcinoma or sarcoma or even a malignant growth.

Pernicious Anemia and Its Relation to Gastric Digestion.—CHARLES G. STOCKTON (Buffalo) based his paper on a study of 24 cases; these represented half of the cases seen during the last 10 years, the data in the other half not being complete. The cases were discussed from three standpoints: (1) General condition; (2) gastric digestion; (3) the blood. Among the more constant symptoms were dyspnea, weakness, digestive disturbance referred to the stomach or intestines, pallor or lemon-yellow color, little loss of weight, pale tongue with loss of epithelium. In the majority there was complete achylia gastrica. That this condition is not an etiologic factor in pernicious anemia is asserted by Stockton for three reasons: 1. When the blood improves the general condition of the patient becomes better; this does not occur when only the stomach condition improves. 2. In not a single case of achylia gastrica alone have there been any blood changes characteristic of pernicious anemia. 3. In a few cases of marked pernicious anemia there was not complete achylia gastrica. Pernicious anemia is therefore considered to be the cause of achylia gastrica. Diarrhea was occasionally troublesome, but less often than in cases of achylia gastrica without pernicious anemia. There was surprisingly little evidence of marked cardiac disease. No constant changes were observed in the liver, spleen, or lymph-nodes. Symptoms of spinal cord disease were observed in six of the nine cases studied after articles calling attention to this feature were published. Most cases gave no history of previous serious illness. Ages ranged from 32 to 70; 20 were males, 4 females; 11 had indoor occupation. The duration varied from five months to six years. Other data were given, but the point most emphasized was that digestive troubles are secondary to the disease and not a causal factor in the production of pernicious anemia.

Discussion.—R. C. CABOT (Boston) stated that his results from a study of 151 cases were entirely in accord with those of Stockton. Five-sixths of the patients had no HCl, and yet digested their food perfectly well. The striking thing about this is that HCl appears to be a luxury instead of a necessity. Another noteworthy point is the lack of serious cardiac symptoms, even when the heart is known to be markedly fatty. MAX EINHORN (New York) coincides with the view that there is no intimate relation between achylia gastrica or atrophy of the stomach and pernicious anemia. In many cases atrophy of the stomach is a sequel of the anemia. In most cases of achylia gastrica the blood is in good condition. WILLIAM OSLER agreed with the other speakers, that in many cases of pernicious anemia the digestive organs are in good condition. In certain cases, however, the stomach symptoms are so dominant as to indicate that probably in a few instances the stomach condition is essential and the pernicious anemia exists because of it. A case previously reported by him, in which the stomach was entirely sclerotic, bears out this belief. After all has been said, we are still at sea as to the precise and exact etiology of pernicious anemia. The profession should not be so much at sea regarding the diagnosis. It is not at all creditable that in many cases the diagnosis is first made by the consultant. J. N. HALL (Colorado) mentioned a case in which marked improvement followed the administration of HCl. This is possibly a neglected method of treatment in many cases. A point in diag-

nosis is, that the absence of eosinophilia should point to pernicious anemia instead of the presence of parasites. Arsenic in this disease possibly does good by its antiseptic action upon the mouth and intestinal tract. In one case under observation Fowler's solution produced no beneficial results; when the patient was put at entire rest in bed and given sodium cacodylate hypodermically he improved rapidly and is now as well as ever and is practising medicine. GEORGE DOCK (Ann Arbor) agreed with the previous speakers as to the condition of the stomach. As to the treatment with HCl, he has seen a number of patients improve as much under its use, with fresh air and proper diet, as under the use of Fowler's solution. The action of HCl may be entirely apart from the condition of the stomach. He gives from 45 m. to 60 m. of the diluted acid, or as much as the patient will tolerate, after meals. It may assist in intestinal digestion; for this reason it is very important to examine the stools to determine the extent of the intestinal changes. The point to remember is, that HCl is a very useful adjuvant and may act quite apart from any improvement in the stomach itself. STOCKTON, in closing, said that he was not prepared to accept the dictum that HCl is a luxury. Einhorn's statement that atrophy of the stomach is found as a sequel in some cases of pernicious anemia suggests an explanation of the class of cases referred to by Osler. With the marked degeneration of tissues everywhere in the body in pernicious anemia one would expect to find just such cases as Osler has reported without attributing to the stomach condition a causal relation. There is some doubt as to whether therapeutics adds very much to improvement in cases of pernicious anemia. He believes that it is proper to give HCl if the patient can stand that drug. But little knowledge of the condition of the patient was obtained from the examination of the stools in a series of cases.

Diagnosis and Treatment of Perforation in Typhoid Fever.—MORRIS MANGES (New York) reported a series of 19 cases, in 16 of which operation was done. The 19 cases occurred among 268 patients within 2 years; this fact suggests a seasonal incidence or a special virulence of certain typhoid bacilli. The diagnosis was verified by operation or autopsy in all but one case. The age of the patients varied from 6 to 42 years and the perforation was on the ninth to the fifty-eighth day of the disease. Pain is the most important symptom of perforation; it occurred in 17 of the cases, the other 2 being delirious, and was the first symptom in 14. Rigidity was present in 16. In order to make variations in liver dullness of value in diagnosis the condition should be noted every day during the disease; the time now spent in examining the spleen could be more profitably used in outlining the liver. Of the cases in which observations could be made, the temperature fell in 3, rose in 9, was unchanged in 4. The pulse rose in 12, was unchanged in 4, fell in none. The leukocytes rose in 7, fell in 3, were unchanged in 6. Blood-pressure is not an important diagnostic aid. Operation was performed from 5 to 72 hours after perforation though in some instances the time of perforation is problematic. The possibility of spontaneous cure of perforation is raised by the one case reported as such; Manges believes this to be possible if the opening is small and is at once shut off by adhesions. But in all the cases reported as such the recovery is only 5% and this leaves no doubt as to the proper course to pursue, this being operation in all cases. General anesthesia is to be preferred to local. Special attention should be given to the diagnostic significance of pain, which is variable in degree, situation and character.

Discussion.—WILLIAM OSLER said he was present when in 1886 J. C. Wilson read his paper advocating operative interference in typhoid perforation; then he felt very conservative regarding the proposition but his views have since changed. Two things are needed to lower the mortality from this complication: 1. Intelligent watchfulness on the part of the physician of the progress of the disease. In general hospitals the chief should put down in writing what the house physician should especially look for in the typhoid cases; if they appear, help should be summoned within a few minutes. 2. The prompt cooperation of the surgeon. It is better in many cases that the house surgeon should operate as the time spent in summoning the chief may be too long. The record at Johns Hopkins Hospital is now 19 cases with seven recoveries. J. C. WILSON (Philadelphia) said in reference to the management of cases in hospitals he insisted on hospital residents examining the abdominal wall of typhoid patients at every visit to note if rigidity be present; the merest appearance of rigidity must be reported to the visiting physician by telephone. If abdominal pain be present the surgeon is at once called and the operating-room prepared, as a matter of precaution, while he is coming. Yet there are cases where abdominal pain, sudden and severe, accompanied by rigidity comes on and in a few hours has passed away and no perforation has occurred. Wilson is at a loss to explain how the symptoms of perforation can occur without the presence of that complication. Regarding the relation between intestinal hemorrhage and perforation, he believes that they rarely occur at the same time; hemorrhage is very often a precursor of perforation and for this reason vigilance, if possible, is to be increased in cases of hemorrhage. It is time for the profession to consider seriously the advisability of opening the abdomen in cases of profuse hemorrhage that threatens the life of the patient. This will permit the arrest of hemorrhage, it is believed, in certain cases. An instance was cited in which

a child died from hemorrhage that operation would probably have saved. MANGES, in closing, said that the trouble with too many physicians is that they wait too much before making the diagnosis of perforation in typhoid fever; they must have all the symptoms before they are willing to risk the diagnosis of perforation and then the proper moment has gone by. He hopes that Wilson will succeed in doing as much for hemorrhage in typhoid as he has done for perforation.

Typhoid Fever with an Unusual Complication.—W. E. DARNALL (Atlantic City) reported a case of typhoid fever in a single woman of 30, during which severe hemorrhage from the uterus was a complication. The fever was mild; the case being what is known as a walking typhoid. The hemorrhage occurred during the third week of the disease, menstruation having taken place two weeks before. At autopsy the lesions of typhoid fever were found, but there was absolutely no lesion of the uterus to explain the hemorrhage. He finds no mention in the literature of uterine hemorrhage during typhoid fever.

Mortality and Management of Pneumonia.—E. F. WELLS (Chicago) spoke of the increase in prevalence and mortality of pneumonia and mentioned factors that may be considered as causes. The increase in virulence of the pneumococcus is probably largely at fault in the increase as this change can be demonstrated to take place. This organism is present in many individuals supposedly healthy, it being found in the respiratory passages of 45 out of 135 persons. In some instances it was found in all the members of a family and in these was usually obtained the history of pneumonia in one or more members. This fact points to a reasonable hope of a successful prophylaxis against pneumonia. The organism is disseminated by coughing, sneezing, and expectoration, of the people who harbor it. It is taken into the body by inspiration and possibly by the blood from the upper respiratory passages. Wells distributed tables that have been made from statistics collected during several years to show the increase of mortality from pneumonia. In all 465,020 cases are included with 93,110 deaths, a rate of over 20%. Death in the vast majority of cases is due to toxemia. As regards treatment, he believes that the people are well enough instructed to cooperate with physicians in an effective prophylaxis. All sputum from pneumonia patients should be destroyed before it becomes dry, and it would even be well to destroy all sputum. Rooms of pneumonia patients should be afterward disinfected the same as in the case of diphtheria. Active treatment consists in putting the patient in the best environment, surrounding by hot water bottles, giving a single small dose of morphin and saline enemas. To reduce arterial tension during the first few hours veratrum viride is given; later digitalis is administered. For pyrexia the icecap and guaiacol are used. Venesection followed by salt solution may be indicated. Fluids should be given freely. Antipneumococcus serum may be of service. Oxygen inhalations are begun early. For pulmonary edema, strychnin, adrenalin, and morphin are employed. The suddenness of changes is the important feature in pneumonia; this means that the most careful watching of the patient is essential.

Study of a Series of Cases of Pneumonia, with Special Reference to Diagnosis and Complications.—JOSEPH SAILER (Philadelphia) read a paper giving in detail the characters of 65 cases of croupous pneumonia. The cases were from the Philadelphia Hospital with all the unfavorable conditions there existing. Forty percent were over 60 years and there were 35 deaths. While the average leukocyte count was slightly higher in the cases that recovered, Sailer does not believe that any positive conclusion regarding treatment or prognosis can be based thereon. A careful study of the chlorids in the pneumonia cases and also in healthy persons leads to the conclusion that their diminution or absence is of diagnostic but not of positive prognostic value. In one case this test made the diagnosis (confirmed by autopsy) when the physical signs were absent. A careful study was made of bronchial breathing; faint breathing of this type was heard not only in the early stage but also in the later periods in some cases. Herpes appeared only 4 times, icterus 3 times. Ten cases were treated with antipneumococcus serum. Of these, 7 recovered and 3 died. Large doses were used and in the majority of cases it produced an antipyretic effect. In one patient, 7 days after the temperature had been normal, urticaria and severe joint pains, lasting 7 days, appeared. On the whole the results from the serum were encouraging.

Discussion.—R. C. CABOT (Boston) said he did not consider the tables of Wells, referring to the Boston hospitals, as proving his point. Only since 1884 were they accurately kept, and since then there was no rise in mortality. JENKINS (Iowa) considers influenza and crowding of people in cities as the two most important factors in increasing the mortality from pneumonia. ROBERTS (Buffalo) took issue with the treatment of symptoms as symptoms. The cause of the symptoms (toxemia) should be treated. He would bleed early and late in the disease. BABCOCK (Chicago) believes that pulmonary edema is not due to failure of the heart, but to the action upon the pulmonary alveoli of the pneumococcus. The blood-pressure is low at the onset, and he would not give cardiac depressants. Digitalis is the better drug. S. S. COHEN (Philadelphia) firmly believes that venesection may be of value in the beginning to reduce the toxemia and later when the right heart is overloaded. The need of the individual is the determining factor in the employment of this measure, individualization being more important in

this disease than in any other infection. He looks upon cases with high temperature as being more favorable. He has seen veratrum viride do good in cases where its physiologic action would not seem to be indicated. The use of drugs is still largely empiric, and the results of clinical experience must be taken as of value along with experimental data. Hence, the drug in question does good in some cases, though the reason cannot be given. WELLS, in closing, did not agree that high temperatures were favorable. He again emphasized the value of morphin early and later in the disease. SAILER, in closing, stated that low blood-pressure in the beginning is considered unfavorable. He would employ antipneumococcus serum intravenously in a second series of cases.

Appendicitis from the Standpoint of a Physician.—S. G. BONNEY (Denver) believes that the responsibility of the physician in cases of appendicitis is much greater than that of the surgeon. Early diagnosis is of extreme importance. In cases seen late the early manifestations should be carefully reviewed. A careful examination of the abdomen should be made in all cases of even the slightest abdominal pain. Leukocytosis is of comparatively little importance. Cases were detailed to show that symptoms of appendicitis are present occasionally when the appendix is normal and also that grave disease of the appendix may give no local signs, the general condition of the patient being the important point. The writer emphasized the need of a much greater definiteness among physicians as to what should be done in the various stages of the disease.

Suicide: Some Instructive Cases.—J. L. DAVIS (Cincinnati) spoke of the increase of suicides in recent years and of the various factors that may be of causal importance. The crime is greater among insured persons. The paper was devoted largely to a discussion of how suicidal tendencies may be lessened. First is to diminish the strenuous life of today, especially among Americans. This no doubt has much to do with the destruction of physical and mental poise. The fundamental mistake here is in the conception of life, the material side being too largely exalted. The relation of religion to suicide is that of lessening it. This is illustrated partly by the fact that men are three times as apt to commit suicide as are women. The daily press, with its revolting details of suicides and other crimes, is largely responsible for the increase of suicides. Papers should be allowed to print only the dry facts regarding trials, etc. They claim that they give the people what they want, but they should be compelled to give them better than they want.

[To be continued.]

Section on Surgery and Anatomy.

FIRST SESSION.

Chairman's Address.—CHARLES A. POWERS (Denver). The Chairman mentioned a number of the eminent surgeons of America who had previously occupied the chair of the Surgical Section since its organization in 1860, soon after the organization of the Association and expressed his appreciation of the honor of succeeding these men. He briefly referred to the history of surgery in America, stating that while in 1873, probably not a medical man practised surgery exclusively, a large number of the members of the section at present, devoted their time entirely to surgery. A recent writer called attention to the fact that while in earlier times the best minds took up the study of theology, and in more recent times the profession of law at present, many of the best men are going to medicine. In addition to liberal education and thorough professional training, the surgeon needs the intellectual qualifications of the naturalist, a judicial mind, the highest character and most delicate feeling. In our choice of operation or no operation, we should, as Billroth suggested, ask the question, whether we would be willing to undergo the operation ourselves. In the early career the surgeon is inclined to look at the ready results of operation, while in later years, he is more careful in his selection of cases, and in a third period of his career, is likely to limit himself to certain special conditions in which he has gained special skill. The responsibility of surgery is not equalled by any other calling, and men of the highest character are needed.

The Danger of Allowing Moles and Warts to Remain, lest They Become Malignant.—W. W. KEEN (Philadelphia) prefaced his remarks by stating that his paper referred to the clinical aspects of warts, moles, and other similar growths, not their pathologic character. Many of these growths do not undergo malignant change, but we can never tell when such changes will occur. These small growths are subject to irritation and injury and are very likely to be stimulated by scratching. When they increase in size they are generally malignant. The patient does not usually fear them, because they have existed so long without giving trouble. Warts, he believes, generally degenerate into epitheliomas, while moles are more likely to undergo sarcomatous degeneration. The textbooks on diseases of the skin often give radically wrong teaching with regard to these growths, advising that they be treated by constriction or shaving the growth away, which seldom entirely removes the tumor. Few regions of the body are exempt from these growths. The operation is generally so small that it can readily be done by the family physician if taken early. Twenty-

five cases were reported, in which these apparently small growths had undergone degeneration. Twelve of these were from Keen's own practice. Among other cases he mentioned, that of a birthmark in the region of the scapula and axilla, which, when he first saw it, had become so extensive that a removal of the entire upper extremity was necessary. In another case, amputation of the leg for a growth arising in a small wart over the external malleolus was followed by a recurrence of the growth in the glands of the groin, from which the patient died. In a large proportion of the other cases reported the results were equally unfortunate.

Discussion.—RODMAN (Philadelphia) stated that he had seen more warts undergo epitheliomatous degeneration than moles sarcomatous. He recalled three distinct cases of the first kind, one an epithelioma arising from a wart beneath the patient's hatband, which resulted fatally. FUTTERER (Chicago) exhibited specimens showing epithelial metaplasia resulting from friction. He believes, however, that there are other causes than mechanical ones that give rise to such malignant degeneration. WEIR (New York) believes that the same rule might well be applied in dealing with these small defects that applies in dealing with all tumors. They do no good, and are better removed than left. In the early stages of such growths, when patients are unwilling to submit to operation, he has had good results from the use of glacial acetic acid. LAPLACE (Philadelphia). While many people are not destined to have malignant growths, others are subject to them, and such growths are much more apt to occur in some spot of lessened resistance, such as these moles and other defects offer. BEVAN (Chicago) mentioned the danger of infection of wounds from growths which are being removed, and believes that when their surface is moist, it is well to cauterize with the actual cautery before removal. Moles are too common for us to remove all. He believes that probably half of the members of the section are affected, and some have numerous growths of this kind.

Starvation: Operation for Malignancy in the External Carotid Area, Its Failures and Successes.—ROBERT H. M. DAWBARN (New York City). This method is still generally untried in the hands of most surgeons, but from considerable experience, Dawbarn considers it worthy a trial. He has had more favorable results in operations for sarcoma than for carcinoma. In special cases permanent shrinkage has followed the operation, which has continued for three years after operation, and in one case of small-celled sarcoma of the lower jaw, which Butlin considers hopeless whether removed or not, the patient is apparently cured. In growths of the lower jaw, he advises control of the inferior dental artery, and removal of the nerve as well as excision of the carotid. In operating, it is best to excise the external carotid of the sound side first, for if the diseased side is tied first, the growth will shrink and the patient, being encouraged by this, will refuse to have the other side operated upon, and in a short time, when the circulation is reestablished, the growth will return as bad as ever. Though the chances of cure are slight, it is the only chance offered these unfortunate patients, and even in desperate cases it usually prolongs life.

Discussion.—BRISTOW (New York) has operated in 11 cases. In one case of sarcoma the patient died shortly after; all of the others recovered, and were relieved of pain. The tumor always shrinks in size, and the discharge is lessened or ceases. In none of his patients, however, was life prolonged over one year. He believes that the danger of the operation is out of all proportion to its extent. During the operation, when the stump of the artery is passed beneath the hypoglossal nerve, there is decided inhibition of respiration, which is probably from the tugging on the superior laryngeal nerve. DAWBARN, in closing, mentioned the benefit which prolongation of life, even for a few weeks, may have for a business man who wishes to arrange his affairs. In certain cases the shrinkage permits a radical operation to be performed later. The mortality in 60 uncompleted cases he believes is less than 5%.

Surgical Treatment of Presumably Benign Tumors of the Breast.—J. CLARK STEWART (Minneapolis), in dealing with small, hard tumors of the breast, growing in women over 40, believes that we should be decidedly suspicious. We are in need of some better means of exploration to determine the character of such growths. That such growths may be grafted by the use of an aspirating needle has been abundantly proved. Experience at the Johns Hopkins Hospital, in Baltimore, has shown that small cysts make up less than 50% of all cystic growths. Several authorities were mentioned in referring to the malignant degeneration of apparently benign cysts. All tumors of the breast should be considered as malignant until they are proved to be benign.

Discussion.—JEPSON (Iowa). Malignancy is becoming progressively more frequent in recent years until at the present time it has been estimated that nearly 50% of women past 45 years of age die of malignant growths. Jepson doubts if it is necessary to make a diagnosis in many of these cases, for only a small proportion of breast tumors are benign, less than 10% probably. WHARTON (Philadelphia), in several doubtful cases which he left for observation has later found the growths to be malignant. BLOODGOOD (Baltimore). The hope for improvement in the results of operations for tumors depend upon earlier removal. The number of benign tumors coming to hospitals for operation is increasing, because patients are coming to recognize the danger of such growths, and come to the

hospital early for examination. In the case of a young woman under 30, multiple tumors are generally intracanalicular fibromas, and benign. Single tumors occurring at any age should be looked upon with suspicion, and after 45, immediate operation should be advised. In doubtful cases it is desirable to cut into the tumor before excising, and in this way it is usually possible to make the diagnosis. A large proportion of cysts undergo malignant degeneration. Every woman whose case gives the clinical picture of cyst, has 10% of chances of cancer. ROBERT MORRIS (New York), said if we delay operation in the case of tumors of this kind, patients usually drift into the hands of quacks. When patients are unwilling to have an operation it is well to tell them of the dangers of delay, and suggest excision of a small area and making frozen sections for microscopic examination under ether, when, if the growth is found malignant, the complete operation can be done. STEWART, in closing, expressed the opinion that generally a macroscopic examination was sufficient for diagnosis, and that it was not necessary to use the microscope.

Painful Affections of the Knee-joint.—HOFFA (Berlin, Germany). Practically the same points were covered in this paper as in a paper quoted recently in the surgical editorial columns of *American Medicine*. We refer those interested to this editorial, which was based on Hoffa's publication in the *Deutsche medizinische Wochenschrift*.

Surgical Lesions of the Axillary Plexus.—JOHN A. WYETH (New York City) reported a case of large fusiform neuromas of the brachial and axillary plexus. On exploring the region of the growth, removal without paralysis of the entire extremity was seen to be impossible; hence, the clavicle was divided and bent upward, so as to relieve the pressure on the growth. This was followed by entire relief from the symptoms, and the patient is still living and well, 13 years after the operation, with complete control of all muscles. In another case, incision and removal of a thickened sheath was done for a neuroma of the inner cord of the axillary plexus. A case of complete paralysis of the upper extremity by stretching of the axillary plexus, by raising the arm during the removal of tuberculous glands of the axilla, was also mentioned. Six weeks later sensations began to return, and at the present time, five months later, sensation and motion are almost entirely restored.

Discussion.—MURPHY (Chicago) believes that it is quite common to get paralysis of the arm from holding it above the head during the operation. This position should be avoided as far as possible. Experience in operations for trifacial neuralgia seems to show that nerves regenerate readily after division, but usually degenerate by pressure and stretching. HOLMES (Philadelphia) suggests obviating pressure on the nerves of the axillary plexus by flexing the forearm and supinating the hand when the arms are elevated above the head during operation. SUMMERS (Omaha) called attention to danger of paralysis from the crutch arrangement that is commonly used to separate the legs and hold them in the lithotomy position during perineal operations.

Matas' Operation for Popliteal Aneurysm.—J. F. BINNIE (Kansas City, Mo.). The case of a patient is reported who had had syphilis, rheumatism, gonorrhea, and who had been addicted to alcohol. On examination, a pulsating tumor of the region of the calf of the leg, 6 inches by 3 inches, was found. At the operation the aneurysmal sac was found to be filled with clot. The Matas operation was performed, with complete recovery of the patient, and restoration of circulation of the leg.

Discussion.—MATAS (New Orleans). The value of reports of such relatively untried operations is great. In the case reported it was shown that infection need not interfere with satisfactory recovery. Since the publishing of his first paper, Matas has had one additional case. In performing the operation, he emphasized the necessity for free exposure of the sac, control of all vascular orifices, and reduction of the size of the sac by several tiers of sutures. In all these cases where operations have been performed, every one who has tried the operation agrees as to its simplicity. MURPHY (Chicago) mentioned a case in which he modified the technic of the original operation by excising a part of the sac and overlapping the walls. At first the vessel bled freely, through the stitch holes when the tourniquet was removed. This soon ceased, but seven days later infection occurred, necessitating first ligation of the artery, and later, amputation, which was followed by death. PONDZER (Indianapolis) reported a case in which he performed this operation only 12 days previous to the session's meeting. There had been slight rupture of the sac wall previous to operation, but as the vessels elsewhere were good, operation was thought to be justifiable. Up to the time of the report, patient was doing well. Ligation in such cases, where the circulation of the limb is faulty, is sure to be followed by gangrene.

[To be continued.]

Section on Obstetrics and Diseases of Women.

FIRST SESSION.

Chairman's Address.—L. H. DUNNING reviewed briefly the progress in gynecology during the past year. He stated that the year's work had consisted of a large amount of good gynecologic work, but not much that was new and of signal

importance had been accomplished. He then discussed at length senile endometritis. The affection is more common than is generally supposed, constituting about 3% of all the pelvic troubles among women. There are two forms—acute and chronic. The former may be due to gonorrheal infection, but other germs may be the etiologic factor. It not infrequently results in abscess in the adnexa. Thorough drainage, dilating the cervical canal if necessary, is the main thing in treatment. No curetment should be done until acute symptoms subside. The application of carbolic acid and other medicaments to the interior of the uterus may be helpful. The chronic form is often a mere continuation of the acute. This is sometimes so severe and persistent as to require hysterectomy. The histologic findings in both forms were dwelt upon, several illustrative cases were reported, and illustrations were exhibited.

Invasion of Carcinoma Cervicis Uteri into the Surrounding Tissue.—J. A. SAMPSON (Baltimore) held that the high percentage of recurrence following the operative treatment of carcinoma of the cervix shows that the growth has invaded the surrounding tissues at the time of the operation, and that hysterectomy alone cures the disease in but a small percentage of cases. A study of the anatomic relation between the cervix and the neighboring parts shows that this relation is varied by the position of the uterus in the pelvis and that the growth does not have to extend far anteriorly in order to involve the bladder or laterally to reach or extend beyond the ureters. A study of the specimens obtained from the more radical operations demonstrates how the above takes place, and emphasizes the importance of wide excision of the primary growth, and that the only hope of bettering our results lies in early diagnosis and radical operation. The position of the ureters makes accidental injury to them frequent in operations for malignant disease of the cervix. In the Johns Hopkins Hospital there were 19 such injuries in 156 hysterectomies for carcinoma of the cervix, while there were but 11 similar injuries in 4,518 other major gynecologic operations. A study of removed specimens showed malignant extension into the parametrium in 7 out of 15 cases of operable cancer at the cervix, and metastases, especially in the parametrial lymph-nodes, in 4 out of the 15 cases, and in 3 of these 4 cases these lymph-nodes were involved without there being a direct extension of the growth into the parametrium. Thus the ureters pass through tissue which should be removed. It should be remembered that rough handling or stripping of the ureter at its lower extremity is apt to result in necrosis of its walls. The thorough radical operation with removal of pelvic lymph glands, and the proper disposition of the ureters should be attempted only by one conversant with the anatomy of the pelvic contents and with the gravity of the disease.

Primary Chorioepithelioma Malignum Outside of Placental Site.—P. FINDLEY (Chicago) discussed at some length a number of reported cases, and reported one in his own experience. The subject has been one of some investigation and of much more speculation. The uterus is by no means the primary seat of the disease in all cases; it may arise primarily in the vagina, lung, liver, spleen, etc. Metastatic growths are common in various organs, and these may cease to grow and disappear, especially on removal of the primary growth. The tumor, even when in the uterus, may cease to grow and subside. The theories as to etiology have been discussed, but none has entirely explained the situation. Not only may the growth follow a normal delivery, but it may also develop after the expulsion of a hydatidiform mole, or it may follow an abortion. Scrapings from the uterus examined by the microscope will not make a diagnosis. The prognosis is grave, even when the uterus is removed, because metastases may occur even later.

Electrothermic Clamps in the Treatment of Cancer of the Uterus.—CHARLES P. NOBLE in 1902 had reported 4 instances in which he used the electrothermic cautery in performing hysterectomy for cancer of the uterus. In the present paper he reports 10 additional ones—all of the patients being unfavorable subjects for operation. His experience convinces him that the results are better after using the cautery. Its main disadvantage however is the increased danger of forming a fistula by injuring the ureters or bladder. This happened in several of his cases, but all but one of these has healed spontaneously. By even the best methods recurrence takes place in about 20% of the patients operated upon for malignant disease of the uterus. Early diagnosis and early operation are the hope for the future.

Discussion.—WILLIAM WALTHER has long held that radical operation yields no better results than the less radical, and the primary mortality is increased. He holds that attempted removal of the pelvic glands is impractical. CLARK favored radical and extensive operations if done by a competent man. The best results are poor enough, however; therefore, we should encourage the work of investigation now being done by certain men. MASSEY held to the parasitic nature of cancer, condemned cutting and cureting operations for malignant disease of the uterus, and favored the use of the cautery. LAWRENCE believes that high amputation of the cervix, followed by the use of the cautery, in cancer of the cervix, will give as good, or better, results than the more radical procedures. HUMISTON believes long duration of the anesthetic for radical operation is bad, and he therefore employs hypodermoclysis during such operations. GOLDSPOHN insisted that more of the

upper part of the vagina should be removed in hysterectomy for cervical cancer. CORDIER has abandoned the cutting operation for the cautery, and uses calcium carbide for cleansing and disinfecting the diseased area, following this with irrigations of potassium permanganate. CARSON held that the mere removal of a diseased uterus and the pelvic glands is practically useless when the disease has passed beyond the uterus. It has been shown in fatal cases that in only 13% of the cases were the pelvic glands involved, while in 87% glands in other parts of the body were diseased.

The Technic of Wounds Incident to Laparotomy.—H. O. MARCY (Boston) gave a historic review of the advent and the general employment of sutures and ligatures in surgery. Coming to more recent times he gave a review of the evolution of abdominal surgery as related to ovariectomy. He recounted various experiments he had made, many of them years ago, in regard to the asepsis of sutures and ligatures, and the proper closure of abdominal wounds. He was the first, in 1881, to close the peritoneum over the stump after abdominal hysterectomy, and he early insisted on covering all raw surfaces, within the abdominal cavity, with peritoneum. We should drain only in infected cases. He described in detail the proper closure of an abdominal wound, the main point being that similar structures should be approximated layer by layer. The skin is closed with a deep subcuticular suture and the wound healed by iodoform collodion. No bandage is employed unless the wound be very long or the patient vomiting.

Discussion.—GOLDSPOHN insisted that we are not sufficiently careful to reunite the fascia anterior to the rectus muscles. This is the one essential thing in reestablishing the strength of the abdominal wall. DORSEY insisted that no animal suture or ligature material can be certainly sterilized except it be of small size. He therefore uses fine catgut in all abdominal cases.

Appendiculoovarian Ligament.—D. H. CRAIG (Boston) said this structure had been much misunderstood. Its anatomy was dwelt upon at length. It is a band extending from the outer end of the broad ligament to the iliac region. Yet Clado and Durand described it as extending from the appendix or the mesoappendix to the upper part of the broad ligament. It is absent in a third of all female subjects, is somewhat inconstant in form, and has been much more discussed by the German and French than by Americans. It is in reality a fold or plica formed by the ovary in its descent from near the kidney, the upper part being obliterated by the descent of the cecum and colon. It should be called the extrapelvic portion of the suspensory ligament. If diseased it gives rise to chronic pain extending from McBurney's point into the pelvis. Several cases are reported illustrative of the author's explanations and deductions.

[To be continued.]

Section on Diseases of Children.

FIRST SESSION.

Address of the Chairman: The Demands of the Child by Virtue of Right.—CHARLES GILMORE KERLEY (New York City) emphasized the importance of good nutrition, cleanliness, exercise, and constant supervision in the rearing of children, since only by such methods can the highest type of individual be produced. Malnutrition is not due to lack of food so much as to improper food, and it is the office of the physician to teach the mother the most approved methods of infant feeding. Only 20% of the children over 1 year of age, coming under his observation in New York City, are of normal development. Heredity plays an insignificant part in the development of children. The strongest factor is the errors of nutrition, which greatly increase the susceptibility to disease. He then discussed the effect of this bodily weakness on the child's mentality, its resulting degeneracy leading to all sorts of crimes and misdemeanors, stating that in Great Britain physical degeneracy had become so prevalent that a royal commission had been appointed to look into the matter. Also the increasing use of alcohol by women was often given as a cause for this physical and mental defect. The poor and ignorant mother should be under the direction of the physician who thus becomes the guiding star of future generations, the most important member of the community in which he resides.

Erythema Nodosum in Children.—I. A. AET (Chicago) said that by many authorities it is considered one of the exanthematous fevers because of the high temperature and constitutional disturbance. It is especially liable to attack scrofulous children. There is great tenderness over the tibia and dorsal surface of the foot, rarely, the tongue and face being affected. It requires a week or 10 days for the nodule to complete its cycle, usually ending in necrosis and ulceration. Rheumatism was formerly considered a causative factor, the frequency of endocarditis suggesting its rheumatic nature.

Whoopingcough: A Study of 17 Cases Treated with the Elastic Belt.—THERON W. KILMER (New York) discussed very enthusiastically the application of this elastic abdominal belt and its almost miraculous effect in modifying the paroxysms and reducing the vomiting. He exhibited a number of charts showing the results of its application. He stated that the belt put the stomach and abdomen in a splint, as it were, and could also be used to control vomiting of pregnancy.

Discussion.—KERLEY spoke in high terms of the benefits resulting from the use of the belt. LOUIS FISCHER (New York) had employed the bandage for relief of paroxysms of whoopingcough. GILBERT (Louisville, Ky.) spoke of the induction of hernia by the use of the belt, but the speaker had seen no evidences of hernia from its use.

Some Clinical Observations on Malnutrition and its Relationship to Infantile Tuberculosis.—LOUIS FISCHER (New York) had made a careful study of 5,000 cases in the children of the poorer classes. In the great majority of these cases the many evidences of rickets were manifest. He stated that most of the rachitic manifestations could be attributed to faulty feeding, unsanitary surroundings and lack of sunshine and fresh air. In his study of some 800 nurseries very few of the breast-fed children acquired tuberculosis. He discussed the liability of these children to the acute infections, thus paving the way for tuberculosis. He spoke in detail of the transmission of tuberculosis by ingestion and inhalation and the effect of adenoids as a causative factor in pulmonary disease. Start the baby afloat by giving it breast milk, which may contain an immunizing serum, and plenty of fresh air and sunshine.

Discussion.—ABRAHAM JACOBI (New York) ably discussed the question. He said the danger of a tuberculous mother transmitting the disease to her offspring was not so much due to her milk as to the sputum spread by coughing, and inhaled or ingested by the nursing child. He did not believe in the theory of heredity, but recommended isolation of the child from the tuberculous mother and artificial feeding. He said that the milk from a herd of cows was much better than that of a single animal. The tubercle bacilli would pass through not only diseased, but healthy mucous membrane. Tubercle bacilli enter the nose and mouth and are absorbed, appearing in glands of the neck, from which they pass to the mediastinal glands, especially of the left side. CHARLES BROWNING (California) stated that the transmission of tuberculosis occurred oftentimes between six and eighteen months, when the child was frequently on the floor. When asked about the use of condensed milk, the speaker said it was about the poorest possible foundation for a child to start life upon.

[To be continued.]

Section on Ophthalmology.

FIRST SESSION.

Chairman's Address: Thoughts Suggested by a Study of the Eye Injuries of Independence Day.—ROBERT L. RANDOLPH (Baltimore) cites the mortality following this variety of traumatism as compared with other affections. As a means of preventing these injuries he suggested the passing of a law imposing a higher fine for the sale of explosives of this character. He incidentally referred to his efforts to bring this about in the city of Baltimore.

Treatment of Purulent Ophthalmia.—MYLES STANDISH (Boston) briefly reviewed the several characteristics of this disease, and laid great stress on the importance of bacteriologic examination as an aid to diagnosis. He mentioned the various microorganisms at times responsible for the affection, and then passed on to the consideration of the treatment as carried out by him at the Massachusetts Eye and Ear Infirmary. This consisted in gently but thoroughly cleansing the lids and conjunctivas with boric acid solution and the local application of the less irritating silver salts, especially protargol and argyrol. These he believes to be greatly superior to mercuric chlorid, silver nitrate, and other antiseptics, and quotes statistics of his own to prove these assertions. He believes that protargol is more valuable when there is corneal involvement. He sees no indication for the employment of cold in any stage of the disease, and believes it to be harmful, particularly in the stage of swelling.

Discussion.—CASEY A. WOOD (Chicago) said the irritating effects of the silver nitrate were its great drawback and that the tendency at the present period was to employ nonirritating applications in this disease with a view to prevent undue irritation of the cornea. He referred to the crying its application produced in children and said he considered the congestion following crying more than counterbalanced any good effect the drug might produce. He believes the judicious employment of cold of great value. Cleansing of the lids and conjunctivas by ordinary simple means is far superior to the perforated retractors and similar apparatus as the latter are capable of injuring the cornea. He prefers argyrol to protargol and thinks that it is somewhat anesthetic. He also employs hydragrist in collyrium alternating with argyrol. MAITLAND RAMSAY (Glasgow, Scotland) stated that in his experience purulent ophthalmia was a much rarer disease in Scotland than in this country. He considered cold to be of great help in relieving pain but acknowledged that it may also aid in the corneal destruction. A. W. CALHOUN (Atlanta, Ga.) spoke of argyrosis following long-continued use of protargol and stated that this danger was less with argyrol. In acute ulceration of the cornea from various causes he believes either in weak solution is curative. F. C. TODD (Minneapolis) stated that he used protargol and argyrol and preferred them to silver nitrate. He thought that the nursing should be considered in comparing cases of this character. In his experience, in which the same nursing was employed but different forms of local treatment, the argyrol

and protargol forms of treatment were most effective. He used protargol in one eye and argyrol in the other in one case and the eye in which protargol was employed progressed more rapidly toward recovery. He employs 50% solutions in glycerin. J. E. WEEKS (New York City) said that he washed the conjunctiva more thoroughly than Standish, but did not resort to perforated retractors and similar devices. He believed the new silver preparations to be very efficient and uses them in 35% solutions every two hours. Cold he believes to be useful in reducing temperature and inhibiting growth of microorganisms and when employed carefully is not harmful to the cornea, and usually makes the patient more comfortable. H. WOODS (Baltimore) urged ordinary cleanliness, avoiding instrumental means. Considering the comfort of the patient, he believes cold to be of value. He spoke favorably of argyrol, and noted 10 cases in children in which recovery occurred on an average of eight and a half days after beginning treatment. He uses it twice daily, and has noted no staining or irritation following its use. SEABROOK (New York City) uses cold for the swelling after cornea is involved, and questioned how cold could affect the corneal structure when it was unable to affect the bacteria in the lids, as shown by Standish. J. L. THOMPSON (Indianapolis) urged the use of the nonirritating forms of treatment, and referred briefly to an early case reported by Loring, in which the eye was lost from purulent ophthalmia. RITCHIE (Washington) said he prefers silver nitrate to other silver preparations, and believes it brings about constructive metamorphosis. PARK (Harrisburg) stated that he employed thorough washing of the eye every 30 minutes, and dusted nosophen after each irrigation. He prefers it to silver preparations, the best of which he thought to be silver nitrate. N. M. BLACK (Milwaukee) said he used protargol and argyrol in cod-liver-oil, and instilled them after irrigation. M. STEPHENSON (Akron, Ohio) called attention to the use of alphasol in ophthalmia neonatorum, 1 to 5,000, and 1 to 2,000. He never uses instruments to wash the eye, but instead employs cotton. L. CONNOR (Detroit) stated that he experimented with protargol and argyrol, and found argyrol the most effective. He also uses heat. He insists on thorough cleansing every five minutes. E. E. HOLT (Portland, Me.) believes cleanliness to be of greatest importance. He employs a Davidson syringe, and begins the irrigation at the external canthus. In closing the discussion, STANDISH stated he had never observed argyrosis following these preparations. As regards the use of cold, he believed the chemosis it induced injured the cornea. In response to the statement regarding the number of patients that get well without treatment, he said this was not borne out by the numerous patients he had seen in previous years with perforation and scarred corneas.

Postoperative Infection of the Eye.—J. A. WHITE (Richmond, Va.) discussed the causes of postoperative infection before and since the antiseptic period, and briefly mentioned the gradual decrease in frequency of this complication during recent years and the apparent reasons for this favorable reduction. From a study of the replies to a circular letter sent to various ophthalmic surgeons with a view of determining the percentage of infection after operation, he places the average percentage from 1% to 2%. He believes that the cause of infection is local and not systemic and reviews the various methods of ante and postoperative treatment. When infection has occurred he thinks the most rational treatment is to reopen the wound, fill the anterior chamber with 50% argyrol solution, and to cauterize the edges of the wound, employing the open method with irrigation of the culdesac. In preparing his patients for operation and also after operation he uses locally, mercuric chlorid in vaselin. He believes that by this procedure he obtains constant sterilization of the conjunctivas without irritation. He alternates it at times with aqueous solutions before operation, but prefers the unctuous medium. He then quoted statistics to support the use of mercuric chlorid in salve form.

Discussion.—S. D. RISLEY (Philadelphia) stated that the effect of the drug was of longer duration in unctuous medium, and thought that injury done to the eye by antiseptics was responsible for postoperative infection in large part, and therefore he avoids the use of mercuric chlorid preceding the operation. He uses either boric acid or normal salt solution in preference, taking great care to scrub carefully the edges of the lids with the solution. In a suspicious case of lacrimal or conjunctival disease he uses the alkaline solution, and dilates and irrigates the lacrimal canal and nasal duct. When infection occurs, he uses boric acid solution, normal salt solution, or even mercuric chlorid. He scrubs the lids and conjunctivas with cotton and the solution and applies a weak silver solution to the wound. He has not used modern silver salts, but employs silver nitrate, following it with normal salt solution. Frequently the infection results from unsuspected sources, such as the infecting particles in the expired air of the surgeon or bystanders and dust in the atmosphere of the room, set in motion by various causes. H. KNAPP (New York City) related cases of apparent infection following operation occurring in syphilitic, gonorrheal and traumatic cases in which the conjunctiva is swollen and a fibrinoid exudation is in the anterior chamber and vitreous, but there is no swelling of the lid. When there is actual infection from lacrimal disease he advises extirpation of the sac after the operation. If the disease is present and operation is contemplated the canaliculi should be ligated. He briefly referred to

a case of this character. ARD (Plainfield, N. J.) briefly referred to the condition of spongy iritis with spongy exudate in the vitreous following cataract extraction already discussed by Knapp. J. A. LIPPINCOTT (Pittsburg) cited cases of infection occurring in his early practice. He routinely used to cleanse the nose thoroughly before operation to prevent infection but has recently become an advocate of White's method with which he has had great success. He believed it to be the best method of disinfecting the conjunctiva and that the salve became dissolved in part and found its way into the lacrimal canals and nasal duct. E. E. HOLT (Portland, Me.) spoke favorably of White's method and uses it routinely with success. C. R. HOLMES (Cincinnati) stated that he refuses to operate for cataract in the presence of lacrimal disease unless he has extirpated the tear sac; he rejects attempts at cleansing of the conjunctiva in the absence of active inflammation. For irrigating purposes when necessary he employs boric acid solution and sterile water. V. T. CHURCHMAN (Charleston, S. C.) spoke very favorably of White's method and said he had used it with success. L. BORSCH (Philadelphia) laid great stress on cleansing of the eyelashes as well as the conjunctivas. He rejects strong antiseptic solutions and referred to De Wecker's treatment in using mercuric cyanid. F. PARKE LEWIS (Buffalo) remarked that he uses a weak protargol solution (3%) prior to the operation. He also made a plea for uniformity in the pronunciation of the word argyrol. In closing the discussion WHITE said the treatment after infection was extremely various. Some used 50% protargol under such circumstances every time the bandage was removed. He expressed great regret that the subject of how to treat the infection after it has occurred had not been more fully discussed. He believed that in all cases the eyelashes as well as the lids should be carefully scrubbed and the salve applied to them likewise.

[To be continued.]

Section on Nervous and Mental Diseases.

FIRST SESSION.

HOWELL T. PERSHING took the chair in place of F. SAVARY PEARCE, deceased. A committee was appointed to draw up resolutions expressing regret at the news of the death of the chairman of the section.

The report of committee on the Collection of Information regarding Public School Methods and their Effects on Mental and Physical Health of School Children, was given by W. J. HERDMAN (Ann Arbor, Mich.)

Symposium of Choreiform and Other Spasmodic Movements.

Symptomatology, Pathology, and Treatment of Choreiform Movements.—WM. G. SPILLER (Philadelphia) discussed these phases of Sydenham's chorea, Huntington's chorea, posthemiplegic chorea, and postapoplectic hemihypertonia. He also spoke of athetosis, chorea of pregnancy, the relation of chorea to Graves' disease, as well as the pathology of chorea, of which very little is known. Apropos of this, he referred to the chorea bodies (chorea-körperchen), a case of Rhein's, in which capillary hemorrhage into the cortex was observed, and distention of the perivascular spaces in the cortex in other cases.

Convulsive Tic.—HUGH T. PATRICK (Chicago) discussed under this heading the various muscular spasms, and especially torticollis. He emphasized the psychic element in cases of simple tic and torticollis. He believes that hypnotism plays an important part in the treatment of these cases, though the results often are indifferent.

Hysteric Movements.—HOWELL T. PERSHING (Denver) believes that the cause of these conditions can be found in some morbid process in the higher cortical center, and often some psychic origin can be traced. Chorea is frequently imitated by hysterics, as is also Jacksonian epilepsy.

Discussion was opened by MILLS, and continued by STERN, SINKLER, RHEIN, and others, and closed by SPILLER and PATRICK.

Tuberculosis of the Nervous System.—D. J. MCCARTHY based his conclusions upon a study of a large number of clinical cases and 68 autopsies. Meningitis, encephalitis, chronic infiltration tuberculosis, localized encapsulated tuberculosis (tyroma), tuberculosis of choroid plexus, and hydrocephalus, internal and external, were present. The spine, spinal cord and its meninges may be involved; there may be a myelomelalacia of vascular origin. He found atrophic degeneration, muscular dystrophy and myositis. The peripheral nerves may be diseased, due probably to a toxin, and beside there may be infiltration tuberculosis of the nerves. There were present in some of the cases cerebral asthenia, psychic manifestations resembling paresis, to which he gives the name paretic type of tuberculous insanity. Cephalalgia may be present from eye-strain or meningitis. In some cases the sympathetic system is involved; for example, transient symptoms of Graves' disease may be present. Then there may be hysteria, neurasthenia and various other forms of insanity. The paper was discussed by MILLS, SPILLER and DERGUM.

The Nature of Traumatic Sclerosis.—ARTHUR CONKLIN BRUSH (Brooklyn) reported the pathologic findings of five cases, showing numerous hemorrhages in the spine, edema,

infiltration of the bloodvessels, with secondary areas of sclerosis. The weight of evidence, in his opinion, is in the nature of a distinct organic entity. His conclusions support the contentions of Strümpell, that traumatic sclerosis and multiple sclerosis differ. He studied clinically 15 cases and discussed the literature.

The Present Campaign against Insanity.—W. J. HERDMAN (Ann Arbor, Mich.) referred to the advance which is being made in Europe and this country in the study of the various phases of insanity and their prospect of cure. In various institutions, work is being done along these lines in medical, chemic, pathologic, physiologic, and other laboratories. He looks upon psychotherapy as a very important agent, by which good results have been obtained.

The Dividing Line between Neuroses and Psychosis, and the Position of Neurasthenia.—RICHARD DEWEY (Wauwatosa, Wis.) believes no clear line exists, and approves of applying the word psychosis to conditions usually termed insanity, neurasthenia, and hysteria.

The Treatment of Aphasia by Training, with Some Remarks on the Reeducation of the Adult Brain.—CHAS. K. MILLS (Philadelphia) exhibited two cases, one of motor aphasia, the other sensory aphasia, who under reeducational methods showed great improvement. The method consists of training the patient to repeat small words at first, then to spell, read, and write them. It is important to teach the patient grammar. He exhibited a chart indicating what he termed a "physiologic alphabet." Cases of sensory aphasia are susceptible of more rapid improvement than cases of motor aphasia.

Discussion by BURR, HERDMAN, and SPILLER.

Dementia Præcox.—F. X. DERGUM (Philadelphia) divided these cases into hebephrenia, katatonia and dementia paranoides—in all cases there is first a period of depression, then expansion and finally progressive dementia. In katatonia there is added to these symptoms automatic and other motor symptoms. He thinks only cases that are associated with adolescence should be considered under this heading. The "Insanity of Adolescence" is a preferable name in his estimation.

[To be continued.]

Section on Pathology and Physiology.

FIRST SESSION.

The meetings of the section were opened on Tuesday afternoon at 2 o'clock, in Green's Hotel, by the address of the chairman, JOSEPH MACFARLAND (Philadelphia), on **The Relation of the Section on Pathology and Physiology to the Other Sections of the Association.** The chairman points in his brief address to the distinctively special nature of the section, and to the fact that it was designed for those papers which have less general interest to the profession at large. Its success does not depend upon the number of papers read, but upon the quality, and the best efforts of the members should be devoted to making the section an important and interesting part of the Association. The unusual program offered this year is in great part to be attributed to the efforts of the Secretary, Christian (Boston).

Will the Long-continued Administration of Digitalis Induce Cardiac Hypertrophy?—FRANK B. WYNN (Indianapolis) said that this experimental study was suggested by a case in which the patient had taken with marked benefit 45-m. doses of the tincture of digitalis four times daily over a long period. Failure of compensation came rapidly at last. The necropsy showed an extraordinary specimen of cor bovinum, which was demonstrated. To determine if the digitalis had influenced the hypertrophy, the drug was given to rabbits; doses of as high as 90 m. daily were given. The principal effect was to cause a loss of appetite, and a singular effect was noticed upon the character of the animals, making them cross and of carnivorous tendencies. After 120 days the animals were killed and the hearts compared with those of a parallel series of normal control animals. Wynn concluded from his experiments that a slight degree of cardiac hypertrophy was induced, but that the chief effect was an impairment of general nutrition.

Secondary Manifestations of Hypernephromas.—WALTER L. BIERRING and HENRY ALBERT (Iowa City). Bierring thinks that the Cohnheim theory of implantation is a satisfactory explanation of these growths. Those arising within the kidney are of the most malign type. Two classes of these tumors may be distinguished—those in which the cell type is that of the cortex, and those of medullary character. Five cases are reported, two of the medullary and three of the cortical type. Metastasis may occur through either the blood or the lymphatic circulation, though the bloodvessels form the usual channel. Metastasis might also occur along the urinary canal. Direct growth along the bloodvessels may take place, and also an implantation in the peritoneal cavity. Metastases usually occur in the lungs, liver, and in the bones. The tumors have the characteristics of both sarcomas and carcinomas, but are not to be classed with either group; they form a distinct group.

Discussion.—MACCALLUM (Baltimore) points out that the liver metastases cannot well be considered due to retrograde embolism, but are rather to be explained by assuming that particles of tumors have passed the wider capillaries of the

lungs, to become lodged in the liver. WYNN (Indianapolis) calls attention to the great frequency of supernumerary adrenals in cattle, and to the rather frequent occurrence of adrenal tumors in beef cattle. MACFARLAND (Philadelphia) thinks that his experience in postmortem work would not bear out the idea of Wynn, that supernumerary adrenals are of frequent occurrence. COPLIN (Philadelphia) has found only five cases of adrenal tumors in the 2,600 autopsy records at his command.

The Character of the Chromatophores.—LEO LOER (Philadelphia) has studied the chromatophores in a number of species of animals, bearing in mind the disputed question of the origin of these cells, and their relation to the origin of the nevi and the melanotic tumors. He concludes from his study, especially of the transplanted skin of guineapigs, that the chromatophores arise from ordinary epithelial cells; it is not unlikely that the melanin in these cells is the product of the action of some enzyme upon the cell proteins.

Report on the Metabolism of a Case of Diabetes Mellitus.—GRAHAM LUSK (New York). This patient presented a complete intolerance for carbohydrates, although there was little ammonia or acetone and no betaoxybutyric acid present in the urine. This finding is of no little practical interest, since it proves that the acidosis is not indicative of the condition of the patient, as is taught by many. When the patient was put upon a meat-fat diet the ratio between dextrose and nitrogen in the urine was 3.65 to 1. The ratio was not influenced by the amount of fat fed, and remained constant at different levels of proteid metabolism. The same ratio has been obtained for phloridized dogs; it represents a maximum production of sugar from proteid. It is a serious prognostic sign. The patient died five weeks after this ratio was determined. A lower ratio means that sugar can be burned by the organism. In other words, the question is not one of the amount of sugar in the urine, nor of the acidosis, but of the ratio between the excreted dextrose and nitrogen. The laboratory is the only proper place to determine the treatment of this class of patients.

Discussion.—HALL (Chicago) and VAUGHAN (Ann Arbor) advise the use of alcohol, and LUSK, in closing the discussion, considers alcohol a very valuable aid in the treatment of severe diabetes.

Regenerative Changes in Cirrhosis of the Liver.—W. G. MACCALLUM (Baltimore). The cirrhotic process is primarily a destruction of the liver cells; the growth of the connective tissue is purely secondary. The regeneration in this disease is parallel to that in the cases of acute yellow atrophy, where the subacute character of the case has furnished the opportunity for obtaining material; the regeneration may be one of two types, or probably both occur in the same organ, a regeneration from the intact liver cells, and a regeneration from the bile ducts.

Discussion.—LOER (Philadelphia), MACFARLAND (Philadelphia), ADLER (New York), and LIPMANN (New York), emphasize the importance of the regenerative processes which originate in the bile ducts, and the early stage and rapidity with which this reaction takes place.

The Relation of Chest Contour to Lung Capacity.—F. F. MALONE (Chicago), and **Mathematic Relations of Chest Dimensions.**—W. S. HALL (Chicago), were read by WINFIELD S. HALL (Chicago). These papers are the result of an endeavor to establish simple, yet definite, schemes of measurement, which would enable the physician, especially those interested in life assurance work, to determine the lung capacity, or the "vital balance" of the patient. After considerable experiment with various instruments, specially devised, Hall has decided that the simple pelvimeter, with a tape measure, is all the apparatus needed, and gives results of practical accuracy. The details of the process by which this conclusion was reached, and the exact methods of taking the measurements, must be consulted in the printed paper.

Notes on Vaccine.—CHARLES J. MCCLINTOCK (Detroit). These studies have collected, correlated, and verified, in part, a great portion of the mass of work which has been done on the vaccine bodies, the results of experimental vaccinia, etc. Among the most important conclusions are that guineapigs are the most satisfactory animals for such experiments, and that adults are more susceptible than young animals. Studies on the nature of the specific organism have borne negative results; all the organisms which have been described at various times as the specific cause of vaccinia, can be found, but none of them can be considered specific.

Discussion.—ROSENAU (Washington), BERGEY (Philadelphia), OHLMACHER (Gallipolis, O.), and MCCLINTOCK brought out the fact that all the agents which will sterilize vaccine virus will also attenuate it; all attempts at cultivation, either in the peritoneum or in artificial media, have been negative.

[To be continued.]

Section on Laryngology and Otology.

FIRST SESSION.

The meeting opened at 2 p.m. with an unusually large attendance both of the members who have been prominent in the section from the time of its foundation, and those of more recent affiliation, there being many who registered today

for the first time. Such growth of interest is gratifying and thoroughly in keeping with the timely and encouraging remarks of the chairman John F. Barnhill, in his opening address "The Present Status of Otology; How May We Improve It?"

Reflex Apnea and Cardiac Inhibition in Operations on the Respiratory Tract.—WILLIAM HARMAR GOOD and W. G. B. HARLAND (Philadelphia). Based especially on observations during adenoid operations and during intubation, in which cases of instant death are on record, they conclude that the origin of reflex apnea and cardiac inhibition is through the medulla by irritation of trifacial and sensory branches of the vagus; that inhibition may be caused by irritation of the mucosa of the nose, rhinopharynx, larynx, and lungs; that obstruction to respiration is indicated by cyanosis and full pulse, while reflex inhibition produces pallor and slow, weak pulse. Reflex inhibition differs from syncope in not causing distention of bloodvessels. Carbon dioxide starts respiration, and the consequent inflation of the lungs removes cardiac inhibition. In the prevention of inhibition care must be directed to the proper use of anesthetics, both local and general; atropin may be employed effectually. When the condition occurs, stop operation and use with vigor and persistence the usual methods for resuscitation, particularly tongue traction, lung inflation, and position of patient.

Tonsillectomy by Forceps and Snare, Thorough, Painless and Safe.—E. FLETCHER INGALLS (Chicago) states that the operation here proposed although practised for years and justifying the above title, is not generally familiar to physicians. In addition to an exhibition and description of instruments with a clear demonstration as to the manner of employment, he dealt at some length on the indications and contraindications for tonsillectomy, emphasizing the point that the pathologic condition of the tonsil structure and not its size must be the guide. In most cases the tonsil, not larger than an almond, does not need removal; but even when much smaller, if frequently inflamed, it should be extirpated. Points of advantage claimed for the snare method of removal are: 1. Abnormal distribution of arteries sometimes renders the ordinary tonsillotome dangerous. 2. After freeing adhesions—by an instrument which he devised for that purpose, the clamp forceps holds the tonsil in such position that the snare can be drawn around base, thus insuring complete removal—otherwise the operation would be futile. 3. Bleeding is not so profuse after removal with snare. 4. The snare may be gradually tightened so that the pain is very slight. For children he prefers general anesthesia. 5. The method is especially recommended for buried tonsils. The paper was freely discussed and generally approved for certain selective cases, by Casselberry, Stucky, Richards, Wood, Donnellan, Pyncheon and Freer. FREER exhibited a snare guard he had devised to prevent the wire loop from catching in the forceps.

The Significance of Tuberculous Deposits in the Tonsils.—GEORGE B. WOOD (Philadelphia). In an exhaustive study involving much original research, Wood deduced the following points of interest: Tuberculosis of the tonsils occurs secondarily in almost every case of advanced pulmonary involvement. It occurs as a primary infection in about 5% of all hyperplastic, faucial, and pharyngeal tonsils. Tubercle bacilli can probably pass through the tonsillar tissues into the lymphatics without causing any local disease in the tonsil itself, which goes to show how important may be the tonsillar structures as an etiologic factor in the production of tuberculous adenitis of the neck. While tuberculous adenitis in most cases is not followed by pulmonary tuberculosis, it must be remembered that experimentally the tubercle bacilli, when placed in small doses in any portion of the body, show a predilection for the apices of the lungs. A series of experiments was carried out on pigs, the tonsils of some of which were exhibited.

In the discussion which followed, by SWAIN, MYLES, PYNCHON, MAYER, and others, the author was highly commended for the thorough and painstaking line which he had followed in carrying out this most interesting research.

Operative Treatment of the Faucial Tonsils, with a View to Prevention of Cervical Adenitis and General Infection.—ROBERT C. MYLES (New York) states that while it is generally believed that the faucial tonsils are the usual portals of acute infection of the cervical glands, a point which is either entirely overlooked or at most given scant consideration by the average author, is that there is frequently a hidden chronic septic condition in the bottom of the cysts of the sub-merged or basic tonsils, which often escape what is considered a complete extirpation. He advises not only the removal of all cryptic tonsils, but further states that approximately complete extirpation of these basic lymphoid masses should be performed in all suspicious cases and the earlier in child-life, the better.

Discussion.—STUCKY stated that he believed in the radical operation, but not to the extent of removing every particle of tonsillar tissue, since small remnants will atrophy in many cases after the bulk of the tonsil is removed. PYNCHON emphasizes importance of after-treatment in cases where small points or remnants of tonsil may be reduced and depressions developed by "massage," which may help in the development of a smoothly-healed surface. TIDINGS expressed approval of the plan of tearing loose the adhesions instead of cutting.

[To be continued.]

Section on *Materia Medica*.

FIRST SESSION.

Chairman's Address: The Scourge of Nostrums and Irregular Practitioners.—OLIVER T. OSBORN (New Haven) believes all senators and representatives should receive copies of all resolutions passed by this body. He advises the election of a vice-chairman, to assist and substitute the chairman. He maintains that the strenuous life of the present day stimulates the use of hypnotics and sedatives, and encourages quackery and pseudopractitioners. The sale of alcohol in the last 20 or 25 years has been doubled. This is due to the growth of nostrums. Many foreign countries regulate and control the sale of patent medicines. He spoke of the amount of alcohol contained in many of the nostrums; for instance, Jamaica ginger contains about 90% of alcohol, and Lydia Pinkham's preparation contains 17%. He spoke of the effects of medical traditions; how they prevented fear and in that way did good. The chairman especially pointed out that individuals whose medical knowledge was very meager often met with great success, owing to their egotism. Their publications, although illiterate, had an extensive circulation. He pointed out many of the absurdities of Christian scientists and osteopaths; for instance, he says, Still, the founder of osteopathy, maintains that a fly-blister will do more good in smallpox than vaccine. Believers in Christian science, by constantly inhibiting this supposed science, deteriorate mentally until they become practically insane. He strongly urges war against eddyism.

Report of Committee on Proprietary Medicines.—Owing to the absence of MOODY (Alabama) the secretary read the report in which the committee recommended that the following medical articles be excluded: Those of secret composition, those of wrong composition, those possessing trade names, mixtures whose chemic composition is not described, those articles in which the quantities of the ingredients are not stated. By motion of COHEN the report was accepted, adopted and sent to the journal for publication.

Federal Supervision of Drugs.—HARVEY W. WILEY (Washington, D. C.) stated that the act for the regulation of the importation of drugs was passed in 1848. According to this act the drugs coming from England, Scotland and France should be judged from the pharmacopoeias of the country from which they came, while those drugs coming from any other country should be judged from the U. S. Pharmacopoeia. The Bureau of Chemistry of the department of agriculture, examines the drugs both domestic and foreign to prevent fraud and adulteration. Attempts are being made to introduce into this country plants of all drugs that will flourish here. After these drugs are introduced and grown in this country their nature is carefully examined, since it has been found that if a plant is taken from its natural habitat and grown in new countries its nature changes, sometimes becomes decidedly inferior in quality. The Postmaster-General cooperates with the Agriculture Department in the effort to suppress fraud and adulteration in drugs by preventing the transmission in the mails of the products of fraudulent and adulterating establishments. If, says Wiley, the postmaster is sustained, these people will be annihilated.

The Eighth Decennial Revision of the Pharmacopoeia of U. S. A.—JOSEPH P. REMINGTON, (Philadelphia) says only such drugs as have been tried clinically will be placed in the pharmacopoeia which is to appear in October next. He believes that the druggists, who make cheapness rather than purity of drugs their object, should be punished. The pharmacopoeia calls for certain tests to be applicable to certain drugs but states specifically that these tests are to be applied to those which are used as medicines only. He spoke of the attempts that have been made to adopt an international pharmacopoeia. Remington believes the failure of adoption is due to the fact that each nation has been accustomed to use drugs with which its members are most familiar so that one is more inclined to put more value upon one drug than is another, consequently disagreement constantly arose and no international pharmacopoeia. The United States is the first nation to endorse the international pharmacopoeia suggested at Brussels. Here many of the official preparations are of inferior strength than of the United States pharmacopoeia, but attention is called to this so that the dose will be necessarily increased correspondingly. Such drugs as "carbolic acid" will receive their proper names but the old ones will be retained as synonyms. Synonyms are discouraged. Average doses are given as they are thought to be of more value than maximum doses. Definite chemic names are used.

The Relation of Physicians to Proprietary Remedies. How May Substitution Be Avoided and the Desired Preparation Obtained without Unduly Advertising the Manufacturers?—WILLIAM J. ROBINSON (New York City) divides physicians into three groups. Those in group A prescribe anything that comes to their knowledge. B comprises a group that is extremely conservative and never uses proprietary medicines. At this point he differentiated between patent medicines and nostrums. Patent medicines are not secrets, they must be fully described and the chemistry of their ingredients be stated so that anyone can make the remedy after the time limit of their patent right expires. Nostrums are of secret composition and are monopolized forever. He believes the time will come when the government will buy all useful inventions and turn them over to the public free. Robinson

also believes that men who have spent their time and energy to work out something new should be protected by a patent as a compensation for their labor. He then described the physicians in group C as being investigators who want to know about new drugs. They give those drugs which are put out by first-class manufacturers a trial. He believes substitution is largely due to the fact that the physician is unfamiliar with preparations, and to a certain extent in not keeping strict watch upon the prescriptions put up and sent to patients. Druggists who know they are being watched do not substitute. If the physician knows of a druggist that is reliable and in whom he has confidence there is, in Robinson's opinion, no objection to encouraging his patients to patronize that particular druggist, and when he cannot trust the druggist the physician is perfectly justified in prescribing in original packages.

Discussion.—H. C. WOOD, JR. (Philadelphia) said that to oust the nostrums the matter must be placed and remain in the hands of the government. The political influence of these manufacturers should be counteracted by the influence of physicians. PORTER (Indianapolis) believes the chief instigator of substitution is the practice of prescribing proprietary medicines. In the Indianapolis County Medical Society proprietary medicines are not mentioned in their meeting, in the papers read, and are also not published in the journal. LOW (Philadelphia) said that in his opinion the students in medical colleges are not thoroughly drilled in prescription writing, therefore when they graduate and practise medicine they prescribe proprietary medicine because they cannot write others. BEATES (Philadelphia) said the proprietary medicine manufacturer thrives because physicians prescribe such medicines, and they do so because they lack knowledge of physiology and morbid physiology. WESCOTT (Atlantic City) suggests that the sale of sulfonal, trional, chlorotone and other hypnotics be controlled by the physician. He is not an advocate of the sale of original packages. KOENIG (Pittsburg) believes there is a defect in the teaching of materia medica. Editors of medical journals should eliminate from their advertisements all proprietary medicines. SCHWEITZER (New York) maintains that large manufacturers and inventors of patent medicines should be protected by patents to compensate the men they have engaged to determine the drug. He thinks there are many proprietary drugs which cannot be substituted by drugs in the pharmacopoeia. The chairman, in answer to Low's criticism of medical colleges, says the students are well trained in prescription making, but owing to hospital formulas they forget. WILLARD (Philadelphia) states if hospitals employed competent druggists, hospital formulas would be dispensed with. In closing the discussion WILEY said many nostrums were composed of sugar and starch and colored with an anilin dye. REMINGTON is greatly opposed to patenting of medicines. ROBINSON principally reasserts what he said in his paper. But he does believe that the physician can not use chemic names in his prescriptions.

[To be continued.]

Section on Cutaneous Medicine and Surgery.

FIRST SESSION.

Developmental Defects of the Skin, and Their Malignant Growths.—H. G. ANTHONY (Chicago) described nevus. The word should be used for clinical convenience. He gave instances of developmental defects and their characteristics. In his opinion developmental defects are results of embryonic displacement of cells; the symptoms are due to amount of cells displaced. Unna found that fibroma molluscum was simply a nevus. Among malignant growths developing with nevus, the most frequent is the so-called nevocarcinoma; melanosis is not always pathognomonic of malignancy. Nervous shock may cause nevi; he cites a case due to shock caused by report of suicide of a relative. Nevocarcinoma has distinct features of its own; it is not so with other malignant growths.

Discussion.—FORDYCE (New York) says that benign cystic epitheliomas are not always multiple, but are found single very frequently. RAVOGLI (Cincinnati) has had several cases of nevocarcinoma, two pigmented and two unpigmented, in his own practice, which proved fatal. He says we should look upon the condition more in the light of a tuberculous malady. CORLETT (Cleveland) says the term should be limited to a looseness of epithelial tissues. HEIDINGSFELD thinks that Anthony is taking a step back when stating that nevi is always of prenatal development. MONTGOMERY (San Francisco) believes that slate-colored nevi are more malignant than the buff-colored ones. The former are more likely to become metastatic. ANTHONY, in closing, thinks that 90% of all persons have nevi of some sort.

Falling of the Hair.—R. A. McDONNELL (New Haven, Conn.) said that premature baldness is becoming more and more frequent. Very little is known of this condition. Seborrhea of the scalp is the greatest cause. Sanitary barber shops would be a great step in diminishing the disease. Exposure (continued) to light is not an infrequent etiologic factor. Hair tonics and too frequent washing of the head are responsible for a great many bald heads. He described a method of treatment of the condition. Heredity plays an important role in causing, as do gastrointestinal derangements and acute infectious diseases. The alopecia of specific disease rarely lasts longer than a few months.

Discussion.—L. WEISS (New York) reported a case of acquired syphilis in a physician who had alopecia areata but recovered in three months. Cox (Harlem) emphasizes the fact that the röntgen ray is a frequent cause of baldness, he warns members of the dangers of the use of röntgen ray in the scalp region.

Report of a Case of Paget's Disease of the Gluteal Region.—JOHN A. FORDYCE (New York City) said that the patient dates the trouble to seven years previous, when she received a wound in the gluteal region. Symptoms did not appear until one year after injury. She was treated with röntgen ray but treatment was abandoned because of suppuration; it was resumed later. The wound was dressed with aristol. He outlined the pathologic histology of the disease, comparing it with Paget's disease of the nipple. In Paget's disease of the nipple there is no epitheliomatous condition.

Discussion.—STELWAGON (Philadelphia) had a case of Paget's disease of the nose and it resembled epithelioma very minutely. PUSEY (Chicago) saw two cases of Paget's disease of the nipple and says a characteristic dermatitis was present. He says that operation is by far better treatment than the röntgen ray.

Radium and Its Therapeutic Possibility.—WM. A. PUSEY (Chicago) said that actual facts regarding radium are quite meager. He described radium minutely, showing the definite actinic properties of the different rays. Radium, he says, gives off gas, heat and electricity. Thus far the gaseous emanation has no therapeutic value. The beta and gamma rays are the only ones which have proved of any note in therapeutics. Radium burns do not differ in any way from those of the röntgen ray. Radium has been found to have a distinct bactericidal effect. The result of treatment of lupus and other skin diseases by radium is analogous to that of the röntgen ray, perhaps the former is slightly more rapid. Pusey believes that radium is most effective in growths situated deeply. No doubt on account of its easy method of handling, radium will become more popular than the röntgen ray. He summarizes some of the cutaneous diseases in which radium will have a large field of usefulness.

Discussion.—SCHAMBERG (Philadelphia) said that radium was employed in the Polyclinic Hospital of Philadelphia in but one case with distinct beneficial result. He believes that the field of usefulness of radium is extremely limited.

Linear Nevi.—M. L. HEIDINGSFELD (Cincinnati) claims it is unfortunate that this condition is not classified as a type of affection having a distinct entity of its own. He reports three cases. Most linear nevi are congenital or develop shortly after birth. Linear nevi are usually unilateral; they dispose to follow nerve distribution. Various authors have seen cases of undoubted linear nevi and have erroneously reported them as lichen planus and like affections. Dermatologists, he says, should strive to obtain a more definite classification of all skin diseases.

A Typical Case of Xanthoma.—J. V. SHOEMAKER (Philadelphia) exhibited this case, giving the clinical history, description, and situation of the lesions. It occurred in a boy of 12, who appears to be 18 years of age. Lesions are found all over the body, even extending to the buccal cavity. The boy is cadaveric in appearance. Shoemaker has little hope of benefiting the patient; he has had all sorts of drugs with little or no effect. Nitrohydrochloric acid in small doses made the best impression, although even this in time became inefficacious.

Discussion.—PUSEY has seen such a case, which was benefited by the administration of arsenic. LIEBERTHAL (Chicago) said that in all cases of infantile xanthoma the affections did not extend to the eyelid. He believes that there is always an underlying internal condition. SMITH (Philadelphia) says that in examining the case the liver and spleen were found very much enlarged.

Treatment of Hyperidrosis, Especially of Hyperidrosis Pedum.—L. WEISS (New York City) said the etiology is not clear in every case. Unhygienic clothing as well as diet are important causes. Palmar hyperidrosis, he says, is least obnoxious. Dietetic treatment should be considered first. The potassium permanganate solution used as a wash has been proved a most effective remedy. Weiss details a mode of foot bath which he employs in these cases. He concludes with saying that the potassium permanganate treatment is a harmless and not an unpleasant one.

Discussion.—HAY (Hot Springs) has used salicylic acid in alcohol in hyperidrosis pedum in a number of cases with very few failures.

[To be continued.]

Section of Hygiene and Sanitary Science.

FIRST SESSION.

The address of the chairman, GARDNER T. SWARTS (Providence) was entitled **The Relation of the Physician to Sanitation**. He described the professional organizations of national scope whose purpose is to consider matters of practical hygiene—the American Public Health Association, the Conference of State and Provincial Boards of Health of North America, and the Annual Conference of Official Hygienists—called under the provisions of federal statute by the Surgeon-General of the U. S. Public Health and Marine-Hospital Service. These pro-

vide for the practical needs of administrative health officers, and of those who are engaged in public health laboratories or upon large sanitary works. The Section of Hygiene and Sanitary Science of the American Medical Association offers the only ground upon which professional relations to matters of public sanitation can be freely and profitably discussed. Swarts commented on the too prevalent ignorance of the medical profession concerning public hygiene, professional knowledge of the subject being in general little if at all superior to that of the intelligent lay public. This ignorance keeps alive many of the popular delusions concerning the propagation of communicable diseases. It is due primarily to faulty training in the medical schools, and after that to the indifference of the medical practitioner toward the whole subject of hygiene. The interests of the average business man in a large sanitary undertaking as a water-supply or a sewage system is often indeed keener and more intelligent than that of the average medical practitioner. The half informed or misinformed physician puts groundless fears into the minds of his patients where no ground for fear exists, and causes them to trust in saucers of chlorinated lime and other absurdities when real danger is present. The selfish or faint-hearted doctor seeks to conceal from Boards of Health information which is essential not alone to public safety, but to the directly helpful relations which Boards of Health seek to establish with infected households. Even in his death certificates he is sometimes a prevaricator or at best a careless recorder, not realizing that he is making the statistics which he may at some time consult to his own confusion. In such matters as food and drink, even their own food and drink, physicians do not often discriminate as they might with the superior knowledge imputed to them. In a matter as important as a milk supply many intelligent laymen are wiser and more practical than the rank and file of medical men. Excluding the pediatricists, the best posted men upon this subject are not physicians, but men of adventure, who derive, perhaps, some amusement, and certainly some profit, from their advantage over the medical man. It is largely due to the indifference of medical men that so very insignificant a portion of the country can at present give a reliable account of its mortality. The registration of births and deaths receives from the medical profession only an inactive support, though vital statistics are a necessary part of the data of medical science.

SECOND SESSION.

Symposium on the Venereal Diseases.

LUDWIG WEISS (New York) read the second annual report of the **Committee on Prophylaxis of Venereal Diseases**, giving the results of the committee's investigations into the present status of the subject in this country and in Europe. The hospital accommodations for venereal patients in this country are found to be very inadequate; the idea of reglementation is not likely to find favor in America, that prostitution is absolutely ignored in the laws and ordinances of American States and cities, and that the only means of inaugurating an active campaign against the venereal diseases is, in the opinion of the committee, a national society for combating the venereal diseases. The committee gave notice that it would undertake the formation of such a society, with the hope of holding at some not distant date a congress similar to the recent international congress at Brussels.

What is the Right Attitude of the Medical Profession toward the Problem of Venereal Diseases?—HOWARD A. KELLY (Baltimore) maintained that a hopeful approach to the solution of this problem could not be made except upon moral grounds. He declared that the state of those countries where the effort to control these evils proceeds upon the prevalent dual standards of sexual morality is in no wise encouraging. On the contrary he said that those countries who have gone farthest upon this treacherous path are nearest the foul pit in which all past civilizations have perished. The double standard, he declared is the device of cowardice. The responsibility is upon every intelligent man, but more heavy upon those who pursue the professions to uphold public morals, to turn from the futile and dying regime of indifference and to undertake "an active crusade inspired by a profound sense of personal responsibility." We cannot afford to be "practical" at the sacrifice of principle, and must stand firm at all cost against the debasement of public standards of right. No matter what cataclysm may overtake our children or our children's children, never must it be said that in this day of enlightenment the public standards of right were debased. This is the difficult path, for instead of shifting the responsibility by asking the passage of a law it places the responsibility where it belongs, on the shoulders of every man and woman in the country.

Syphilis as an Innocent Disease.—L. DUNCAN BULKLEY (New York) emphasized the important relations of syphilis to morbidity and mortality among those who are not sexual transgressors. Bulkley introduced the following resolution, which was passed.

The conjoint meeting under the auspices of the Committee on Prophylaxis of Venereal Diseases of the American Medical Association recommends to the House of Delegates the following preamble and resolution, urging their adoption and wide circulation:

WHEREAS, Syphilis and gonorrhea have been abundantly shown to be the cause of incalculable damage and danger to the health and life of the community, both among the innocent and those guilty of sexual transgression; therefore, be it *Resolved*, That the American Medical Association earnestly call the attention of the profession to the matter, and urge that Boards of Health throughout the country give serious attention to the same, with a view to securing proper protection against these diseases by legal measures.

Syphilis Affecting Infant Mortality.—HENRY ENOS TULEY (Louisville, Ky.) placed syphilis second in the list of causes of premature birth, second only to criminal abortion. The direct mortality of syphilis in infancy is as great as that of any other disease. Unlike gonorrhea, syphilis does not deprive men and women of the power to procreate, but it robs offspring of the ability to become in their turn men and women. The comparative influence of paternal and maternal syphilis upon the children was discussed, closing with the observation of Morrow that syphilis is "not only a factor in depopulation, but a cause of degeneration of the race. It is the quality of expansiveness, this capacity of morbid irradiation through family and social life, that gives to syphilis its superior significance as a social danger."

The Effects of Gonorrhea on the Female Generative Organs.—JOSEPH TABER JOHNSON (Washington, D. C.) placed gonorrhea ahead of all other diseases as a cause, either direct or indirect, of mortality and of mutilation. It sterilizes the whole class of prostitutes; it invades lawful wedlock, and sterilizes chaste women; it is vastly more prevalent than syphilis, and a larger factor in depopulation. It often extinguishes the reproductive power of a woman in one pregnancy, it is but little inferior to syphilis as a cause of abortion, and is coming into prominence as a cause of ectopic gestation. The committee of the American Medical Association appointed in 1901 for the collective investigation of statistics upon the dangers of gonorrhea, found that of the pelvic inflammations necessitating abdominal operations upon women, 40% were due to gonorrhea. This takes no account of the large number of women who drag out an invalid existence without seeking the aid of surgery.

[To be continued.]

AMERICAN ACADEMY OF MEDICINE.

Twenty-ninth Annual Session, Atlantic City, N. J., June 4 and 6, 1904.

[Specially reported for *American Medicine*.]

Report of the Council on the paper of H. Bert Ellis, of Los Angeles, Cal., on "Necessity for a National Bureau of Medicines and Foods." This paper was read at the meeting held at Washington, May 11, 1903, and was referred to the council of the Academy for action at the present meeting. It was published in the Bulletin of December last. The proposition suggests a commission of certification for several diverse classes of products, which may be divided into three groups: 1. Professionally medicinal preparations. 2. Preparations of vague composition. 3. Food products. The council recommends that food products be omitted, on account of the difficulty of limiting the articles to be certified, and also to exclude from such a commission consideration of any and all preparations whose complete formula is not furnished. With these limitations the objections to such a commission are (a) the work necessary to carry out the scheme properly; (b) the work to be effective and above suspicion must be performed by members of the commission and not by subordinates; this would require large salaries to secure capable men; (c) the danger of self-seekers for the appointment if salary is attractive; (d) the difficulty of meeting the expenses of the commission. Funds would have to be derived from those benefited, i. e., the large manufacturers of the various products examined. In conclusion the council reports that notwithstanding its commendation of the abstract proposition embodied in the paper, as at present developed it is fraught with too many difficulties to be employed satisfactorily, beside being open to the dangers of great abuse. Further thought and consideration must be given to the plan with the hope of working it out thoroughly.

On motion of Corss, of Pennsylvania, that the suggestions of the council be adopted, Ellis, of California, seconded the motion, stating that he could not see that the council could have acted otherwise, although something should and must be done in the matter in order to relieve the busy practitioner from an investigation of the great masses of patent medicines, proprietary medicines and incorrectly made drugs or preparations of drugs. Connor, of Michigan suggested that such a commission could be appointed to serve without pay and to use laboratories already existing or established. The object of the commission would be to secure facts and give publicity. If such a plan were carried out he predicted a large increase in the membership from those physicians who are not affiliated with the organization, as it would enable the offering of something as an inducement to nonmembers. Jones, secretary of the joint committee of medicines and foods, A.M.A. and A.Ph.A. stated that this plan had now been under discussion for two years, and the committees appointed from the two associations had brought

forth the plan as suggested in the paper of Ellis. The conclusion was that the work should be done by a private corporation as it is done in England, Mexico, France, and several other countries. This would take the matter entirely out of control of government and politics, without commercial strings or relations. The paper did not attempt to outline the details of the scheme; that would be a future consideration. The joint committee reached the unanimous conclusion that it would not be practicable to condemn by published statements or inference, but to certify to those products which attain the standards that may be established by the bureau and the United States Government departments, which is another fundamental part of the plan. There would be no question of partiality, as all manufacturers who have a proper preparation could have their goods certified. After consulting with a large number of the better manufacturers, the majority were found to be in favor of such a plan and would welcome it, while a few from purely selfish motives are opposed to it on the ground that it would sacrifice vast amounts of money which they have expended in building up a trade in their products. The report of the council was adopted.

The Results of the State Examination for Medical Licensure, 1903.—The secretary, MCINTIRE (Easton, Pa.), said that it is impossible as early as June to give a complete report of the examinations for 1903, as some of the reports are not out until later, and in some States it is almost impossible to obtain reports at all. The report this year covers 26 States, which show a total of 2,478 licenses issued, and 445 refused, making a total of 2,923 applicants. The report then gave in detail the number of applicants, licenses issued, and refusals in each State. GROSVENOR suggested that it would be a good addition to the report to give percentages, in addition to the figures, and moved that McIntire be authorized to publish the report in the bulletin as the proceeding of the Academy, with the percentages. The motion was adopted.

[To be continued.]

AMERICAN GYNECOLOGICAL SOCIETY.

Twenty-ninth Annual Meeting, Held in Boston, Mass., May 24, 25, and 26, 1904.

• [Specially reported for *American Medicine*.]

[Continued from page 885.]

Uniformity in Pelvic and Cranial Measurements.—A. F. A. KING (Washington, D. C.) reached the following conclusions: (1) That at present the measurements of the normal pelvis and fetal head are indefinite and unsettled, and must continue so to be, so long as they are determined by our present methods of mensuration; (2) the chief purpose in obtaining the normal dimensions of these structures being for teaching and learning the normal mechanism of labor, it is proposed to adopt an ideal or hypothetical head and pelvis upon the dimensions of which all authorities may agree; (3) in the adoption of such ideal measures it is unnecessary and undesirable to define any measurements with exact precision—no fraction smaller than a fourth of an inch, or than half a centimeter, in the metric system, being required; (4) race variation forms no real obstacle to the proposed plan, and other apparent difficulties can be overcome. Finally, should the proposition meet with approval, it was suggested by the author that the society take the initiative in bringing the matter in proper form before some forthcoming international medical congress for general adoption. Accordingly, a committee was appointed by the president to consider the matter of uniformity in pelvic and cranial measurements, and report at the next annual meeting.

Symposium of Nonoperative Local Treatment in Gynecology.—WILLIS E. FORD (Utica, N. Y.) in reading the first paper, said that no one would deny that greater good had come from surgical treatment of diseases peculiar to women than was ever dreamed of by the early gynecologists, who did not operate. No comparison of results could be made. He did not think it was true, however, that the specialty ought to become purely surgical. Pathology learned by pelvic and abdominal surgery ought to be clearer and better than was ever discovered postmortem. It was fair to assume that men who did this work had a better idea of the natural history, progress, and dangers of these diseases than those who did not operate, and that the early treatment ought to be in the hands of men who are also doing surgical work. That the nervous habit could not be cured by surgery had been proved by the fact that the removal of diseased ovaries, and such like operations on epileptic women, had not cured the epilepsy or neurasthenia. The argument, therefore, was that in those ailments that tended to disturb the emotions, especially those of the reproductive organs of men or women, the serious thing was not the pain experienced, but the permanent invalidism which was brought about by the protracted local sensations, that in time disturbed the mental equilibrium and brought about the individual habit. These local irritations ought to be treated by skilled gynecologists, and not allowed to develop either the mental or physical ailments which were so common a result.

[To be continued.]

ORIGINAL ARTICLES

TUBERCULOUS PERICARDITIS, WITH REPORT OF CASES.*

BY

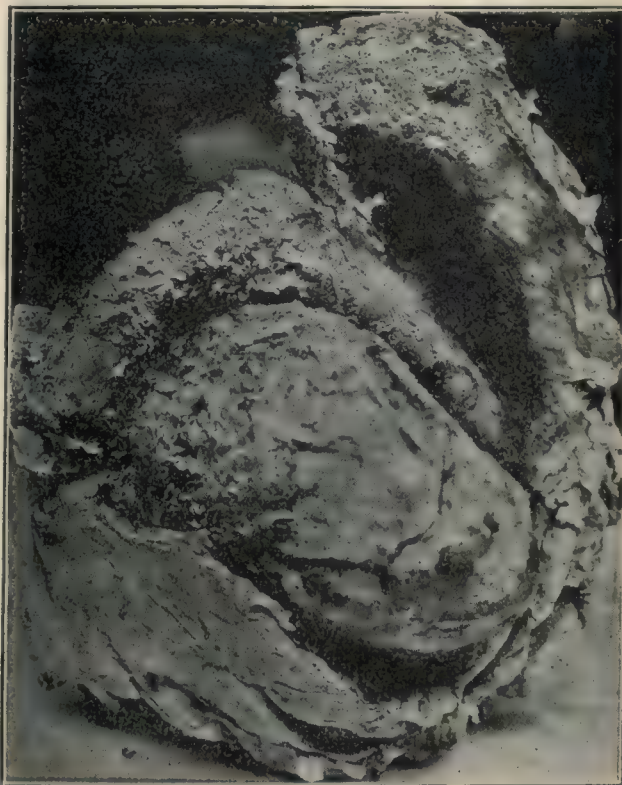
CHARLES G. STOCKTON, M.D.,
of Buffalo, N. Y.

Tuberculosis has naturally been accepted as a cause of pericarditis and the frequency of its occurrence has been urged by Osler.¹ Beverley Robinson² and others regard it as a comparatively rare affection. This difference in view probably depends upon the fact that the tuberculous lesions are sometimes not easily discovered. The gross appearances of the pathologic specimens are sometimes not unlike that of rheumatic or other forms of the disease, but when submitted to the test of bacterial investigation, a proportion of cases regarded as simple pericarditis, whatever that term may mean, will turn out to have the essential cause in tuberculosis. The cases differ widely in character, not only in clinical manifestations, but in the lesions. It may occur as an acute disease with abrupt and severe invasion, terminating in a few weeks, as illustrated in the first case which I report, or as a chronic process it may continue for many months, as in the third case. It may show itself as a dry plastic pericarditis without fluid effusion, or the effusion may be massive with little plastic element in the exudate, as illustrated in the second case. Frequently the exudate is sanguinolent, as exemplified in two of my cases, and Musser³ reports a case in which there were two liters of nearly pure blood. Rarely the exudate is purulent. Again, there is an obliteration of the pericardial sac as the result of dense adhesions, as in the third case. Sometimes the sac is enormously thickened, partly by plastic exudate, partly by masses of caseous material and, in the words of Merklen,⁴ looks as though covered with a cuirass. Calcareous degeneration is also seen, and the typical hirsute state or "hairy heart" is sometimes found, as shown in the first case. Riesman has lately reported a case of primary tuberculous pericarditis, although, as in my first case, an old pulmonary lesion was discovered. Usually the disease is secondary, although not infrequently the lesions extraneous to the pericardium are inconspicuous. That which is most often found is caseous degeneration of the bronchial lymph-glands and other mediastinal structures; however, tuberculous pleurisy, pulmonary tuberculosis, general tuberculous adenitis, peritonitis, osteitis, or other tuberculous lesions may be the primary focus from which the pericardium becomes invaded. A remarkable fact is the frequency with which the pleural effusion occurs as an accompaniment in the disease, and ancient adhesions indicate antecedent pleuritis. The first case reported might, in a clinical sense, to adopt Riesman's phraseology, be considered an instance of primary tuberculous pericarditis, yet the accompanying laryngitis and the old tuberculous focus in the lung lead to the conclusion that it was, strictly speaking, secondary.

CASE I.—The patient was under the joint care of Dr. Jones and myself.

J. U., aged 71, retired business man, German by birth, five feet eight inches high, well developed. The family history is unimportant, although tuberculosis has not been known to exist in the family. For the past five or six years he had complained of an irritable heart. It was sometimes arrhythmic, and in general presented the manifestations of functional cardiac disturbance in a somewhat neurotic, but very well-preserved man of advanced years. The heart was thought to be slightly dilated, the myocardium moderately degenerated, but on the whole, it was regarded as possessing good strength, considering the age of the patient. The other organs appeared to be in good condition. The patient had always led a hygienic life, took excellent care of himself, and seemed destined to live to an advanced age. Three years ago he had a severe, acute, dry pleurisy of the right side, accompanied by extreme pain,

followed by abundant fibrinous exudate, but there was no evidence of fluid. He made a prompt and complete recovery, save occasional twinges of pain, apparently depending upon adhesions. Two and a half years later, in August, 1903, while rusting in northern Michigan, he had some illness, the nature of which is uncertain, but which appears to have been located in the thorax. Two months subsequently I examined the patient's chest, and found nothing unusual in the physical signs. In the middle of February last, the patient suffered from chilliness and sudden rise in temperature, a feeling of great weakness, with pain in the extremities, and insomnia. It was found that, unknown to his physician, he had for the last four or five years taken 1.3 gm. (20 gr.) of sulfonal each night, without which he found himself unable to sleep. Apparently this large dosage produced no untoward symptoms. He showed slight laryngeal irritation and reported that he had recently been treated for his throat by Dr. W. S. Renner, laryngologist, who found merely an irritable larynx. A careful examination revealed no reason for the present illness. For five or six days the temperature ranged from 102° to 103°; the respirations were not increased in frequency; there were no physical signs to be found in the chest, abdomen or other regions. He was evidently seriously ill. A blood-examination showed 5,200,000 red cells; hemoglobin, 85%; white cells, 5,400; polymorphous cells, 73%.



Showing the pericardium in the first case, acute tuberculous pericarditis.

On the sixth day there were heard for the first time distinct pericardial friction sounds; there was also a dull aching over the precordium and slight tenderness there upon deep pressure. The liver was enlarged, the lower border two or three fingers' breadth below the ribs. The urine was abundant and contained an unusual amount of urea, from 28 gm. to 35 gm. in 24 hours. There was a slight trace of albumin, a few hyaline, and an occasional finely granular cast. The patient took liquid nourishment well; but sleep was disturbed, owing to the withdrawal of sulfonal. This embarrassment, however, was soon overcome. The pericardial friction continued during the second week, and very soon there was an increase of the area of cardiac dullness, particularly in the second and third interspaces. The friction sound then became less evident, and it was assumed that an effusion of pericardial fluid had occurred. At the end of the second week there was diminished breathing in the lower part of the left lung posteriorly, with some increase in the voice sounds, and dullness upon percussion. The respirations were 24, there was no cough, nor other symptoms of pulmonary involvement. In the beginning of the third week there was a distinct onset of pleurisy on the left side, accompanied by a good deal of pain and marked respiratory friction sound. After 48 hours there were the physical signs of fluid, extending upward to the angle of the

* Read before the Wayne County Medical Society, Detroit, Mich., April 28, 1904.

scapula, and yet evidences of pulmonary retraction were more marked than could be accounted for by the fluid, apparently resulting from the pressure of the distended pericardium upon the lung, which latter was believed to be adherent, preventing its retreat upward. Three days later there was a severe right-sided pleurisy, with very loud friction sound, and also extensive perihepatitis. The respirations had increased to 28 a minute, and it was thought well to aspirate the left pleural cavity, from which was withdrawn 900 cc. of straw-colored fluid. Considerable relief was afforded the patient, but two or three days later there was a fresh attack of the pleurisy on the left side, accompanied by increased constitutional symptoms. The pericardial friction sound at times disappeared, but recurred, although never so loud as in the beginning of the illness. At the end of the fourth week precordial dullness extended midway between the sternum and the nipple line on the right side, left of the nipple line on the left side, and was remarkable in the second and third interspaces. Traube's space remained resonant, and apparently the pericardial effusion did not extend downward, but upward. We could find no point along the lower border of the pericardium at which it was deemed safe to introduce an exploratory needle, for the reason that the heart sounds could be heard and the heart movement palpated at a point corresponding with the lower border of precordial dullness. The patient's general condition at the end of the fourth week was very well maintained. There occurred a slight thrombophlebitis of the left femoral, with edema of the left lower extremity, accompanied by the usual local, but no constitutional symptoms. The heart required stimulation by strychnin and strophanthin in small doses. After consultation with Dr. Cary, it was decided to use moderate portions of brandy. At this time the patient was visited by Dr. F. S. Dennis, of New York. We now began to give a certain amount of solid food, because liquids irritated the larynx and led to coughing, and the patient had raised from the larynx a considerable amount of clear mucus. This now became mucopurulent, viscid, and contained a moderate number of streptococci and tubercle bacilli. On the fifth week the left pleural cavity was again aspirated, and 600 cc. of fluid was withdrawn. This process was repeated after three days, and a still smaller amount, 500 cc., withdrawn; each time the patient was relieved by the procedure. A week later it was apparent that there was fluid in the right as well as left pleural cavity, but only 20 cc. or 30 cc. was found in the right side, and about 250 cc. in the left. The evidences of pressure, or as some believed, the consolidation of the left lung, continued. The physical signs were really those of pressure rather than of consolidation. The blood now showed 4,800,000 red cells, 10,400 whites, 78% hemoglobin, 78% of polynuclear neutrophils. The whole process was now regarded as tuberculous, and was so declared. During the fifth and sixth weeks there were evidences of hypostasis, although following the subsidence of the perihepatitis, the liver decreased in size, and at this time was apparently no larger than normal. The digestive apparatus behaved well—the urine continued to be abundant, and still showed the large amount of urea. The edema disappeared from the left leg. The larynx, under the care of Dr. Renner, at this time showed considerable infiltration, which rapidly increased. The secretion from the part now showed tubercle bacilli in increased number. From this time the fluid ceased to accumulate in the pleural cavities, but signs of pressure upon the left lung continued. The patient gradually lost strength, and died after 50 days' illness, from depression of the respiratory center, Cheyne-Stokes' breathing progressively increasing for three days. Intelligence remained perfect until near the end.

Autopsy by Dr. R. N. Russell, eight hours after death. The left pleural cavity contained a small amount of pinkish serum, moderately firm adhesions to diaphragm, pericardium and chest wall. The left lung seemed normal, except for congestion and small solid areas (hypostasis) in dependent parts. The right pleural cavity contained very little fluid, had firm adhesions, particularly at apex, and fresh adhesions at the base and over the diaphragm. The right lung showed a tuberculous area at the apex, about the size of a small egg; it was firm and showed no softening. No other tuberculous processes were discovered in either lung. The bronchial nodes were not enlarged nor soft and showed no bacilli. The pericardium was distended with fluid, about 250 cc. of a clear reddish color. The parietal pericardium was thick and lined with a layer of fibrin about 1 cm. thick, having a shaggy surface. A small area near the base of the heart was caseous and showed a great number of tubercle bacilli. The visceral portion of the pericardium was covered with fibrin, shaggy, similar to the parietal layer. There were numerous fresh adhesions. When separated from the heart the pericardial cavity showed an astonishing appearance owing to the thickening, to the areas of deep red staining, the irregular ragged surface, the numerous adhesions to the heart, which latter seemed very large. There was evidence of very active inflammation. It seems remarkable that the heart was so well sustained during the illness. The heart together with the pericardium after withdrawal of fluid weighed 1,280 gm. The heart muscle was light in color and near the surface had a grayish appearance to a depth of 3 mm. to 1 cm. Free from the pericardium, its weight was 704 gm. This included an organized clot that was not removed from the ventricle. The valves were intact and competent. Cultures from the fibrinous exudate, which was so abundant in the peri-

cardial cavity, contained an extraordinary number of tubercle bacilli. The liver was slightly enlarged, fatty and of a somewhat "nutmeg" appearance. Its surface showed a recent deposition of fibrin as well as inflammatory adhesions to the diaphragm. There was a small amount of fluid in the peritoneal cavity. The kidneys showed a moderate degree of contraction. The larynx showed tuberculous infiltration and ulceration along the left arytenoid and just under the epiglottis. Smears from this as well as from various parts of the pericardial cavity showed tubercle bacilli, and in the latter no other organisms were found. The photograph gives a good idea of the general appearance of the heart and pericardium, but unfortunately the color effects must be left to the imagination.

Among the interesting features of this case are, a severe and abrupt onset; the constitutional symptoms previous to the appearance of physical signs, suggesting typhoid more nearly than anything else, although it was never considered to be typhoid; the severe and repeated pleurisies and the perihepatitis which, with the pericarditis, led us to suspect a case of multiple serositis. There was no evidence of tuberculous lesions in any of the serous sacs, except the pericardium. The tendency to pleurisy has been noted in numerous cases of tuberculous pericarditis. The fact that the source of pericardial infection could not be traced to any area of softening tuberculous tissue is of interest. It is not known in what way infection reached the pericardium. No contiguous tissue was involved, the mediastinal and bronchial lymph-nodes were healthy. The nodule in the apex of the right lung was firm and the process not very active. The laryngeal process seemed in point of time to correspond with that in the pericardium, and it was through the discovery of tubercle bacilli in the former that we were able ultimately to make a correct diagnosis. The pericarditis was truly terrific in character as revealed by autopsy. The marked enlargement of the heart took place subsequent to the attack of pericarditis. The reasons for this have been explained and dwelt upon by Beverley Robinson.⁵ The severity of the constitutional symptoms appearing early in the history of the case would seem to indicate a general infection, and the decline of fever in the later stages remains a source of speculation. The question of pericardial aspiration was repeatedly considered. A large area of precordial dullness invited puncture; but the position of the heart so low in the pericardium, held there doubtless by adhesions, led to its abandonment. The necropsy justified the decision. No good would have followed aspiration in this case, as the amount of fluid was moderate, and the large area of dullness was owing to the increased size of the heart, the thickening of the pericardial walls, and to abundant fibrinous exudate. The transient phlebitis in the left femoral vein with edema of the left leg was probably of tuberculous origin and part of the general infection; it entirely subsided before death. The difficulty of diagnosis in such a case is evident, and taken in connection with pain in the lower extremities, the repeated pleurisies and perihepatitis might not unnaturally have been explained as the expression of multiple serositis. This symptom-complex is frequently of tuberculous origin, and, as accompanied by enlargement and cirrhosis of the liver, was graphically described by Hutinel⁶ ten years ago. Considering the age and excellent nutrition of the patient, tuberculosis would scarcely have been suspected but for the laryngeal complication.

CASE II.—In consultation with Dr. Allen A. Jones. Mrs. B., a middle-aged woman, had in 1894 an enlarged cervical lymphatic gland, some cough, and symptoms of an indefinite nature that were apparently due to neurasthenia. In 1901, she came to the doctor's office suffering from great distress in the chest, short, hacking cough, and marked dyspnea. Her pulse was frequent and feeble, and she was sallow. There were signs of effusion in both pleural cavities, being more marked on the left than on the right side. Subsequently the woman was visited at her home. She steadily grew worse, orthopnea developed, there was ineffective cough with much general distress. About 500 cc. of reddish serum was withdrawn from the left pleural cavity, which afforded her slight relief. A few days subsequently the same amount was withdrawn from the left pleural cavity, and 250 cc. from the right. This also was followed by very slight relief. The orthopnea

continued and dysphagia developed. The dyspnea was probably produced by mediastinal pressure, and there was wide precordial dullness; but at the same time there was flatness that appeared to arise from fluid in the pleural cavities. There was no friction sound at any time. The woman died about ten days after first coming under observation, and massive pericardial effusion was found at the autopsy, the report of which follows:

Autopsy by Dr. H. U. Williams. Considerable fluid in the right pleural cavity; right lung adherent at apex, the upper lobe showing a number of small, yellow uncalcified nodules, old calcified scar at junction of lower and middle lobes; small area of bronchopneumonia in lower lobe. The left pleural cavity contained much fluid; the left lung showed old adhesions at the apex, also an old scar, and below this was in a state of great retraction and airless as the result of pressure from the distended pericardium. There was an area of solidification, probably tuberculous, the size of an egg in the lower lobe, also an area of bronchopneumonia. The bronchial and mediastinal lymph-nodes were large and caseous. The pericardium contained about 1,000 cc. of bloody serum. The surface of the pericardium showed a thick, shaggy, fibrinous exudate. The heart was small, the valves normal. The pericardium showed numerous tubercle bacilli, and sections of the pericardium showed miliary tubercles in abundance along the most superficial layer. Lying over these was abundant fibrinous exudate with polynuclear leukocytes and considerable blood. The bloodvessels of the pericardium were much dilated.

Of interest in this case are the following facts: The old and unsuspected tuberculous lesions in the apices of both lungs, evidences of old pleurisy unsuspected, the insidious onset (a woman walking to the office with evidence of fluid in both pleural cavities, and doubtless with the pericardium already distended). The most important comment is that although the pericardial cavity was believed to be involved, the physical signs pointed particularly to double pleural effusion. Four aspirations for the relief of this were made, and a moderate amount of slightly reddish serum withdrawn without greatly relieving the patient. This shows how easily even a large pericardial effusion may sometimes be masked. In this, unlike the first case, the heart was small. It presented a characteristic picture of small miliary tubercles lying in the superficial layer of the pericardium. The ragged and bloodstained appearance of the pericardium was marked, although not so evident as in the former case. Death doubtless resulted from pericardial pressure.

CASE III.—T. R., male, aged 53, a patient at the Erie County Hospital under the care of my colleague, Dr. DeLancey Rochester, through whose courtesy I am allowed to make this report. The patient entered October, 1900.

The family history showed tuberculosis in the case of a brother, but the patient's personal history is negative save that a year ago he began to cough and feel weak. Three months ago he had a severe cold with chills, fever and edema of the legs which laid him up for several weeks.

On entrance, the man complained of weakness, cough and dyspnea with some edema of the extremities. The blood count showed 8,125 leukocytes. His temperature varied from 98° to 101°; pulse 80 to 90, respirations 24 to 36. There was little variation in this until November when fluid gradually accumulated in the right pleural cavity. He was repeatedly tapped and on December 3, 1,856 cc. of straw-colored serum was withdrawn at one time, resulting in relief of the dyspnea and betterment in the general condition. The temperature curve and the rate of the pulse and respirations showed but little change. He coughed much, raised little, but no tubercle bacilli were found. The pericarditis was masked. The man gradually failed and died on the first of January; the clinical diagnosis being pleurisy with effusion.

Autopsy by Dr. H. U. Williams, January 3, 1901. The left pleural cavity was obliterated by old fibrinous adhesions; the right pleural cavity contained about 1,000 cc. of turbid serum, the costal and pulmonary surfaces were covered with firm, tough layers of fibrin. The lung was much retracted. The lymph-glands at the root of the right lung were much enlarged; both lungs contained round, nodular tuberculous masses and areas of tuberculous pneumonia, more numerous in the left. The pericardial cavity was obliterated by tough, fibrinous adhesions; there was no fluid, the heart was small. On stripping off the fibrin, small miliary tubercles could be seen in the most superficial layers of the pericardium. Tubercle bacilli were numerous in the nodules of the lung and miliary tubercles were found in sections of the pleura and pericardium. No bacilli, however, were discovered in or on the fibrinous exudate.

This case is interesting in showing a slower evolution than the preceding cases. Here there was no pericardial effusion, the pericardial cavity being obliterated and the real condition obscured by the abundant serous

exudate in the right pleural cavity. As in the second case, the real nature of the effusion was not discovered until autopsy.

The following conclusions seem warrantable:

1. Tuberculous pericarditis is not a rare affection.
2. The diagnosis is usually not made except in cases with simultaneously active tuberculous processes in other parts.
3. The concurrence of pleurisy with bloodstained effusion may be regarded as suggestive.
4. The pericarditis may be of a chronic obliterative type, or there may be massive effusion, generally sanguinolent, but rarely purulent.
5. It may be acute, continuing for but a few days, or chronic, existing for many months.
6. It may be a part of a multiple serositis, and the proportion of cases in which at least one or more of the pleural cavities are involved is remarkable.
7. The disease is to be regarded as a secondary affection, although from a clinical point of view, some cases may be looked upon as primary.
8. The point of origin of the infection is often found in the bronchial and mediastinal lymph-nodes, although these may be quite exempt from the disease. The infection may be direct from continuity of tuberculous tissue, or by transmission through lymph vessels or through the circulation.
9. The heart may be greatly enlarged, or normal in size, or even somewhat small.
10. Some observers believe that occasionally the process subsides and that comparative cure results.

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SOME ASPECTS OF MEDICAL EDUCATION.¹

BY

JOHN H. MUSSER, M.D.,
of Philadelphia.

It is no trifling occasion that draws together from the uttermost parts of the country a fifth of an organization of a profession that is taxed to its utmost in the prosecution of its duties. It is not with sounding trumpets and tinkling cymbals that from the sorrowing bedside—whether in the hovel of the poor or the palace of the rich—from the excitement of the operating-room, from the stimulus of the hospital ward, or the quiet but inspiring haunts of the laboratory this assembly gathers. That it is possible is a handsome tribute to the noble animus in which are embodied a spirit of inquiry, a thirst for knowledge, a longing for inspiration, a desire to uplift and to be uplifted that pervades the profession. The event is one that should be fraught with the dignity, the inspiration, one might almost say solemnity, befitting a symphonic march. For such animus, fellow members, we have just cause for self-congratulation.

It scarcely need be reiterated here that the spirit which pervades such a meeting is the outcome of that evolution which began with the introduction of precision in medicine. Just as soon as the art of medicine had for its foundation the science of medicine, the possibility of harmonious medical organization arose. When "rule of thumb," or intuition, gave way to precision; idealism to realism; when speculation was displaced by fact; when, in short, inductive methods were employed and honest inquiry became the guiding star of action, then harmony could sit in council.

With medical, as with all organizations made up of human elements, it would be only human if not pervaded by the essence of science—truth. Hence with the latter wanting, jealousies and ambitions, self and selfishness, would prevail to

¹ President's Address at the fifty-fifth annual session of the American Medical Association, at Atlantic City, June 7-10, 1904. Published synchronously with the *Journal of the American Medical Association*, by courtesy of the Editor.

the end that the true object of organization—a fraternal spirit and conscientious seeking for truth—would be as a flickering flame. A little observation will show that that society, whether county, State, or national, that does not have this true reason for its existence, for its guide of action, will be a failure. The reverse is also true, that that organization which may be called unsuccessful and unhappy, of snarling men, and backbiting colleagues, can be labeled at once as without its true vocation, to the discredit of its members.

The great heights to which our organization is rising rapidly preclude the activities of such as have self for their basis of action, so that each day we see more and more a noble rivalry of its members to do the utmost and the best for the organization; a healthful vying with one another for its welfare. Self and selfishness are looked at askance; partisanship and faction, save for a common end—the welfare of the Association—are memories.

But, fellow-members of the Association, at this the fifty-fifth session of our Association we have other causes for congratulation and felicitation. We are on the eve of a union of all the members of the profession in one harmonious organization, each individual of which is willing and proud to consider his fellow a gentleman until he is proved not to be, and not, as of yore, a knave until he is proved to be a saint. We are reaping the rewards of that untiring committee which gave to us this organization with which we now labor. We are prospering beyond measure and gathering a force scarcely to be estimated, in great part as a result of the untiring efforts of the apostle of organization—our McCormack. To say that 34 States have adopted the uniform plan of organization, and that "membership in the reorganized States has increased 400% and enthusiasm," writes our coadjutor, "tenfold more," is enough. We are standing out in our own manliness with the majesty that belongs thereto because of the sentiments expressed when our broadly inspired committee voiced the unanimity of feeling which belonged to the Association, in our principles of ethics. We are letting our light shine through the instrumentality of that genius of medical editors—our Simmons. From 5,000 to 20,000 in less than a decade is a statement of circulation which appals and at the same time arouses a feeling of pride and stimulates to further effort, increased all the more when we reflect that the scientific value of the articles in *The Journal* are surpassed by none of its contemporaries; its tone is emulated by all.

Such causes for congratulation bring to this Association greater responsibilities and weightier problems for solution. It is held to be the bounds of this address to indicate responsibilities, some trite and apparently trifling, others most weighty; to point out duties, many so grave and vast, beyond the powers of your official to justly define.

NECROLOGY.

Before passing to the task let us pause a moment and with due reverence take cognizance of our colleagues who have since our last meeting gone to the great majority. The Silent Reaper has been as rapacious as in the past, and more than 1,500 fell in his swath. He has spared neither the humble nor the great. The less conspicuous but just as potent laborers in the vineyard can say with the others: "I have fought a good fight, I have finished my course, I have kept the faith."

Of those who have been honored by this Association in the past we lost two ex-presidents, the hearty, rugged, yet withal gentle and kindly Donald MacLean, surgeon and teacher, and the urbane James Farquhar Hibbard, a revered general practitioner and teacher; two ex-vice-presidents in John Bates Johnson, one of the founders of the Association, a great practitioner and honored teacher, and Isaac Newton Love, genial and magnetic. From the ranks we lost Edmund Andrews, scientist, pioneer in surgery and medical education in the West; George Julius Engelmann, obstetrician, scientist, litterateur, teacher, honored at home and abroad by membership in great organizations; James McFadden Gaston, pioneer in the surgical treatment of affections of the gallbladder and gall-ducts, an esteemed practitioner; Franklin Staples, Hamilton Atchison West, Orpheus Everts, each obtained prominence and respect by force of character and natural attainments; Emil

A. deSchweinitz, scientist and brilliant investigator, laboring not for his own renown but for that of his profession, passing away at the threshold of a most promising career; Frank Savary Pearce, untiring and enthusiastic, who had been expected to counsel with us this week.

HOUSE OF DELEGATES.

The conduct of business under the new constitution bodes success. The two years of trial have indicated that to the House of Delegates the greatest responsibilities fall. When its members consider the great power the American Medical Association will have for weal or woe in the future, and that the great body gives that power almost unstintingly to the delegates, they should justly realize the honor and confidence bestowed on them. With such realization will come honest purpose and deliberate action. All the county and State organizations must appreciate the vast duties to be undertaken and the breadth of view, deliberation and wisdom essential to their correct performance, and consequently select from their number the best of their possessions. Let us as an organization see to it that honor and homage come to those who labor unceasingly in the House of Delegates.

NATIONAL LIFE.

It can be readily seen that an organization of the magnitude and with the object and the spirit of our Association must in justice to itself and duty to its country take part in its social and political life. In order that we can be in touch with such life it would be well for the Association to devote some time to the discussion of broad general topics. We have provided for discussions at this meeting, the advisability of which may be termed tentative. We feel that they can be productive of great good, and if the experience on this occasion is the least encouraging, we would urge their continuance. We had hoped to have government officials take up matters pertaining to the relation of the medical profession to the executive, legislative, and administrative departments of the government. The exigencies of politics forbade our obtaining the services of those worthy to address this body. All men of political affairs are too busy at this juncture. At other times we may learn with profit from our rulers and law makers. As arranged for this week, so in various parts of the country in which the meetings are held, broad topics of general interest, perhaps with local flavor, could be discussed. From those in the far West we might learn much of climate or how to conquer the plague, or the medical aspect of "the yellow peril." The good judgment of the committee, or the president, can be relied on to select topics suitable to the occasion.

It is needless to refer to the demands that will be made on us by the nation in the future. You will learn through the representatives of the Army, the Navy, and the Marine-Hospital Service what is expected of us. My distinguished predecessors, Reed, Keen, and others, have pointed out our possibilities for good in the legislative halls of county, State, and nation. We must have care never to be partisan or factional toward the weighty matters we will have to decide. We must realize that the power we have may be our undoing. We must realize that we are entering on dangerous ground, and that it would better become us to be bidden rather than to intrude ourselves into such territory. Indeed, one may tremble not a little at the possibilities of our development in the wrong direction. So long, however, as we hold true to the spirit which comes out of devotion to science we need not fear.

THE SECTIONS.

The work in most of the sections the past few years bears favorable comparison with that of coordinated organizations throughout the country. To inflict discussion concerning them on this general meeting is, we realize, somewhat of a hardship. Your indulgence is craved, however, for through your medium alone can the sections be reached, while peradventure the work of these sections is fully as important as that of any branch of our Association work. If you will look into it you will find the rise of the Association came with the development of section work. To enhance the value of such work is, therefore, to uplift the organization. The present methods are worthy of trial for a few years just as we should not make haste in chang-

ing the new constitution. Regarding it, may we suggest thought along these lines?

1. The continuance of the secretary for a term of years.
2. The collaboration of sections so that one topic can be exhaustively considered at the meeting of the Association without repetition in other sections. For this purpose the officers of the sections should meet for consultation six or eight months before the annual meeting. We feel we did good work by having our distinguished chairmen and secretaries come together last October.
3. The division of the Association into two main sections for work in the mornings, that of (A) *medicine*, including pathology, diseases of children, nervous and mental diseases, materia medica, stomatology, cutaneous medicine and sanitary science; (B) *surgery*, including obstetrics, gynecology and the more closely related surgical specialties. The members interested in diseases of the eye or nose or throat could contribute to either section the result of any studies related to the respective section. The afternoons could be occupied by the specialized labor of the 12 sections now in existence.

Perhaps it might be thought better to have one morning, at the direction of the Section on Practice of Medicine, devoted to the discussion of general topics related to medicine, in which the entire Association could take part; another morning, at the direction of its secretary, to surgery; a third to the specialties; a fourth to sanitary science. The object is to secure the views of physician, surgeon, and specialist on general topics. For instance, endarteritis is a subject to call up at once the possibilities for the internist, the surgeon, and the specialist.

4. The sections should take up and organize special international congresses when the time is ripe for such meetings. Thus an International Congress on Dermatology could be managed by the correlated section of this Association. With the patronage of the American Medical Association any congress that could command such special energies and broad general support could not fail.

5. The section should name to the president a list of its members from which he could select, when asked, delegates to important national meetings or international congresses.

SANITARY SCIENCE.

The Section on Hygiene and Sanitary Science should receive greater support from the organization. It is the section which must bring us in closer touch with our national life. Through it and those devoted to it we ought to secure greater respect from the body politic, and hence more wholesome power for the welfare of the community. Through it the profession should learn to take greater interest in the work of sanitary officers throughout the country. The valuable address of Billings on "The Relation of Medical Science to Commerce" and that of Thompson on "The Economic Value of Medical Science" indicate the opportunities and responsibilities of the profession. The time has gone by when sanitary positions should be used for temporary sources of income and obtained by political means. Such offices are growing more and more vital to the public welfare. They have not been attractive because the rewards have not been commensurate with the responsibility and the labor demanded. They should, we will admit, if looked at from the proper viewpoint, grant large compensation and the occupant should be guaranteed tenure of office not subject to party exigencies but dependent on value received. The fault is partly ours that such is not the case. In but few medical schools is there a serious attempt to educate sanitarians; consequently the physicians who engage in sanitary science in an amateurish way do not give a *quid pro quo*. It does not pay a community to hire them. In one of the large cities of this country it has been impossible for the health authorities to get men who were competent to take up health matters, even though the city was prepared to pay fair salaries. Speculation need not run riot in estimating what would occur in a few years if our universities would give sound practical courses of a broad character, including some engineering, some economics and other features which would round out the man. In preliminary and subsequently in the elective studies the student should not be tempted to go into the special lines of practice. He should have opportunity to go in for sanitary

science and perhaps for government service in the Army, the Navy, or other departments. The communities would soon find the worth of men thus educated, and the demand, we would venture to predict, would outrun the supply. In proof of the former, we may cite the fine tribute given to Wende of Buffalo by the citizens, *en masse* and of one accord, for the work of self-sacrifice, of unselfishness and of worth, as official of the health department. Our Association could as a body and in its constituent parts encourage the medical schools to make such training possible; they could educate the community to demand such services and insist that good compensation is to be allotted for it. The Section on Sanitary Science could take up this as one feature of its work.

But for a more grievous reason, the profession's attitude, there is public disrespect. Survival of the old dictum that a patient's woes are confidential, supports too often the attending physician in failing to realize his responsibility to the community while attending to the welfare of his client. For this, as well as too often for personal reasons, he readily connives with the patient to thwart civic authority, thereby endangering a community. Instead of aiding in securing respect for and obedience to the rules of his sanitary colleague he joins in opposing him. Candor must compel us to admit that too often he fears the advent of the health official may mean some disclosure of his own incapacity. It is fair to say the official on his part is often too ready to give advice, to sneer at diagnosis, or rail at treatment. To inspire, therefore, wholesome respect toward these co-workers and establish an *esprit de corps* should be one of the educational prerogatives of this section. Were we to be called to account for duties undone, the sin of not fulfilling our obligation to the community in sanitary matters would doubtless be found the most conspicuous, the one most detrimental to its interests.

Again, if not too insistent, could not this section further educational exhibits in sanitary matters not unlike the superb exhibit last winter in Baltimore, conceived and conducted in the main by our present official of the Sanitary Section? The Association could not do better than issue a grant for the furtherance of this object.

THE SCIENTIFIC EXHIBIT.

It is gratifying to see the interest and success attendant on this new feature of section work. It is another tribute to the belief in the permanent tenure of office of an official when we have the good fortune to get a good one. Attention is particularly called to this exhibit to ask the Association and the other sections to look to the conduct of somewhat similar exhibits. The Section on Ophthalmology showed the possibilities at the time of the Helmholtz anniversaries. When a section takes up a subject let us not have the clinical, pathologic and therapeutic aspects alone discussed, but bibliographic and historic features brought out. Let such features be as national as possible. What a fine exhibition it would be to have in connection with, say typhoid fever, a loan collection of the pictures of authors and investigators, of the various editions of their works and of the material things with which they worked, illustrating the evolution of their knowledge of the subject. Who would not be thrilled by a picture of the wards of the old Pennsylvania Hospital where Gerhard worked, of the instruments or materials he worked with, how he lived and what he did; of the first editions of his works, indeed of the manuscript of them? We must confess to a quiver of delight, mingled with reverence, on being permitted to handle the manuscript on which Stillé inscribed his communication to the Paris Society. This is not the time or place to indulge in a homily on the value of such exhibits, agreeable though it might be. Through them, as of biography and sculpture and painting, we keep in touch with our history. Foster efforts in these directions, gentlemen of the Association, grant liberally to sections their small demands on you, to the end that you will be stimulating the best instincts in our profession.

THE ASSOCIATION OF LIBRARIANS.

We are not far amiss when we call attention to an organization which in a quiet, unobtrusive way is bringing together the members of the profession on a common ground, where tars

do not spring up and thistles do not blossom, but instead there is an atmosphere clear, refreshing, invigorating. Jealousies do not thrive in libraries; books soften ambitions. No stronger, more liberal friendships can develop than those that come to book lovers. We owe a debt of gratitude to the Library Association and to its distinguished president, under whose fostering care the influence and power of the Association are unfolding as the hardy rose, exhaling like it a fragrance which cheers and stimulates. Of the many abundant works we owe him, none, we venture, will be more satisfying to him and more lasting for good than the work of the Association of Librarians. This Association should hold not its hand nor stint its heart in upholding its educational efforts.

THE RUSH MONUMENT.

Before this session adjourns, by proper ceremony, graced by the presence of the President of the United States, with an oration befitting the occasion by our distinguished colleague, Dr. Wilson, the monument erected by the Association to the memory of Benjamin Rush will be dedicated. The Association is to be congratulated on the completion of this tribute in perpetual bronze to one of the most distinguished of our countrymen. Not alone should we rejoice on the fruition of this agreeable task but also because it augurs for the erection in the future of tributes to the memory of others full worthy of our reverence. The invigorating, stimulating influence that comes from having about us our heroes of the past in stone or bronze behooves this Association and its constituent bodies to strain every effort to encourage in this manner hero worship. It is due ourselves to perpetuate the inspirations, the thoughts, the feelings in the counterfeit presentment of our fellows. We are not of those who decry the world because it has not recognized our Jenner, our Pasteur, our innumerable heroes either by reward in their lifetime or by permanent tribute. We do not begrudge the meed of praise and the plenteous bounty which flow to our warriors and statesmen. It is true their glory has been attained often by carnage, lives sacrificed to avenge some insult. It was not life that was at stake. It was principle or thought or feeling or, our misanthrope suggests, greed. What countless lives are sacrificed for aspirations; what thousands of innocents for national gain! So, to the actors who stand for such, unstinted regard is given. The public neither appreciates the loss nor the saving of life. Hence, so long as it does not come close to them, civic murders from bad hygienic conditions do not move them. Even when home is devastated they submit to that which they consider mystifying or providential, and merely go their way. They are callous beyond measure to the presence of epidemics. They do not consider for one moment the power they have to assuage the virulence or even wipe out the existence of pestilence. Every effort for amelioration, as we see in tuberculosis, comes from our profession. With such lack of appreciation of their own welfare we need not expect much appreciation from them of our efforts.

In all honesty, we must admit among ourselves, we may not deserve public appreciation. If we realize the truth we may make amends. Could the public be expected to revere and respect when, as usual in the past, perhaps too common now, the profession was divided against itself, not from principle, but generally because of pocket, of sordid ambition, of devouring jealousy? Look ye to your county societies! Do the brethren dwell together in harmony? Go to the warfaring court rooms! Do we emerge from them respected and respectful of one another? Until such sores are healed, as they happily will be, when science—and hence liberality of mind and largeness of heart—is furthered by associations like ours, it must remain to us a cherished heritage and privilege to worship our heroes alone. When we learn to respect ourselves, then will we be respected.

MEDICAL EDUCATION.

The object of this Association shall be for the purpose of elevating the standard of Medical Education.

This Association has been, should be, and we trust will be, the storm center of legislation for reform in medical education. Since the memorable editorials of Wood in the old *Philadelphia Times*, and the masterly papers and addresses of Pepper and the practical action of the University of Pennsylvania there has

been virile progress. In most respects it seems definitely settled as to the course of education a candidate for the degree of medicine should take. Questions of pedagogy are still debatable, but we take it that that student who wishes the quickest returns, the most lasting remuneration, perennial stimulation of the intellect, and continuous enjoyment in the pursuit of his labors, should take a college education of three or four years, a four years' course in medicine, and, if possible, a hospital internship.

Reference need only be made to the reports to this Association, to the famous report of the majority committee of the Association of American Medical Colleges, to the numbers of *The Journal* comprehensively devoted to education, and to many recent admirable addresses in support of the statements.

There is talk about maximum and minimum requirements, about laboratory and hospital courses, the merits of didactic and clinical teaching—a mass of material brought forth from the viewpoint of the educator, or looking to the welfare of the medical profession. We do not minimize the value of such lines of discussion. It has brought us to the position we have attained. But what of the medical student? Should we not look at education from his point of view? Is he quite able to decide whether he should take up the profession of medicine? We hold that a great duty is due the aspirant for medical honors from teacher and practitioner. It is a kindness due him to point out the best methods of securing such education as will yield him results commensurate with the time and expense required. It would be a greater kindness to be enabled to show him that by reason of intellectual temperament or of physical or moral qualities he is not likely to reap the rewards he is anticipating.

The large majority of medical students do not have a good reason for studying medicine. They are ignorant of the mental and physical demands made on them. They are attracted by an uncertain glamor and a specious glory, and heedlessly they go in. The failure of a large percentage of graduates in medicine to acquire more than a bare existence, and too often not even that, proves that they were not educated properly, not fitted temperamentally or physically to pursue its duties. Should they not have opportunity for learning of the responsibilities and difficulties, rather than to have the brighter phases glorified? Would it not be well to have in our college curriculum a course of lectures for the student who contemplates entering a profession, pointing out the rocks and shoals in his prospective career? An eminent practitioner, not connected with medical schools, would light up and darken the pathway in due proportions. Then, too, should not, as in the Army and Navy, some physical tests be required? The trophy is to the robust, and sad will be the career of the man who is physically handicapped.

If there were any doubt about the value of a college degree to a man entering the medical profession it could be set at naught since the report of the Mosely Education Commission. Quotations like the following, while not pertaining to medicine alone, the result of extensive inquiry and mature deliberation, supported by the statistics they give, uphold the contention of a large employer, that "for 99% of the nonuniversity men, it is hopeless to expect to get to the top." One opinion they express is that "there is still room for the boy of marked ability 'to come through,' but that his difficulties are greatly increasing, and that, useful as he is, his usefulness would have been greatly enhanced had he had the benefit of a college training." Still another commissioner reports that while only "1% of the entire population of America has received a higher education in her colleges and universities, this 1% holds more than 40% of all positions of confidence, of trust, and of profit." It is well known that the "geist" of the individual brings success, for which they say "it is recognized that the educated man takes in a wide horizon and puts more 'soul' into his work."

The essential of success in any department is diagnosis, which requires powers of intellectual penetration and discrimination. President Thwing has again forcefully urged that "the reasoning of mathematics—and mathematics is only reasoning—tends to promote clearness and accuracy in perception, inevitableness in inference, a sense of logical orderliness. The study of the languages represents the element of interpretation. The

study of history means the interpretation of life." Are these not the main studies of a college education? While they may promote scholarship, they surely cultivate thought. It need scarcely be pointed out to this audience that to be a thinker is the salvation of the physician.

To the plea that the acquirement of a college degree takes up too much time and requires too much money, the material answer can be given from other sources to the effect that "the men whom you are surprised to find holding such important positions in factories, though not much over 30 years of age, are the very men who did not leave the technical college till they were 23 or 24; the graduate may have been 25 before he donned a jumper, but in five years he learned more with the college training he had as a foundation than the regular journeyman of 15 years of actual work in the shop." The experience of teachers who have watched the alumni agrees in that the college graduates get quick returns and soon acquire a position of independence.

The poor boy, therefore, need not be deterred, for if he has the spirit and energy to work his way through four years, two years or three years more will be but very little in the final summing up. If the student only knew that the purchase of the best education, whether reckoned in time or money, is the most economic investment, in that as to the former, a thorough education at first is time-saving in later years, and as to the latter, the money outlay is returned more quickly, in more immediate work and larger pay.

There should be one educational requirement—the equivalent of that for which a first-class college degree stands, whether received at a high school or university.

After entering the medical school with, it is presumed, the proper educational attainments, his career the first year should be closely watched. That school has too many students if it does not have enough instructors in the first year to be able to judge with a reasonable degree of accuracy of the character and moral stability of the men. This is not to be taken in a prudish sense or with too critical a scrutiny of habits which are the overflow of the animal spirits or the expiring exuberance of the boy approaching manhood. This can be said, that a student who does not play fair in his exercises, who cheats in one demonstration or evades another, who does not show manliness, frankness and truthfulness in his first-year duties, will not be a good diagnostician. He will cheat himself; he will cheat his patient. The teachers of the first year, or at least the second, should know this and block the student there and then. It would be a kindness. Let us then agitate whether we should not have a certificate of manliness, a certificate of health as well as a certificate of mental proficiency, before we admit students to our medical schools or permit them to go beyond the first year. Let us not be decoys, alluring them on to later destruction, but rather be guardians, wrapping the strong arm of experience about them to lead them to the fitting pathway.

Having permitted the student to pass further in his pursuits, we still owe him much. We must see to it that such course is given him the first two years of his student career that he will acquire such fondness for the science of medicine, such reverence for the exploration of its truths, that until his dying day devotion to it will be his stimulus and solace. As a corollary, we must insist that medical schools secure the best men in the market for these places and pay them salaries commensurate with their ability—good living salaries.

It is in the first and second years of his career that the foundations are laid whereby the student becomes the medical thinker. To quote again: "The power of thinking should not be of a base and barren character. The thinking should represent and be concerned with a fine and rich content of knowledge. It should have the exactness of intellectual discrimination; it should have the fulness of noble scholarship; it should embody a culture which is at once emotional and esthetic and ethical, as well as intellectual."

That a desire to relieve suffering, to extend sympathy, to save life, is the impulse of the physician, we all admit, but where is the man among us who will not also admit that a scientific habit more quickly brings it about and more surely sustains and fortifies the humane instinct through the trials and tribulations of exacting practice? That prosecution of profes-

sional duties soon becomes commercial that does not have for its basis a true spirit of scientific inquiry. How miserable must that life be which conducts an exacting, drudging, daily routine with only material reward in view. Few are the practitioners who have this sordid view; we can be as sure medicine would soon be forsaken if this viewpoint alone were considered. Hence in the laboratory of the first two years must be aroused and fostered the stimulus for lifework.

The final years should be clinical years, and the last should be in a hospital. The medical school that allows its students to think such opportunity is not due them is most unfair to them. As our schools are now constituted, most of them cannot give such requirements. The students should know, however, such requirement is necessary. What has been said regarding the preliminary college education applies equally forcefully to the hospital training. He is thrice armed who enters the arena thus equipped. Medical schools that cannot give such education are cruelly unkind and unjust to the students, by having them think it is not essential. Medical colleges that pass off a hospital training for one that is not truly such, fake their students. The student who pays well for his training has the right to demand such as to fit him for immediate action.

It is not the fault of the medical school alone that he can not get it. The public that cries out when there is mistake in diagnosis, fault in treatment, and that shakes its head at the deficient education of our students, must share the blame with the medical school. The public admits that its individual members may at any moment almost be at the mercy of a half-educated physician. It is not necessary to recount, for it is well known, how on land or sea, by day or night, some event may arise in an individual life, the care of which may mean life or death. Even with this knowledge they withhold means to relieve themselves. They admit the necessity of a hospital training. But they, and particularly the public in control of hospitals not used for teaching, say each medical college should have its teaching hospital. They do not appreciate that to give an education which involves a hospital course would require an expenditure of \$500 a year for four years by each student. It has been estimated that the cost of maintaining a plant and paying salaries sufficiently large to accommodate 600 students would require the above outlay by each student. Unfortunately, it is impossible to expect students to pay such figures, as it would render entrance into the profession almost prohibitive. It is manifestly impossible, as medical schools are constituted now, to educate all the students of the land properly. Hospital training can not be given except by a few favored institutions, because the doors of hospitals are closed either by the governing body of the hospital or by the teachers in the medical schools.

We believe, personally, if a decree should be issued that no medical school, including its hospital, should exist except on the fees derived from students, but little hardship would follow. The lessened supply of students would increase the demands on the practitioner, so that larger returns would follow. The poor student would sacrifice and strive to get a degree, knowing then he had a good asset. A diminution in number and an increase in quality is demanded alike by the public and the profession. Such diminution in number would mean that the student would get back his investment quicker and in larger amount than at present, hence good men would be attracted. If we could abolish sentiment for sense and educate accordingly, there might be betterment all around. As it is now, medical students receive part of their education through the bounty of the State or the charity of the public, as such education can only be given in endowed institutions. The public is taxed so that the prospective physician can make a living. Is it right that it should be? Perhaps a mechanic should demand such right to make his son a good workman. We must all admit it is the duty of the State to educate the youth, so that good citizenship is maintained; we can question whether the State should educate the members to obtain a livelihood.

With the same indifference that the public views an epidemic's march they allow hospitals that are engaged in teaching to suffer for the want of funds. Moreover, they close their doors to the advent of teaching in the hospitals under their control. We must admit, those who do not appreciate the true function

of a hospital have some ground for their contention. Ruled by sentiment chiefly, unfortunately an impracticable master, they sympathize with the patient, who still harbors the belief of old, that the medical student is one of a class that prowls about not unlike harpies. The public does not realize the difference in the student of today and the student of tradition. We cannot hold to account the governing body of the hospital, which has the point of view that it is harmful to a sick person to have him under the surveillance of an alleged student rabble. We must admit some patients become alarmed, particularly in institutions where they know they will have the sympathy of the governing body. An analysis of motive will show that the usual patient who will not allow a judicious amount of clinical demonstration when the sense of delicacy is not offended, is truly selfish, in that there is prevented that increase of knowledge and development of skill whereby suffering of others may be alleviated. A little encouragement from the officials would allay alarm on the part of the patient. The desire to help others is infectious, and when one yields in a ward, others vie in the work.

The truth of the matter is that in hospitals in which teaching is carried on, rarely, if ever, do the patients complain. Indeed, it is the experience of those teaching institutions that judiciously conducted instruction is appreciated by the patient. In one hospital we might name, most of the inmates are pay patients, giving \$7 a week willingly, because they know they are buying the services of the best practitioners in the land—the teachers of medicine—which service they could not get at tenfold the figure. The fact that teaching hospitals are overcrowded, not by the poor alone, but by people independent of charity, shows that clinical instruction is not a bugbear. If the governing boards would know that while a few patients might be alarmed, on the whole most of them would be gratified by the attention paid them, and their sense of rectitude and manliness appealed to by the satisfaction that they are doing some good in enlightening students, so that others could be relieved; that their administration would be stimulated to do work beyond criticism; that the nurses would be aroused to better activity while under the observation of those not connected with the hospital; that the internes would do their very best to have most complete studies of the case, and finally, that the chief in attendance would be compelled to do his best at the risk of his reputation, they would gladly open their doors, even to the discomfort of the few, but to the advantage of the many. In short, the hospital should have teaching not to oblige the medical school, but for its own survival and regeneration. The benefits the student derives by the object lesson of an orderly hospital cannot be estimated. Will not every member of a hospital board admit that his own character, his own sympathies, have been benefited by his connection with the hospital, even though, perhaps, he has not the advantage of an impressionable age? Can he not see, therefore, how the youthful student can be influenced in thought, and character, and feeling? He can not lightly toss aside this responsibility, nor even hide it by putting the onus of medical education on the teaching hospital. Every dollar endowing a nonteaching hospital robs the teaching hospital which is engaged in this larger duty.

It is true a class which is compelled to have hospital attention may not sympathize with this feeling. How can we obtain the confidence of this class? Let us organize such association of prominent people in our teaching centers who will agree to have any operation, any feature of disease witnessed by medical students, at the judgment of their attending physician. It would be well if the individuals of such an organization would agree, first, to undergo hospital treatment; second, to be the object of observation by students; third, to have an autopsy performed in case of untimely end. We feel sure that it would be wholesome individually and publicly if each would agree to ward treatment. Such association would rob hospitals of their terror and teaching of its dread. No one can deny that on the whole the public would be benefited from whatsoever point of view we look at it. Indeed, the public ought to learn that disease is an enemy to themselves and their country. Just as we make sacrifices in time of national warfare, so we should be willing to make sacrifices in the daily battle for life. Just as aristocrat and plebeian, landlord and tenant, fight side by side

in the former, so they should array in solid phalanx in the latter.

But there are hospitals willing to admit students, and yet the privilege is not availed of. This arises because the teaching force of the medical college is not willing to sink its personality and allow the student to go wheresoever he will for his instruction. Courage and some sacrifice is required perhaps. But, when one thinks of the mighty opportunity and the frightful waste, it is saddening. Every hospital should be a school. The fourth year should be so arranged that the student could avail himself of the advantages of hospitals in the immediate vicinity. Let each teaching body have the student understand what he must see and do, and trust you the true student will see it at the best place and with the best men. He must be accountable, of course, with a rigidity that means the exact acquirement of knowledge. To this end the first two years could be well spent in the properly equipped laboratory university, whether in town or country, the third in the authorized hospital of the school, the fourth in extramural hospital work.

Is it not anomalous that the hospital boards give to the nurses who are to act as aids to the physician the highest opportunities, and yet deny it to those who are to give orders to the nurses? This, of course, arises because training schools are the product of modern thought and have not been trammelled by tradition.

But all this talk of the primary education avails but little if we do not see to it ourselves that education is continuous; that from the day of our graduation, forward, we do naught but toil, toil, toil. It should go without saying, as a mere business proposition, that unless we unceasingly labor but little of the fruits do we pluck. It is demonstrated in a practical manner, for when we look about us and find the methods of those of our brethren whose labors are not in vain each one bears the scent of midnight oil.

The development of postgraduate schools, the growth of libraries, the groans of the printing press, the enthusiasm of medical societies, all testify to the spirit of persistent self-education that is abroad. It is not for me to urge further the importance of each of us taking from time to time months for study and reflection. Every active doctor should have his sabbatical year. We dare say, extended observations would uphold that in income a gain is one hundredfold for each dollar invested in educational outings, and for every hour thus employed, ten is added to life. To finance a medical man from first to last successfully, we dare say, spend all net earnings of the first five years on self-education; after ten years, 10% of the annual net earnings for an assistant, continuing a 25% investment for years. Health, happiness, increased usefulness to the community, a success, which never comes from eccentricity, equal to doubling capital every five years, would follow.

In the course of our work it is necessary for us to halt from time to time and review. Not alone must our mental storehouse be swept out and refurnished, but we must constantly "jack up," if the term is permissible, our mental and moral machinery. There are few of us who will not find as our days grow fuller an unconscious tendency to slight our work, to become slipshod, to hurry over matters. It is partly an evidence of overwork. The postgraduate school is the salvation. No obstacle can withstand the continuity of drill, which the earnest of us keep in action. If, to continue the imposition, asked what element of character is perhaps lacking to the greatest detriment to the profession and public, we possibly, one and all, would say courage. This is seen in the hesitancy which members of the profession show in giving an opinion, in advising an operation, and in asking for an autopsy. How much confidence is destroyed by the want of free, frank avowal of the physician that he does not know on the one hand, or of clear, precise statement of his judgment concerning a case on the other! The greatest success in life is confidence. How many lives are lost by the worker in internal medicine not advising early and unequivocally an operation for fear he might be wrong in his diagnosis! And how many more are lost because the surgeon lacks courage to do, either because he fears the patient may die and his record be marred, or because he may operate when it is

not necessary! We must admit we have had some operations done when they were not required, but let it be said to the credit of modern surgery, we have never seen an operation of such character performed by the right man that did any harm to the patient. On the other hand, the resort to operative procedures early, and in cases that even yet are not considered of surgical relief, has saved lives and lessened suffering to a degree that far overbalances the now and then futile measure. It may be assumed, without contradiction, that every case of bad appendicitis that happens to get well without surgical relief has in its wake three to five that die for the want of an operation. In other words, the pernicious influence of a surgical case that recovers without operation is evident in creating the hope that other cases demanding operation might get well without it.

And the man who does not want an autopsy—not only the centers of courage need stimulation, but too often the entire medical storehouse needs refitting. Something, best known to the physician himself, we trust, is lacking in the one who treats an obscure case for a day, six days, six weeks, and then does not want an autopsy. If true to himself, true to the demands of his profession, courage will not fail him. In our mental and physical round-up, we must see to it that courage is given a new backbone from time to time.

But, fellow-members of the Association, not alone as members of this organization may we indulge in self-congratulations, but as members of a profession whose limitation knows no bounds, we may join in felicitation. Neither language, nor creed, nor country, fetters our profession's munificent sway. The thoughts of Ehrlich, in Frankfurt; of our own Welch or Councilman, of Kitasato, in Japan, are correlated. The knife of Mayo in America, of Robson in London, of Kocher in Berne contributes to the relief of suffering in far Cathay. The founts of Lister's genius and Pasteur's divine inspiration bring countless blessings to England, to India, to France and to Africa. What a stimulus it is to realize that, howsoever small the contribution of the humblest of us may be, its impulse will be felt in climes near and far and ages present and remote! What awe cannot but overtake us when we consider each heart throb we study entwines us to Harvey of two centuries ago; with every percussion tone reverberates the sound of Laennec's voice of a century; with each vaccine inoculation, the simple observation and reasoning of Jenner stimulate our question and deductions!

We rejoice together and cherish our history, by the warp and woof of which we are woven to the past. What heritage for us and our children! Dead must be the soul that wearies of communion with the spirits of the past; deep must be its slumber on which palls the thought of centuries; lethargic its activities that are aroused not by the deeds of heroic men! "Honor and fortune exist to him who always recognizes the neighborhood of the great, always feels himself in the presence of high causes." We worship together our science, devotion to which brings forth character, smothers egotism, levels pretension, drives out solitude, develops such loftiness of thought which can see that "against all appearances the nature of things works for truth and right forever." Of our art, let us see to it that when the final summons comes it can be said of us, "Greater love hath no man than this, that a man lay down his life for his friends."

Damages against a Quack Company.—A commercial traveler obtained \$20 (\$97) as damages in the Cardiff County court on May 5 against the Good Health Alliance Company. He purchased two "foot drafts," a form of plaster, which it was said would relieve rheumatism, but he contended that, owing to the irritation which they set up on the soles of his feet where they were applied, he was unable to follow his employment. Mr. Frederick Buckham, who attended him, ridiculed the suggestion of the defendant company that the "foot drafts" drew uric acid out of the system through the pores of the feet, but, according to the newspaper report of the case, Dr. Boyd, who was described as a London consulting physician, said that a good deal of the uric acid could be expelled from the body through the pores of the skin, and that was what the plasters did. The county court judge said that the company was liable for damages, as the plaintiff had not been warned in any way as to the effect which the plaster might have.

PROGNOSIS: ITS THEORY AND PRACTICE.¹

BY

GEORGE DOCK, M.D.,

of Ann Arbor, Mich.

As a text, let me quote from the oldest work we have on this subject,² which, though old, still has the freshness and modernism that genius gives to human productions:

It appears to me [said the Father of Medicine] a most excellent thing for the physician to cultivate prognosis; for by foreseeing and foretelling, in the presence of the sick, the present, the past and the future, and explaining the omissions which patients have been guilty of, he will be the more readily believed to be acquainted with the circumstances of the sick; so that men will have confidence to entrust themselves to such a physician. And he will manage the cure best who has foreseen what is to happen from the present state of matters. For it is impossible to make all the sick well. This indeed would have been better than to be able to foretell what is going to happen; but since men die, some even before calling the physician, from the violence of the disease, and some die immediately after calling him, having lived perhaps only one day or a little longer, and before the physician could bring his art to counteract the disease; it therefore becomes necessary to know the nature of such affections, how far they are above the powers of the constitution. Thus a man will be the more esteemed to be a good physician, for he will be the better able to treat those aright who can be saved, from having long anticipated everything, and by seeing and announcing beforehand those who will live and those who will die, he will thus escape censure.

In this Hippocrates describes the essential importance of prognosis to the patient and the physician in relation to treatment. Beside this, prognosis is often important to relatives and dependents, not merely for reasons of sentiment, but in order to protect property and prevent unhappiness and destitution that would be as painful for the patient to contemplate as for the others to suffer. There is another aspect not present in the time of Hippocrates—giving the patient an opportunity to prepare himself for the anticipated life beyond the grave. In many cases, too, prognosis may have important bearings on political parties or for the Commonwealth.

The patient very often ignores these needs. If he asks for anything, it is usually either the name of the disease or that of the medicine the physician intends to use. He really understands as little of the significance of the name as he does of the action of the drug, and is often more quickly satisfied in proportion as both answers are occult.³ What really should interest him is, as clearly as his mental development permits, some idea of the changes in his body, anatomic and functional, their present seriousness, the chances of death, or of complete or partial recovery, with, in the latter case, the probability of temporary or permanent disability, near or remote, in some organs or functions.

Within the last century prognosis has lost some of its relative importance. Unlike etiology, diagnosis, prophylaxis and treatment, it has no special literature, and is only occasionally the subject of addresses or essays. But much of the so-called prognosis of the earlier periods was really diagnosis, as in Hippocrates' vivid description of empyema, and his remarks in regard to other diseases of the respiratory organs. It also seems a mistake to assume that practical prognosis was more accurate at any period than in later ages of equal enlightenment. While we may admit that great masters, like Hippocrates himself, Galen, Sydenham, and Boerhaave, were remarkably accurate

¹Oration in Medicine at the fifty-fifth annual session of the American Medical Association, at Atlantic City, June 7-10, 1904. Published synchronously with the *Journal of the American Medical Association*, by courtesy of the Editor.

²The Book of Prognostics; the genuine works of Hippocrates, Adams' translation, Vol. I.

³Striking examples of the virtue of mysterious names are conspicuous in the practice of the popular sect of osteopaths. I could give many examples of the license with medical terms among these people, but as the evidence is derived wholly from patients, I cite only one that can be vouched for by medical eye-witnesses. A hospital patient with typhoid fever, with the neck pain not infrequently felt in that disease, requested that his osteopathic physician be allowed to treat him. I was not unwilling, especially as the osteopath gave assurances that he would not attempt to treat the typhoid fever. Two internes "assisted" at the treatment. The osteopath, one of the *sang azul* of his class, after feeling the neck, announced that the transverse processes of three cervical vertebrae were displaced on one side. After some manipulation, he pronounced the displacement relieved, though I was sorry to see that the pain was not much less than before.

in their prognostications, there is no reason for thinking that the rank and file, following their rules without having their keenness of observation and precision of reasoning, were more accurate, or as accurate as physicians of a later period when the formal study of prognosis was neglected, but when other means of knowledge were greater than before. We must bear in mind a fundamental difference in methods. The older prognosis was based on the observation of symptoms alone, and consciously or unconsciously took the standpoint of humoral pathology or some equally imperfect theory. One charge against ancient prognosis is not as serious as some have thought, viz., that the prognosis was made without a definite diagnosis. Even now we sometimes have to be satisfied with a very imperfect diagnosis, and yet may make a very good prognosis, at least for the immediate future. But the older prognosis was almost wholly lacking in anatomic, and totally without chemic basis. Realizing how far short of accuracy the diagnosis must have been in many cases we can understand that prognosis must have failed almost as often. Moreover, in early medicine, most attention was paid to acute diseases, or the acute terminations of chronic diseases, so that the many important chronic diseases that now make so much of medical practice were comparatively neglected.

Whatever shortcomings medicine may have—and those who cultivate the subject most thoroughly feel the needs most deeply—it must be admitted that diagnosis is much more certain than ever before. Not only are we able to distinguish more quickly and more accurately many diseases long known, such as some of the acute fevers, malarial disease, tuberculosis, diphtheria, and pneumonia; but we have learned the existence and the means of detecting many diseases formerly confused with others. As examples, let me name only a few, such as the diseases originating in the vermiform appendix and the gallbladder, diseases of the pancreas, many diseases of the blood, a large number of diseases of the nervous system and of the ductless glands, and many diseases caused by animal parasites, of which the sleeping sickness is the most striking example at present.

The older prognosis, far from being negligible is really of fundamental importance. It gives the accumulated experience of ages that, untrammelled by detail, carefully noted broad and elementary features of disease. As gathered together in the aphorisms and prognostics of Hippocrates, and in the numerous commentaries on them—not always improving the original—it furnishes a fund of inestimable value, but like everything else in medical art, this knowledge is less useful when applied mechanically than when worked over in the crucible of personal experience, tested by other methods and transposed into current formulas.

Older prognosis was possible to collect into fairly circumscribed space, but this is no longer true.¹ In proportion as diagnosis has become subdivided, specialized, and enlarged, and as knowledge of morbid processes has become more complex, so prognosis has become more intricate. Older prognosis was based on broad symptomatic lines, qualified in practice, we may be sure, by a consideration of the patient's constitution. The present basis is diagnosis, but of a different kind. It means not merely a recognition of the name of the disease, but a knowledge of the nature of the disease, still incomplete, but rapidly gaining in fulness and accuracy. In many cases we know the causes, and a good deal of the nature of the causes; in many more we know the seats of the disease, and the anatomic, chemic, and functional changes that result directly and indirectly. It is by the study of the altered functions that we can make a prognosis and plan useful treatment without knowing the name of the disease. Clinical and anatomic investigations have been aided by experiments and observations on lower animals, without which our knowledge would have been much less certain than it is. Scores of technical methods have been devised for reactions and explorations; natural forces previously unknown, such as the röntgen rays, have quickly been pressed into service. Long and painstaking observations have

thrown much light on complications and sequels, their nature, and detection. From all these things the prognosis proceeds naturally in most cases, but here again an indispensable part is a just recognition of the patient's constitution. It is probably true that in this connection we unduly neglect some prognostic aids furnished by the patient, such as changes of the physiognomy. But, on the other hand, we have much more accurate methods of ascertaining the constitutional factors than were formerly available. Constitution is still a somewhat vague term, but we can speak of it here as the result of the functions of all the organs. While the method of representing these functions is still inadequate, we can safely assert that we have much more accurate means of determining the condition of the heart, arteries, and veins, and the force of the circulation, than we had before; we have gone considerably beyond the recognition of the apopleptic habit in foretelling the danger of vascular disease. We can usually estimate fairly well the efficiency of the blood-forming organs; we can determine with reasonable accuracy the capacity for work of the stomach and intestines, as well as a few details of nutrition and metabolism; we are rapidly getting beyond the limitations of Falstaff's water doctor in fixing the anatomic and functional ability of the kidneys, and we are working toward methods of testing the functions of liver, muscles, and nerves. When we have all these factors thoroughly investigated, it is probable there will be little need of the *vis medicatrix nature*, now an essential part of prognosis.

In the conclusion resulting from these things there is no room for a supposititious clairvoyance, an intangible gift of prophecy, a hypothetic intuition that trained intelligence can not equal or industry surpass. We have a positive foreknowledge, a prescience, a prognosis, corresponding in accuracy and usefulness to our diagnosis, and often in advance of our treatment.

In the foregoing I have spoken of the theory. In the practical use of prognosis the first to profit by that function is the physician. With an accurate prognosis, based on exact and thorough examinations, knowledge of the natural course of the disease and of the patient, the physician foresees the course of the malady and is prepared for changes, emergencies and complications. He is thus enabled not only to preserve his imperturbability, so essential in carrying out necessary measures of treatment, but he can also prepare the patient to meet coming events in better physical and mental condition than otherwise, and, what is often of even greater importance, the self-confidence thus shown stimulates the efforts and the compliance of others concerned in the case.

It is not easy to say how much the patient should share this foreknowledge, and how it should be conveyed to him. In many cases the patient does not ask an opinion, and in many others, either because the present disease seems too slight or for other reasons, the physician does not proffer one. Yet it is good mental discipline to work out the prognosis in every case, as a complement to the diagnosis, and in many the results should be stated to the patient. Many things may conspire to make such statements act either favorably or unfavorably on the patient as on the physician.

Physicians, like other people, can often be classified as either optimists or pessimists. Not that these tendencies affect all parts of the individual's activities. One may be a perfect Pangloss in sociologic, political or climatic matters, and yet take a gloomy view of all his patients. (I am not speaking of those who, rarer in the profession than in some of its parasitic growths, habitually exaggerate the danger of their cases, making every angina a diphtheria, every erythema an erysipelas and every bronchitis a threatened pneumonia.) Another who is perpetually cast down by the failure of democratic government or the need of a stronger one, the immorality of the rich and the rule of the bosses, may meet every case with hope and cheer.

But the practice of prognosis should be cultivated as objectively as any other part of medicine. Not only the therapeutic indications suggested by it, but also the human ones, should be carried out without fear or timidity, without unnecessary harshness, and also without the false benevolence that often does more harm than brutal frankness or ignorance. Here, as in other departments of medicine, the welfare of the patient

¹ I have not attempted to include prognostic details, but would refer those interested to "Observations on Prognosis," by P. H. Pye Smith, Guy's Hospital Reports, Vol. xlv, 1887, as one of the most comprehensive and suggestive articles in modern literature.

must be the touchstone by which the action proposed should be proved.

No disease should be looked on as insignificant. Nothing seems less becoming than to hear medical men speaking lightly of disease in general, or of any disease in particular. It is no consolation to the mother whose child has died of one of the rare complications of chickenpox to find that many physicians think that too trivial to concern themselves with it. Nor does it increase confidence in the profession to have hysteria and neurasthenia considered imaginary and ridiculous evidences of perversity, while the impatience, not to say lack of scientific interest sometimes shown toward other less well-defined neuroses, undoubtedly has some relation with the crowded ranks of followers of isms of all kinds.

In acute diseases the best general rule is still that of Hippocrates (Prognostics; 19, sect. ii): "In acute disease it is not quite safe to prognosticate either death or recovery." A case of this kind, however, should not be considered likely to result in death unless from a complication, or from the effect of a preexisting disease, though in certain diseases, such as scarlet fever and diphtheria, the danger of a sudden change and of death should be made known in the beginning. Of course, in cholera and plague, and even in cholera infantum, such information is rarely necessary. In some other acute diseases the study of prognosis prepares the physician not to be unduly elated by the remissions that are so reassuring to relatives. The temporary amelioration in meningitis and peritonitis, in which the patient seems almost free from symptoms, may be mentioned. Less disappointing, but still ominous, is the occasional lull in bronchopneumonia. But in the cases I have just mentioned it is rarely advisable to bring the unfavorable probabilities too strongly before the patient. In these we often need the effects of reassurance and of hope. For the latter as we see it in medical practice is not merely the "kind nurse of old age—hope—which," as Pindar says, "more than aught else steers the capricious will of mortal man;" in acute cases, especially, it is distinctly stimulating to physical and mental processes. Sir Dyce Duckworth,¹ speaking from a ripe experience, recently gave an address on "Hopefulness in Medicine," in which he emphasized this fact, and Niemeyer, equally successful in his career, at his medical promotion defended among others the thesis *medicus semper hilaris*. On the other hand, it is a serious error not to point out, after recovery from certain acute diseases, the possibility of sequels, sometimes months or years afterward, and the advantage of examinations at intervals for the purpose of detecting them before they become inveterate. The thorough examination of the urine at intervals after scarlet fever, of the lungs after pleurisy and all bronchitic diseases, of the heart and arteries after many infectious diseases, often has great practical value.

In chronic diseases there are few exceptions to the rule that the patient should be told the nature of his case as fully as possible. At least, in patients who can be made to understand, and who have a possibility of recovery, of definite improvement or of long duration, there are only individual exceptions. Patients with tuberculosis, heart disease, kidney disease, and disease of the alimentary tract cannot get the best possible results unless they understand why and how they should do certain things and why they should avoid others. Tact and patience and a knowledge of human nature are essential in this. The statements made should be as simple as possible, as brief as definiteness permits, without pathologic explanations. Better no statement than an unconsidered or an unintelligible one.

In talks of this kind we too often forget how different are the ideas of nonmedical persons, even of those who have studied physiology in the public schools, from our own, regarding the body, its functions and diseases. I am always interested in seeing how soon medical students lose the lay point of view, just as one forgets an unused foreign language, and how sometimes they never recover it. Yet unless they do, they lack valuable means of giving aid. Darwin has noticed how every one who studies profoundly a subject often becomes unaware on what points the ignorant require information. Carlyle, as John Beattie Crozier tells us, imagined his stomach as some old

teakettle, thickly encrusted with fur, and I have seen an otherwise intelligent man on the point of using strong sulfuric acid for a cough, because he found by experiment that oil of vitriol dissolved sputum more quickly than any other reagent he had tried. Nor is it enough to make the explanation. We must ascertain whether the statements are understood, and, if possible, whether they are accepted. How often, even with an intelligent individual, after we have stated the existence of a small tuberculous focus, and described the results of rational treatment, we find the patient shutting himself in a dark and close room, taking "lung cures," cough syrups, and more or less medicated cod-liver oil; and how often, after demonstrating the sufficiency of dietetic treatment in a digestive disease, we find the patient taking bitters, digestive ferments, usually well neutralized by alcohol, antiseptics, and other drugs less easy to classify. So time and patience must be devoted to this part of the work, and we should never be discouraged by failure. I am convinced that there is an improvement in the possibility of carrying out rational treatment, notwithstanding the insidious propaganda of useless or dangerous methods in and out of medical journals.

It is much easier to advise in cases that have a strong tendency to recovery than in those that have not, and there is room for difference of opinion and of practice in the latter, because the conditions vary with patients according to individuality and accidental factors. A number of aspects present themselves for consideration. In the first place, there is often an element of diagnostic or prognostic uncertainty, where the prospects are better than they seem. Sir Dyce Duckworth¹ has formulated universal experience in pointing out the advantages of the "cautious 'if,'" and if the alternative accepted is the hopeful one, much good can be accomplished in many cases. An interesting example is given by Kussmaul in his fascinating "Jugenderinnerungen." Having made a reputation as a zealous dissector, and having won over his confiding peasants to the many advantages of postmortem examinations, he was asked by the father of a girl with advanced tuberculosis of the peritoneum to arrange for an autopsy on the daughter when she died. Although Kussmaul, too, thought the daughter was lost, he retorted that he could not speak of an autopsy until the patient was dead. Notwithstanding many obstacles, the girl recovered. The tendency to take the less hopeful alternative is still shown in some cases of tuberculous disease in stages not far advanced, though it is not so common, fortunately, as it was not many years ago, to see such patients given over either to a life of dissipation or of abject despair. The prognosis of valvular disease of the heart is also in a much more optimistic vein than it was 50 or even 25 years ago. However, in many cases the prognosis needs to be tested by a therapeutic "if" that is not as well recognized as it deserves. The physical conditions may seem hopeless, and yet if the action of the heart can be improved, the case may assume a very different aspect. The advantages of trying were well illustrated by a case in which a woman with aortic and mitral insufficiency and moderately severe loss of compensation was given up as beyond treatment by her family physician. Not knowing this, I told the relatives the impossibility of complete recovery, the danger of sudden death or more probably rapid failure at any time, but also the possibility of improvement and a fairly comfortable life for some time, all the more worth trying to realize, because the condition was not complicated by medicinal action, and the other important organs showed no serious alteration. The family physician then wrote me admitting that he had stated improvement was out of the question, and treatment not worth trying, although under subsequent treatment the patient lived two years and nine months.

In cases hopeless in a more certain degree than such as I have just mentioned, it too often happens that treatment is abandoned too early in the case. Patients with cancer of the stomach or other inoperable tumors, cirrhosis of the liver, and many other diseases are permitted to drag out their existence without relief. There are several reasons for this. Sometimes families, having been told the truth about such a patient, refuse

¹ Duckworth, Sir Dyce: Opening of University of Liverpool Medical School, British Medical Journal, October 3, 1903.

¹ Duckworth, Sir Dyce: Address on Medicine, British Medical Journal, 1890, II, p. 251.

all further medical aid, even when the conscientious physician who gives the information, points out what can still be done.

Many physicians voluntarily discontinue attendance when they realize that the end is inevitable, with the feeling, doubtless, expressed by Sir William Temple. The latter said that "an honest physician is excused for leaving his patient when he finds the disease growing desperate, and can, by his attendance, expect only to receive his fees, without any hopes or appearance of deserving them." This, however, ignores the fact that in such cases the accomplished physician can often do more real good to the patient than in many cases ending in recovery, while the opportunities for obviating despair, alleviating pain and soothing mental anguish, and for exhibiting thoughtfulness, gentleness, persistence and variety of resources, are more valuable to the physician than any fee. Even in acute cases it sometimes happens that the physician is either discharged or withdraws because the indications seem hopeless, and I have known of patients with pneumonia living for one or two days in this way, the family waiting for the end of a life that with greater effort might have been saved. Sir Francis Bacon described this tendency as one of the deficiencies of medicine, "so that Sylla and the triumvirs never proscribed so many men to die as physicians do." For, as he continued, "the office of a physician is not only to restore health, but to mitigate pain, and not only when such mitigation may conduce to recovery, but when it may serve to make a fair and easy passage."

Improvement in methods of treatment has an important relation to prognosis, in that many diseases considered hopeless at one stage of knowledge, may in another, offer many chances for recovery or alleviation. In this connection a critical knowledge of current medical literature is necessary, and a realization of the value of medical evidence. Few things can be more disastrous to the physician's mental development—never completed—than constant change of therapeutic method, but there are differences. One need not try every drug proposed for the treatment of typhoid fever or pneumonia, nor every new antipyretic or hypnotic. But the physician who does not inform himself quickly of the value of surgical treatment in various disease as it is developed, in pelvic diseases, brain diseases, diseases of the appendix, biliary tract, stomach and pancreas, comes very near deserving the reputation of an unscrupulous practitioner. In these departments, too, mistakes are made and exaggerations are inevitable concomitants of progress, but the gain is often distinct and unmistakable and often changes the prognosis from one extreme to the other.

It may seem that I have taken a too purely medical view of the practice of prognosis. Can we always act from the standpoint of simple diagnosis and prognosis, or must we not at times take into consideration the weakness, fears and prejudices of people? In trying to get the best light on this subject I have for many years noticed the opinions of patients and their relatives, as well as of nonmedical writers, and it is instructive to learn how those who are not physicians approach the subject. Many physicians have been influenced by the views of Percival, from whose interesting work on "Medical Ethics" some of the best parts of the old Code of the Association were taken. Percival said:¹

A physician should not be forward to make gloomy prognostications, because they savor of empiricism, by magnifying the importance of his services in the treatment or cure of the disease. But he should not fail, on proper occasions, to give to the friends of the patient timely warning of danger, when it really occurs, and even to the patient himself, if absolutely necessary. This office, however, is so peculiarly alarming, when executed by him, that it ought to be declined whenever it can be assigned to any other person of sufficient judgment and delicacy; for the physician should be the hope and comfort to the sick; that by such cordials to the drooping spirit he may smooth the bed of death, revive expiring life, and counteract the depressing influence of those maladies which rob the philosopher of fortitude and the Christian of consolation.

In general, this furnishes a useful guide to conduct, but nevertheless requires some examination. Part of it reminds

one of the maxim of John Halle, who as far back as 1596 wrote:

With one consent uniformlye
Comfort the wounded man,
But unto some good friend of hys
Express all that you can.

In the first place, the truth is not always so alarming to the patient, painful as it often is to the physician. In fact, it seems to me this is one part of our duties that does not become less trying with increasing experience. To the sick man, whose thoughts have been turned toward the end longer than others suspect, intimation of a fatal end often brings no shock, but rather relief from the ending of a painful uncertainty. According to the rules of the Roman Catholic Church, a timely announcement should always be given, and those who have witnessed the last days of members of this faith can confirm the statement that good often follows, speaking merely from the medical standpoint, and rarely harm, while the same thing is true of many other faiths, or of no faith. Even when we have to give a fatal prognosis, there are certain mollifying influences that can be introduced, aside from those that spring from a tender heart. A hope can be expressed, based on the fallibility of human knowledge in general, and medical knowledge in particular.

The rule in regard to giving the patient a good prognosis and the relatives a bad one, can often be followed, but it is a very fallacious one, on the whole. It is often more necessary to keep up the spirits of the relatives, especially those who have to nurse, than those of the patient, so that sometimes the rule can be reversed with advantage. Darwin¹ cites some interesting and instructive examples of this kind, from his father's practice, and Billroth² has expressed himself with much feeling in one of his letters. Moreover, the relatives informed, either from a feeling of compassion or otherwise, may not bring the patient to act on the information, and I have known of serious financial loss befalling a family because the relative entrusted with the task of breaking the news to the patient did not do this. Another risk is that the relatives may divulge the fatal prognosis in such a way as to put the physician in the light of a heartless deceiver, and thereby cause the patient to lose all confidence in him. On the whole, in cases where the patient should know the truth, the physician is often the best one to state it, and he should see that this is done before it is too late.

Exceptions to the rule of candor may occur in the case of children, in women with no spiritual obligations or business responsibility, or in exceptional cases in men. No general rule can be laid down, but that such exceptions occur can be confirmed probably by every physician. A striking example of this is quoted by Darwin.³

¹The Life and Letters of Charles Darwin, edited by his son, Francis Darwin, New York, 1887, vol. 1. "Called in to see a patient who had been given up to die by the family physician. Dr. Darwin took a different view of the matter and maintained that the man would recover. He was found quite wrong in all respects, and owned his error. He was convinced that he should never again be consulted by this family, and was much surprised at being called in after a few months by the widow. He asked a friend of the widow to find out why he was again consulted. The widow answered that she would never again see the odious old doctor who said from the first that her husband would die, while Dr. Darwin always maintained he would recover. In another case Dr. Darwin told a lady that her sick husband would certainly die. Some months afterward he saw the widow, who was a very sensible woman, and she said, 'You are a very young man, and allow me to advise you always to give, as long as you possibly can, hope to any near relative nursing a patient. You made me despair, and from that moment I lost strength.' 'My father,' continued Darwin, 'said that he had often since seen the paramount importance for the sake of the patient of keeping up the hope, and with it the strength of the nurse in charge.'"

²Briefe von Theodor Billroth, 1902: Speaking of the slow decline of Professor Breisky, and of the attending physician telling the whole truth to the wife, he remarked: "I admit that under certain circumstances this is necessary; but here I do not think it is necessary. How can the poor wife, without a glimmer of hope, bear the weeks until the liberator of all sorrows gently approaches the husband. We should give her courage, and the poor patient morphin. A hard task. But let us remember that every family physician is in this situation hundreds of times, and often has to see his incurable patients daily. If the young man suspected these mental tortures when he enthusiastically enters the temple of Æsculapius he would surely often turn back. To face the unveiled figure of Sais requires all the undaunted resignation that we slowly win in our profession."

³Op. Cit. "He was sent for by Mr. P., who said: 'From all that I have seen and heard of you, I believe that you are the sort of man who will speak the truth, and if I ask you will tell me when I am dying. Now I much desire that you should attend me, if you will promise, whatever I may say, always to declare that I am not going to die.'"

¹Medical Ethics: or a Code of Institutes and Precepts, adapted to the professional conduct of physicians and surgeons, with an appendix containing a discourse on hospital duties; also notes and illustrations, by Thomas Percival, M.D., Manchester, 1803, p. 31.

Of course, this part of the subject is closely related to the theory of ethics, and many writers on this subject have touched directly on the question of medical veracity with, as one might anticipate, diametric differences of opinion. Some moralists of the strict school of Kant and Fichte insist that any deviation from the absolute truth is wrong in medicine, as they assert that it would be wrong even for the purpose of saving the whole race. Others believe with Paulssen, who says: "There is not a physician in the world who does not give deceptive answers to his patients, who does not excite hopes that he does not share. He does not blame himself, nor do others, for everyone does the same." Johnson, "the stern old moralist," in his remarks on the subject, laid open a serious flaw in his own logic: "You have no business with consequences, you are to tell the truth." But surely the physician's chief interest is with the consequences, and if he thinks the patient can gain only by misrepresentation, it is just as proper for him to use it as it would be to give a medicine that in other cases might be quite improper. But the physician in such a dilemma would do well to bear in mind the next sentence in Johnson's *ipse dixit*: "You are not sure what effect your telling him that he is in danger may have. It may bring his distemper to a crisis, and that may cure him." Jonathan Dymond, as strict as any one in his morality, threw a gleam of stern humor into the discussion: "Persons frequently employ falsehoods to the sick man who cannot recover, lest it should discompose his mind. This is called kindness, though an earnest preparation for death may be at stake on their speaking the truth. There is a peculiar inconsistency sometimes exhibited on such occasions. The persons who will not discompose a sick man for his interest in futurity, will discompose him without scruple if he has not made his will."

This part of the discussion might be indefinitely prolonged, but I think we can never get far away from the principle I intimated in the beginning—that in practical prognosis we must individualize, just as we have to in therapeutics, with the patient's welfare ever the object of our activity.

Accidents that follow an unfavorable prognosis occasionally suggest a revision of methods. I have already alluded to the error formerly not uncommon in the treatment of tuberculous patients. More acute results sometimes follow a fatal prognosis, as in two of my patients who resorted to suicide. One was a man with far-advanced carcinoma of the stomach, to whom I recommended palliative treatment and advised against a useless effort at radical treatment. The patient left for his home, but threw himself from a fast train and was killed. In another patient, a man with a large kidney tumor, apparently with many adhesions, my surgical colleague and I advised against an operation. The patient went to another hospital, and apparently received similar advice, for he shot himself through the tumor, and died in a short time. From a broad biologic standpoint it does not, of course, make any difference whether an individual organism dies as either one of these, or as it would if left to its fate. But no matter how one may feel on the subject of suicide, I have always thought these men less fortunate than another patient with carcinoma of the stomach, also far advanced. To him, in advising against an operation, I added that if he could find a good surgeon who was willing to operate, he might submit. He underwent the operation at the hands of one of the most distinguished surgeons in the country, and died on the table. In such a case the result is often unfortunate, because it prevents operations on other and more promising cases, but for the man himself, fighting to the last, it seems to me one can have only respect.

This brings up a question on which a few words may be proper—the question of euthanasia. Every few months some one—usually not a physician—proposes that people with incurable diseases should be killed by some painless method. The plan offers so many opportunities for crime that it would be difficult to carry out, but aside from that it involves important principles. The difficulty of telling when the proper time had come would often be insuperable. Aside from examples of fortitude and other virtues exhibited by the dying, how much the world would have lost if a chronic invalid like Stevenson had the cord of his life snapped at one of the times when the *œs triplex* of his soul seemed battered through! To take a less

selfish view, we can think of the "pictures of human patients, the visions of ripened character, which have been revelations and inspirations to generations of mankind" (Phillips Brooks), and see these repeated daily in sickrooms of all degrees, while the self-sacrifice and kindness developed in others at such times can not but be of untold benefit to the race. To most physicians the suggestion of any planned shortening of life must be abhorrent. For countless generations they have been doing their utmost to lengthen life and lessen disease. They have shown how to prevent the plagues that formerly made life almost as bad as a perpetual illness for the survivors, and they have also shown how many deaths can still be prevented. On the other hand, they can, in most cases, so treat the dying man that the bitter anguish often associated with death is absent, that life is not only less painful, but actually longer, so that they will continue to follow the rule of the Father of Medicine and "give no deadly medicine to any one, even if asked, nor suggest any such counsel."

THE ASSOCIATION OF SURGICAL LESIONS IN THE UPPER ABDOMEN.¹

BY

WILLIAM J. MAYO, A.M., M.D.,

of Rochester, Minn.

Surgeon to St. Mary's Hospital.

Surgery must be judged on three grounds: 1. The mortality of the operation itself, and the question whether this is greater than under the expectant plan. 2. The permanence of cure contrasted with medical treatment. 3. The question of disability, either introduced by the operation itself or the natural length of time which the healing process involves. On each one of these considerations we must answer yes, and we can go still farther and say that earlier operation would reduce the mortality and increase the permanence of cure and lessen the disability.

Certain parts of the body are so closely related in their anatomy, function, and pathology as to be almost necessarily considered as part of the same system. The generative organs of women form so distinct a field of work as to have built up a specialty. Can we separate diseases of the kidney from the ureter, bladder, and urethra? By no means. Each may stand in an etiologic relationship to the others which can not be ignored.

In the upper abdomen we have attempted to study the stomach independent of the associated organs, the liver and bile passages, the duodenum and pancreas. The result has been a confusion in diagnosis and treatment. The palm of a hand may cover a serious lesion of any one of these organs, and that, too, at the point of greatest liability; not only so, but any one of this group may start a pathologic process which may extend to any one of the others, and with fully as great frequency as occurs under similar conditions in either the generative or urinary systems.

Note the disturbance of the stomach which occurs with gallstone disease, the adhesions to the duodenum and the pancreatitis, an association direct as it is vital. Again, let me call attention to chronic ulcer of the stomach with adhesions to the pancreas, secondary ulcer of the duodenum adherent to the bile passages or gallbladder. These are not fanciful pictures, but drawn from everyday work. I have no hesitation in saying that with an operative experience of over 1,400 cases of this description, mistakes in exact diagnosis are still common, and in many instances unavoidable. The history may be the only valuable diagnostic resource when the patient comes to us, and we all know how unreliable that may be. Given a history of painful attacks which have been very severe, but which have completely ceased, with tenderness on deep palpation in the epigastrium, and we may have disease of any one of these four organs, and not infrequently an association either direct or indirect of the pathologic process. If we clearly understand the possibilities of error, we are better prepared to meet com-

¹ Oration on Surgery at the fifty-fifth annual session of the American Medical Association at Atlantic City, June 7-10, 1904. Published synchronously with the *Journal of the American Medical Association* by courtesy of the Editor.

plications or execute a change of front and operate on one organ when another procedure was planned. In the majority of cases a pathologic diagnosis is possible, and one can say with certainty, "this is gallstone disease," or "this is ulcer of the stomach"; but in a considerable minority a surgical diagnosis is the best that can be made. That is, we can say: "In this locality is a diseased process which requires operative treatment, the exact nature of which must be determined by incision." The patient does not come to us for the purpose of having a certain operation performed, but seeks relief from suffering and disability.

The anatomic diagram shows the nearly vertical position of the stomach with the pylorus in the middle line of the body, and but little elevated above the lowest point of the gastric cavity. It is turned upward and to the right just enough to prevent the weight of the gastric contents bearing directly on the sphincter apparatus. The only portion of the duodenum in which we are interested is the four inches lying between the pylorus and the papilla of the common duct of the liver and pancreas. This may be called the vestibule of the small intestines. Its position subjects it internally to the perils of ulcer from the acid gastric juices which its thin tunics but inadequately resist. Externally its function is often interfered with by adhesions to the gallbladder and bile tract, secondary to gallstone disease. This unoffending bit of intestine is so often offended against as to cause it to become the most frequently diseased portion of bowel of the same length. The remaining eight inches of the duodenum is protected by the alkaline secretions of the pancreas and liver. Its fixed position and peculiar horseshoe shape, with its delivery point nearly as high as its origin, enable it to mechanically slow the ingested material during the mixing process for which its large caliber affords accommodation.

The anatomy of the bile tract is equally interesting, and especially the relations of the common liver duct to the pancreatic duct and the duodenum. There is continuity of mucous surface, each protecting itself from the secretions of the others by the mechanical washing effects of its own secretion, the joint discharge and a feeble sphincter apparatus preventing entrance of the duodenal contents.

The gallbladder, as it furnished the initial lesion in more than half of the diseases of this group, is of great interest. Like the appendix, an obsolete organ of storage function and limited outlet, it gives rise to a variety of troubles, which we are only of late beginning to appreciate. It is an old aphorism that "Nature finds mischief for idle hands to do." The gallbladder has a capacity of about an ounce, and as we find almost universally in organs of storage function, the neck is raised slightly about the lowest point to prevent the weight of contents resting directly against the outlet. The little pouch thus formed may be called the pelvis of the gallbladder (Brewer). It is here that the obstructing stone is so frequently lodged in cystic impactions. Murphy observes that the fundus of all organs has but few lymphatics, while the region of the neck has an abundant supply; hence, even with septic contents, there is but a mild reaction when the pelvis is obstructed, as compared with the startling temperature curves of duct stones.

The pancreas, composed of two originally separated parts, has in nearly half of the specimens which have been examined, two patent ducts, that of Wirsung, which is the important one, uniting with the common liver duct. The minor duct of Santorini, however, has a possibility of useful function in certain diseased processes, as pointed out by Opie. The pancreas was originally an intraperitoneal organ, becoming retroperitoneal by a later evolution (Huntington), and in this anatomic peculiarity Brewer believes lies one of the reasons for the diffusion of fat necrosis resulting from acute pancreatitis. Mikulicz has called attention to the fact that adhesions to the pancreas in gastric cancer gave a mortality of 73% in his resection cases. Robson also notes the pancreatic mischief occasioned by perforating gastric ulcer on the posterior wall.

The blood supply of this group of organs is almost entirely from a single source in the celiac axis. It has been experimentally developed that the severance of all connections of the pancreas excepting its blood supply, does not check secretion if food is placed in the gastrointestinal tract. In the nerve

supply from the pneumogastrics and sympathetic ganglion, we find the same direct relationship involved. If we study the function we see the same association. The stomach can be compared to a mill, the fundus the hopper, in which the food is macerated in a weak solution of pepsin and hydrochloric acid, and the muscular pyloric portion the grindstones in which the masses are broken up into a homogeneous whole. The entrance of food into the duodenum causes the outflow of biliary and pancreatic secretions, the absorption returning to the liver by way of the portal vein. This is so elementary that you wonder that I should refer to it, yet the causation of the common surgical lesions lies in perversion of these fundamental functions, and is just as simple. Mechanical injury of the pyloric portion and excessive acidity of the gastric secretions, under anemic conditions, give rise to ulcer and lie behind the precancerous lesions which Ochsner notes are found in the history of cancer of the stomach in the majority of cases. The acidity of the gastric secretions renders the contents of the stomach, when turned into the intestine, relatively sterile, but increases the liability of ulcer of the duodenum. The sterility of the upper intestinal tract is still further increased by intestinal absorption, as shown by Adami, the bacteria being picked up and destroyed in part by the glands. Many germs are, however, carried to the liver, and here either annihilated or screened out of the blood in the portal vein and discharged with the bile. We must look on the bile as always containing a few bacteria, and it is probably this attenuated infection of bile retained in the gallbladder which gives rise to gallstone disease, which in turn is the chief factor in the production of duct inflammation of both the liver and pancreas.

These considerations, so briefly outlined, taken in conjunction with the embryologic origin, justify the grouping of the *surgical lesions of the upper digestive tract*, and at once enable the diagnostician to associate the symptoms, and the surgeon to direct his attention, not to one, but to the entire group of organs. The burden of proof lies with the practitioner, not only to demonstrate that the disease rests in one organ, but to differentiate and show that no other is involved.

The art of the diagnostician lies in the proper valuation of the signs and symptoms of disease in organs of associated function and pathology. The instinct which seems to lead some men to a correct conclusion, and by a mental process they could not themselves analyze, usually depends on few things, the immaterial or inconclusive evidence being unconsciously discarded. For instance, note the value of the colic in the diagnosis of gallstones. The typical attack comes on and stops abruptly, is relieved by vomiting or a feeling of movement of gas, is irregular in time, in regard to food, and not accompanied by temperature or pulse elevation, and leaves the patient able to attend her duties almost immediately after cessation of pain. While the pain lasts, it is excruciating, felt in its greatest intensity in the epigastrium, radiating upward behind the sternum and into the back. The distress penetrates to the right side, but occasionally to the left, and lasts from a few minutes to six or eight hours. When the patient comes to the physician it may have been years since the typical attacks; he may have forgotten them, the present trouble complained of being pain, digestive disturbance, and tenderness on deep pressure over the gallbladder region. The history of the early attack is worth more than the physical examination in many cases. Compare it with the pain in gastric or duodenal ulcer, which may be just as severe, but lasts a day or two longer, especially when due to regional peritonitis, and is accompanied by gastric symptoms and local tenderness. The patient diets, which means he reduces his food supply. The symptoms last more or less for some days or weeks, and the interval of apparent cure gives some weeks or months of comparative health.

Acute perforations of the organs of this group are relatively common and give rise to symptoms which would be at once recognized if they occurred in the region of the appendix, but occurring in the upper abdomen too often go to a fatal issue unoperated. The initial symptoms are remarkably alike, whether of the gallbladder, the duodenum, stomach or acute perforation of the pancreas with fat necrosis. The onset is essentially the same in each. Sudden extreme epigastric pain, with collapse, ushers in the attack, and muscular rigidity, as

a rule, comes on early. The diagnosis of perforation, if we are on our guard, is easy, although it may be difficult to say which organ is affected; but this does not make any difference. The vital consideration is that it has happened, and immediate operation must be performed.

In 811 operations on the gallbladder and bile tract we had four acute perforations of the gallbladder, with but one recovery, although the average mortality in the benign series was but 4.47%. In 45 operations for duodenal ulcer, four acute perforations occurred, with two recoveries, while in the 41 operations for subacute and chronic ulcer there was only one death. In 469 operations on the stomach, five perforations occurred, with two deaths. In 32 operations for diseases of the pancreas, there was only one operation, for acute pancreatitis and fat necrosis, with recovery. This gives 14 cases of acute perforation, with a mortality of 50%, and why? Because the operation was usually too late. The deathrate in over 1,150 operations for subacute and chronic benign conditions of this group of organs averaged a little less than 5%, counting as a death from operation any patient dying in the hospital without regard to cause or time elapsed between the operation and the fatal issue. If we add to this mortality of 50% in operations for acute perforation, the cases seen in a moribund condition beyond even attempt at relief, and the still larger number in which death occurs without an antemortem diagnosis, we get some idea of the appalling nature of the disaster. To be successful, operation must be immediate; the condition is as imperative as hemorrhage from an artery of the third class. Few recover operated on later than ten hours after perforation. The conditions simulating perforation in the upper abdomen, such as thrombosis of the mesenteric or splenic vessels, diaphragmatic and duodenal hernia with strangulation, and so forth, are rare, and likewise call for early operation.

As a rule, the history and location of the early acute pain will furnish evidence as to the origin of the trouble. Preceding perforation of the gallbladder there are often symptoms of several days' duration with a history of gallstones. The acute pain occurs in the gallbladder region. Early drainage with removal of the gallbladder should give a mortality of not to exceed 10%.

Duodenal perforation usually occurs in cases of chronic ulcer with years of symptoms preceding; but the immediate onset is exceedingly acute, and not ushered in by a few days or hours of prodromes, as is often the case with the gallbladder. The location of the early pain is just to the right of the median line. The liquids gravitate at once to the appendiceal region and simulate perforated appendix. The rapid diffusion of escaping contents is fatal to delay. Operation for acute perforation of the duodenum is rarely successful after eight hours. Suture of the perforation with suprapubic pelvic drainage, and after-treatment in the sitting posture (exaggerated Fowler's) in early cases should give 80% or more of recoveries.

Gastric perforations occur on the anterior wall, according to Brunner, 7 times to 1 posterior, and near the cardiac end 5 times to 3 times in the pyloric portion, and near the lesser curvature 122 times to 16 times near the greater curvature. The initial pain is usually to the left of the median line, and early diffusion of fluids is to be expected. Only 10% occur without previous symptoms of chronic ulcer. The results of operation being in direct ratio to the amount of gastric contents, and the length of time which has elapsed, the treatment is similar to the duodenal ulcer.

The term, perforation of the pancreas from inflammation with resulting fat necrosis, is a purely pictorial expression, and not a pathologic entity in the sense the word is used in the preceding remarks, yet it conveys the idea and calls attention to the value of peritoneal drainage in its treatment, as shown by Woolsey. The symptoms are sudden pain in the epigastrium, collapse, and early extreme distention of the abdomen. On opening the peritoneal cavity, free fluid, often of a hemorrhagic character, is evacuated. The little fatty masses in every direction and the enlarged pancreas call attention to the source of the trouble. This particular phase of acute pancreatitis cannot be separated from the hemorrhagic type, in which treatment is as yet in an unsettled state. Those interested in this question will find a mine of information in the Hunterian lectures for 1904 by Mayo Robson.

The group of acute perforations gives an unsatisfactory mortality, with a prolonged period of disability from drainage, and without a certainty of permanent cure of previous underlying conditions. This will not long continue. Like acute gangrenous appendicitis, the condition will be recognized early with corresponding improvement in results.

The diagnosis of the chronic infective lesions of the organs of this group is in a far more satisfactory condition. The general mortality of gallstone operations is not above 5%, taking the cases as they come, but even this is too high. Grouping the cases in which the entire process is limited to the gallbladder, the mortality is from 1% to 2%, and depends to a large extent on the general condition of the patient. Secondary complications, chiefly those which involve the hepatic and common ducts with resultant cholangitis, pancreatitis, and so forth, are responsible for the deathrate. As practically all of the patients have symptoms on which a diagnosis could be based previous to the complications, it will not be long before early operation in patients otherwise in good health will be the rule as it is now in chronic and relapsing appendicitis. Not only is the mortality thereby reduced, but the disability is likewise lessened. The average stay in the hospital for uncomplicated gallstone patients is slightly less than 17 days; the convalescence of the complicated duct cases is prolonged one or two weeks.

Chronic infections of the pancreas are usually secondary to gallstone disease, and, as a rule, do not occur excepting where the common duct has been directly irritated by the presence of calculi, although the consequences may continue for some time after the passage of the offending body. The results of drainage of the gallbladder and bile ducts are extremely satisfactory. In our series of 32 cases there were but 2 deaths; these patients had coincident suppurative cholangitis.

Chronic infective lesions of the stomach with ulcer as a type are becoming better understood every day, as surgical operation discloses the actual conditions present. The primary mortality of operations for their relief is in a fairly satisfactory condition, but as to ultimate results we can not say definitely. For the obstructive complications the result of ulcer, there can be no question as to the relief afforded and at a nominal risk. The dilated stomach with retention or stagnation of food suggests at once drainage operations with gastrojejunostomy as the type. We have patients of this description alive and well more than 12 years after operation.

Chronic ulcer without mechanical obstruction gives a less promising outlook. The very fact that there is normal gastric motility indicates that gastroenterostomy or other drainage operation is less necessary. Our results in operations for this description of lesion have not been wholly satisfactory, and furnish a considerable percentage of secondary operations and failures to relieve.

Cannon's experiments have shown the same results. A gastroenterostomy on a normal stomach of an animal does not drain the gastric cavity, even if placed at the lowest point. The gravity advantage of the gastroenterostomy is overcome by intraabdominal tension, and the food, by muscular action, is carried out the pylorus rather than the artificial opening. The magnificent showing of gastroenterostomy in obstruction has led to the indiscriminate performance of the operation in those cases of ulcer in which gastric drainage is normal. This particular phase of the subject must be further investigated.

Chronic ulcer of the duodenum is relatively more common in the upper two inches than in any corresponding portion of the stomach. It is especially liable to perforate, although its sheltered situation usually leads to adhesive protection. Many pyloric ulcers will be found to have their origin on the duodenal side. Gastroenterostomy is the operation of choice, as it diverts the irritating gastric juices and food products from the sensitive surface, thus promoting rapid healing. We have performed gastrojejunostomy 286 times for all purposes, with a mortality of 5.5% in the benign series. The recent improvements in the technic of gastroenterostomy has greatly reduced the mortality and largely eliminated the causes of failure to relieve mechanically the conditions. Moynihan well says that "the surgeon may not unreasonably expect that from being a last resource, gastroenterostomy may be considered as a method of treatment worthy of consideration in a much earlier stage of

chronic ulcer of the stomach." Excision of gastric and duodenal ulcers would seem to be a wise procedure, but is open to certain strong objections. In 20% of cases more than one ulcer is present, and one or more may be undetected or lie in an inaccessible situation. It leaves the ulcer tendency unrelieved, and more ulcers may form. Rodman has suggested the removal of the pyloric or ulcer-bearing portion of the stomach with complete closure of both duodenal and stomach ends and independent gastrojejunostomy. We have followed this plan in five cases of inveterate ulcer relapsing after gastroenterostomy, with good results. The gastroduodenostomy of Finney is a most excellent operation, and we would predict a wider field of usefulness than it has enjoyed. We have performed this operation 46 times, with one death, and no relapse. The theoretic objection is that in open ulcer the food must pass the ulcerated area before reaching the widened pylorus, and obstruction has no part in the production of ulcer, as is shown by the development of duodenal ulcers. Pyloroplasty must be discarded. While we had no death in 20 operations, we had seven relapses.

In briefly calling attention to the malignant diseases of this group of organs, the writer would emphasize the possibilities of cure by means of operation. In the gallbladder we found 4% of cases at the operating table had malignant disease, and all of these cases had gallstones present or evidence that they had been present at one time.

Since it has become the practice to remove all thick-walled gallbladders as useless and a possible source of future trouble, many cases of malignant disease in an early stage have been in this way, as one might say, accidentally cured. We have met with several such instances.

Cancer of the stomach is the most common type of malignant disease in the human body, constituting a fourth to a third of the total number. The radical treatment of gastric carcinoma is now on assured ground, with a mortality of 10%, or less in favorable cases, to 20% in late but still operable disease. The only necessary thing for success is an early diagnosis, and this must be on clinical grounds, supplemented by early exploratory incision. In 46 gastric resections for pyloric cancer we had seven deaths.

The profession may well look on the surgical achievements in this new field of work with pardonable pride. That there are many shortcomings must be admitted, but in the history of surgery there has never been a territory opened up with equal rapidity, nor one in which the physician and surgeon have worked together in such harmony for the common good. The statistics on which this paper is based represent the operative experience of Dr. Charles H. Mayo and myself.

PREVENTIVE MEDICINE: ITS ACHIEVEMENTS, SCOPE, AND POSSIBILITIES.¹

BY

HERMANN M. BIGGS, M.D.,

of New York City.

General Medical Officer, New York City Department of Health; Professor of Therapeutics and Clinical Medicine and Adjunct Professor of Medicine, University and Bellevue Hospital Medical College.

The terms sanitary science, public or State medicine, and preventive medicine, have frequently been used as almost synonymous. The latter term, "preventive medicine," however, has sometimes been restricted in its application to the prevention of the infectious diseases. In the broad sense, preventive medicine comprises both general prophylaxis and individual prophylaxis, and applies to all forms of disease, not simply to the infectious diseases. Preventive medicine is an applied science, which deals with the preservation of the health both of the individual and of the community.

No subject more vitally concerns the welfare of a community than that pertaining to its healthfulness. How the inhabitants live and how and at what age they die, what is the extent and character of the morbidity occurring among them

and what are its causes, are questions of momentous importance. They are essential features in the problem, whose solution will teach men how they may live longer, healthier, and therefore happier lives.

In rural districts the average healthfulness of the inhabitants depends largely on natural conditions, such as elevation, climate, soil, and to a much less extent, on the artificial conditions produced by the handwork of man. In densely populated cities, on the contrary, the natural conditions become relatively unimportant features in determining the degree of healthfulness, so much do they become subordinated in many cases to the artificial conditions which have resulted from the lives, labor and occupations of the inhabitants. It may be said with certain limitations that the inhabitants of any city in the temperate zone now have it largely within their power to determine what degree of healthfulness their city shall have. A high morbidity and a high mortality in any urban population depend largely on some remediable features of an unsanitary character, such as the sewerage of the city, the occupations, habitations, food, and water-supplies, and the habits of the inhabitants—all factors which lie to a great extent within their control. Hence, when any city in modern times has a high annual deathrate—for example, 30 to 35 per 1,000, as was formerly the case in New York, Liverpool, and other cities, instead of a deathrate of 17 to 18 or 19 per 1,000, as now exists in London, Berlin, and New York, it is because conditions are permitted to exist partly from the neglect, indifference, and ignorance of the people, and partly from the lack of proper facilities and necessary efficiency on the part of the authorities.

The achievements of scientific medicine have now placed at the disposal of the sanitary authorities such full knowledge as to the causation of so large a proportion of the diseases producing death, and of the means by which they may be restricted or prevented, that the determination of the average deathrate is in their hands. This statement is not, of course, intended to mean that it is now possible to prevent or stamp out local epidemics of influenza, pneumonia, cerebrospinal meningitis, and some other infectious diseases, but it is intended to cover the average general deathrate of a city for a series of years.

The expectation of life at birth in certain manufacturing cities of England has been but little more than half that of the healthiest districts of England. Until recent years it was 25 or 26 years in Liverpool and Manchester, 37 years in London, and 46 years in Surrey, a healthy country district. Even at the age of 30, the expectation of life was seven years more for England, as a whole, than it was for the inhabitants of Manchester. I have estimated that the expectation of life at birth in New York City in 1866 was only a little more than 25 years, while in 1903, calculated on the deathrate for that year, it had almost doubled, and equaled about 42 years. For the seven-year period ending in 1873 the deathrate under 5 years in New York City was 123 per 1,000 of the population at these ages. For the year 1903 the deathrate under 5 years was 56. On the present estimated population at these ages, this reduction equals a saving of more than 28,000 lives annually.

These considerations suggest the vast importance of the healthfulness of the community to the individual at every age, and to the community as a whole, for on this depends not only the relative freedom from illness, but also the probable lifetime of each member.

In the casual consideration of the healthfulness of communities as compared with the conditions existing in earlier times, we are inclined to think without investigation that there has been but little advance in modern times, and that while some diseases have been greatly restricted or entirely stamped out, these have been replaced by others equally as fatal to the human race. A little study, however, shows how erroneous are these views. In the seventeenth and eighteenth centuries the average annual deathrate throughout the civilized world was at least 50 per 1,000 of the population, and probably it was much more than this. From 1628 to 1635 in London, these years being free from pestilence, the average deathrate was 50 per 1,000, and the absolute annual mortality for 24 years, from 1620 to 1643, was over 70 per 1,000.

The deathrate during 1902 in London was only 17 and a fraction per 1,000. The mean expectation of life in London for

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the decennial period, 1771-1780, as calculated by Price's table, was 19.6 years, the annual mortality being 51 or 52 per 1,000; while from 1831 to 1835, although an epidemic year is included, the deathrate had decreased to about 32 per 1,000. In 1894 the mean expectation of life at birth for all England had more than doubled that of 1780 in London, so that it was nearly 41 years, and for London alone it was 37 years. From 1771 to 1780 in London not less than 5 in each 1,000 of the population died annually of smallpox; in 1810 this mortality had sunk to 2 per 1,000, and in 1835 to 0.8, and in recent years it has been an absolutely insignificant decimal. Fever as a cause of death declined in almost the same ratio, from 6.21 in the decennial period ending in 1780 to 2.64 in 1810, and 1.14 in 1835. In the sixteenth century, fever, plague, cholera, and dysentery destroyed annually 31 out of every 1,000 of the population of London, or nearly twice the total deaths occurring now from all causes. These diseases at the present time, as causes of death, do not equal in London 2 per 1,000 annually of the population.

According to the English life-tables up to 1875, 518 out of every 1,000 children in Liverpool died during the first 5 years of life; 351 died in London and 205 in the healthy rural districts of England, while in the whole of England 297 out of every 1,000 died during this period of life. In old New York City (comprising the boroughs of Manhattan and the Bronx), for the seven-year period ending in 1873, 616 out of every 1,000 children born, died during the first 5 years of life. As computed by the deathrate under 5 in 1903, 280 would have died during the same 5 years. This mortality, while still far too high, equals a reduction of nearly 60%, and as calculated for the estimated population at these ages, means a saving of about 20,000 lives a year in these boroughs. The deathrate in the period over 5 years of age has naturally shown a much smaller decrease, although it has fallen from 19 or 20, as it was in 1865 and 1866, at the time of the organization of the Department of Health of New York City as at present constituted, to about 14 for the year 1903, being a reduction of nearly a third. This has been accomplished notwithstanding the fact that the old city has increased during this time from a population of about 750,000 to more than 2,200,000.

It does not seem necessary or desirable for our present purpose to consider in detail the causes of this decrease or the special diseases in which it has taken place, but the facts suffice to indicate the great achievements of preventive medicine during the past four decades. Expressed in human lives, it means in the boroughs of Manhattan and the Bronx a saving of over 30,000 lives a year, and, computed at the same rate for the whole city, a saving annually of more than 50,000 lives. I would not be taken as intimating that all of this has been accomplished through the agencies which we usually include under the head of preventive medicine, or that it has been the result solely of the action of the sanitary authorities. Such an interpretation would be very far from the truth, for many agencies have been at work in the production of these results. But preventive medicine, as I conceive its purposes and scope, should include all of those agencies which are essential and direct factors in the prevention of disease and the preservation of life. These agencies are not necessarily all under the direct control of the sanitary authorities.

In these introductory remarks, and in much that follows, I have taken many illustrations from conditions which exist in New York, because I have been familiar with the sanitary affairs there for many years, and the illustrations which it furnishes serve our purpose as well as if selected from many different States or communities.

It has long seemed to me that the work of the sanitary authorities in this country was too much restricted and the general conception of the scope of their functions was narrow and out of harmony with the spirit and development of modern scientific medicine.

Sanitary work has been pretty well limited along certain old and well-defined lines, much to the detriment of the public health. The medical profession has unconsciously contributed no small part to this condition, because of the existence too often of a certain antagonistic attitude toward the action of the sanitary authorities and the feeling that the occupation of a

larger field by them would be detrimental to the best interests of the medical profession. The latter has too often resented and opposed any movement to enlarge the field of preventive work, and has often insisted that its operations should be kept within the traditional narrow lines. Until in very recent years the operations of the health officers have been chiefly confined to the measures adopted for the prevention of the more readily communicable diseases, commonly called contagious. These usually included smallpox, diphtheria and scarlet fever, and at intervals, yellow fever, cholera, epidemic dysentery and typhus fever. More recently typhoid fever and measles, and indirectly the diarrheal diseases of infants, have been generally added to this list. But even in regard to the diseases referred to, the measures adopted have been of an elementary and most unsatisfactory character. It must be admitted, however, that until our knowledge of the causation of many of the infectious diseases was rendered more exact by the discoveries in modern bacteriology, sanitary procedures were of necessity largely empiric, and disinfection was either entirely wanting or the methods employed were quite inefficient.

The scope of the sanitary measures in force with reference to the ordinary infectious diseases has in recent years been greatly broadened. More than ten years ago the Board of Health in New York assumed the position that all facilities and procedures looking to the prevention and cure of the infectious diseases should be afforded by the Department of Health. The establishment of the methods for bacteriologic diagnosis and the facilities for the serum treatment had their origin there, and have since been widely followed.

General prophylaxis, or that portion of preventive medicine which should come directly under the supervision of the health authorities, has or should have, a broader scope than that indicated, and should include the supervision, not only of those diseases which have generally come within sanitary surveillance, but also all the infectious diseases which from their nature are to a greater or less extent preventable, in addition to all other forms of disease which are the result of unsanitary living, occupations, habitations or surroundings, including those diseases arising from manufacturing, mining, and other industries which, on account of their nature, are peculiarly or especially injurious to health. It should also include with greatly increased powers and breadth of jurisdiction, the surveillance of the water and food supplies and the sewage disposal.

To return for a moment to the consideration of the infectious diseases to be included in this list, there is a large class of different types of the infectious diseases which are well recognized as being more or less preventable, which are not included in the registration returns. These are not dealt with at all by the sanitary authorities, or only to a very limited extent. Mention may be made in this connection not only of tuberculosis in all its forms, whoopingcough, mumps, chickenpox, and cerebrospinal meningitis, which have been included in the registration returns by some authorities, but have not, as a rule, been dealt with by them, but also of puerperal fever, erysipelas, pneumonia, the diarrheal diseases of infants, dysentery, malarial fever, influenza, the contagious diseases of the eye, and certain parasitic diseases of the skin, as well as some of the rarer diseases occurring in both animals and man, such as rabies, tetanus, anthrax, and glanders.

The inclusion in the registration returns of such a long list of infectious diseases as has been here indicated requires considerable modifications and expansion of the ordinary sanitary procedures, and such action at first thought is likely to arouse opposition and unfavorable criticism from the medical profession. Such opposition and criticism, however, I believe are without proper justification and arise from an erroneous conception of the proper scope and functions of the authorities and their relations to the medical profession and the people.

There has long existed a belief in the medical profession, and to a considerable extent it has also been a part of the conception of the sanitary authorities of their functions, that the registration of a case of any kind of infectious disease involved some surveillance of such case by the authorities. The slightest consideration would at once show that with relation to many of the diseases mentioned, no such surveillance could be of any

real service, and it might be a source of annoyance to the sick person, the family, and the attending physician. Much good, however, would result, in my opinion, by such a broadening of the scope of sanitary work, without causing annoyance or being detrimental to any one. I should like, however, to point out that more than a year ago the Board of Health of New York City in the revision of its sanitary code included a number of new sections in relation to the infectious diseases, covering to a large extent the diseases above mentioned. These sections with the accompanying notes, read as follows:

INFECTIOUS DISEASES.

SEC. 133. It shall be the duty of every physician to report to the Department of Health, in writing, the full name, age and address of every person suffering from any one of the infectious diseases included in the list appended, with the name of the disease, within 24 hours of the time when the case is first seen:

A. *Contagious* (very readily communicable): Measles, rubella (rötheln), scarlet fever, variola (smallpox), varicella (chickenpox), typhus fever, relapsing fever.

B. *Communicable*: Diphtheria (croup), typhoid fever, Asiatic cholera, tuberculosis (of any organ), plague, tetanus, anthrax, glanders, epidemic cerebrospinal meningitis, leprosy, infectious diseases of the eye (trachoma, suppurative conjunctivitis), puerperal septicemia, erysipelas, whoopingcough.

C. *Indirectly Communicable* (through an intermediary host): Yellow fever, malarial fever.

NOTE.—In this provisional classification of the infectious diseases, arranged for practical purposes, the most readily communicable of these diseases, embracing the exanthems and typhus fever, have been placed in a group by themselves and called contagious. This has been done with a view to emphasizing a distinction, which is not only of scientific significance, but of practical importance, in dealing with the sanitary features of administration. This distinction is furthermore of importance because it avoids the misunderstanding and alarm frequently caused by including in the same class the very readily communicable diseases (such as smallpox), and the much less communicable diseases (such as tuberculosis), which require very different sanitary measures for their control.

SEC. 134. It shall be the duty of the commissioners or managers, or the principal, superintendent or physician, of each and every public institution or dispensary in this city, to report to the Department of Health, in writing, the full name, age and address of any person suffering from any one of the infectious diseases included in the list appended, with the name of the disease, within 24 hours of the time when the case is first seen:

A. *Communicable*: Influenza, lobar pneumonia, bronchopneumonia, infectious diseases of the gastrointestinal canal (dysentery, cholera morbus, cholera infantum, summer diarrheas of infants).

B. *Parasitic Diseases of the Skin*: Scabies, tinea tonsurans, impetigo (contagious), favus.

NOTE.—In this list of diseases reporting is required by the Department of Health in order that data may be obtained for general and special investigation of the modes and sources of infection and as to the prevalence and distribution of these diseases. The Department of Health does not propose to exercise a sanitary surveillance in these cases, but desires information with a view to the ultimate removal or improvement in the conditions which foster them. Notification is required in certain of these diseases because of the liability to their extension among children in the schools.

It will be noted, first, that two main groups of diseases are specified. In the first group, including the more readily communicable diseases, and some others which are not so regarded, registration is compulsory in all cases coming under the observation either of a private attending physician or an institution. These are separated for convenience under three heads: (a) The contagious or very readily communicable; (b) the communicable, including diphtheria, typhoid fever, Asiatic cholera, tuberculosis, and a number of others; and (c) the indirectly communicable, including only two diseases—yellow fever and malarial fever—which are transmitted solely through an intermediary host. In these three classes compulsory registration is required, because in all of the diseases in these classes preventive measures, properly executed, are certainly efficient to a very large extent. As to the propriety of the compulsory registration of all of the diseases included under the first heading, "The contagious or very readily communicable diseases," I assume that there can be no reasonable difference of opinion. Measles, rötheln, scarlet fever, varicella, variola, typhus fever, and relapsing fever, certainly without question, should be reported to the sanitary authorities. The necessity for reporting rötheln and varicella rests more in the danger of confusion of these diseases with measles and varioloid, respectively, than because of the importance of the diseases themselves. Our

experience in New York has shown again and again that outbreaks of smallpox have resulted from the failure of inexperienced physicians to recognize mild cases, these having been mistaken for varicella and treated as such. Every case of varicella occurring in the city must, therefore, be reported, and all cases occurring in adults be immediately seen by a trained diagnostician. I say all cases of varicella in adults, because experience has shown that very frequently varicella in an adult is a mild case of variola.

In the second class, called simply "the communicable diseases," there might be some question as to the propriety of the reports in some instances. There would be none, however, with regard to diphtheria, typhoid fever, Asiatic cholera, plague, tetanus, anthrax, glanders, and leprosy. All of these diseases are under some conditions communicable, and of the greatest importance, yet they are much less communicable than the first class, the contagious.

There can not now be, nor can I conceive that there ever will be again, any serious question as to the necessity or propriety of the registration and sanitary surveillance of tuberculosis, although this has been a subject of very bitter dispute, and although this disease has come actually under the close supervision of the sanitary authorities in only three or four cities in the United States, and of practically none in Great Britain or on the Continent. Pulmonary tuberculosis was included in the list of communicable and reportable diseases by the New York City Board of Health 10 years ago, and the measures adopted for its surveillance have been gradually extended and the lines for its restriction have been drawn closer and closer as each year has passed. Some doubt, however, might properly arise as to the necessity of the inclusion of other forms of tuberculosis than pulmonary tuberculosis in the registration returns, because for the most part these other tuberculous diseases are not communicable, or very slightly so. Bone, joint, intestinal, and gland tuberculosis are practically never sources of infection in other persons, but cases of tuberculosis of the types mentioned indicate the previous exposure to infection of the individual, and they thus point out a probably infected site or family, concerning which the sanitary authorities should have information. Such cases may also disclose unrecognized instances of pulmonary disease. Furthermore, knowledge of all cases is absolutely essential to a comprehensive recognition of the extent and prevalence of the infectious disease, *tuberculosis*. During the past year measures to ensure the registration of tuberculosis in all its forms have been adopted in New York.

The importance of the registration of epidemic cerebrospinal meningitis arises not so much because of the evidence of its communicability as because of the importance of fuller information as to the condition under which it arises and becomes disseminated. We have in New York City just been passing through an epidemic of this disease, the first serious one for 30 years. During the month ended May 15, more than 300 deaths occurred in New York City from this cause.

The infectious diseases of the eye—trachoma and suppurative conjunctivitis—should be included because of the importance of the adoption of preventive measures in the public schools. Few persons had any conception of the great prevalence of these diseases of the eye in the public schools of New York until after the Department of Health adopted some comprehensive measures for their surveillance. Such a vast number of cases was found that the Board of Health was forced to establish special dispensaries and provide special hospital facilities for their care. Only within a few weeks a second hospital and dispensary has been opened, and in the original one in connection with Gouverneur Hospital an average of about 500 patients a day were treated during the year 1903, and nearly 5,000 persons were operated on for trachoma.

Puerperal septicemia should be included in the registration returns because modern aseptic midwifery has shown that in most instances this is a strictly preventable disease, and excepting in rare cases of difficult or prolonged labor, its occurrence may be regarded as the result of uncleanness, negligence or incompetence. The registration and the investigation of these cases by the sanitary authorities should soon result in the exclusion from practice of incompetent midwives, restrict the

work of the criminal abortionist, and foster the practice of aseptic midwifery.

No one, I fancy, would seriously question the propriety of including erysipelas and whoopingcough in the registration returns. So far as this country is concerned, I assume that typhus fever, Asiatic cholera, plague, leprosy, and yellow fever are diseases which will never again call for anything more than occasional or emergency measures for the disposal of isolated cases or small groups of cases. But with reference to one disease in the third class, *i. e.*, malarial fever, some remarks may be in point to show the advantages which are likely to result from the interference of the sanitary authorities. We now all believe that malarial fever is not only an infectious disease and indirectly communicable through an intermediary host, but that it is also distinctly preventable.

The registration of cases of malarial fever should be required, not because close surveillance of individual cases is necessary, but because the sanitary authorities should know where the sites of infection are, where the breeding-places of the anopheles mosquitos are to be found, in order that they may adopt proper means for determining the cause of such areas of infection and the proper measures for their removal. In certain sections of New York City investigation has shown that in some instances almost every person living within certain small areas had suffered from malarial fever during the spring and summer months of a single season. Such outbreaks are without any question the result of local remediable unsanitary conditions, which furnish the breeding-places for the mosquitos. But without special information as to the existence of the cases, only to be obtained through the registration of malarial fever, knowledge of the presence of such unsanitary conditions, and their removal, may become difficult or impossible. The surveillance in their homes of the individual cases reported is, of course, not contemplated. That conditions similar to those found in New York exist in other communities, I have no doubt.

Section 134 of the Sanitary Code of New York, covering the second group, deals with infectious diseases of a somewhat different type, and in these the Sanitary Code requires the reporting to the department by public institutions of all cases coming under their observation; but it only requests physicians to report them and does not require such reporting.

Class (a) in this group includes some of the more important acute infectious diseases of the upper respiratory tract, namely, influenza, lobar pneumonia and bronchopneumonia, and certain of the more common acute infectious diseases of the gastrointestinal canal, namely, dysentery, cholera morbus, cholera infantum, and the summer diarrheas of infants.

The acute diseases of the respiratory tract referred to, should, in my opinion, be registered, because they are infectious, because they are of prime importance as causes of death, and in order that general and special investigation may be instituted for the collection of data bearing on the modes of infection and the sources and causes of their prevalence and their distribution. New York City has during the last winter experienced the greatest prevalence of these diseases which it has had for many years. In the first four months of the year more than 6,000 deaths occurred from influenza, lobar pneumonia, bronchopneumonia, and acute bronchitis.

I firmly believe that these diseases can be to a very considerable extent prevented, but the means and the methods are yet to be determined, and it is hoped that registration will assist in the acquisition of knowledge for the attainment of this end.

A large new field has just been opened by recent observations with regard to the specifically infectious character of many of the cases of summer diarrhea and dysentery, both of infants and of adults. The results of the investigation of the sanitary authorities in recent years in many large cities have shown in the most conclusive way that these diseases are to a very large extent preventable, and it seems probable, or at least possible, from recent investigations, that some forms at least are preventable and curable by the use of a specific curative serum.

Investigations in New York and other localities have shown that serious outbreaks of diarrhea and dysentery have occurred in various institutions and in local areas which were

probably, if not certainly, preventable, but concerning which the sanitary authorities have had no information. It seems evident, therefore, that these diseases should be made notifiable. A practical difficulty in this connection exists in the lack of definiteness as to what cases should be included and how the differentiation is to be made between the diarrheas due to simple digestive disturbances and those of a more serious nature caused by infection. This, however, is a matter for further investigation.

Notification of the parasitic diseases of the skin should be required chiefly because of the liability to the extension of these diseases among children in the public schools.

There are certain very large and important questions of prophylaxis connected with the prevalence of typhoid fever and the milk and water supplies of our large communities. The occurrence of great outbreaks of typhoid fever, such as the epidemics at Ithaca, N. Y., and Butler, Pa., during the last year, the prevalence in Philadelphia, Pittsburg and some other cities of the United States and the extensive distribution in the rural districts, constitute a disgrace to American preventive medicine and should arouse the sanitary authorities, the medical profession and the people to the provision of efficient measures and the enactment of suitable legislation for its prevention.

The annual cost of typhoid fever in sickness and death throughout the United States would be computed in terms of tens of millions of dollars. All of this loss we know is certainly preventable. If only a small portion of the annual outlay made by the country for sickness and death from this cause were expended in the education of the people as to the cause and the methods of prevention of this disease, and the provision of proper water and sewerage systems, typhoid fever might soon become a rare affection. Unfortunately the city sanitary authorities are often almost powerless in this matter, as their jurisdiction does not extend over the watersheds which supply with water the people under their care, and a supervision by them of the sources of the milk supply is also frequently absolutely impossible.

In New York City detailed investigations of all the cases of typhoid fever occurring within the city limits were instituted several years ago, and have been continuously carried on. These show that at least 25% of the cases occurring in the city have *certainly* received their infection outside of New York City, and a considerable percentage more have *probably* received it outside. Five or six percent are the result of contact with other cases, and the remainder are in all probability almost wholly the result of infection through milk or oysters. Some more comprehensive measures are urgently demanded to extend the jurisdiction of the authorities in the supervision of the supplies of milk and oysters and other foods.

A serious objection which may be urged against the adoption of the measures here recommended in regard to the registration of many infectious diseases is the increased labor thrown on physicians which their enforcement would involve. The question may properly be asked: Whether the sanitary authorities in the interest of the general public may call on the medical profession for the expenditure of so much time and labor without making any compensation in return? There are 35 diseases included in the New York list. The English authorities pay a fee for the notification of each case of infectious disease, and I believe that this course might properly be pursued in this country; but this has not been the custom here, and the authorities generally are not now provided with the funds necessary for this purpose.

When the Department of Health of New York City established its bacteriologic laboratories in 1892, measures were adopted to make some return to physicians for their interest and labor in connection with the sanitary surveillance of the infectious diseases. A systematic plan was then inaugurated, and has since been consistently followed, to secure their co-operation, by offering free bacteriologic examination in the diagnosis and surveillance of various forms of infectious disease. This was first applied to Asiatic cholera in 1892, during the outbreak in New York Harbor, and has since been extended to all of the diseases in which existing scientific knowledge made it possible, cerebrospinal meningitis being the latest disease added to this list. The establishment of this system of

free bacteriologic examinations in the diagnosis and surveillance of the infectious diseases, and the provision of facilities throughout the city for the collection of specimens and the sending of reports to physicians, constituted an entirely new departure in sanitary work and has been of the greatest value. The example of New York has been followed by the sanitary authorities in most of the large cities of this country, by many State authorities, and by authorities generally, in Great Britain and to a certain extent on the Continent. These examinations constitute the return which the authorities here have made to physicians for the reporting of cases and for their assistance and cooperation in their care. This return has a very considerable money value, when we remember that for such examinations the usual fee is \$5, and as physicians can not, as a rule, make such examinations themselves, they must work without the assistance thus afforded, unless they appeal to the regularly constituted laboratories.

What now are the possibilities of preventive medicine as concerns the larger centers of population? In answering this question we may first take as the basis of our reply the conditions found in some of the large cities with the lowest death-rates, or still better, the conditions found in some healthy rural districts. In considering the crude deathrates, as ordinarily reported, however, one must not ignore the influence of the sex and age distribution of the population on the death-rate. As is well known, the deathrates in the periods of life between 5 and 45 years of age are very low, and the deathrate among women is lower than among men. If, then, in a city there is a relative excess of the population in the middle periods of life, or an unusual preponderance of women, we may have a crude deathrate which seems very low, but which when corrected may be relatively high. For example, the deathrate of New York City, as corrected by the English life-tables, would probably be at least three points higher than it is. For 1894 the gross rate was 22.76, and the rate corrected by the English tables was 26.46. The corrected deathrate of some of the large, rapidly growing western cities would probably be five or six points higher than the crude deathrate reported. The deathrate of London at present averages about 17 per 1,000, and when corrected about 18.5 per 1,000, while the Berlin deathrate is somewhat lower than this. The crude deathrate of Surrey, a healthy rural district in England, is 14 and a fraction, and when corrected would probably be 15.

We can hardly use for a basis of comparison the conditions in any of the cities of this country with very low rates, because the rates have not been corrected, and the basis on which they are calculated cannot always be accepted as correct. Taking all the facts together, and judging of the duration of human life as we know it, we may accept a corrected deathrate of 14 or 15 in a large city as a goal toward which preventive medicine should strive and hope to achieve. If we consider the question from another point of view, as to what is possible in the reduction of the deathrate from distinctly preventable diseases, we would reach a conclusion not unlike the previous one.

In New York City it may be assumed that the present tuberculous deathrate of 2.7 may, under proper surveillance, with certainty be reduced to 1.2, and 1.5 points would thus be subtracted from the crude rate. The diphtheria deathrate, already reduced 65% by the use of antitoxic serum, should certainly be reduced to a third of what it is at present; it is now about .6 per 1,000 population. Similar reductions should be possible in the deathrate from typhoid fever, measles and scarlet fever. The diarrheal diseases of infants have already been reduced in the last 12 years to half of their former prevalence, and should still be reduced more than 50%. Thus more than three points may be subtracted from the crude rate in New York, which in 1903 was 18.18. The rate would then be 15+. The rate for 1903 was the lowest in the history of the city.

The most fatal affections with which we have now to deal in New York are the acute respiratory diseases, including influenza, lobar pneumonia, bronchopneumonia and acute bronchitis. The average death from this group of diseases now exceeds three per 1,000 of the population, and in years when there is an epidemic prevalence of these diseases the deathrate may be four or more, as seems likely to be the case this year.

The advances in preventive medicine have as yet not only

had no influence in reducing the deathrate from this group of diseases, but, on the contrary, there has been a slow and continuous increase. I can not at this moment point out the method or the means by which a reduction is to be brought about, but still I firmly believe that with fuller knowledge such a reduction will become possible in the great cities where these diseases are so prevalent.

Something can be accomplished through the closer sanitary surveillance of the occupations and conditions under which the lower classes work, especially the noxious trades. Something, too, may be done through a closer supervision of foods to ensure their purity and freedom from adulteration.

A very difficult problem arises in connection with the diseases of the circulatory apparatus and the kidneys. My investigations have shown that in New York City a large increase has taken place, due to these causes, during the last 20 years. The acute respiratory diseases, cancer, and diseases of the circulatory apparatus and the kidneys are the only important causes of death which have shown an increase during this period. The increase in cancer amounts to about 15%, and the increase in the acute respiratory diseases amounts to about 15%, while the increase in the diseases of the circulatory apparatus and kidneys combined equals about 40%. In making this statement I have taken fully into consideration the possible influence of greater accuracy in the death returns, *i. e.*, the inclusion formerly of these under other causes of death; but after making all allowances, it seems to me without question that an increase equaling 40% has taken place.

A very important sanitary problem is here presented to the health authorities. What are the factors in the lives of the inhabitants of our large cities (for I have found that similar increases, less extensive, however, have taken place in London, Paris, and Berlin) which have caused such a remarkable increase in the prevalence of these affections, and how are these factors to be removed?

The time at our disposal does not permit of more than this elementary and cursory review of the work in preventive medicine. Sufficient facts have, however, been adduced to show how great have been its achievements, and some of the directions have been indicated in which its scope should be extended. With such extensions, and many others not mentioned, the future possibilities of preventive medicine seem to be even greater than the past achievements, for almost every development in bacteriology opens up a new field of work for the sanitary authorities.

SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

Proceedings Reported by the Secretary,

WILLIAM J. GIES, PH.D.,
of New York.

The seventh regular meeting of the society was held on Wednesday, May 18, at 8.30 p. m., in the physiologic laboratory of the New York University and Bellevue Hospital Medical College, at 338 East Twenty-sixth street. Dr. S. J. Meltzer presided.

MEMBERS PRESENT.—Adler, Burton-Opitz, Dunham, Ewing, Gies, Jackson, Levene, Lusk, Meltzer, Murlin, Richards, Salant, Wadsworth, Wallace, Yatsu.

MEMBERS ELECTED.—P. B. Hawk, W. G. MacCallum, A. R. Mandel, R. M. Pearce, Franz Pfaff, William Salant, H. U. Williams, A. S. Warthin.

ABSTRACTS¹ OF REPORTS ON ORIGINAL INVESTIGATIONS.

"*The lecithin content of fatty extracts from the kidney*" (preliminary communication): E. K. DUNHAM.

Rosenfeld has shown that the percentage of the alcohol-chloroform extracts from the dried kidneys of dogs, both normal and "fatty," fluctuates within very narrow limits. He calls these extracts "fat," and regards the microscopic examination as entirely untrustworthy for gauging the amount of fat in the kidney.

¹The authors of the reports have furnished the abstracts. The secretary has made only a few abbreviations and minor alterations in them.

His work on other organs has led him to the conclusion that, when the fat content is increased in the cells, it has been transported from the fat depots of the body. It appeared to the author of interest to compare the extracts obtained from the kidney by Rosenfeld's method with similar extracts from the depot fats. It was at once evident that they differed markedly in the percentage of phosphorus they contained, as is shown by the following analytic results:

Alcohol-chloroform extracts.	Percentage of Phosphorus.
Human kidney (mean of 28 analyses).....	1.3849
Panniculus adiposus (4.2288 gms.).....	0.0026
Perinephritic fat (5.6750 gms.).....	0.0069

The extract from the kidney contains from 200 to 500 times as much phosphorus as the extract from depot fat. These facts suffice to show that the two extracts are not directly comparable, and to throw doubt upon the idea advanced by Rosenfeld that the fat in "fatty" organs is a simple infiltration from the depots of the body.

The phosphorus in these extracts was found to be wholly organic in character. Protagon could not be detected even in 400 gms. of the tissue. The quantity of jecorin that may have been present was too small to influence materially the analytic results. The most probable compounds containing the phosphorus are forms of lecithin. The barium hydroxid-platinic chlorid method for the separation of cholin was employed, with the following results:

	Extract grams.	Phosphorus %.	Platinum grams.	Lecithin in the extract (calculated as distearyl lecithin), %.
I.....	0.4600	1.43	—	37.23
	0.4600	1.47	—	37.45
	1.5859	—	0.0660	34.50
II.....	0.6032	1.12	—	29.11
	0.6032	1.11	—	28.99
	2.1556	—	0.0711	27.40

Before incineration, in the first case, the platinum salt in the crucible weighed 0.2009 gm. The platinum, therefore, constituted 32.7% of the salt. Cholin platinic chlorid contains 31.6% of platinum. It appears highly probable, however, that some of the platinum salt was decomposed during the concentration of its solution with heat. It is also possible that some of the cholin suffered decomposition, or was lost, in the manipulations preceding its precipitation with platinic chlorid. With these considerations in mind, the foregoing results render it highly probable that the phosphorus is present in some form of lecithin, but, although these calculations are based on distearyl lecithin, it is certain that this is not the only lecithin present. The fact that lecithin obtained in moderate purity (about 99%) from the kidney extract promptly blackens with osmic acid, indicates that the oleic acid radicle is present. The recognition of this fact would make but trifling changes in the calculations in this report.

The foregoing analyses appear to justify the conclusion that one may, at least tentatively, assume the phosphorus content of the extracts obtained to be dependent upon the presence of some form of lecithin.

Upon this assumption the calculations given in the following table¹ are based:

	<i>Extract.</i>	<i>Phosphorus.</i>	<i>Lecithin.</i>	<i>Lecithin.</i>	<i>Autopsy Cause</i>	<i>Report. Weight</i>
	% of dry organ.	% of the extract.	% of the extract.	% of dry organ.	of death.	of kidney. Grams.
<i>Human Kidneys.</i>						
I.	11.42	2.11	55.07	6.29	Pneumonia and hepatic abscess.	200
	12.48	2.00	52.08	6.49		
II.....	11.44	1.35	35.14	4.02	Tuberculosis.	200
XI.....	15.40	1.18	30.84	4.78	Moderately fatty kidneys.	—
	15.51	1.19	31.09	4.80		
<i>Beef Kidneys.</i>						
II.....	15.02	2.10	54.64	8.21	—	—
<i>Dog Kidneys.</i>						
I.....	14.93	2.04	53.29	7.95	—	—
<i>Rabbit Kidneys.</i>						
I.....	16.59	2.58	66.06	10.96 ²	—	—

¹The author presented a large number of data. The table here given shows only a few examples of the many results obtained.
²2.24% of the fresh kidney.

These analyses demonstrate that even in the kidney, which cannot be regarded as one of the fat depots of the body, and which probably plays little, if any, part in the general fat metabolism, the lecithin content must be taken into consideration in any study of the fatty extract. The limited number of the observations here referred to, do not justify conclusions bearing upon the question of the nature of the fatty changes met with in the kidney, but it is the author's intention to continue the study of this subject.

"On the phloridzin test in Bright's disease:" P. A. LEVENE and L. B. STOOKEY.

Investigation of the action of phloridzin in Bright's disease has a theoretic as well as a practical interest. The mechanism of kidney diabetes is as yet imperfectly understood. The original idea that it was due to a change in the permeability of the kidney epithelium has gradually lost support, and instead there is a growing belief in the hypothesis that, in kidney diabetes, the sugar owes its origin to an exaggerated katabolic condition of the kidney. This view was first expressed by one of the authors in 1894. In support of this theory, evidence was brought forward to show that in animals with injured kidneys, phloridzin fails to bring about glycosuria, or causes it in less degree than in normal animals. However, it is impossible to injure, by means of drugs or by mechanical interference, only one special part of the kidney. In the course of Bright's disease there are known conditions under which the involvement of either the epithelium or of the glomeruli predominates to a very great extent, and this, of course, enables one to study the seat of the sugar formation within the kidney. The observations of most authors tend to show that when the epithelium of the kidney is injured, administration of phloridzin fails to cause glycosuria or does so in very slight degree.

The authors injected simultaneously phloridzin and methylene-blue, and compared the course of the elimination of the dye with that of the sugar. The results of their observations in a general way corroborate the statements made by other writers. In acute parenchymatous Bright's disease, sugar fails to appear in the urine after the administration of phloridzin. In chronic forms of the disease, when only a trace of albumin can be detected in the urine, and when the permeability of the kidney for methylene-blue is normal, there is frequently a diminished sugar elimination—diminished as compared with that in health under the influence of phloridzin. In no case was there observed an impaired permeability for methylene-blue with a normal sugar elimination, but the contrary was often the case.

Levene's modification of Allihn's method was used for the sugar determinations. Further work in this direction is in progress.

"Effect of blood-serum in pneumonia upon the heart" (preliminary report): ISAAC ADLER and RICHARD WEIL.

The object of these experiments was to determine whether blood-serum in pneumonia has a specific effect upon the heart, and also, whether there is any difference in action between the serum taken *before* and the serum obtained *after* the crisis. The experiments were made upon the heart of the turtle, use of the mammalian heart being impracticable, in this connection, for many reasons. The fluids to be tested entered the heart through a glass canula, introduced through the right aorta into the corresponding ventricle, passed through the septum into the left ventricle and flowed out through a canula in the left aorta. Care was taken to keep the temperature, concentration and hydrostatic pressure uniformly constant. The veins were all carefully ligated. The small diaphragmatic vein at the apex was tied and cut, the ligature connected with a writing lever and the contractions of the heart thus recorded upon a drum.

Normal human serum acts upon the heart of the turtle as a violent inhibitor, but it was found that in a dilution of 1 to 20, or, better still, 1 to 15, it does not

differ greatly in effect from "normal saline." All serums were thereupon tested in dilution of 1 to 20 or 1 to 15, and the routine of each experiment as ultimately adopted was as follows: Infusion into the heart (a) "normal saline," (b) normal blood-serum, (c) "normal saline," (d) serum *before* crisis, (e) "normal saline," (f) serum *after* crisis. In this manner after considerable preliminary experimentation very characteristic tracings were obtained.

Two cases of lobar pneumonia and one case of bronchopneumonia have thus far been studied. The tracings obtained were demonstrated, and it appeared from them that the serum in pneumonia before the crisis, at least in the cases tested, acted upon the heart of the turtle as a most violent poison. The contractions at once became extremely weak and slow, and the pauses very long. The serum taken after the crisis gave tracings not very materially different from those obtained with normal serum.

"*The influence of alcohol on biliary secretion:*" WILLIAM SALANT.

In the author's experiments, fasting or well-fed dogs were the subjects. Operation and collection were conducted in the usual manner. Ether narcosis was employed in every instance without previous injection of morphin. The rate of secretion was studied by comparing the amounts collected during periods of 15 minutes. The rate of secretion during the first four or five periods was used as a control, at the end of which time alcohol was injected by means of a buret into the femoral vein. Varying strengths of alcohol were used—4½%, 30%, and 60%. The quantities administered were usually about 4 cc. per kilo of body-weight.

After the injection of alcohol, it was found in all cases, that the secretion of bile continued to diminish, the diminution in the rate of secretion being, however, somewhat greater than in the two or three control periods immediately preceding the administration of alcohol. Since the much larger quantity of bile of the first and second periods probably represents bile that has been held back during the operation, it could not be considered as a control. The author, therefore, regarded as a control the rate of secretion during the following two or three periods. Whether this slightly diminished secretion is to be ascribed to the influence of alcohol can only be decided by further comparisons of the rate of secretion in alcoholized and normal animals. Thus, in three dogs without alcohol the rate of secretion corresponding to the alcohol periods was as follows: A decline during the fourth, fifth, and sixth periods, succeeded by a rise in the next period. In the second experiment the rate of secretion remained practically steady during the fifth, sixth, seventh, and eighth periods. In the third experiment there was a variation, but the average rate of secretion was about the same in the fifth, sixth, and seventh periods as in the preceding time. It would seem, therefore, that the diminished secretion following the intravenous injection of alcohol might be due to the effect of alcohol.

A study of the effect of alcohol on biliary secretion after injection into the stomach was also begun. It would seem a priori, in the light of recent investigations by Bayliss and Starling, Fleig, and Henriot, on the relation of secretion to the secretion of bile, that the author's method of administering alcohol ought to provoke secretion of bile. In the few experiments the author has made thus far, he has observed that when 60% alcohol was introduced into the stomach there was a slight, transitory increase of biliary secretion. With 30% alcohol there was in some cases an increase, in some a decrease of the secretion of bile as compared with pre-alcoholic periods. At this stage of the work it would be premature to form any conclusion regarding this point. Whether this slight increase is due to increased gastric secretion and consequent formation of secretin, or is reflex in nature, will next be investigated.

"*The influence of repeated external hemorrhages on the general composition of the blood:*" G. M. MEYER and W. J. GIES.

Various observers have noted the fact that the composition of the blood changes after hemorrhage, but no systematic study has been made of these modifications. The authors have begun such an investigation for the purpose of establishing a more definite basis for comparative blood analysis. They reported the results of their observations on posthemorrhagic changes in the percentage content of water, total solids, organic solids, and ash. Further study is in progress.

Healthy, well-nourished or fasting dogs in light morphin-atropin narcosis were used, and quantities of blood ranging from 0.2% to 1.0% of body-weight were taken. These amounts were drawn from the femoral artery, and approximately the same quantity was taken in each experiment at regular intervals, varying from 15 minutes to two hours until death ensued. In one experiment a continuous fatal hemorrhage was effected and the blood analyzed in portions. Thus far 20 experiments have been carried out. In some of them the serum was also analyzed.

The following conclusions were reported: Hemorrhage causes increase of water and decrease of solids in the remaining blood. Hemorrhages of about 0.6% of body-weight cause little or no change in general composition of the blood until after 2.5% has been taken. Under the conditions of these experiments it was generally found that the longer the intervals between withdrawals the less the maximal differences between composition of the first and last fractions. Short intervals between bleedings, all other conditions being equal, favored the largest total withdrawals before death ensued.

The differences in the serum ran parallel with those in the blood, but were less marked. The ash did not vary very much in either the blood or serum, no matter how much blood was taken. The blood ash and that from the serum were practically the same in relative amount, though different in composition.

When small quantities of blood, equal to about 0.2% of body-weight, were removed at intervals of about a half-hour, little change was noted in either blood or serum until after 3% had been taken. After this quantity had been lost the changes following further hemorrhage were such as usually occur. The maximum differences in percentage composition of the first and last fractions varied somewhat. The differences in the amounts of solids, for example, ranged from 1.5% to 3.5%. In fasting animals the influence of hemorrhage on chemic change in the remaining blood was somewhat more marked than in well-nourished ones. The effect on the serum was about the same.

Other influences in the experiments were carefully controlled. The observed effects were due only in slight degree to the narcotics and the conditions attending the operations.

"*Demonstration of a new portable sphygmomanometer:*" T. C. JANEWAY.

Dr. Janeway's instrument was designed with the object of securing a thoroughly portable clinical sphygmomanometer, in which nothing essential to accuracy should be sacrificed. It employs the method of circular compression of Riva-Rocci, and Hill, with the 12 cm. width of armlet proved necessary by von Recklinghausen. The special construction of the cuff allows of adaptation to arms from 15 cm. to 34 cm. in circumference. The original feature of the instrument is the folding U tube manometer. This is a jointed U tube manometer (copied from Cook), fastened to the under surface of the box-lid, so arranged that, when closed for carrying, it measures 10½ x 4½ x 1½ ins., and, with armlet and inflator, weighs 2½ lbs. The manometer is perfectly secure when closed and stands firmly when open. The tube caliber is 3 mm. The sliding

scale is empirically graduated for each instrument, to compensate for variations in the glass tubing, and is accurate. All connections are of heavy pressure tubing. For inflation a Politzer bag is used, as by Erlanger, except that one with valve is necessary to fill the large armlet. The gradual release of pressure is provided for by a stopcock, with needle-valve of special construction, the work of Mr. Charles E. Dressler, who is making the sphygmomanometer for sale.

The method of use, as of the other modern sphygmomanometers, is based on the criterion of the return of the pulse after obliteration (Vierordt), for systolic pressure, and is similar to the Riva-Rocci and its modifications. A fair approximation of diastolic pressure may also be obtained in most cases, using the criterion of maximum pulsation (Marey, Mosso). This is especially useful in cases of aortic insufficiency, or marked hypertension. For experimental work upon the systolic and diastolic pressures, it cannot compare with Erlanger's more elaborate and costly instrument, but aims to serve the clinician by providing him with an accurate, yet not bulky or costly instrument, for general use. Stanton's sphygmomanometer, which appeared after this one had been begun, answers the same purposes. The only criticism to be made of it is, that 8 cm. width of arm-piece does not afford a guarantee of complete accuracy on large arms.

"*Demonstration of cytologic preparations:*" NAOHIDÉ YATSU.

Mr. Yatsu exhibited seven preparations demonstrating important cytologic structures found both in eggs normally fertilized, and in those treated chemically. He spoke on the achromatic figure in mitosis, with special reference to the morphology and cycle of the centrosome.

Preparation I.—Metaphase of the first polar mitosis with two centrioles at each pole (egg of *Cerebratulus*).

Preparation II.—Sperm nucleus with sperm aster, in which each daughter centriole has acquired a new system of rays (egg of *Cerebratulus*).

Preparation III.—Anaphase of the first cleavage mitosis, showing two centrioles in each centrosome (egg of *Cerebratulus*).

Preparation IV.—Telophase of the first cleavage mitosis, showing typical centrosomes (egg of *Ascaris*, Prof. Wilson's preparation).

Preparation V.—Mitosis without chromosomes in a late blastula (egg of *Asterias*, unfertilized and etherized.) In one of the blastomeres the aster is dividing, forming a typical central spindle, but devoid of chromosomes.

Preparation VI.—Cytasters (egg of *Asterias*, unfertilized and etherized). Many cytasters are found in the cytoplasm, some dividing, some forming synthetic triasters.

Preparation VII.—Cytasters (egg of *Cerebratulus*, unfertilized and treated with a solution of calcium chlorid). Many cytasters have appeared, the first polar mitosis being disturbed.

"*The influence of subcutaneous injections, and of instillations of adrenalin upon the pupils of frogs, with demonstrations:*" S. J. MELTZER and CLARA MELTZER AUER.

Many observers have established the fact that subcutaneous injections as well as instillations of adrenalin exert no influence upon the width of the pupil in normal mammals. In a series of experiments published recently by the authors of this report it was shown that from 24 hours to 48 hours after the removal of the superior cervical ganglion a subcutaneous injection or an instillation of adrenalin caused considerable dilation of the pupil, which lasted an hour or longer.

In the present communication the authors report that in frogs a subcutaneous injection or an instillation of adrenalin into the conjunctival sac causes an unmistakable dilation of the pupils of a normal animal. The dilation lasts a good deal longer than was ever observed

in mammals even after removal of the ganglion; after instillation some dilation may be perceptible as long as 36 hours. The maximum dilation may even continue as long as 12 hours.

When the cord is severed just below the medulla oblongata, the pupils usually become small and ellipsoid in shape. A subcutaneous injection causes them to become wide and round. Instillation has the same effect. Finally, the effect of instillation can be well observed also on the excised eyes, even when the adrenalin is applied some hours after excision, provided the eyes are kept moist. The experiments were demonstrated.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

June 4, 1904. [Vol. XLII, No. 23.]

1. Chorloepithelioma Malignum Vaginae Postpartum Maturum: Its Etiology and Its Relation to Embryonal Tumors. GEORGE SCHMAUCH.
2. Mesenteric Embolism and Thrombosis: A Study of 214 Cases. JAMES MARSH JACKSON, CHARLES ALLEN PORTER and WILLIAM CARTER QUINBY.
3. The Management of Some Forms of Asthma. THOMAS F. REILLY.
4. The Problems of the Technic of Ureteral Catheterization. GUSTAV KOLISCHER and LOUIS E. SCHMIDT.
5. The Business Side of a Physician's Life. H. BROOKER MILLS.
6. Surgical Treatment of Pulmonary Abscess. VAN BUREN KNOTT.

1.—Chorioepithelioma.—G. Schmauch presents the following conclusions from his study of these tumors: The syncytium is of fetal origin. It and the Langhans cell are different stages of the same cell, the trophoblast. The chorioepithelioma malignum is a growth consisting of fetal cells only without connective tissue or bloodvessels, and has to be placed in a class by itself. It is always a consequence of pregnancy; it has nothing to do with teratomas, as these are inborn growths. The chorioepithelial formations in teratomas of the testicle and the ovary prove the fetal origin of the syncytium, but are totally different. The masses in these tumors proceed from the ectodermal cells and are in their histogenesis equal to all other ectodermal products in teratomas, as the neuroepithelium, etc. The deportation of parts of villi and their epithelial layer is a physiologic fact, and probably takes place during the whole of pregnancy. The epithelial layer of the villus preserves its embryonal energy of proliferation until birth. Therefore, a chorioepithelioma may arise at any time of pregnancy, when the natural protective forces of the maternal organism become deficient. [H.M.]

3.—Asthma.—T. F. Reilly recommends suprarenal spray when the asthma is of nasal origin. Many attacks seem to bear a direct relation to disturbances in the gastrointestinal tract. Careful dieting will keep some people free. In others the use of a simple HCl mixture seems to answer. In severe cases if relief does not follow the suprarenal spray in 5 to 10 minutes morphin may be given. [H.M.]

4.—Ureteral Catheterization.—G. Kolischer and L. E. Schmidt discuss the different methods and instruments used. The best instrument should allow catheterization of both ureters with one introduction of the instrument, and should permit of leaving the catheters in place after the cystoscope has been removed. They show the undesirable features of air dilation. The most satisfactory results are always achieved by sterile water or other transparent fluid. Catheters and cystoscopes may be lubricated with glycerin or any sterile lubricant which readily dissolves in water. It is important not to have the hip-joint too forcibly flexed. Contamination of the collected urine by fluid from the bladder can be avoided by leading the catheters up an inclined plane to the receptacles used. In most cases no local anesthetic is necessary. In the very sensitive, a morphin suppository may be inserted in the rectum. General anesthesia is required only in extreme cases. When there are pelvic misplacements or growths, a few special maneuvers facilitate introduction. When the mucosa bleeds easily, adrenalin may be applied. The authors recommend a cystoscope allowing direct view, having part of the conducting canal removable, so that the first inserted catheter can be

thrown out and the canal then be reconstructed for insertion of the second catheter. They describe a Brenner cystoscope modified by themselves after Caspar's principle by adjusting to it a slide bar, the catheter slipping out of the canal when this slide is withdrawn. Swelling of the ureteral lining can be overcome by adrenalin if due to infection and inflammation; if due to trauma from instrumentation or stone, wait until the injuries have healed. [H.M.]

6.—Surgical Treatment of Pulmonary Abscess.—Van Buren Knott considers the treatment of only single abscesses. He believes it inadvisable to open without the aspirator as a guide. Local anesthesia may be used. If pus is not found on the first attempt, the needle should not be withdrawn completely from the lung, but as nearly so as possible, and reinserted in various directions until it enters the cavity. This prevents multiple punctures of the pleura, and diminishes the danger of septic extravasation into the pleural cavity. When pus is found the needle should be left as a guide, chloroform be administered, a free incision be made with resection of two ribs, well exposing the diseased area. If pleural adhesions are absent the pleura must be sutured, using the "back stitch," and gauze packing used for walling off. For opening the lung, the author prefers probe-pointed dressing forceps introduced alongside the needle, followed by opening of the blades. After the pus has been evacuated the opening may be cautiously enlarged. The cavity should be thoroughly wiped with gauze pledgets. Gauze covered with rubber tissue to prevent sticking may be used as a drain. [H.M.]

Boston Medical and Surgical Journal.

June 2, 1904. [Vol. CL, No. 22.]

1. A Study of Certain Cases of Sarcoma of the Long Bones from the Massachusetts General Hospital Clinic. CHARLES L. SCUDDER.
2. Disinfection of the Clinical Thermometer. FRANCIS P. DENNY.

1.—Sarcoma of the Long Bones.—Charles L. Scudder reports the final results in a series of 15 cases, and concludes that if the giant-cell sarcoma of a long bone is limited to and localized in the bone, involving only a small area, a resection or partial operation is justifiable; but if the soft parts are in any way involved, or if the disease in the bone is extensive and of long duration, then an amputation is the best treatment; an amputation in the continuity of the bone if the lower end of the diaphysis is involved, or an amputation at the joint above the disease if the disease is high in the shaft. Exarticulation at the joint above the disease, at the shoulder or at the hip, is indicated only in those cases in which the disease cannot otherwise be completely removed. [H.B.C.]

2.—Disinfection of the Clinical Thermometer.—Francis P. Denny calls attention to the method, originally promulgated by W. H. Dyer, of disinfecting the clinical thermometer by putting a few drops of formalin in the thermometer case, and reports the results of a number of tests proving its efficiency. [H.B.C.]

Medical Record.

June 4, 1904. [Vol. 65, No. 23.]

1. Some Thoughts Suggested by the Statistics of the Health Department, Especially Concerning Typhoid Fever and Smallpox. GEORGE L. PEABODY.
2. Pathologic Distinctions Discernible in the Radiograph in Certain Diseases of the Long Bones. EUGENE H. EISING.
3. The Treatment of Epidemic Cerebrospinal Meningitis by Intraspinal Antiseptic Injections. CHARLES E. NAMMACK.
4. Myocardial Change from the Clinical Side. JOHN W. BOYCE.
5. The Use of Rubber Tissue and Boracic Acid in the Treatment of Surface Granulating Wounds, and Especially of the Varicose Ulcers of the Leg. W. SCOTT SCHLEY.
6. A Case of Bilharzia Hematobia Infection. T. N. RAFFERTY and H. N. RAFFERTY.
7. Röntgen Ray Diagnosis of an Interesting Case. L. D. WEISS.

1.—The Health Department, Typhoid Fever, and Smallpox.—G. L. Peabody notes the high death-rate from these diseases in Manhattan and Brooklyn, and believes it is owing to the fact that many cases are not reported. The increasing number of cases in Manhattan is attributed to the greater consumption of water compelling direct transmission of surface water without storage as was formerly possible. He is opposed to forcible removal of smallpox patients from their homes when they can be suitably isolated. Dread of this regulation has led

to concealment and thus to much greater exposure. The possibility of erroneous diagnosis is a serious aspect of the question and practitioners are unwilling to subject their diagnoses to official review. The risk incurred by a physician in reporting what he believes to be smallpox is not trivial, a mistake may involve a lawsuit, and his temptation to conceal it becomes proportionately great. [H.M.]

2.—Pathologic Distinctions Discernible in Diseases of the Long Bones, when Using the Radiograph.—Eugene H. Eising confines his remarks to inflammatory and nonplastic conditions of bone. When the periosteum becomes irritated, its osteoplastic function becomes stimulated and new periosteal bone is formed upon its osteal surfaces; when the periosteum becomes disturbed to the point of destruction or approaching that point, no such change occurs. A good radiograph will present various phases of periosteal alteration, consonant with these conditions. A hemorrhage into the periosteum, or between it and the bone, will be recognizable or not in the radiograph, depending on the age of the lesion. The radiograph of carcinoma in bone shows an area of rarefaction which is circumscribed and demarcated from neighboring bone; the area of rarefaction is medullary, and not cortical. In sarcoma of bone there seems to be two distinct groups from the radiographic standpoint. The one, in his experience, is always myeloid, or giant-celled sarcoma. In this the radiograph shows an area of erosion of bone and periosteum, and not of rarefaction, as in the case of carcinoma. The line of demarcation between the diseased and normal bone is clean cut, and gives the appearance of having been removed with a gouge. The spindle and round-celled osteosarcomas occur in the length of long bones, and present pictures different from the foregoing. They usually cause a fusiform outline of the shaft of the bone, the periosteum is much thickened, and shows no proliferation of new bone. The features characterizing osteomyelitis in the radiograph are a general swelling occupying a segment of the bone, or perhaps the entire length, irregularly fusiform, or else the tumor may be limited to one aspect. The area of disease presents a mottled appearance, the periosteal involucrum will stand out prominently, when present. [A.B.C.]

3.—Cerebrospinal Meningitis and Antiseptic Injections.—C. E. Nammack considers that as the mortality has varied from 20% to 75% in various epidemics, it is difficult to draw conclusions from any treatment. He discusses the bactericidal values of lysol and reports five cases in which he used it with one recovery. [H.M.]

4.—Myocardial Change from the Clinical Side.—J. W. Boyce cites cases illustrating the unimportance of valvular lesion in the presence of a normal myocardium. The larger life insurance companies see enough of them to calculate an average expectation of life and offer insurance on moderate terms. For the morbid anatomist there are 30 or more varieties of cardiac myopathy, but most of them are indistinguishable from one another clinically. It is usually possible to guess whether the condition be fatty degeneration, fibroid heart or sclerosis of the coronary arteries. Acute myocardial change seldom is the sole cause of death. It occurs oftenest in articular rheumatism. Scarlet fever affects the endopericardium and pericardium oftener than the myocardium. In chronic conditions acute infections as rheumatism, diphtheria, pneumonia, typhoid and septicemia are usually the starting point. The symptoms are pain, loss of strength, a gray pallor, a look of anxiety, premature grayness of the hair. The apex impulse is broad but feeble, the heart may or may not be enlarged, sometimes there is a murmur, a trace of albumin comes and goes in the urine. Irregularity or intermittence often marks the fibroid heart. Such cases are of relatively favorable prognosis. A very slow pulse of low tension is of great value, which is much increased if it is found that change of position or slight exertion alter its rate unduly. [H.M.]

5.—Rubber Tissue and Boric Acid in the Treatment of Leg Ulcers.—W. Scott Schley gives the result of his experience in treating ulcers of the leg in the Out-Door Department of St. Luke's Hospital, New York. Following the suggestion of Abbe, they have, for some time, employed boric acid and over this rubber tissue, the whole covered by gauze and a bandage, in the treatment of granulating ulcer, particularly of the vari-

cose type. The method in brief is as follows: The ulcer having been cleansed, upon the granulating surface well-powdered boric acid is generously sprinkled; this is covered smoothly with rubber tissue overlapping the edges of the ulcer by one or two inches and secured in place by adhesive plaster strapping; absorbent gauze covers the tissue, again overlapping its edges and a snug supporting bandage is applied. A point of much importance is the length of time such dressings should be left undisturbed; they are rarely changed oftener than once in five days, usually once a week, and occasionally longer. Schley has been impressed with the rapid rate of epithelial growth under this dressing, the smooth surface of the rubber tissue insures a smooth surface to the granulations. The boric acid acts as an antiseptic astringent diminishing and sweetening the discharge and preventing excessive transudation and exacerbation of granulations, which two factors undoubtedly act as the greatest checks to epithelial growth and covering. His success has been so marked in this form of treatment that within the past few months Schley has extended this treatment to a number of ulcers the result of tuberculous inflammation with the characteristic flabby granulations and undermined bluish edges. Here also the results are reported to be gratifying. [A.B.C.]

New York Medical Journal.

May 28, 1904. [Vol. LXXIX, No. 22.]

1. The Construction of the Valvular Part of the Aorta and the Significance of Its Elastic and Collagenous Tissue. FRITZ SCHWYZER.
2. Examination of the Bladder in 20 Cases of Ventral Suspension. SWITHIN CHANDLER.
3. The Surgery of Nephritis. (Concluded.) GEORGE M. EDEBOHLS.
4. A New Method to Facilitate Operations in the Mouth, for the Purpose of Minimizing the Danger of Aspiration of Blood during General Anesthesia. ALFRED W. HERZOG.
5. What Should the General Practitioner Know of Ophthalmology? H. H. SEABROOK.

1.—Construction of the Valvular Aorta.—Fritz Schwyzzer says that the elasticity and ductility of the aorta depend upon three factors: The network construction of the elastic fiber systems of the media; the elasticity and great yielding power of the collagenous substance; and the great elasticity and moderate ductility of the elastic elements. The elastic elements can only in their combination as a construction be considered as the carriers of ductility. They are themselves highly elastic, but have relatively little yielding power, and their function is first of all to prevent exaggerated distention. The other fibers of connective tissue are either very ductile, as in the semilunar valves, or they are more tendinous, unyielding, as in the valvular ring. The elastic ligament on the ventricular side of the semilunar valves is probably not only made to strengthen, but in connection with the elastic endocardium, it could be considered as a steering apparatus for the position of the semilunar valves, and in combination with the main part of the valves it forms the joint at the base of the same. Nature appears to make use of the elastic mesh tissues whenever there is any initially large ductility desired, and where afterward elastic inhibition is necessary. [C.A.O.]

2.—The Bladder in Ventral Suspension.—Swithin Chandler reports the operation and bladder examination in 20 cases requiring the operation of ventral suspension and offers the following deductions: 1. In all cases requiring ventral suspension the bladder should be thoroughly examined by a cystoscope. 2. In no case reported among this number was there any trouble with frequent micturition after the operation of ventral suspension, except when there was some evidence found which would cause such disturbance. 3. The new position of the bladder after ventral suspension aided and relieved, rather than caused, frequent micturition. 4. The operation may have caused this relief by removing pressure from the neck of the bladder, which pressure undoubtedly helps to cause frequent micturition. 5. The left ureter opening and surrounding parts were often affected, but the cases are too few to state positively why this existed. 6. Immediate and prompt treatment saves much suffering and adds much to the surgeon's reputation, and to that of the operation. 7. By examining the bladder and surrounding parts we may find cases in which suffering may be relieved, when for some reason an operation for uterine disease cannot be performed. 8. To make such

examination eliminates errors, and is more scientific; and the more exact we become, the firmer ground we tread. [C.A.O.]

3.—The Surgery of Nephritis.—G. M. Edebohls says that for the present in view of the helplessness of medicine in the presence of established chronic Bright's disease, the advance in treatment represented by renal decapsulation should be welcomed by every physician called upon to treat chronic nephritis. This operation applied early in the course of a chronic nephritis, and in the absence of complications, is almost free from danger in expert hands, and is almost a certain cure. Of 72 persons whose kidneys were decapsulated by the writer for chronic Bright's disease up to the end of 1903, 10 were physicians, and two others were members of the immediate families of physicians. The author has followed 69 of these cases either to the termination of their lives or to the present writing and the results reported are very satisfactory. A fourth publication will soon be issued giving the history of each case in full detail, including urinalyses, and an analysis of the results thus far obtained. [C.A.O.]

4.—Operations in the Mouth.—A new method to facilitate operations in the mouth, for the purpose of minimizing the danger of aspiration of blood during general anesthesia is described by A. W. Herzog. The method is to intubate the patient and connect the intubation tube by means of a tightly fitting end-piece with a rubber tube, which is passed through the patient's nose, so that the inspired air or anesthetic is taken into the lungs through the tube passed through the nose. [C.A.O.]

Medical News.

June 4, 1904. [Vol. 84, No. 23.]

1. Some Considerations on Infection and Immunity. THOMAS E. SATTERTHWAITE.
2. Notice on the Epidemic of Cerebrospinal Meningitis. HENRY DWIGHT CHAPIN.
3. The Clinical Features of Cerebrospinal Meningitis, or Cerebrospinal Fever of the Epidemic Type. HENRY KOPLIK.
4. A Plea for the Organization of a "Society of Sanitary and Moral Prophylaxis." PRINCE A. MORROW.
5. The Management of Occipitoposterior Positions of the Vertex. JAMES D. VOORHEES.
6. Scurvy in Infants. WILLIAM FITCH CHENEY.

1.—Infection and Immunity.—Thomas E. Satterthwaite states that there are certain epochs in the study of vexed questions when a knowledge of their *status præsens* is desirable. We have now reached such a period with reference to the somewhat obscure topics of infection and immunity, and it is the purpose of his paper to supply this information so far as a brief statement of facts makes it possible. He refers to the early work of Pollender, Davaine, Pasteur, Koch, and others, which brief outline introduces us to the present bacteriologic aspect of infection. This he reviews at some length, stating that the discovery of antitoxins we owe to Salmon and Smith of this country, but the method of preparing them is generally attributed to Behring. The infecting bodies in tuberculosis, typhoid, glanders, gonorrhea, anthrax, tetanus, bubonic plague, suppuration, erysipelas, lobar pneumonia, influenza, diphtheria, ordinary dysentery, cholera, and relapsing fever are believed to have been discovered, although they cannot all stand the test of Koch's wellknown law. There is also a strong presumption that the infecting agent is bacterial in syphilis, mumps, measles, whoopingcough, typhus, hydrophobia, dengue, inflammatory rheumatism, and beriberi, but the proof is still lacking, just as in yellow fever, scarlet fever, and smallpox. Attention is called to the fungi and the part which they play in the etiology of disease. He speaks particularly of an acquired and inherited immunity of the former. There are two kinds, active and passive. The following rules of immunity are discussed at some length: The exhaustion theory; the retention theory; phagocytic theory of Metchnikoff; the humoral theory of Fudor; the cellulohumoral theory; Ehrlich's side-chain theory, etc. Latency in infective diseases is also considered at some length. The paper is especially interesting and instructive in giving a review of that which has been accomplished in the subject under discussion. [A.B.C.]

2.—Epidemic Meningitis.—H. D. Chapin describes the abrupt onset with vomiting and chills or severe convulsions. Prolonged convulsions quickly followed by coma warrant a

grave prognosis. There is severe pain in the head and back of the neck. Retraction of the head is an early symptom. Contraction and rigidity usually continue during the disease. Cases that appear to be approaching rapidly a fatal ending may suddenly show improvement and in those with less urgent symptoms the patients may unexpectedly die. Hyperesthesia occurs. The mental state varies from apathy to irritability, delirium, and coma. Kernig's sign is generally present. Temperature and pulse show remarkable variations. The eyes are often involved and frequently the ears. Sometimes the patient never regains former mental and physical strength. In the epidemic which Chapin reports, the skin was rarely involved. The port of entry of *Diplococcus intracellularis* is uncertain. Mild cases can be diagnosed only by lumbar puncture. The disease does not behave as though contagious. [H.M.]

3.—Clinical Features of Epidemic Meningitis.—H. Koplik states that 60% of the patients are under two years. The most lucid classification of the types of meningitis is given by Osler. The writer's cases were of the primary epidemic form, including the posterior basic meningitis of Still. The onset is generally abrupt. Slight or marked rigidity is present in all cases. Opisthotonos occurs in 70%. The skin, tendon, and plantar reflexes tend to disappear in fatal cases. Babinski's reflex was found in only 4 out of 25 cases, while in the tuberculous form it was demonstrated in 20 out of 26 cases. In the latter the child is stuporous; in the epidemic form, when not in coma, he is irritable. Percussion of the inferior frontal or parietal bone gives a tympanitic note. Facial paralysis occurs only in the severest types, whereas it is quite constant in tuberculous disease. The temperature is intermittent, and at times is wildly irregular. Sometimes a roseola resembling typhoid is seen. In the majority of the author's cases there was no change in the optic papilla. In all cases there was some leukocytosis. The physical characteristics of the fluid obtained by puncture aid little in diagnosis. The writer has found the diplococcus from the first 24 hours to the fifteenth week. Lumbar puncture is indicated when irritability and headache are severe, and when rigors are frequent, but is inefficient in rigidity and opisthotonos. Antiseptic injections have not lessened mortality. Hot baths may be given for the rigors, sponging for temperature. The writer administers calomel as a laxative, and iodids in full doses. [H.M.]

4.—Organization of a "Society of Sanitary and Moral Prophylaxis."—Prince A. Morrow proposes to form in this country such a society, the object of which is the study of the means of every order—sanitary, moral and legislative, which promises to be most effective in preventing or diminishing the spread of diseases which have their origin in the "social" evil. This society is to be composed of medical men, representatives of the clergy, of the law, public educators, sociologists and public-spirited men generally, similar to societies which have been organized in various cities and countries of Europe. The subject is considered under several headings such as the need of such a society, the magnitude of the venereal peril, extensive prophylaxis, effects upon the individual, effects upon the family, frequency of marital contamination, remedial measures, attitude of society, etc. He states that it is now generally recognized that the class of disease comprehended under the general term venereal, together with alcohol and tuberculosis, constitutes the three great modern plagues which afflict humanity. Practically nothing is being done to control the ravages of venereal disease. Morrow makes a strong plea for the organization of such a society. Concerning remedial measures he states that the cardinal points of prophylaxis are (1) to preserve the healthy from infection; (2) to prevent those already infected from infecting others. The dissemination of knowledge concerning the dangers of venereal diseases and their proper hospital treatment are urged. [A.B.C.]

5.—Management of Occipitoposterior Positions of the Vertex.—James D. Voorhees advises as prophylactic measures in the management of occipitoposterior cases, postural treatment and external manipulations either before or at the beginning of labor; for nature often needs only the slightest aid to work wonders. The correction of the malposition may be aided by keeping the patient upon her feet, by moderate out-of-door walks before labor, or about the room during the first

stage of labor. Also small doses of quinin and strychnin, singly or combined, for one or two weeks before labor, or during the first stage, may help by strengthening the pain. One should not be alarmed by the occipitoposterior position, since according to some observers, as high as 90% rotate anteriorly spontaneously. In order to do this, certain conditions are necessary; the head must not be too large for the pelvis, the flexion must be good, the pelvic floor must be resistant, and the uterine contractions must be strong. Lack of the last condition is the most frequent cause for interference. If the head is movable and high and the pelvis normal, Voorhees advises that one first obtain as complete a dilation of the cervix as possible, then under deep anesthesia carry the hand into the uterus and manually rotate the occiput anterior. This can often be accomplished if the lower uterine zone is not retracted about the child. Then holding the head in position by the hand inside the uterus, and aided by an assistant making strong pressure on the fundus, apply the forceps to the side of the head. If, after rotating the head, and using moderate traction with the forceps, the head does not descend, or if the pelvis is found to be flattened, version would probably be the better operation, safer for both mother and child. In those cases in which the head is engaged in the superior strait or is in the midpelvis, sometimes the manipulation of pushing up the forehead and thereby increasing the flexion will allow the occiput to come down low enough during a pain to meet the resistance of the pelvic floor, and so start the rotation. Voorhees describes minutely the method of using the forceps when necessary. [W.K.]

6.—Scurvy in Infants.—W. F. Cheney reviews the clinical picture of the disease, having found some physicians unable to interpret the symptoms, although the condition is not uncommon. Just three measures are indicated for cure. Discontinue the proprietary food, substituting fresh milk diluted with plain or oatmeal water. Give orange juice and fresh beef juice, one or two teaspoonfuls three times daily. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Value of Statistics in Connection with Venereal Diseases in the Army and Navy.—Valery Havard¹ states that in the army the rate of admissions to the hospital for venereal disease during the normal peaceful decade, 1889 to 1898 was 71.45 per 1,000; after the Spanish war the rate rose greatly, and has been steadily increasing, being 127.35 for 1900; 155.39 for 1901; and 160.94 for 1902 with a mean of 147.89 for the past three years. These rates are higher than those reported by the army of any other country. In the navy and marine corps for the period 1896 to 1902, the mean yearly rate is 51.6, ranging from 46 in 1897 to 57 in 1899, with an average for the last three years of 53.33. It is noticed that the mean for the army is nearly three times that for the navy. Havard questions why this disparity exists, since the army and navy are made up of practically the same class of individuals, and their opportunities for contracting disease are relatively the same. In the army during the last three years the number of cases of gonorrhea is more than double the total for syphilis and chancre, while in the navy during the same period the number of cases of gonorrhea is less than the total of syphilis and chancre. In the army during the last 10 years the number of cases of chancre invariably exceeds that of syphilis, the ratio during the last three years being 30 of chancre to 80 of syphilis. In the navy these figures are completely reversed, syphilis exceeding chancre in the proportion of 539 to 238. [A.B.C.]

Fetal Endocarditis; Pulmonary and Mitral Stenosis Persisting.—G. Baccelli² gives the clinical history of this case, occurring in a young farmhand, aged 20. The author, incidentally, emphasizes a sign of mitral stenosis, little credence to which is commonly given: A sharp murmur which supplants the first cardiac sound, and is transmitted from its point of origin at the surface over the mitral valve, to the apex. He has taught this for more than 15 years, though opposed by the German writers. [T.H.E.]

¹Journal of the Association of Military Surgeons, February, 1904.

²Il Policlinico (Rome), No. 15, 1904.

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The work of preventive medicine is admirably presented in the masterly address of Dr. Biggs, published in our last week's issue. Discriminating and yet enthusiastic, scientific and yet unselfishly sociologic, always and persistently practical, the cause itself and, unconsciously, the worker in the cause, stand out with sharp distinctness as great agents in the task of social betterment. No subject, as is said, more vitally concerns the welfare of a community than that pertaining to its healthfulness. How the inhabitants live and how and at what age they die, what is the extent and character of the morbidity occurring among them and what are its causes, are questions of momentous importance. They are essential features in the problem, whose solution will teach men how they may live longer, healthier, and therefore happier lives. With all the cautions emphasized, there can be no doubt that the professional labor in preventive medicine has been the chief cause in lessening the expense, suffering, and death due to disease and unnecessary death. Taking New York City as a typical illustration—and how much of the progress has been due to Dr. Biggs himself!—there has in recent years been effected a saving of at least 50,000 lives a year as the outcome in great part of practical medical and sanitary science. The somber and warning note is struck when one faces the increase instead of the decrease of certain diseases. In New York Dr. Biggs finds that during 20 years there has been a great increase in the acute respiratory diseases, cancer, and diseases of the circulatory apparatus and the kidneys. The increase in cancer amounts to about 15%, and the increase in the acute respiratory diseases amounts to about 15%, while the increase in the diseases of the circulatory apparatus and kidneys combined equals about 40%. The profoundly important question still remains unsolved as to the causes of these increases, and then of the methods of obviating them. Our gratification, for instance, at the 65% reduction of the diphtheria mortality by means of the antitoxic serum is tempered by the harassing counterweight, but it by no means lessens the unflinching determination to fight the enemy at all points—if it should take all the century.

The postponement of national systematic drug analyses by the House of Delegates is, under the circumstances, a wise movement. The difficulties in any

practical execution of the task seem at present insuperable. Perhaps, after all, the existing agencies, if properly and adequately utilized, are enough to bring about the reform in a slow and more certain manner than by any complex and official organization. While such widespread and powerful interests exist against thoroughgoing reform, and while even chemist experts in one way or another may still be bribable, there must be recognized great dangers in carrying out the absolutely exact analyses and complete publication of the results. Any plan that gives only the analyses of the good and really "patent" products while remaining silent as to fraudulent and secret ones, cannot command much following or bring about revolutionary changes. One of the essential conditions of progress seems to be the enactment of the Hepburn Pure Food Bill by Congress, and to this end physicians should give every aid in their power. Why should not Drs. Ellis, Jones and others establish their bureau without the sanction and support of the American Medical Association and the American Pharmaceutical Association, and give the professions the benefit of its workings? In the meantime there is a vast deal of practical reform possible, based upon the reports of the published analyses of State Boards of Health and of the United States Department of Agriculture.

A National Medical Legislation Committee.—

Devotion to professional interests rather than to those of personal ambition is shown by physicians who give time and energy to medical reforms after their terms as president and chairman have expired. Dr. C. A. L. Reed is happily illustrating the truth, by giving his splendid ability to a task which is perhaps not destined to bring much popularity and honors, but which is all the more needed and, well executed, is bound to be productive of good. It has long been noticed and deplored that we as a profession have no representative in Congress. "Not one," emphasized an antiprotester when an *apparent* exception was suggested. It has also been as old a matter of regret that until the medical profession could bring its influence to bear upon our legislative bodies the imperatively needed medical reforms could never be even commenced. The law, or legal permission at least, must authorize the fundamental conditions. By banding together the scattered individuals who

recognize this truth, by making as it were a national committee to influence the enactment and execution of laws concerning medical progress and hygiene, Dr. Reed has placed the profession and the country itself under profound obligation. With a reunited and reorganized profession to support there should be great advances made in our national medical progress. Every earnest and unselfish worker in medical sociology should apply to be a helper in Dr. Reed's work.

Scientific Exhibit, American Medical Association.—One of the most successful features of the American Medical Association was the exhibit of all varieties of scientific preparations, which was well arranged in a large room at the end of Young's Pier. The exhibit was in charge of a committee, under the direction of Frank B. Wynn, of Indianapolis. To Dr. Wynn belongs the credit of having conceived this department, and of having perfected it in spite of a primary lack of enthusiasm on the part of the Association. The exhibit contained a large number of gross and microscopic pathologic specimens, a large and unusual collection of photomicrographs, röntgen-ray photographs, wax models, etc. Demonstrations were held on Tuesday and Wednesday afternoons. The director outlined the growth and purpose of the exhibit in his address on Tuesday afternoon. It is a most democratic feature; the worker along special lines will perhaps derive the most benefit from the study and comparison of the collections from different schools; yet every practitioner will find it equally valuable for his own work, since it is intended to contain complete series of organic lesions; for example, this year a complete series of kidney lesions was exhibited. An important work accomplished by this exhibit is a stimulation to neater and better ways of preserving specimens; an example of perfect technic was offered by the beautiful collection of Kaiserling specimens from Jefferson Medical College, mounted in gelatin. The exhibit further offers an incentive to the collection of specimens, for while the larger medical schools, because of their greater opportunities, will be able to demonstrate a greater number of specimens, there is always room for anyone to demonstrate even a single specimen; and the specimens need not necessarily be rare, for examples of the most ordinary lesions will be instructive to all who are not in touch with a museum. As examples of the work done at this meeting we would mention the demonstration by Dr. William H. Welch, of Baltimore, of arteriosclerosis and consecutive visceral lesions, forming an almost necessary complement to the symposium on arteriosclerosis. Great interest was shown in the demonstration of Dr. W. T. Councilman, of Boston, of lantern slides and photomicrographs of malaria, aleppo boil, scarlatina, vaccinia and variola. Hodgkin's disease was demonstrated by Dr. W. T. Longcope, of Philadelphia. Dr. H. A. Christian showed lantern slides and photomicrographs illustrative of various pathologic conditions, typhoid, cirrhosis of the liver, tuberculosis, diphtheria and neuralgia. We have not space to give the entire program, but the above will be sufficient to show the character and scope of the work. The demonstrations were well attended. A final point

may be mentioned—and the audiences at both demonstrations proved this—such an exhibit forms a place where the general practitioner and the special worker may meet on common ground with a common subject of interest, which is, unfortunately, not always true in this day of extreme specialization.

Two Kinds of Section Work.—The American Medical Association presidential address was in large part a capital and practical review of the present conditions and achieved reforms of the Association itself. Progress has come through the comparative abrogation of the general session and the concentration of power in the House of Delegates, the elimination of politics, and the rise of scientific work in the sections. Dr. Musser makes a most noteworthy suggestion: The devoting of one morning to a reformed general session on the practice of medicine in which the whole Association could take part; a second morning on surgery; a third on the specialties; a fourth on sanitary science. We hesitate to suggest a word of criticism as to this plan, but it cannot be forgotten that section work would be curtailed, and, as is admitted, it is this which has so largely made for progress in the past. Already it is found that all efforts at concentration of papers, lessening the time of readers and speakers, etc., cannot meet the growing demand for opportunity to read papers in the special sections. It seems even now that it will soon become imperative that contributors read only brief epitomes of their articles, leaving the complete papers to be published later in the official organ of the Association. If Dr. Musser's suggestion is carried out the sections must hereafter meet in the evenings in order to give time even for the epitomes and for the following discussions, which, it should be remembered, are often as valuable as the original papers. On the whole, it would seem a doubtful proposal. The progress of medicine rests largely in special work and not in the general questions which would interest all the members. And finally, as to the specialties themselves, those general relations which would interest, say, the oculist and the aurist, or the dermatologist and the orthopedic surgeon, are relatively few, and the deeper problems would be left untouched. It is a pity that, as we have suggested, and as in the *British Association*, a popular evening, both for the lay and professional public, could not be given to some question of universal medical importance and comprehensibility. Few things are more needed than practical methods of bringing the laity into sympathy with professional work.

The Public Should Pay the Physician for Public Work in Preventive Medicine.—In his address at Atlantic City Dr. Biggs urges that when a physician does especial work in the interests of the entire community he should receive payment for his labor. He said:

A serious objection which may be urged against the adoption of the measures recommended in regard to the registration of many infectious diseases is the increased labor thrown on physicians which their enforcement would involve. The question may properly be asked: Whether the sanitary authorities in the interest of the general public may call on the medical profession for the expenditure of so much time and labor with

out making any compensation in return? There are 35 diseases included in the New York list. The English authorities pay a fee for the notification of each case of infectious disease, and I believe that this course might properly be pursued in this country; but this has not been the custom here, and the authorities generally are not now provided with the funds necessary for this purpose.

In New York City free bacteriologic examinations in the diagnosis and surveillance of the infectious diseases, and the provision of facilities throughout the city for the collection of specimens and the sending of reports to physicians, constituted an entirely new departure in sanitary work and has been of the greatest value. The example of New York has been followed by the sanitary authorities in most of the large cities of this country, by many State authorities, and by authorities generally, in Great Britain and to a certain extent on the Continent. These examinations constitute the return which the authorities here have made to physicians for the reporting of cases and for their assistance and cooperation in their care. This return has a very considerable money value, when we remember that for such examinations the usual fee is \$5, and as physicians can not, as a rule, make such examinations themselves, they must work without the assistance thus afforded, unless they appeal to the regularly constituted laboratories.

Improvements Needed in Medical Education.—

We have frequently called attention in these columns to many changes needed in our modern methods of medical education. In his presidential address, at the Fifty-fifth Annual Session of the American Medical Association, Dr. John H. Musser (*American Medicine*, June 11, 1904) set forth very admirably and clearly many of these needs, and called attention to some matters which we believe have not previously been brought to the notice of the medical profession. The most needed reforms are: A more careful discrimination as to the character, physical and mental fitness of the student who is to undertake medical studies; the desirability of a higher standard of preliminary education, and Musser believes that a preliminary college course should be the ideal; improved facilities for laboratory teaching and increased opportunities for hospital study. To this end he suggests extramural hospital teaching as a substitute for part or whole of the fourth year of medical study. These changes would cut down materially the number of students undertaking the study of medicine and would, in this way, indirectly remedy the present overcrowding of the profession. All of these changes are urgently needed in greater or less degree in all of our medical schools. Under the present conditions of overcrowding in the profession there is no excuse for the existence of a large number of medical colleges throughout the country that are not in the position to give either satisfactory laboratory teaching or the clinical facilities necessary for the training of the modern medical man. A chief object of the founders of the Association was improvement in medical education:

"The object of this Association shall be for the purpose of elevating the standard of medical education.

"This Association has been, should be, and we trust will be, the storm center of legislation for reform in medical education."

When we remember that 15 years ago there was no uniform requirement for entrance to medical study, many students being admitted without even a high school education; that no medical college was requiring over three years' study for a degree, and most were graduating their students after a two years' course; that the majority of the States of the Union required no examination for qualification to practise, we see that very much has been accomplished. Further improvements are being made at the present, but we cannot afford to stop where we are, and this surely will not occur. At the rate of progress made in American medical education during the past decade, we confidently predict that our country will soon as surely lead the world in medicine and surgery as is at present the case in many other fields of thought and action.

The Problem of Dealing with Unfit Students: Overcrowding in the Medical Profession.—Important suggestions are given by Musser as regards our duty to those contemplating the study of medicine and to students, who show during the first years of study, that they have not adaptability for the work. He questions whether the average student is quite able to decide whether he should take up the profession of medicine, and asks if it would not be well to have in our college curriculum a course of lectures for the student who contemplates entering a profession, pointing out the rocks and shoals in his prospective career.

The majority of students have no good reason for studying medicine. They are ignorant of its mental and physical demands. They are attracted by a glamor and specious glory, and heedlessly go in. The failure of a large percentage of graduates in medicine to acquire more than a bare existence, too often not that, proves that they were not educated properly, not fitted temperamentally or physically to pursue its duties. It would be a greater kindness to show the student that by reason of intellectual temperament or of physical or moral qualities he is not likely to reap the rewards he is anticipating than to allow him to enter a career in which he will probably fail.

If we could thus weed out even a small proportion of those manifestly unfitted for medicine, it would be a great gain. All practitioners, whether teachers or not, should keep this in mind when asked for advice by those considering the advisability of studying medicine. Musser further urges that those who enter the medical school be not permitted to continue their studies if they show themselves unfit.

That school has too many students which does not have enough instructors in the first year to be able to judge with reasonable accuracy of the character and moral stability of the men. A student who does not play fair in his exercises, who cheats in one demonstration or evades another, who does not show manliness, frankness, and truthfulness in his first year duties, will not be a good diagnostician. He will cheat himself; he will cheat his patient. The teachers of the first year, or at least the second, should know this and block the student there and then. It would be a kindness. Let us then agitate whether we should not have a certificate of manliness and of health, as well as of mental proficiency, before we admit students to our medical schools or permit them to go beyond the first year.

We have long considered it a great injustice to do as has so often been done in certain medical schools, permit a student to continue his studies until his final year, and then refuse to graduate him. The harsh things students

say of their professors under such circumstances are not altogether unjustified. Only under exceptional circumstances should a student unfit to receive a degree be allowed to study medicine over one, or at the most, two years.

Higher Tuition Fees.—Another means of cutting down the number of medical students which Musser suggests is by raising the tuition fee. An education which involves a hospital course requires an expenditure of \$500 a year for four years by each student. It is manifestly impossible, as medical schools are constituted now, to educate all the students of the land properly. He believes, if a decree should be issued that no medical school, including its hospital, should exist except upon fees derived from students, but little hardship would follow. The lessened supply of students would increase the demands on the practitioner, so that larger returns would follow. The poor student would sacrifice and strive to get a degree, knowing then he had a good asset. A diminution in number and an increase in quality is demanded alike by the public and the profession. Such diminution in number would mean that the student would get back his investment quicker and in larger amount than at present, hence good men would be attracted. As it is now, medical students receive part of their education through the bounty of the State or the charity of the public, as such education can only be given in endowed institutions. The public is taxed so that the prospective physician can make a living. Is it right that it should be? Perhaps a mechanic should demand such right to make his son a good workman. We must all admit the duty of the State to educate, so that good citizenship is maintained; we question whether the State should educate the members to obtain a livelihood. Under present conditions we decidedly question the desirability of raising the tuition fee, for this would certainly exclude many most valuable men from medicine. The medical man and his education should not be compared with a mechanic; in preventive medicine the medical profession saves yearly thousands of lives, worth inestimable thousands of dollars to the State, and in gratuitous services to the poor alone the medical profession by preventing people from becoming permanently crippled, repays many times over, all State appropriation and private beneficence. The public can never repay a tithe of the debt it owes to medicine. Such institutions as the University of Michigan, where the standards are high but tuition a nominal fee, or Cornell, which gives free State scholarships to a considerable number of its medical students, have contributed much both by well-trained practitioners and scientific work to the progress of American medicine. There is little danger of overcrowding by the graduates of such institutions. Few of the best men study medicine because of the financial rewards it promises, and there can be little question that those who are really successful financially would have earned many times more had they chosen a business career and put into it the money and time they devoted to preparation for their profession. A high tuition fee shuts out just this class of idealists. The requirement of a degree in

arts or science preliminary to medical study should accomplish the reduction of the number of graduates and at the same time improve the quality of the graduate, we believe, much more satisfactorily than would raising the tuition fee.

An Academic Education Preliminary to Medical Study.—Musser urges very forcibly and makes a strong plea for its advantages. There should be one educational requirement—the equivalent of that for which a first-class college degree stands, whether received at a high school or university. To the plea that the requirement of a college degree takes up too much time and requires too much money, the material answer can be given that while only "1% of the entire population of America has received a higher education in her colleges and universities, this 1% holds more than 40% of all positions of confidence, of trust, and of profit." It is well known that the "Geist" of the individual brings success, for which they say "it is recognized that the educated man takes in a wide horizon and puts more 'soul' into his work." The poor boy, therefore, need not be deterred, for if he has the spirit and energy to work his way through four years, two years or three years more will be but very little in the final summing up. The purchase of the best education, whether reckoned in time or money, is the most economic investment. We have recently discussed this question in these columns, and hardly need say that this is an ideal which we have frequently and strongly advocated.

Dedication of the Rush Monument.—In the presence of a distinguished gathering of American physicians, the statue of Dr. Benjamin Rush was unveiled in Washington, D. C., on Saturday afternoon, June 11. Delightfully simple but impressive ceremonies were held on the grounds of the old Naval Observatory, now occupied by the United States Naval Museum of Hygiene and Medical School. Dr. John H. Musser, of Philadelphia, President of the American Medical Association, conducted the ceremonies and made the presentation address. The orator of the occasion was Dr. James C. Wilson of Philadelphia, Chairman of the Rush Monument Committee, who delivered an eloquent eulogy of Dr. Rush. In accepting the statue on behalf of the nation, President Roosevelt showed a thorough appreciation of the great services of Dr. Rush. Such a patriot, philanthropist and indefatigable scientist as Rush may well be considered his ideal of an American citizen, and the President emphasized the literal dependence of the country's growth and safety upon the active participation in public affairs by citizens of the intellectual class. The statue stands on a prominent elevation in the adjacent park, and though rather remote from the line of travel, the impression gained from its first view on a rare June afternoon bespeaks the wisdom of the Secretary of the Navy in selecting the site. The figure is of heroic size in bronze, and is mounted on a pedestal of Indiana limestone. In keeping with the surroundings the general scheme is a simple one, and represents the celebrated physician in a walking attitude, deep in meditation with his favorite note book in hand—the personification of

his favorite Latin motto "*Studium sine calamo somnium*," which is inscribed on the rear panel of the pedestal. Congratulations are due to the committeemen of the American Medical Association, to the sculptor, Mr. R. Hilton Perry, of New York, to the architect, Mr. Louis R. Metcalfe, and to the builders for the fruition of this worthy tribute first planned over two decades ago.

Prognosis: Its Theory and Practice.—It was a happy thought on the part of Dr. George Dock to select for the subject of his oration before the American Medical Association that much neglected field of medical practice—prognosis. There is an unquestionable tendency at the present time to permit diagnosis to monopolize the field of action, even at the expense of treatment, and prognosis, which our medical forbears considered a fine art, has fallen into disuse. It is to be hoped that the admirable address of Dr. Dock will serve to revive a proper interest in this phase of medical science. "With an accurate prognosis," to quote his words, "based upon an exact and thorough examination, knowledge of the natural course of the disease and of the patient, the physician foresees the course of the malady, and is prepared for changes, emergencies, and complications." Moreover, it is good mental discipline to work out the prognosis in every case, as the complement of the diagnosis. Having done so, the question arises: To what extent shall the patient be made cognizant of the physician's conclusions? Upon this point Dr. Dock's advice is both thoughtful and timely. In many cases, he holds, it is distinctly proper to tell the sufferer with a chronic disease the nature of his malady. The statements made should be simple and as brief as definiteness will permit, without pathologic explanations. It is possible to tell a patient that he is suffering with tuberculosis or cancer without causing a great shock; and, "by dwelling upon the fallibility of human knowledge in general, and of medical knowledge in particular," to quote Dr. Dock, the sharp edge, as it were, of the information may be dulled. One should never, even in conveying the saddest tidings, utterly crush hope in the heart of one's patient. In dealing with a person of average intelligence, one can inform him of the possible fatal termination of his illness in such a way that, while he will take all the necessary steps to prepare for the end, he will still have left a ray of hope that the worst may not happen. Dr. Dock very justly inveighs against the practice of some physicians—a practice springing, perhaps, from the otherwise worthy motive, not to take unearned fees—to abandon cases that appear to be hopeless. Very much may be accomplished by the physician in such circumstances. His visit cheers the patient and banishes, even if only for a short time, gloom and despair. If the disease is a hopeless one, the physician is able to lessen the physical suffering entailed by it. This is not to be construed as expressing approval of the attitude of some laymen that in a hopeless case attended with pain, the physician should bring about a speedy euthanasia. In the long run, that physician will be the most successful who, other things being equal, habitually looks upon the bright side in making prognosis. To

what extent a consultant should indulge in optimism cannot be decided dogmatically. Both he and the family physician must always consider the patient, as well as his dear ones; and Dr. Dock is surely right in saying that it is often more necessary to keep up the spirits of the relatives, especially those that have to do the nursing, than to consider the feelings of the patient. The code of the strict moralist that any deviation from absolute truth is wrong is unthinkable in medicine, when the subject of prognosis is under consideration. The physician's chief interest is with the consequences, and if the patient can gain only by having the true nature of his case misrepresented, the physician is assuredly justified in misrepresenting it.

Interstate Reciprocity in Medical Licensure.—Since the divorce of the license-granting from the degree-conferring power, this subject has engrossed the attention of the profession with increasing insistence. It was an aphorism of Socrates that the penalty which the good must suffer for not taking part in the government is that they must live under the government of worse people than themselves. The crux of the whole subject of interstate reciprocity has at last been resolved into the question of uniformity of requirement; and this means at last a minimum standard of education. Except for the growth and multiplicity of commercialized medical colleges, the diploma of a reputable institution might still carry with it the right to practice. But today these reputable schools must suffer for the sins of their disreputable sisters. Fulfilling at once the functions both of judge and executioner, the power of the State Medical Examining and Licensing Board is beginning to dawn upon the medical schools, the profession and the public. Confronting different conditions in the several States, these boards have raised diverse standards. The result, for the moment, is but confusion worse confounded. That practical need will be met through the application of sound pedagogic principle is evidenced in the fact that these problems are now being grappled with, simultaneously and conjointly, by such organizations as the American Medical Association, the Association of American Medical Colleges, the National Confederation of State Medical Examining and Licensing Boards, the American Confederation of Reciprocating Examining and Licensing Boards and the like. The Association of American Medical Colleges has already adopted a minimum standard of requirement, as to the medical student's preliminary education. The next step is sought in similar uniformity of medical curriculum. Three important resolutions, passed at its recent meeting in Atlantic City on June 7, mark progress in this direction: 1. The Association approves the so-called combined system of college and medical education, and proposes to give a time credit, not exceeding one year, to the holder of the A.B., B.S., or equivalent degree from a reputable college or university; *provided*, such student has had at least 900 hours in Physics, Chemistry, Osteology, Histology, Embryology, Anatomy and Physiology; *and provided* the applicant for such time credit satisfies the professors attached to the medical school as to his proficiency in these first-year medical

studies. 2. In case of transfers of students between the associated colleges, the dean of the recipient institution must secure an official statement, from the school from which the student comes, as to the latter's educational and moral status. 3. A committee was appointed to confer with a similar committee from the National Confederation of State Medical Examining and Licensing Boards, upon the subject of a minimum standard of medical education and the proper distribution of subjects in a four-year, graded, medical course.

The plea for a standard medical curriculum, presented by Dr. George M. Kober, of Washington, deserves attention, if not endorsement. Recognizing the lack of uniformity in State Board requirements, as well as in college curriculums, and pointing to the minimum standard of preliminary requirement already adopted, he suggests that the adoption of a standard prescribed medical course may open the door to an equitable reciprocity. Failures before State Examining Boards may be attributable to one or more of three causes: (1) Noncompliance, by the colleges, with State Board requirements; (2) deterioration, on the part of the student, after graduation; (3) dishonesty in college examinations leading to the medical degree. McIntire's composite presentation of the work of State and college examiners shows them to be alike conscientious in their gradings and in their desire for better things. The fault must lie in the method by which the product of the colleges is evolved. Kober presents a composite of State Board requirements and of actually existing college curriculums. The result is a 4,000 hour course, distributed over four years, with such allotment of hours for each subject and in each year as practical experience and rational theory would seem to indicate. It may be questioned, for instance, whether general physics and general chemistry should not be an absolute prerequisite for the medical matriculant. The fact remains, however, that the average medical student is sadly lacking in knowledge of these branches. Again, there seems to be no real reason why the general biologic studies should not be thoroughly mastered before the student enters upon the medical course proper. This would open the way for a much needed revolution: The teaching of anatomy, chemistry and physiology, in the medical school, only from the standpoint of their practical application to medicine and surgery, not as abstract sciences or specialties. Still another question may be raised, that no two classes should be taught any one subject simultaneously, in a properly graded course based upon sound pedagogic principles. But, art is long, time is short, we cannot crowd too many topics into any one year without making it topheavy. The proposition that a uniform national curriculum will effect a more uniform distribution of students in the various medical centers is, at first, startling, if not repellant. But, after all, is it not an end devoutly to be desired? No argument is needed to prove the advantages of smaller classes, closer personal contact, a more uniform and economic utilization of laboratory and clinical material. May it not be true that some of our best colleges have gone to the extreme of producing unilateral specialists, when all-round prac-

tioners are in demand? The State Board requirements for these schools are no higher than for those less pretentious. There have ever been good men and true turned out from these small colleges. And, in these same small schools, there have ever been good men, true to the Hippocratic tradition, willing to give of their knowledge without cost. By all means, let us have *some* schools which shall be unsurpassed in certain lines; but let us at the same time see to it that *no* school falls short of a reasonable requirement in *all* lines. Large endowments, palatial buildings, elaborate equipment, desirable and necessary though they be, do not in themselves constitute a teaching institution. It is the old story of the men behind the guns. Let these men get together, determine upon the nature of their ammunition, the weight of their several charges, the caliber, range, and angle of fire, the order and distribution of their batteries, and American medical education will be victorious. Judging by recent events, the State Boards have the power, and in some instances the inclination, to drive recalcitrant schools into line. But compulsory compliance with rule must ever be more or less futile. The better schools owe it to themselves, to the profession, and to the public to resume their rightful initiative in matters educational. Concerted action, based upon firm and intelligent conviction, will soon attain the end desired.

Dedication of the Medical Laboratories of the University of Pennsylvania.—The dedication of the new medical laboratories of the University of Pennsylvania, which took place on Friday, June 10, constitutes an epoch in medical education in America. The ceremonies were dignified and simple, and were attended by a large number of physicians, principally members of the American Medical Association that had accepted the courteous invitation extended to them by the University to be its guests. A special train brought the visitors from Atlantic City and took them back at night. To those that had not previously visited Philadelphia, as well as to the old graduates of Philadelphia's medical schools, their visit to the University must have been a revelation. Dr. Horatio C. Wood, in his eloquent address at the dedication of the new laboratories, alluded to the magnificent material progress that the University has made in the last generation—a progress, one may add, in which Dr. Wood has been an important factor. The new laboratories are intended for the Departments of Pathology, Physiology, and Pharmacology, and everything has been done to give these important departments an ideal home. The building is architecturally attractive, and is in harmony with the general plan of the newer buildings, especially the dormitories. Mr. J. Vaughn Merrick, in the absence of Dr. S. Weir Mitchell, the chairman of the Medical Committee, delivered the presentation address, to which Provost Harrison responded. Dr. H. P. Bowditch, professor of physiology at Harvard University, spoke for physiology, and emphasized the importance of the physiologic laboratory in medical instruction, although he did not fail to say a good word for didactic teaching, which must still have a place in the medical curriculum. It should be borne in mind, he said, that it is quite as

possible to abuse the laboratory as the didactic method of instruction; and that in all schemes of education a good teacher with a bad method is more effective than a bad teacher with a good method. Professor R. H. Chittenden, director of the Sheffield Scientific School of Yale University, dwelt upon the importance of physiologic chemistry to medicine, and illustrated it by describing the epoch-making work of Hoppe-Seyler and his school. Dr. George Dock, professor of medicine at the University of Michigan, decried the tendency to magnify the place of the laboratory, and to encourage students to do advanced original work before the foundation is laid. He also spoke of the neglect into which pathologic anatomy has fallen, and urged the importance of performing autopsies whenever possible. The difficulty in regard to autopsies does not depend upon public sentiment alone, but upon a certain neglect upon our own part. He thought that as pathology gets everywhere out of cellars and back rooms and has a local habitation like the new laboratories, its cultivation would assume a broader and more independent character. The laboratory building is quadrangular in shape, two stories in height above a high basement, and measures 340 feet front by nearly 200 feet in depth. All along the front are arranged small rooms for research, rooms for the professors and assistants, a library, etc.; these open into a private corridor, so that the men employed in these rooms may pursue their work without interruption from students passing through the main halls. The second floor is devoted exclusively to pathology. The entire north front of the building is devoted to laboratories for advanced students in pathology and pathologic bacteriology, and to the special research and assistants' rooms.

Prizes for Scientific Discovery.—The contention made in *American Medicine* (May 28, page 839) that the hope is vain of stimulating medical research by means of prizes, receives an unexpected confirmation in the announcement of the abandonment of the American Medical Association medal. No essay had been submitted for four years worthy of the medal, although the demands were by no means high. The plan was essentially childish, and its failure is not to be regretted. One may hope that the money and energy being devoted to manufacturing what are held to be the conditions of medical discovery—we allude to laboratories, research endowments, etc.—may not also prove failures. They may at least train a larger number into a condition of mind capable of receiving new medical truths. But it must not be forgotten that they may not. Many minds, even "leading authorities," are impervious to such truths, and exhibit the most intense prejudices, and even opposition to the reforms until such opposition is no longer possible. Then they "always knew and recognized this"—at least, in words, and the forgotten discoverer may remain forgotten—until after his death. "Let us honor the Walter Reeds and Lazears," they seem to say, "but let us ignore them until they have succeeded in discovering and in dying without us!" The clinical discoverer of puerperal septicemia was bitterly persecuted by his scientific colleagues.

AMERICAN NEWS AND NOTES

GENERAL.

An examination of candidates for the position of assistant surgeon in the army will be held at the Army Medical School, in Washington, D. C., June 20. It is hoped to fill the 14 vacancies that exist in the army, and to this end several examinations will be held following that of the present month.

United States Officials Take Action against Packers.—The report comes from Washington that Dairy and Food Commissioner Warren will take action against several of the large packing houses, for the use of various chemic agents in the preservation of meat. Dr. Warren is quoted with the following statement: "We will swear out warrants for about 100 dealers whom our agents have made cases against, according to our experts and our attorneys. The chemists have found that the Western concerns, some of which are large factors in the beef trusts, are using preservatives containing sulfites in comparatively large quantities. These sulfite preservatives are the most injurious to health that have as yet come to our notice, and we are determined to drive them out of the market."

Miscellaneous.—General: Dr. John S. Fulton, secretary of the Maryland State Board of Health was elected president of the State and Provincial Boards of Health at the nineteenth annual meeting, June 4. The other officers elected were M. K. Foster, San Francisco, vice-president; J. A. Egan, Springfield, Ill., treasurer; Gardiner T. Swartz, Providence, R. I., secretary. —Dr. Anita Newcomb McGee, who left Philadelphia several weeks ago in charge of ten Red Cross nurses to assist the Japanese, has been appointed superintendent of nurses by the Japanese Red Cross Society. She has also been given the rank of an officer by the Japanese Government. In her letter to the Red Cross Society, Dr. McGee, says she and the nurses will soon go to Hiroshima, the main base, on the Inland Sea. Baron Ozawa, vice-president of the Japanese Red Cross Society, under the direction of the Minister of War, will accompany the American nurses to the front. Each American in the party will have a Japanese nurse to accompany and instruct her in the language, customs and other details. —**New York:** The sixth annual commencement of the Cornell University Medical College was held in the Carnegie Hall on Wednesday, June 8. Fifty-five students received their degree. Dr. W. W. Keen delivered the address of the evening.

Bequests to Charity.—Philadelphia: By the will of the late Hiram Brooke, his residuary estate was left to be distributed by his executors, Fidelity Trust Company, to such charitable institutions as they may think most deserving. The testator in his will left some small legacies from \$500 to \$2,000 each to nine hospitals, and the executor increased these gifts to \$5,000 each, and in addition gave the same sum to 15 others, making 24 hospitals in all, for the endowment of free beds in the name of Hiram Brooke, so as to establish permanent memorials of the testator. The hospitals are as follows: Hospital of the Protestant Episcopal Church in Philadelphia, Jefferson Medical College Hospital, German Hospital of Philadelphia, Hahnemann Medical College and Hospital, Jewish Hospital Association of Philadelphia, Contributors to Pennsylvania Hospital, St. Joseph's Hospital of Philadelphia, St. Timothy's Memorial Hospital and House of Mercy of Roxborough, Friends' Asylum for the Insane, University of Pennsylvania Hospital, Methodist Episcopal Hospital in the City of Philadelphia, Medico-Chirurgical Hospital, Presbyterian Hospital in Philadelphia, West Philadelphia Hospital for Women, Howard Hospital and Infirmary for Incurables, Children's Hospital of Philadelphia, Germantown Dispensary and Hospital, Kensington Hospital for Women, Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, Rush Hospital for Consumption and Allied Diseases, Woman's Hospital of Philadelphia, Philadelphia Polyclinic and College for Graduates in Medicine, St. Agnes' Hospital in the City of Philadelphia, St. Christopher's Hospital for Children. —By the will of the late John L. Devereux, an aggregate of \$141,000 was left to various hospitals and church organizations in Philadelphia.

The National Association for the Study and Prevention of Tuberculosis was organized June 6, at Atlantic City. A constitution and by-laws were adopted, which had been prepared by a committee appointed in Philadelphia, March 28 to organize the society. E. L. Trudeau, of Saranac Lake, N. Y., known as the "Father" of the antituberculosis movement, was elected president. Thirty directors were chosen, as follows: Massachusetts, Bowditch and Otis; Connecticut, Foster; New York, Biggs, Trudeau, Devine and Knopf; Pennsylvania, Lawrence Flick, Mazyck Ravenel, Howard S. Anders and Leonard Pearson; New Jersey, Hoffman; Maryland, W. H. Welch, William Osler, Jacobs and Pullon; District of Columbia, Sternberg; North Carolina, Minor; Colorado, Soley; Illinois, Klebs and Babcock; Minnesota, Bracken; Missouri, Porter; Indiana, Harty; Michigan, Vaughan; Ohio, Probst; California, Briggs; Texas, M. M. Smith; Marine-Hospital Corps, General Wyman, and United States Army, Major Bushnell, of Fort Bayard. William Osler, of Baltimore, presided; The question of the best means for preventing tuberculosis was

discussed at length by Biggs, of the State Board of Health, New York; Minor, of Asheville, N. C.; J. Solis Cohen, of Philadelphia; Huber, of New York; Devine, of the New York Charity Organization, and Hinckley, of Washington, D. C. They described the efforts being made to reduce mortality from the disease, advocated dispensaries for its treatment in its incipient stages, and instruction of the people by free lectures. Biggs, while detailing the work done in New York, said that since the Health Board had adopted its present system mortality from tuberculosis in New York had been reduced 40%. He would not be surprised to see a further reduction of 40% within the next 10 years, though at present the new cases reported in New York City aggregated 16,000 a year.

EASTERN STATES.

National Conference of Charities and Corrections convened in Portland, Maine, June 15, and will continue in session till June 22. The president of the conference is Dr. Jeffrey R. Brackett, who recently resigned the presidency of the Department of Charities and Correction of New York to become a director of the new school for the training of social workers, to be conducted under the joint auspices of Harvard University and Simmons College. The chief aim of the conference is to bring together workers who observe from various points of view the problems of lessening want, suffering, and crime.

NEW YORK.

Hospital for Treatment of Pulmonary Tuberculosis.—By July 1 next, the State Hospital for the treatment of incipient tuberculosis, at Raybrook, Essex county, will be so far completed that 80 patients may be received. The wings of the hospital are yet unfinished, but when they are ready for patients 150 more can be accommodated. All applications of patients must be made to the Overseers of the Poor, for the intention is to give preference to the indigent persons who are suffering in the first stages of the disease. The overseer shall certify patients, who will then be examined by the local examiners, and will be certified by them, if a proper case, for admission. Patients in advanced stages of the disease will not be admitted. The State has expended \$215,000 for the construction of the hospital, and has appropriated \$55,000 for its maintenance. In addition to these sums an appropriation of \$5,000 has been secured for the establishment of a camp for outdoor treatment.

PHILADELPHIA, PENNSYLVANIA, ETC.

Wrong Diagnosis.—Under instructions from the State Board of Health the smallpox committee of Salem, N. J., has made a thorough investigation, and has learned that the disease, which for awhile was epidemic there, originated from an overcoat made in a sweat-shop district and purchased by the first victim who died with the disease. A physician pronounced the malady ptomain poison; a large public funeral was held and the disease thus spread.

Homeopaths to Join in the Fight.—The Homeopathic County Medical Society will cooperate with the Philadelphia County Medical Society in the crusade which the latter organization is conducting against illegal practitioners in Philadelphia. At a meeting held by the Homeopathic Society, in Hahnemann College recently, the movement against illegal practice of medicine by nonregistered physicians in this city was discussed at some length, and the action of the Philadelphia County Society upheld. A committee was appointed to cooperate in apprehending and prosecuting the illegal practitioners.

WESTERN STATES.

Persons Afflicted with Pulmonary Tuberculosis Debarred from Teaching.—The Indiana State Board of Health has decided that hereafter no one afflicted with tuberculosis may be employed to teach in the public schools of Indiana. According to the investigations of the Board there are now in the State 250 teachers in the public schools who have tuberculosis.

Decrease of Pneumonia in Chicago.—The Bulletin of the Chicago Health Department, for the week ended June 4, says: For the first time since last October the weekly pneumonia deaths have not exceeded the deaths from tuberculosis. The 67 deaths from each cause represent 14.8% of the total mortality, instead of as heretofore, 10.7% for tuberculosis and 22% for pneumonia. In New York City the reduction of pneumonia is even greater; at the close of office hours on Saturday, June 4, there had been 1,265 deaths from all causes reported, of which number only 161, or 12.7%, were from pneumonia, and 172, or 13.6%, were from tuberculosis. The previous ratios had been 20.98% for pneumonia and 11.12% for tuberculosis. The reign of pneumonia is over until next November, and tuberculosis is again the "captain of the men of death."

Pneumonia in Chicago.—The bulletin of the Chicago Health Department for the week ended May 28, states that the term of pneumonia as the "Captain of the Men of Death" is nearly over for the present season. Since November 1, 1903, there have been 3,703 deaths from this cause out of a total of

16,780 deaths from all causes—a proportion of more than a fifth (22.06%) of the total mortality. From pulmonary tuberculosis during the same period there have been 1,806 deaths, or less than half those from pneumonia. Following is an extension of the table of these two causes of death for Chicago and New York City between November 1, 1903, and May 28, 1904:

	New York.	Chicago.
Total deaths, all causes	46,999	16,780
Deaths from pulmonary tuberculosis ..	5,228	1,806
Deaths from pneumonia	9,865	3,703
Proportion percent of all deaths—		
From pulmonary tuberculosis	11.12	10.76
From pneumonia	20.98	22.06

New York's estimated midyear population for 1904 is 3,888,024. Chicago's is 1,932,315.

FOREIGN NEWS AND NOTES

GENERAL.

Remedy for "Sleeping Sickness."—M. Guien, agent for culture of the Colonial Society of the Upper Congo, has drawn attention to a native remedy for "sleeping sickness." It is an infusion of the wood called "iboga," which is common in the Gaboon. It is claimed that this infusion acts as a stimulant which counteracts the sleeping sickness.

Centenarians.—An exchange states that in Germany there are 778 persons who claim to be 100 years old or more; in France there are 213; in England, 146; in Scotland, 46; in Norway 23; in Sweden, 10; in Belgium, 5; and Denmark, 2. In Switzerland there is not one centenarian, but, on the other hand, there are 401 in Spain, and as many as 575 in Servia.

Russian Physicians Fear Epidemics in Manchuria.—News from St. Petersburg states that the greatest precautions are being taken to prevent the outbreak of epidemics among the troops in Manchuria. Men specially trained in disinfecting are dispatched to all the big camps by the Red Cross Society, and according to reports received, the sanitary conditions are fairly good. Some sporadic cases of typhus and smallpox were segregated early. Apparently there is no danger of an epidemic. Letters received here from Liao-Yang say the conditions there are much improved, dry weather prevailing in April and early in May. Harbin was being cleaned up. The conditions in Korea, on the other hand, are described as terrible, and doubtless are responsible for the sickness prevailing in the Japanese army. The Red Cross Society has established over 10,000 beds in Manchuria for the purposes of war. In addition to the hospital trains, 18 barges are being fitted for the transportation of the wounded and sick by the Sungari and Amur rivers. Much is expected of the flying detachments, each made up of a surgeon, four medical students, and eight men trained to apply the first aid to the wounded and operate under fire.

OBITUARIES.

Henry D. Ingraham, in Buffalo, N. Y., May 23, aged 62. He was graduated from the University of Buffalo, Medical Department, in 1896; was a member of the American Medical Association, New York State Medical Society, American Association of Obstetricians and Gynecologists. He was gynecologist to three hospitals in Buffalo, and was also professor of the practice of medicine in the University of Buffalo from 1898 to 1902.

P. W. Beale, from paralysis, at his home in Camden, June 7, aged 47. A graduate of the Jefferson Medical College, in 1876; one time coroner of the city of Camden; member of the City Council and Pension Commissioner under the administration of President Harrison. He was prominent in the Odd Fellows, Masonic and other fraternities.

Oliver E. E. Arndt, of intermittent fever, at his home in Easton, Pa., May 29, aged 41; he was a graduate of the University of Michigan, and graduated in medicine at the Medico-Chirurgical College, Philadelphia, in 1888. He was a member of the Northampton County and the Pennsylvania State Medical Societies.

James W. Keiser, at Reading, Pa., of cardiac exhaustion superinduced by pneumonia, June 6, aged 43. He was graduated from the University of Pennsylvania in 1882. For fourteen years he served as secretary of the Berks County Medical Society, and was a member of the State Medical Society.

George W. Green, at his home in Battle Creek, Mich., May 27, aged 67. A graduate of the University of Michigan, Ann Arbor, in 1862. Member of the Michigan State Medical Society; of the American Medical Association; and a prominent specialist in diseases of the eye, ear, nose, and throat.

George M. Stiles, of Conshohocken, Pa., at the University Hospital, Philadelphia, June 8. A graduate of the College of Physicians and Surgeons, Baltimore, in 1882. He was Inspector of the Montgomery County Prison and Trustee of the State Hospital for the Insane.

Peter E. Griffin, in Columbia, S. C., May 18, aged 73. He was graduated from the University of Pennsylvania, Philadelphia, in 1855; served as surgeon in the Civil war, and for thirteen years was superintendent of the South Carolina State Hospital for the Insane.

George W. Burke, at his home in Middleton, Conn., June 6, aged 82. A graduate of the Yale Medical College, in 1848. From 1869 to 1881 he was United States Deputy Collector of Customs; he was one of the oldest and best known practitioners in Connecticut.

Philander Daugherty, of Junction City, Kan., May 23, aged 70. He was graduated from the Rush Medical College, Chicago, in 1866; was a member of the American Medical Association, and served as health officer of Junction City for several years.

Robert H. Stirling, a retired physician, in Baltimore, May 24. He was graduated from the University of Baltimore, in 1859, and was an acting assistant surgeon in the United States army during the Civil war.

James Robinson Gray, of Youngstown, Ohio, at the home of his mother in Pittsburg, Pa., May 26, from pulmonary tuberculosis, aged 32. A graduate of Jefferson Medical College, in 1897.

William Mulherin, of organic disease of the heart, at the home of his father in Philadelphia, Pa., April 7, aged 25. A graduate of the Kentucky School of Medicine, Louisville, 1902.

George Washington Brooks, at his home in New York City, June 7, aged 87. He retired from practice some eight years ago, and before his death suffered several strokes of apoplexy.

John C. Sill, at his home in Argyle, N. Y., May 23, aged 80. A graduate of the University of New York, in 1848; ex-president of the Washington County Medical Society.

Henry J. Hutchinson, a graduate of the University of Minnesota Medical Department, May 28, 1904, was drowned in the Dalles of the St. Croix River, Minn., May 29, aged 25.

Henry M. Replogle, at his home in Udell, Ia., May 27, aged 38. A graduate of Rush Medical College, Chicago, in 1895. Member of the American Medical Association.

Wilbur R. McKnew, a retired physician of Baltimore, May 31, aged 65. He was graduated from the University of Maryland School of Medicine, Baltimore, in 1862.

Lyman M. Beckes, from septic meningitis, at his home in Vincennes, Ind., May 25, aged 42. A graduate of the Medical College of Indiana, Indianapolis, in 1887.

Clinton L. Shoemaker, at his home in Philadelphia, May 29, from spinal meningitis, aged 33. A graduate of the Medico-Chirurgical College, Philadelphia, in 1903.

Clinton D. Baker, committed suicide, at his office in Conneaut, Ohio, May 26. A graduate of the Medical Department of Western Reserve University.

James N. McNutt, in Southville, Va., May 23, aged 60. He was graduated from the Washington University School of Medicine, Baltimore, in 1869.

Thomas J. Fitzmaurice, of Paterson, N. J., May 29, aged 35. He was graduated from the Bellevue Hospital Medical College, New York City, in 1893.

Rollo Campbell, of Montreal, at the Western Hospital, in that city, May 80. A graduate of the University of Bishops College, Montreal, in 1887.

M. White, in Ashburn, Mo., May 17. He was graduated from the Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Ia., in 1901.

John L. Johnston, at his home in Craig, Mo., recently, aged 86. He was surgeon in the United States army in both the Mexican and Civil wars.

Theodore Osgood Cornish, at his home in South Boston, Mass., May 23, aged 80. A graduate of Vermont Medical College, Woodstock, in 1851.

L. B. Andrews, at Rochester, N. Y., May 21, aged 40. He was graduated from the medical department of the University of Buffalo, in 1885.

Arthur M. Line, Wilmington, Del., May 29, aged 33. He was a graduate of Harvard, and College of Physicians and Surgeons, New York.

Reginald Henwood, in Brantford, Ontario, May 22, aged 66. He was graduated from the College of Physicians and Surgeons of Toronto in 1877.

A. E. Williams, in Cottageville, S. C., May 18. He was graduated from the Medical College of the State of South Carolina, Charleston, in 1854.

R. Harmon, in Oakland, Cal., May 19. He was graduated from the medical department of the University of California, San Francisco, in 1879.

Richard G. Lightle, in Searcy, Ark., May 22, aged 32. He was graduated from the Kentucky School of Medicine, Louisville, in 1898.

M. Taylor Powell, in Newburg, W. Va., May 15. He was graduated from the College of Physicians and Surgeons, Baltimore, in 1883.

D. E. Walker, of Iilon, N. Y., May 18, aged 49. He was graduated from the medical department of the University of Buffalo, in 1882.

Tyler W. Richmond, at Bear Lake, Mich., May 15, aged 56. He was graduated from the University of Michigan, Ann Arbor, in 1874.

Robert Johnstone, in Milford, Mich., May 14, aged 65. He was graduated from the Medical College of Ohio, Cincinnati, in 1882.

Thomas N. Clark, of heart disease, at his home in Reagan, Texas, May 20. A graduate of the Galveston Medical College, in 1871.

John E. Maucher, in Carrolltown, Pa., May 21, aged 73. He was graduated from the University of Munich, Germany, in 1851.

Francis Patoel, in Williamssett, Mass., May 11, aged 58. He was graduated from the Trinity Medical College, Toronto, in 1872.

Charles L. Parker, at his home in Onondaga Hill, N. Y., May 23, aged 47. A graduate of the Albany Medical College, in 1892.

Joseph W. Sharp, at his home in Dayton, Pa., April 3, aged 80. He was graduated from the University of Pennsylvania in 1850.

Elias VanCourt, at his home near Kingston, Miss., June 5, aged 74. A graduate of the University of Pennsylvania, in 1853.

H. C. Williams, of Sanford, N. C., May 16. He was graduated from the College of Physicians and Surgeons, Baltimore, in 1882.

C. H. Kinnaman, in Cleveland, May 22, aged 46. He was graduated from the Jefferson Medical College, Philadelphia, in 1886.

R. T. Dean, in New Sharon, Ia., May 22, aged 81. He was graduated from the Medical College of Ohio, Cincinnati, in 1872.

Frank P. Blair, of Allegany, N. Y., May 21, aged 61. He was graduated from the Albany (N. Y.) Medical College, in 1877.

Robert LaGrange, in Marion, Ia., May 23. He was graduated from the Rush Medical College, Chicago, in 1871.

H. N. Stanley, in Atlanta, Ga., May 23, aged 44. He was graduated from the University of Louisville in 1881.

James Lawless, at his home in Chicago, June 9, aged 60. A graduate of Rush Medical College, in 1877.

Augustus W. Duke, at his home in Baltimore, June 8, aged 76.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended June 10, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	San Francisco.....May 21-28.....	4	
	Jacksonville.....May 27-June 4.....	1	
Florida:	Macon.....May 28-June 4.....	5	
Georgia:	Belleville.....May 1-31.....	9	
	Chicago.....May 28-June 4.....	7	
	East Liverpool.....May 1-31.....	22	1
Iowa:	Dubuque.....May 28-June 4.....	1	1
Louisiana:	New Orleans.....May 28-June 4.....	11	
Maine:	Machiasport.....May 1-31.....	8	
Maryland:	Baltimore.....May 28-June 4.....	2	1
Michigan:	Detroit.....May 28-June 4.....	1	
	Grand Rapids.....May 28-June 4.....	1	
	At 101 localities.....May 21-28.....	Present.	
Nebraska:	Omaha.....May 21-28.....	3	
New Hampshire:	Manchester.....May 28-June 4.....	27	
New York:	New York.....May 28-June 4.....	2	
Ohio:	Dayton.....May 28-June 4.....	17	1
	Toledo.....May 22-June 4.....	6	
Pennsylvania:	Johnstown.....May 28-June 4.....	3	
	Philadelphia.....May 28-June 4.....	10	5
	Pittsburg.....May 28-June 4.....	8	
South Carolina:	Charleston.....May 28-June 4.....	2	
Tennessee:	Memphis.....May 28-June 4.....	14	
	Nashville.....May 28-June 4.....	12	
Wisconsin:	Milwaukee.....May 28-June 4.....	7	
SMALLPOX—INSULAR.			
Philippine Islands:	Manila.....Apr. 16-30.....	12	4
SMALLPOX—FOREIGN.			
Austria:	Prague.....May 7-14.....	4	
Belgium:	Antwerp.....May 5-21.....	5	4
Brazil:	Bahia.....Apr. 30-May 7.....	4	
	Rio de Janeiro.....Apr. 17-May 8.....	167	98
Canada:	Winnipeg.....May 21-28.....	2	
China:	Shanghai.....Apr. 16-30.....	2	14
Colombia:	Barranquilla.....May 9-16.....	2	
France:	Paris.....May 14-21.....	10	1
	Cardiff.....May 14-21.....	5	1
Great Britain:	Dundee.....May 14-21.....	1	
	Glasgow.....May 14-21.....	14	2
	Leeds.....May 14-21.....	2	
	Leth.....May 7-14.....	1	
	London.....May 14-21.....	18	
	Newcastle-on-Tyne.....May 14-21.....	8	
	Nottingham.....May 14-21.....	3	1
India:	Calcutta.....Apr. 23-May 7.....		11
	Karachi.....May 1-9.....	10	4
Mexico:	City of Mexico.....May 22-29.....	10	8
	Torreón.....May 23-28.....	2	2
Netherlands:	Rotterdam.....May 11-23.....	5	
Russia:	Moscow.....May 7-14.....	5	1
	Odessa.....May 7-21.....	1	2
Spain:	Barcelona.....May 10-20.....	9	
Straits Settlements:	Singapore.....Apr. 8-16.....	1	
Turkey:	Alexandretta.....May 14-21.....	1	
	Beirut.....Apr. 30-May 14.....	Present.	
	Constantinople.....May 15-22.....	4	

YELLOW FEVER.

Brazil:	Rio de Janeiro.....	Apr. 17-May 8.....	11	8
Mexico:	Vera Cruz.....	May 22-28.....	1	1

CHOLERA.

India:	Calcutta.....	Apr. 23-May 7.....	203	
	Madras.....	Apr. 23-29.....	1	

PLAGUE-INSULAR.

Philippine Islands:	Manila.....	Apr. 16-30.....	8	8
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PLAGUE-FOREIGN.

Africa:	Cape Colony.....	Apr. 23-30.....	1	
Brazil:	Rio de Janeiro.....	Apr. 17-May 8.....	4	
China:	Amoy.....	June 4.....	Present.	
India:	Karachi.....	Apr. 23-May 8.....	203	176

Changes in the Medical Corps of the U. S. Army for the week ended June 11, 1904:

QUINTON, Captain WILLIAM W., assistant surgeon, is relieved from duty at Camp Connell, Calbayog, Samar, P. I., and will proceed to Camp Bumpus, Tacloban, Leyte, P. I., for duty.

FIPE, First Lieutenant JAMES D., assistant surgeon, is relieved from further duty in Iloilo, P. I., and will proceed to Camp Connell, Calbayog, Samar, P. I., for duty.

BOWMAN, M. H., contract surgeon, is relieved from further duty at Camp Bumpus, Tacloban, Leyte, P. I., and will proceed to Camp Connell, Calbayog, Samar, P. I., for duty.

GIBSON, Major ROBERT J., surgeon, will proceed to Fort William McKinley, Rizal, for duty.

RICHARDSON, FREDERICK W., contract surgeon, will proceed to Liago Albay, for duty.

SPRINGWATER, SAMUEL A., contract surgeon, is relieved from duty at Fort William McKinley, Rizal, and will proceed to Guinayangan, Tayabas, for duty, relieving Contract Surgeon Herbert M. McConathy, who will proceed to Manila, P. I., for instructions.

COWPER, HAROLD W., contract surgeon, will proceed to Camp Wallace, Union, for duty.

EUTROPPE, ARTHUR, sergeant first class, now at Mariveles, Bejaan, will proceed to Nalc, Cavite, for duty.

MEISEL, JOSEPH, sergeant first class, will proceed to Mariveles, Bataan, for duty.

GARDNER, FLETCHER, contract surgeon, will proceed to Bulalacao, Mindoro, for duty, relieving Contract Surgeon John L. Burkart, who will proceed to Pilar, Sorsogon, for duty.

GUITTARD, VIRGIL D., sergeant first class, will proceed to Camp Morrison, Ilocos Sur, for duty.

WATKINS, VICTOR E., contract surgeon, now at Fort Miley, will proceed to Fort Apache, for duty.

The following-named surgeons were detailed to represent the medical department of the Army at the annual meeting of the American Medical Association, held at Atlantic City, N. J., from June 7 to 10: Major William G. Borden and Major Guy L. Edie.

FORD, First Lieutenant CLYDE S., assistant surgeon, will report to Major William H. Arthur, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination for promotion.

GREENE, EARL F., sergeant first class, office of the attending surgeon, New York City, will be sent at once to the transport Sumner, New York Harbor, for duty.

JONES, GEORGE B., contract surgeon, is granted leave for one month.

REBERT, MICHAEL A., contract surgeon, now at York, Pa., will proceed to Governor's Island, and report for assignment to duty as surgeon on the transport Sumner.

MUNSON, Captain EDWARD L., assistant surgeon, is relieved from duty with the civil government, as assistant to the commissioner of public health, Manila.

The following assignments to duty of contract surgeons are made: Contract Surgeon Harold W. Cowper is relieved from temporary duty at the convalescent hospital, Corregidor Island, and will report to the commanding general, department of Luzon, for assignment to duty. Contract Surgeon Frederick W. Richardson is relieved from duty at Camp Downes, Ormoc, Leyte, and will report to the commanding general, department of Luzon, for assignment to duty.

MAHVIN, MARION F., contract surgeon, is relieved from duty at Camp Hartsborne, Laguan, Samar, and will report to the commanding general, department of Luzon, for assignment to duty.

BROWN, POLK D., contract surgeon, is granted leave for three months, with permission to visit the United States.

LOVE, JOSEPH W., contract surgeon, is granted leave for two months, with permission to visit the United States.

RAYMOND, Major HENRY L., surgeon, is relieved from duty in the department of Luzon, and will report to the chief surgeon of the Philippine Division for assignment to duty in charge of the medical supply depot, Manila.

WILKINS, ARCHIBALD M., contract surgeon, is granted leave for three months, with permission to visit the United States.

MCCONATHY, HERBERT M., contract surgeon, is granted leave for three months with permission to visit the United States, to take effect about May 15, 1904.

TRUAX, J. P., contract surgeon, is granted leave for one month.

REBERT, MICHAEL A., contract surgeon, is assigned to duty as surgeon on the transport Sumner.

REYNOLDS, Captain FREDERICK P., assistant surgeon, is relieved from duty at the U. S. Army General Hospital, Washington Barracks, to take effect about July 1, and will then proceed to the Presidio for duty.

DALE, First Lieutenant FREDERICK A., assistant surgeon, is granted leave for one month, from about June 15.

HOGUE, GUSTAVUS I., contract surgeon, leave granted May 2 is extended one month.

TORNEY, Lieutenant-Colonel GEORGE H., deputy surgeon-general, having reported to the military secretary, war department, in compliance with orders heretofore issued, will return to his proper station at the U. S. Army General Hospital, Presidio.

TORNEY, Lieutenant-Colonel GEORGE H., deputy surgeon-general, is granted leave for one month.

BROWN, HENRY L., contract surgeon, is granted leave for fourteen days, to take effect June 18, with permission to apply for an extension of seven days.

The following-named officers will report to Major William H. Arthur, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination for advancement: First Lieutenants Eugene H. Hartnett and George W. Mathews, assistant surgeons.

Changes in the Medical Corps of the U. S. Navy for the week ended June 11, 1904:

GUTHRIE, J. A., passed assistant surgeon, detached from the Franklin and granted leave for three months—June 3.

HART, G. G., acting assistant surgeon, detached from duty with recruiting party No. 5, and ordered home and to wait orders from June 4—June 3.

SELLERS, F. E., acting assistant surgeon, ordered to the Franklin—June 3.

FAUNTLEROY, A. M., assistant surgeon, ordered to the Lancaster June 22—June 6.

ANGWIN, W. A., assistant surgeon, appointed assistant surgeon with rank of lieutenant, junior grade, from June 2, 1904—June 8.

ROSS, J. W., medical director, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to duty with the Isthmian Canal Commission—June 7.

MUNSON, F. M., assistant surgeon, detached from the naval station, Polloc, P. I., and ordered to the naval station, Olongopo, P. I.—June 8.

KITE, I. W., surgeon, orders detaching from the Maine revoked; ordered to continue duty on the Maine—June 8.

SMITH, C. G., assistant surgeon, ordered to the naval hospital, Mare Island, Cal., June 28—June 9.

ABEKEN, F. G., assistant surgeon, detached from the naval station, San Francisco, Cal., and ordered to the Adams—June 9.

NELSON, H. T. JR., acting assistant surgeon, detached from the Naval Hospital, Sitka, Alaska, and ordered home and to wait orders—June 9.

MILLER, J. T., acting assistant surgeon, detached from the naval hospital, Mare Island, Cal., and ordered to the naval hospital, Sitka, Alaska—June 9.

Changes in the Public Health and Marine-Hospital Service for the fourteen days ended June 9, 1904:

PURVIANCE, GEORGE, assistant surgeon-general, granted leave of absence for twenty days from May 31—June 1, 1904.

VAUGHAN, G. T., assistant surgeon-general, detailed to represent the service at meeting of American Medical Association, Atlantic City, N. J., June 7-10—June 1, 1904.

GEDDINGS, H. D., assistant surgeon-general, detailed to represent the service at meeting of American Medical Association, Atlantic City, N. J., June 7-10—June 1, 1904.

CARTER, H. R., surgeon, directed to report to chairman of Isthmian Canal Commission for duty—May 25, 1904.

CARMICHAEL, D. A., surgeon, bureau letter of May 28, 1904, granting Surgeon Carmichael leave of absence for fifteen days from May 12, amended to read twelve days from May 12—May 28, 1904.

PECKHAM, C. T., surgeon, granted leave of absence for seven days from May 28, 1904, under paragraph 191 of the regulations. Relieved from duty at the Immigration Depot, New York, N. Y., and directed to proceed to Buffalo, N. Y., and assume command of the service, relieving Surgeon Eugene Wasdin—May 27, 1904.

WASDIN, EUGENE, surgeon, upon being relieved by Surgeon C. T. Peckham, to proceed to Memphis, Tennessee, and assume command of the service, relieving Surgeon G. M. Magruder—May 27, 1904.

WASDIN, EUGENE, surgeon, granted extension of leave of absence, on account of sickness, for sixteen days from May 1—June 1, 1904.

MAGRUDER, G. M., surgeon, upon being relieved by Surgeon Eugene Wasdin, to proceed to Cincinnati, Ohio, and assume command of the service—May 27, 1904.

YOUNG, G. B., passed assistant surgeon, two days' leave of absence under paragraph 189 of the regulations.

ROSENAU, M. J., passed assistant surgeon, detailed to represent service at meeting of International Association for Study and Prevention of Tuberculosis, Atlantic City, N. J., June 6-June 1, 1904. Detailed to represent the service at meeting of the American Medical Association, Atlantic City, N. J., June 7-10, stopping at Philadelphia, Pa., for special temporary duty—June 6, 1904.

NYDEGGER, J. A., passed assistant surgeon, granted extension of leave of absence, on account of sickness, for fifteen days from May 21—May 26, 1904. Granted extension of leave of absence, on account of sickness, for five days from June 5—June 6, 1904.

OAKLEY, J. H., passed assistant surgeon, directed to proceed to Vancouver, B. C., for special temporary duty—May 27, 1904.

ANDERSON, J. F., passed assistant surgeon, directed to proceed to Detroit, Michigan, for special temporary duty—May 27, 1904.

GWYN, M. K., assistant surgeon, directed to report to chairman of board at Manila, P. I., August 8, 1904, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—June 6, 1904.

BAKES, E. C., acting assistant surgeon, granted leave of absence for fourteen days from June 13—June 8, 1904.

DELGADO, J. M., acting assistant surgeon, granted leave of absence for ten days—June 1, 1904.

FOSTER, J. P. C., acting assistant surgeon, granted leave of absence for four days from June 5—June 7, 1904.

GOLDSBOROUGH, B. W., acting assistant surgeon, granted leave of absence for four days from June 7—June 4, 1904.

HALLETT, E. B., acting assistant surgeon, granted leave of absence for four days from June 7—June 7, 1904.

MASON, W. C., acting assistant surgeon, granted leave of absence for five days from June 27—June 3, 1904.

RODMAN, J. C., acting assistant surgeon, granted leave of absence for seven days from June 7—June 2, 1904.

Promotions.

HALL, L. P., pharmacist of the third class, promoted to be pharmacist of the second class, effective April 19, 1904—June 8, 1904.

Board Convened.

Board convened to meet at Washington, D. C., June 1, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General W. J. Pettus, recorder.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-fifth Annual Meeting, Held at Atlantic City, N. J.,
June 7 to 10, 1904.

[Specially reported for *American Medicine*.]

(Continued from p. 950.)

House of Delegates.

Officers of the American Medical Association for 1905.

President, Lewis S. McMurtry, M.D., of Louisville, Ky. Vice-presidents, Edward Jackson, M.D., of Denver, Col.; James H. Bell, M.D., of San Antonio, Tex.; F. C. Shattuck, M.D., of Boston; B. C. Pennington, M.D., of Atlantic City, N. J. Secretary, George H. Simmons, M.D., of Chicago. Treasurer, Frank Billings, M.D., of Chicago. Trustees, T. J. Happel, M.D., of Trenton, Tenn.; W. W. Grant, M.D., of Denver, Col.; Philip Marvel, M.D., of Atlantic City, N. J. Place of meeting for 1905, Portland, Ore.

The new constitution and by-laws presented by the committee were adopted with a few unimportant alterations and additions.

The report of the Board of Trustees showed that the Association owned real estate valued at over \$100,000, and further investments in more convertible securities, to the amount of \$40,000, almost providing for the Reserve Fund of \$150,000, which the Association desired should be set aside for emergency use. The average weekly circulation of the *Journal of the Association* was 28,615 copies, which indicated an increase of 3,615 copies for the past year. The appropriation of \$500 for the Rush Monument Fund was ready for the committee when needed. The treasurer, Henry P. Newman, of Chicago, who had held this position for the past 10 years, relinquished the funds in his possession and tendered his resignation. In February, 1903, J. N. McCormack was appointed national organizer. Nearly every State has accepted the plan of organization proposed and was complying with every requirement of the constitution and by-laws adopted at St. Paul in 1901. The work has been so completely done that it can now be left in the hands of the several State associations to complete by organizing a county society in every county in each State and Territory in the union.

Committee on Branch Associations.—J. N. McCORMACK recommended that permission be given for the creation of seven branches at the discretion of the governing authorities of the State associations composing them, and so arranged as to cover the entire country. A provisional division was made and a form of constitution and by-laws was submitted, under which the presidents of the respective State associations become vice-presidents of the branch associations, and the presidents of these larger bodies in turn become the vice-presidents of this Association. Membership in the branch associations should be voluntary, and the branch associations should hold their meetings at the same time with that of the State associations of the jurisdiction in which the meeting is held. The Committee on Organization recommended that all State associations hold their annual meetings during the fall and during the winter months, so as not to conflict with attendance on the national Association. In debate the following day the plan for the formation of seven branches met with considerable opposition and after much discussion was referred to the Committee on Organization, with instructions to obtain an expression of opinion from the various State societies and to report next year.

Section and Section Work.—A. P. OELMACHER recommended that a permanent committee be appointed for this work whose experience would be effective in maintaining reforms.

Prophylaxis of Venereal Diseases.—HENRY D. HOLDEN (Brattleboro, Vt.) said that national, State and municipal authorities would be willing to cooperate in securing legislation for the prevention of the spread of this class of diseases. At present, 33 States had no laws whatever on this subject except municipal ones. All the large cities were deficient in hospital accommodations for those patients. Maine had agitated the question of reporting such cases to the Board of Health. Michigan had a law forbidding the marriage of those venereally diseased, fixing a fine of from \$500 to \$1,000 for its violation, and compelling physicians who had attended in these cases to testify. It was urged that the Association lend its influence in assisting the study of venereal diseases and in securing legislation for the prevention of their dissemination.

Miscellaneous.—ALFRED STENGEL (Philadelphia) reported that the Association was contributing funds to several members for the purpose of carrying on promising researches, and that some satisfactory results had been obtained. H. WOODS (Baltimore) recommended that recognizing the deleterious effects of wood alcohol and liquors containing it, the federal authorities be invoked to designate the substance a poison and to formulate regulations regarding its sale. E. E. HARRIS (New York) requested that as the New York Association and Society had affiliated, members be allowed to register as guests

of the Association. It was resolved that the Association endorse the action of the Postmaster-General in regard to the use of mails for the distribution of quack medicines and appliances, obscene literature, etc.

[To be concluded.]

Section on Practice of Medicine.

SECOND SESSION.

The entire session was devoted to a symposium on arteriosclerosis.

Pathology of Arteriosclerosis.—WILLIAM H. WELCH (Baltimore) first emphasized the prime importance of combining clinical and anatomopathologic studies for the purpose of elucidating obscure points regarding arteriosclerosis, and then gave a short historic sketch of the subject. Many anatomically distinct diseases of vessel walls are classed under this name, and their separation is of the greatest importance. Welch believes that this can be done with some degree of accuracy, and hence described three types: 1. True arteriosclerosis. This in some respects resembles inflammatory changes; new elastic tissue is formed in the intima by the splitting off of the internal elastic layer of the artery or even of the musculoelastic coat, and there is hypertrophy of the muscle coat. An important feature of this type is the marked degenerative (fatty or hyaline) changes in the arterial wall, with subsequent calcareous infiltration. This type occurs in advanced age. 2. A second type may, to a certain extent, be called physiologic. In this there is a newgrowth of connective tissue and of elastica, but the latter is not formed by a splitting off of the existing lamina as in the first type; it is developed the same as elastica in scar tissue anywhere in the body. This regenerative newgrowth of connective tissue occurs in small arteries, and occasionally in the larger vessels; there is not the tendency to undergo fatty degeneration as in the first type, and the lesion is really that of obliterative endarteritis, instead of arteriosclerosis. 3. There is an affection of the aorta, first described by Heller, which represents the cicatrizing form of the disease. It is found particularly and almost solely in the thoracic aorta, and is characterized by marked changes in the adventitia and media of the vessel. To the naked eye there are presented depressions or scar-like pits in the internal coat, and elevated patches are also seen, as in arteriosclerosis. The intima is at the same time thickened. Welch thinks it definitely proved that this third type is syphilitic aortitis. We have then three anatomically distinct affections, that are, however, often combined. There is reason to believe that in true arteriosclerosis there is a marked excess of what occurs normally; there is splitting of the elastic lamina, on this occurs the newgrowth of connective tissue and degeneration takes place. There are strong reasons to support the view held by some that the fatty degeneration is primary, and not in the new tissue, the latter forming over this degenerated part. Another point of view that must be considered in a discussion of the pathology of arteriosclerosis is a very suggestive one advanced by certain clinicians, who ask if there is an affection of the arterial wall corresponding to and going parallel with affections of the wall of the heart. Some writers assert that there is a hypertrophy of the arterial wall in answer to excessive strain, just as in the heart, that as the condition in the heart is dangerous, so it is in the vessels, and that we may have in the artery the analogue of ruptured compensation in the heart. This view is coming to the front, but in the opinion of Welch does not yet rest upon a sound anatomic basis. Experimental work has not as yet shed much light on the pathology of arteriosclerosis; thickening can be produced, but it can hardly be called the disease in question. In general terms the most important cause of arteriosclerosis is functional strain, but this is only the exciting cause; in reality it depends on the condition of the vessel wall whether the strain will cause the lesion. Infections, toxemias, etc., may render the vessel wall incapable of bearing even physiologic, let alone pathologic strain. What are the effects of arteriosclerosis upon the circulatory system and the heart? There may be enormous changes in the aorta without inducing a rise of arterial pressure or hypertrophy of the heart. The most important general point now before us is to determine why in some cases we do and in others do not find these results. The question is still an open one. Another point to be determined is whether we have cases in which raised arterial pressure is primary. In this type there is hypertrophy of the heart. This should be investigated by the pathologic anatomist, who should analyze his cases of arteriosclerosis with reference to the type that causes hypertrophy of the heart. The teaching of the Leipsic school regarding the etiologic relation of sclerosis of the vessels controlled by the splanchnic system to hypertrophy of the heart should be carefully considered. As to the relation of arteriosclerosis to aneurysm, the latter is caused by syphilitic aortitis; this may be the only type. As to the kidney, a specimen now on exhibition seems to point very clearly to a sclerotic artery as the cause of a typical chronic interstitial nephritis.

Arteriosclerosis from Acute Infectious Diseases.—W. S. THAYER (Baltimore) said his attention was first attracted to this phase of the question by his recently reported studies in typhoid fever cases. These lead to the belief that typhoid plays a part in the production of arteriosclerosis and then to the inference that others might do the same. Other cases were then studied, the diagnosis of the lesion being based on the

presence of palpable radials. The latter do not necessarily mean that sclerotic arteries are present elsewhere in the body yet the fact that calcareous and tortuous radials are readily palpable makes it reasonably certain that similar conditions do obtain elsewhere. The certainty is great enough to make such a study of value. A study was made of 3,894 consecutive case histories regarding the decades in which arteriosclerosis appeared and as to its cause. The causes appeared in the following ascending scale of importance: No cause, diphtheria, pneumonia, malaria, syphilis, scarlet fever, typhoid fever, rheumatism, alcohol, heavy work. The following shows the incidence of arteriosclerosis among the cases of each type studied: No cause, 18.9%; infectious diseases, 28.6%; alcohol, 58.3%; heavy work, 62.2%. From this study it can be said that acute infectious diseases play a part in the production of arteriosclerosis but to a less degree than alcohol and work. Among the acute diseases, rheumatism is the most important in this respect and typhoid fever is second in importance.

Arteriosclerosis of Syphilitic Origin.—C. T. DRENNEN (Hot Springs, Ark.) said that the relationship between syphilis and arteriosclerosis is obscure, though it undoubtedly exists. The effect of the disease is probably exerted through the lymph channels of the bloodvessels. Considering the enormous quantities of mercury administered in the treatment of syphilis, it is strange that that drug is not looked upon as a factor in the causation of arteriosclerosis. Mercury is not conducive to normal cell production, yet in many cases it is essentially the only drug given. Drennen suggests a more rational treatment of the disease in question, so as to eliminate the possibility of the remedy as a factor in the result, which has so long been attributed to the affection.

Arteriosclerosis of Nephritic Origin.—GEORGE DOCK (Ann Arbor) discussed the views of various writers regarding the renal origin of arterial disease. If the view is correct, that chronic nephritis by the action of toxins or spasm of vessels causes arteriosclerosis, why not attribute the same result to acute nephritis? The edema of acute nephritis is now regarded as due to the action of circulating toxins on the vessel walls. The value of clinical study of these cases was emphasized as being of the utmost necessity in determining the true relation of the processes involved. The question of hypertension is another very important feature. To show how early this condition may come on, Dock cited the case of a boy of 15, who complained of a sore throat as the first manifestation of an infection. Later uremia developed, and two months later the boy died during a severe uremic attack. During the course of the disease the blood-pressure was high, averaging 190 mm. of mercury. There was no clinical evidence of enlargement of the heart. Many somewhat similar cases recover, and we must believe that they act as a cause of arteriosclerosis. The possibility of renal disease of all kinds as a cause of arteriosclerosis must be borne in mind by the clinician and more clinical investigations made to determine their true status.

Arteriosclerosis Due to Lead.—FRANK BILLINGS (Chicago) in stating his reasons for changing his title from metallic poisons to that of lead, stated that other metals must be considered, but lead is so commonly used it is by far the most prominent. Its presence is suspected less frequently than it should be in obscure cases. The mode of entrance is often mystifying. One case of typical poisoning revealed no source of infection until finally it was found that the patient was in the habit of carrying once a week a bundle of soldering lead a short distance, placing it across his bare arms. A woman contracted lead-poisoning from washing the clothes of her husband, who was a painter. The mode of production of arterial disease by lead is a question. Its effect may be primary on the cells of the vessel wall or secondary to chronic degeneration of the kidney and resulting fibroid change. In some cases there is evidence of direct cell action in that red blood cells are affected and degenerate in various degrees. The lesion is widespread, involving the lung and other organs, especially the abdominal viscera. In the kidney there is at first a parenchymatous nephritis; later or associated with it are changes in the vessel walls; finally there is proliferation of tissue and diffuse interstitial change. The last cannot be differentiated from chronic interstitial nephritis due to other causes. Billings believes that with our present knowledge it is impossible to say whether arteriosclerosis is due to lead directly or is secondary to lead nephritis. It is impossible to make the direct diagnosis unless no other cause be found.

Arteriosclerosis of Alcoholic Origin.—RICHARD CABOT (Boston) said that all standard textbooks were emphatic in the statement that alcohol is a cause of arteriosclerosis. In making a study of this question it was necessary to decide first what is arteriosclerosis and second what is alcoholism. As to the first point he decided to disregard all cases where the arteries were merely palpable without the addition of tortuosity, roughening or stiffening. This he did because in a series of cases of palpable arteries coming to autopsy a careful microscopic examination of the vessels by Wright showed no evidence of arteriosclerosis. Regarding the second point he examined 283 cases of the severest types of alcoholism that could be found in any institution for such classes; many had been drinking from one to two quarts of whisky daily for long periods of time. Cases over 50 years were excluded as were those of syphilis. Of those studied only 6% showed evidence of arteriosclerosis of the peripheral vessels or of the heart. If patients between 40 and

50 were excluded, only 1.4% were diseased. A study was then made to determine the proportion of premature cases of arteriosclerosis, those occurring before the age of 45, that can be attributed to alcohol. Of this type 45 cases were examined and only 13 gave any history of alcohol. Third, among 132 autopsies there were found 19 cases of arteriosclerosis under the age of 50. Of these, 2 were syphilitic and of the remaining 17 there was a history of alcoholism in only 2. One young man was under observation about town for a long time before death; he had consumed a quart of whisky daily for 10 years. Autopsy showed no evidence of arteriosclerosis in the heart or peripheral vessels. From the results of this study, Cabot reaches the conclusion that the time-honored association of alcohol and arteriosclerosis is a pure myth. At any rate he has not been able to ascertain, either by his investigations or his reading, the data on which such view is based. Either strain or syphilis may accompany alcoholism and be a cause of arterial disease.

Arteriosclerosis and Angina Pectoris.—WILLIAM OSLER said there were many things doubtful about angina pectoris, but there is no doubt that in many cases it is associated with arteriosclerosis, particularly of the coronary arteries. A point to be considered is the relation of arteriosclerosis to attacks of pain. Among the types of headache are those of migraine, severe recurrent headaches due to high tension, and those associated with embolism or thrombosis. In certain cases the pain is almost entirely abdominal, suggesting the name of angina abdominis rather than pectoris. Numbness and tingling of the lower extremities met with in old persons is in many instances due to arteriosclerosis. Another type of pain deserves the name of angina cruris instead of the name given—intermittent claudication. Erythromelalgia is still another form under which this condition manifests itself. Angina pectoris with respect to arteriosclerosis may be divided into four groups: 1. Angina that is definite and severe, occurring in the young and often neurotic, that terminates fatally and no sclerosis of the coronary arteries is found. 2. Angina pectoris in association with syphilitic arteriosclerosis of the coronary arteries or the root of the aorta or both. This occurs in young men, and is emphatic of a very definite type of syphilitic aortitis. 3. Presenile angina pectoris occurring in people between the ages of 40 and 60. In this type the coronaries are always involved. 4. Senile angina pectoris, the typical variety found in persons between 60 and 80, and above 80 in some instances.

[To be continued]

Section on Surgery and Anatomy.

THIRD SESSION.

Twine in Lieu of the Elastic Ligature for Performing Gastroenterostomy.—J. W. DRAPER MAURY (New York City) presented the results of experimental work done in the surgical laboratory of Columbia University, New York. Two innovations were practised: 1. The use of a triangular instead of a square stitch. 2. The utilization of twine instead of the elastic ligature. Findings at the laboratory have served to entirely corroborate McGraw's contention that if properly inserted, the elastic ligature will invariably cut out. The specimens demonstrating this were made with a square stitch, and were demonstrated before the American Society of Clinical Surgery in its recent meeting in New York. For the past three months twine has been used in place of the elastic ligature, and in 13 consecutive cases proved successful. The specimens belonging to this series were exhibited. One of the best specimens shown was an enteroenterostomy produced in a pig by the quadrangular elastic stitch. The advantage of the triangular stitch over the square lies in the fact that it gives the operator the ability to increase the size of the opening which he desires to make in two dimensions instead of one, as is the case with the McGraw stitch. If it be true that the twine will cut out as freely as the elastic, its advantages over the latter are manifest: 1. It is always at hand. 2. It does not deteriorate as does the elastic with age. Furthermore, the ease in passing it is such that it is unnecessary to have any special needle to facilitate its employment. Any large needle will carry twine. Twine cuts through in dogs if applied in this triangular fashion in less than three and a half days, or about the same rate as the elastic ligature. The technic of the insertion of the triangular stitch was shown in detail from a diagram made for Robert F. Weir. Like any similar technic, it requires a few moments of study in order to acquaint one's self with the details, but when these are once understood, they will not be readily forgotten. The twine triangular stitch can be put in place in less than 1½ minutes. Like every other device of similar nature, it should be encircled with a protecting layer of Lambert stitches.

Remarks on the Disadvantages of the Murphy Button.—ROBERT F. WEIR (New York City). While no one doubts the advantages which have come to abdominal surgery by the use of the Murphy button, it has some decided disadvantages. In recent years, Weir has seldom used this device without safety sutures, so that the time of operation is not so greatly reduced. The opening is more likely to remain patent than after other operations, but closure does occur in some cases. In inserting the button, the forceps suggested for use by Murphy sometimes flatten it, so that the halves do not fit together well. The button sometimes slips into the stomach, and to remedy

this, Weir devised a special flange, but did not find it of special advantage. When the button is lodged in the intestinal tract over 21 days, the corrosive action of the digestive juices is seen; occasionally the wire spring is loosened in this way, or the button partly comes apart and gives rise to trouble. Even if all goes well, the button sometimes remains lodged three months or more. Weir does not approve of oval anastomosis buttons. To prevent the button from falling back into the stomach, he has sometimes tied a gastroenterostomy button to the enteroenterostomy button, the peristaltic action of the lower button pulling the upper one down.

Excision of the Ulcer-bearing Area in Gastric Ulcer.—W. L. RODMAN (Philadelphia). While it would be rash to operate upon all cases of ulcer, or when operating, to excise all ulcers, Rodman believes that more radical procedures than are now in general use are frequently indicated. Gastroenterostomy has its limits; pyloroplasty is frequently of little value, and while Finney's operation has great advantages, it does not always turn the current of stomach contents past the ulcer. Gastric ulcers are frequently multiple, and when this is the case it is not practical to excise. Some of the reasons which make excision desirable in these cases are that malignant degeneration follows in not less than 6% of all cases. In 150 cases of cancer of the stomach, Mayo found a previous history of ulcer in 60%. The percentage of carcinoma and ulcer at the pylorus is about the same. Moynihan has never seen duodenal ulcer uncomplicated by gastric ulcer. Pylorotomy leaves the stomach in better condition than gastroenterostomy, and avoids the dangers of subsequent perforation, hemorrhage or malignant degeneration.

Discussion.—OCHSNER (Chicago) has been using the McGraw ligature for but a short time, his earliest case having been operated upon only one and a half years ago. In his personal experience recovery following this method has been better than by any other method. Out of 86 cases in which he has employed this method, 68 have been under careful observation in the hospital. He has used it frequently in performing gastroenterostomy to give drainage to the stomach and prolong life in cases of carcinomas. In 12 benign conditions in which this method was used, all recovered; in 33 cases of ulcer, 32 recovered, and one died at the end of 3 weeks from pulmonary thrombosis. Out of his series of cases, 5 died, 3 because of weakened condition from carcinoma, and 1 was accidental. In one case he excised the pylorus, closing the end of the stomach and anastomosing the intestine with the pouch of stomach left; by this method the patient making a good recovery. A great advantage of this method is that it avoids unnecessary manipulation, and in this way prevents shock. MAYO (Rochester, Minn.) doubts the desirability of using these methods of anastomosis in certain cases when it is possible to do the operation by suture in 30 minutes, and usually in from 12 to 15 minutes. He doubts if it is advisable to close up the stomach entirely, even for one day. Rodman's suggestion for operation is desirable, although it is too big an operation to advise in all cases. MURPHY (Chicago) has found all of the defects and faults with the button which Weir mentioned, and many others. In most cases the manufacturers try to make the buttons cheaply, in some cases even using a spring of steel. The tendency of closure of the opening made in gastroenterostomy he believes will make it desirable to close the pylorus or duodenum in all cases. Closure by suture takes too long, and we are in need of some other more satisfactory method. McARTHUR (Chicago) has for some time been working along the same lines as Maury, but he used a crushing forceps to reduce the vitality of the tissues; result, entire failure. He has also used circular sutures to cut off the nutrition of the tissues without success. DUDLEY (New York) mentioned a case of carcinoma of the uterus in which he performed hysterectomy. The operation was difficult, and because of rupture of the intestine, he was obliged to resect a loop. A fecal fistula resulted, and some time later he removed the button from the same incision in which he originally inserted it. McRAE (Atlanta) called attention to the fact that Gaston, of Atlanta, in the early 80's used the same general principles suggested by McGraw, but he has generally failed to receive credit for his invention. In closing, MAURY stated that in dogs, closing the stomach entirely and doing the ligature operation is accompanied by symptoms of tetany and death. If the ligature cuts through entirely in three and a half days, as he has found experimentally, it is probable that it begins to make an opening in very much less time than this.

Rupture of Mesenteric Glands during Typhoid Fever Simulating Intestinal Perforation: Report of a Case with Operation and Recovery.—ROBERT G. LECONTE (Philadelphia) in looking through the literature has found only one case reported in which rupture of mesenteric glands has given rise to trouble such as reported. Slight intestinal lesions may be accompanied by great glandular involvement. The condition is evidently a rare one, for this is the first case of the kind that he has observed in the Pennsylvania Hospital, where 1,958 cases have occurred in three years. In the case reported, the patient was admitted to the hospital on the eighth day of the disease. On the thirty-third day he was taken with severe, sudden abdominal pains with distention. There was also pain and distention the following day, with the other usual symptoms of intestinal perforation. At the operation an ileocolic gland was found to be broken down; it was curetted, packed with gauze, and

recovery followed. Two other cases of this kind were reported, one operated upon by H. Deaver, and the other by Munro, both of whom died.

Discussion.—McARTHUR (Chicago) reported an additional case of the kind described by LeConte. EISENDRATH (Chicago) also reported a case of this kind, in which at the postmortem it was expected that a perforation would be found, but nothing but a ruptured gland was discovered. THOMPSON (Scranton) mentioned an undoubted case of typhoid fever with abscess, which was evacuated under cocaine. He believes the cause of the trouble was the same reported by LeConte.

Excision of a Part of the Ileum, All of the Cecum and the Ascending Colon. Ileum and Transverse Colon United by a New Method.—J. SHELTON HORSLEY (Richmond, Va.) believes that in intestinal anastomosis, suture is usually preferable to the use of mechanical devices, and he briefly described a method which he had reported before the session previously. He reported the use of this method in the case of a patient with a syphilitic history, who came to operation because of severe abdominal pain, and on opening the abdomen, a tumor was found, the excision of which involved the removal of part of the ileum, all of the cecum and the ascending colon. The ileum and colon were united by the method described. The patient died four days after the operation, death occurring from local infection. Pathologic examination showed the growth to be a syphilitic gumma.

Discussion.—SMITH (Hartford, Conn.). At the present time, almost every man thinks he can operate for appendicitis, but frequently when the abdomen is opened, conditions are found necessitating some more extensive operation, and every man who enters the abdomen should be prepared to do an intestinal anastomosis as is shown clearly by the history of Horsley's case. OCHSNER (Chicago). In order to excise the cecum and a part of the ileum successfully, the operator should have planned his method of attack carefully. In such cases he prefers to close both ends of the intestines and do a lateral anastomosis with the Murphy button. With this method it makes no difference what is the caliber of the two ends of the intestine. HORSLEY, in closing, said that it would take more time to close both ends of the intestines by suture as suggested by Ochsner and use the Murphy button, than to do the entire operation by suture.

[To be continued.]

Section on Obstetrics and Diseases of Women.

SECOND SESSION.

Diagnosis and Treatment of Pelvic Deformity.—GEORGE BOYD (Philadelphia) discussed the relative merits of cesarean section, induction of labor, and the "expectant plan." Induction of labor before the fetus has attained to too large a size would be ideal if we could ascertain the exact time of conception and hence the exact length of time during which gestation has existed. This cannot be ascertained without the strong probability of a mistake to the extent of two or three weeks, and this would make much difference in the size and condition of the child. So he prefers, except in highly contracted pelvises, to wait and give nature a chance, for in these cases delivery often occurs when the obstetrician had thought it impossible. Of course, if the pelvis be highly contracted cesarean section is indicated. It is in instances of moderate contraction that the attendant is puzzled as to what to do. The pelvimeter is a valuable instrument, but deductions from its use are only approximately correct.

Discussion.—BACON thought induction of labor the best procedure in most cases. From the initiation of morning vomiting, and from a record of the first fetal movements we can form a safe approximation of the length of the period of gestation. WEISS favors giving nature a chance in almost all cases. CARY thinks in many cases we can form a safe estimate of the size of the fetal head by external palpation; he favors the expectant plan in most cases.

Heart Disease as an Obstetric Complication.—C. S. BACON recounted the various heart lesions which may occur during pregnancy. An existing cardiac disease is of course liable to become aggravated during pregnancy. During labor great strain is thrown upon the heart and at such time the use of oxygen is of the greatest importance. The kind of cardiac murmur is not so material as the condition of the pulse and the general condition of the patient. Abortion occurs in about a fourth of the instances in which a pregnant woman has a cardiac lesion. Such women should have very special care as to diet, hygiene, exercise, etc. Milk is the best food, and if an anesthetic is given during labor it should be ether. Rest in bed is the most important factor in treatment. Induction of labor may become necessary. Signs of abortion are to be combated by rest and the use of morphin and codein.

Discussion.—HOLMES said recent investigation has shown that the danger of heart disease to the pregnant woman is practically nil unless the lesion be a mitral stenosis. Morphin must not be given after signs of labor appear, as it acts dangerously on the life of the child. In the third stage of labor he would remove placenta manually to favor bleeding for relief of the engorged heart. HOTCHKISS would induce labor, especially in case of mitral disease, and in which there had previously been shortness of breath. Loss of a moderate amount of

blood in the third stage does good. CARY seriously objected to manual removal of the placenta to favor bleeding. HASTINGS asserted that morphin often relieves dyspnea.

Difficulties and Dangers of Accouchement Forcé: A New Method.—H. G. WETHERILL objected to the slow and unscientific methods of dilating the cervical canal when such procedure is necessary. The Bossi dilator and all of that class were severely condemned as unscientific and barbarous. Unless the supravaginal portion of the canal fails to dilate, which is rare, then a rapid method is far more satisfactory. He described a plan of procedure used by him in which the dilating instrument is the Sims speculum. The anterior lip of the cervix is caught and drawn gently forward when a narrow but rather long retractor is inserted into the os, then the Sims speculum is inserted and by an ironing process, the posterior lip and sides of the canal are pressed and gradually stretched and thus the canal is dilated until forceps can be applied high up, and the child delivered. The whole procedure requires but a relatively short length of time and the author has employed the method successfully. Different sizes of the speculums are employed to suit the amount of dilation present. Its advantages are its simplicity, rapidity, the few instruments required, and its safety.

Discussion.—CARSTEN objected to the method, claiming that when indicated the ordinary induction of labor is better, and in threatened eclampsia it is not applicable, for vaginal section and rapid delivery is the treatment. BACON favored dilation with the hand. HASTINGS said there is but one indication for rapid dilation when this method could be used, and in that, dilation by the hand is better. FREY said although Philander Harris was the originator of dilation by the hand, yet recently he had devised an instrument for this purpose.

Cesarean Section a Rational Method of Treatment in Placenta Prævia.—JOHN F. MORAN said in the ordinary treatment for placenta prævia the mortality for mothers had been greatly reduced, but that for the children it still remains excessively high. He has found reported 24 instances in which cesarean section was performed for placenta prævia. Among these there was a maternal mortality of five, three dying immediately and two some days after operation; and a child mortality of 22%. He believes with the employment of cesarean section in cases of placenta prævia the child mortality could be much reduced from the figures shown by delivery in the usual way. There is a limited field for such operation, however.

Primary, Intermediate and Secondary Repair of the Anterior Vaginal Wall after Labor.—BARTON COOKE HIRST (Philadelphia) laid particular stress on the necessity for examining every patient after delivery to determine whether there be a laceration of the soft parts bounding the birth canal. That part of his paper which called forth most criticism was his advocacy of repair, in many cases, several days after delivery. Of course the nature of the injury must be taken into consideration but a series of cases was reported in which the author operated for repair several days after delivery and his results had been almost uniformly good. He also gave consideration to the operative treatment of cystocele which has already developed.

Etiology and Pathology of Cystocele with a New Operation for its Relief.—J. RIDDLE GOFFE (New York City) gave somewhat in detail his views as to the cause and the pathology of this condition, and described at length an operation which he has devised for the relief of cystocele. The present operations as commonly practised merely lift up the floor of the bladder which has herniated, and by such tucking up, folds and pockets are formed in the floor of the bladder, in which urine collects, resulting in cystitis. Goffe's operation consists essentially in lifting the bladder bodily by suspending it by its upper wall, from the anterior surface of the uterus, by sutures. The bladder is dissected free from the uterus, the peritoneal cavity is entered between uterus and bladder, and this horizontal slit in the peritoneum is torn widely, and in addition to the upper surface of the bladder being sutured high up on the anterior surface of the uterus, it is drawn laterally to each side and its side wall sutured to the broad ligament. The anterior wall of the vagina, which has, of course, been opened, is now closed, and the bladder being suspended as above indicated, the cystocele is completely corrected. In several patients operated in this manner the results have been entirely satisfactory.

Discussion.—M. PRICE (Philadelphia) objected emphatically to Hirst's procedure of repairing pelvic lacerations within five to ten days after delivery. Not infrequently puerperal fever does not arise till two weeks or longer after delivery. If repair has preceded this, who can say that it is not the cause of the infection. Should a malpractice suit be instituted it would put the surgeon in a very unenviable position. Repair the pelvic floor at once, but if for any reason this cannot be done, wait until after the puerperium. SPONE had done work along the same lines as that reported by Goffe without being aware of the latter's work. BOVÉE thought Goffe's operation rather overdoing the matter—two much operation. It invades the peritoneal cavity unnecessarily.

Repair of Pelvic Floor Lacerations.—JAMES H. BURTON-SHAW (New York City) pointed out the advantages of immediate repair of pelvic tears. Failure in many of these cases to restore the normal condition, or nearly so, is due to imperfectly placed sutures. None of the modern late operations accom-

plish what their authors claim for them. Emmet's operation has the advantage of following the lines of cleavage, but there is only a superficial denudation, and the deeper tissues are not approximated so as to effect restoration; Hegar's is a better operation, and much more easily carried out. In most of the surgery done for repair of the pelvic floor the deep muscles, such as the levator ani are not exposed and properly approximated. Too many of these operations merely reduce the lumen of the canal, partially close the outlet, but do not restore the floor to normal.

Treatment of Complete Uterine and Vaginal Prolapse.—FREDERICK HOLME WIGGIN (New York City) dealt with the causes of this form of prolapse, and asserted that failure of many operators to properly correct the condition is due to their failure to recognize that the prolapse is a hernia and should be treated as such. He described the preliminary treatment before operation, and then the operative treatment. The latter consists essentially in doing a laparotomy, anchoring the prolapsing structures to the broad ligaments, and then doing whatever operation for repair of the pelvic floor that is deemed wise.

Discussion.—NOBLE has tried at length both the Emmet and the Hegar operations for repair of pelvic lacerations, and has decided that the former is decidedly the better. More denudation than is done in the Emmet is overdoing the operation, and results in unnecessary scar tissue. LONGYEAR was of opinion that only the flap-splitting operation is of value. CRAIG held that no one operation is suited to all cases—that in any case the operation best suited to the conditions should be selected. JOSEPH PRICE insisted on more care in effecting immediate repair. If this is done, and done properly, there will be no subsequent cystocele or rectocele. The Emmet operation is not understood by many who attempt it.

Multiple Abscesses of the Omentum following Grave Septic Peritonitis.—HUGO O. PANTZER (Indianapolis) called attention to the tendency of the omentum to adhere to other structures and form a rich anastomosis of bloodvessels. It will even wall off foreign bodies within the abdominal cavity, and try thus to dispose of them. He reported two instances in which operation showed many small walled-off abscesses in the omentum, following a severe attack of peritonitis. Both patients died a few days after the operation which revealed the condition.

[To be continued.]

Section on Diseases of Children.

SECOND SESSION.

How to Produce the Best Milk for Artificial Infant Feeding.—EDWARD F. BRUSH (Mt. Vernon, N. Y.) spoke of the many difficulties to be overcome in the production of uncontaminated milk and the importance of having the infant food dairy separate from the commercial dairy. He emphasized the importance of breeding in cattle, saying the cow considered best by dairymen was most harmful to the child. The baby is a good milk analyzer. If the child does not thrive on the milk employed, it is the dairyman who is responsible. No chemist can improve on good milk. The speaker dwelt on the importance of proper feeding and hygienic care of cows used for this purpose. The cows should be handled with gentleness, as the milk is affected by fright or nervousness.

The Initial Contamination of Dairy Milk.—RICHARD C. NEWTON (Montclair, N. J.) spoke of the various methods employed to prevent contamination of milk, and discussed in detail the varieties of milk pails and other contrivances used in the effort to procure aseptic milk. Much of the contamination is cow excrement, which gives milk its characteristic odor and greatly increases the bacterial count. He said good results were obtained from the simple method of milking through four layers of sterile cheesecloth and a layer of absorbent cotton. He advocated the use of covered milk pails, but did not believe in complicated apparatus. Minimize as far as possible the agitation of milk and its undue exposure to the atmosphere.

Discussion.—GRIFFITH (Philadelphia) discussed the efforts made in his city to produce pure milk, saying that many dairies have certificates from the milk commission that their product contains less than 10,000 bacteria per cubic centimeter. SMITH (Connecticut) discussed the harmful results on the child from the feeding of green corn, decaying apples, etc., to the cow. AGER (Brooklyn) said an effort was being made to have the milk bottled at the farm rather than at the creamery. He also mentioned the difficulty of overcoming the dishonest tactics of the milk dealers. SCHWARTZ (Indiana) discussed the evils of the various nursing bottles now in vogue, and suggested steps being taken to completely abolish the long rubber tubing frequently used on the nursing bottle. MORSE (Boston) emphasized the importance of modifying milk, and advocated the use of milk sugar. FISCHER (New York) commended the use of raw milk, saying the principles of sterilization should be practised on the cow, the pail, and the hands of the milker, rather than upon the milk itself.

Chronic Constipation in the Infant.—J. ROSS SNYDER (Birmingham, Ala.) defined constipation as a condition in which food products are retained within the intestine after all the nutrition is removed. He said the intestinal canal in the infant is relatively smaller than that of the adult, and also,

relatively longer. Peristaltic movements are slight, as the muscular wall is undeveloped. He dwelt at length on the etiology of this condition, assigning as the principal causes, dietetic and hygienic errors, among which are irregular feeding, overfeeding, too concentrated nourishment, deficiency of fats or too much proteid. The pernicious habit of bundling the infant, preventing exercise, is a causative factor. The effect of heat on the proteid material in sterilization of milk induces constipation. In treating this condition we must get at the cause and remove it, and not simply get movements by applying stimuli to bowel. Rational treatment denies routine. We must correct the dietetic or hygienic errors responsible for the condition. Avoid massage and the use of soap and glycerin suppositories in children. The baby should be carried, not dragged, through infancy, and placed on the threshold of childhood in a position to enjoy its existence.

Discussion.—I. A. ART (Chicago) thought the muscular contracture of the sphincters was often a factor in inducing constipation and relief could be afforded by simply introducing a syringe or thermometer. Too perfect assimilation of the food may result in constipation.

The Effect on the Nervous System of Children, of Uncorrected Refractive Errors and Muscular Imbalance.—J. H. CLAIBORNE (New York City) described the various refractive muscular errors resulting in eyestrain. He explained the effect of the myopic and hypertrophic eye showing how the blurred image induced mental confusion and annoyance. The unhygienic conditions in the school room and various muscular defects produce eyestrain inducing headache, loss of power of concentration, distaste for learning, etc. The facial expression is of the greatest importance in diagnosis. The face mirrors the impressions received from the outside world. The speaker did not believe that ocular errors were responsible for epilepsy and insanity. In summing up his paper he laid down the following: 1. Nervous symptoms of a variety of kind occur as a result of eyestrain. 2. Eyestrain is due to refractive errors, to imbalance of the external ocular muscular system or more frequently to a combination of the two. 3. Of these two the refractive errors are by far the most frequent cause. 4. Muscular imbalance alone may cause it. 5. Headache is by far the most common nervous symptom in children caused by eyestrain. 6. The headache is chronic or induced directly by near work and is usually in forehead or temples. 7. Migraine or hemicrania due to eyestrain is comparatively rare in children. 8. Any nervous symptom in children should arouse suspicion of ocular defects either as direct or contributing cause. 9. Correction should be made under atropin. 10. Muscular defects are secondary to the refractive errors and should be corrected only in certain cases.

Congenital Occlusion of the Lacrimal Canal and Acute Contagious Inflammations of the Conjunctiva in Children.—JOHN E. WEEKS (New York City) described the symptoms arising from such occlusion, and said that in correcting the condition it was advisable to employ remedial measures before resorting to operation. He recommended washing thoroughly, two or three times daily, with boracic acid, and the use of some mild ointment. He explained in detail his method of procedure in operating upon these cases. He described four forms of acute contagious conjunctivitis occurring in children, the result of infection by the gonococcus, Klebs-Löffler bacillus, pneumococcus, and bacillus of Eberth. He discussed the prevalence of gonorrheal ophthalmia in children, saying it could become epidemic only in institutions, such as founding asylums and hospitals. In such instances careful inspections of the urethral and vaginal secretions would usually reveal the source of infection. The conjunctivitis due to the gonococcus may be so mild as to be hardly noticed, but the danger of its becoming a center of contagion was great, as the most virulent forms may occur as the result of infection from these mild cases. He emphasized the necessity of early diagnosing the specific organisms, and recommended the free use of the microscope. In treating these cases he uses a 3% solution of boracic acid every hour, with vigorous employment of argyrol and cold applications. In treating cases due to diphtheria bacillus he uses antitoxin until symptoms ameliorate, and also treats the accompanying nasal diphtheria. Cold applications give great comfort to the patient, and were indicated especially in the early stages, but were of little value where the causative organisms thrive and develop below a temperature of 88° F.

Enuresis.—MAURICE OSTHEIMER (Philadelphia) reported a number of cases studied in dispensary practice, stating that in nearly every case there was found to be present a reduced tone of the musculature of the bladder. Enuresis is often seen as an accompaniment or result of measles, whoopingcough, diphtheria, etc. Diabetes and injury are also ascribed as probable causes. In treating such cases he employs, in the majority of instances, tincture of belladonna in ascending doses, combining strychnin with atropin in the intractable cases. In these latter cases he begins with atropin $\frac{1}{16}$ gr. and strychnin $\frac{1}{16}$ gr. to one drop of water, gradually increased until incontinence ceased. Continue the highest dose for from two to four weeks, and then gradually decrease, so that the entire treatment usually covers from six weeks to three or four months. Fluids were stopped after supper, the diet carefully regulated, bathing with use of friction, and electricity were also tried. He found that 75% recovered under these forms of treatment. The

speaker also discussed the value of epidural injections and other remedial measures. Circumcision was done in cases having phimosis, and all adhesions broken up.

Discussion.—E. E. GRAHAM (Philadelphia) emphasized the importance of continuous and systematic treatment. He thought the success of the treatment depended to a great extent on giving the belladonna in ascending doses for the first few weeks, and then gradually decreasing it. ART (Chicago) cited a case in which after giving atropin for about two months the child developed delirium which quickly disappeared on discontinuance of the atropin.

The Bacteriology of Summer Diarrhea.—WILLIAM H. PARK (New York) said the intestines of the newborn were free from bacteria, but organisms quickly enter by mouth and anus especially *Bacillus coli communis*. The gastric juice of the infant has poor bactericidal properties. The intestine of the infant always contains *Bacillus coli communis*, *Staphylococcus*, and *Streptococcus*. *Bacillus coli communis* presents a great variety of cultural peculiarities, some being harmless while others are pathogenic but vary in virulency. He said a more perfect technic had proved the presence of Shiga's bacillus all over the world. Many cases of summer diarrhea occur without the presence of the dysentery bacillus. If Shiga's bacilli are present there will be blood and mucus in stools. He spoke of the various methods used in the treatment and the use of serum with rather indifferent results.

A Summer's Experience with Infantile Dysentery.—J. H. MASON KNOX, JR. (Baltimore, Md.) reported a number of cases he had observed at Wilson's Sanatorium, near Baltimore. These were analyzed carefully in regard to age, food and hygienic surroundings, condition of the children before the attack, types of disease, complications and results of treatment. He thought the character of food used at home and its hygienic surroundings had much to do with the summer diarrhea, the water-supply being an important factor. Insects play a part in the spread of the disease as does also the atmospheric heat. The symptoms are due to (1) the absorption of toxins; (2) inflammatory changes in the bowel. Hemorrhage was present in very few cases. The disease begins in June, reaches its height in July, and declines in August. Sporadic cases occur during any period of the year. Children under 1 year are the most susceptible, breast-fed children being rarely affected; 5% of the cases treated with serum recovered.

The Bacillus Dysenteriae in Relation to the Diarrheal Diseases of Infants: A Clinical Study of 237 Cases.—L. EMMETT HOLT (New York) discussed the presence of the dysentery bacillus in cases of infantile diarrheas. He said dysentery is seen in breast-fed children, as well as in those artificially fed. It is often a terminal infection in marasmic children. It is not a disease of any special locality, but is observed in all the larger cities, and in children under the best hygienic conditions. The mode of entrance into the body is not known, but is thought to be by ingestion, probably in water, which is given to all infants. The most characteristic type is the acute febrile form, with mucus and blood in the stools. He suggested the term infantile dysentery as the most proper one. The digestive disturbance in many cases is of greater import than the toxemia. The disease probably spreads by improper care of the stools. He said the serum treatment is disappointing, but that, owing to the complex conditions in the intestines, we cannot expect to get the results obtained in the use of the antitoxin of diphtheria. The serum should be used early before nutrition is interfered with, and, on the strength of clinical diagnosis, the indications for its use being the presence of fever with blood and mucus in the stools.

A Study of 28 Cases of Diarrhea in Children.—JOHN C. COOK (Chicago) gave a detailed report of 29 cases of diarrhea in children, in which a careful study had been made of the principal symptoms, duration, and course of the disease and the bacteriologic findings. He described the manner of feeding and quality and quantity of food used in each case.

The Management of Summer Diarrhea.—THOMAS S. SOUTHWORTH (New York City) said in managing these cases a careful prophylaxis should be instituted long before summer appears. The child should be given plenty of outdoor exercise, sleep in well-ventilated rooms and kept under the best hygienic conditions. The milk fed to the child during the summer months should be sterilized or pasteurized as it lessens the liability to disease. Much of the intestinal disturbance prevailing during this period is the result of dietetic errors or of inferior milk. The danger is chiefly in proportion to artificial feeding. We should have a clear appreciation of the conditions existing in the digestive tract that require treatment. The diarrhea and vomiting are but the efforts on the part of the digestive tract to rid itself of effete material and we should assist nature. Three factors of prime importance in the treatment of these cases are: (1) Discontinue the milk and substitute a bland diet; (2) clean out the alimentary tract; (3) check secretion and arrest peristalsis. When vomiting is severe, gastric lavage should be employed. Careful and thorough irrigation of the colon with salt solution, 1 dr. to the pint could be used, with the addition of tannic acid if congestion be great. The internal medication is given for four reasons: (1) To relieve irritation; (2) to restore normal digestion; (3) to disinfect the bowel; (4) to control peristalsis. Boating and seaside and country trips are great life savers. The speaker thought the

term cholera infantum was often misused, it being a decidedly rare condition where the intoxication was unusually severe.

Discussion.—J. P. C. GRIFFITH (Chicago) opened the discussion by stating that milk should be early removed. He spoke of the method of treatment used by the French pediatricians of giving only water in the early stages. He thought opium should not be used too early nor kept away too long. J. L. MORSE (Boston) believes in the employment of an initial purge, followed by a starving period. He favors the French treatment of giving nothing but water early. KILMER (New York) insisted on complete sterilization and care of nursing bottles. GILBERT (Louisville, Ky.) agreed with the speaker on treatment, but objected to the use of opium, preferring chloral if any anodyne were employed. ROSA ENGLEMAN (Chicago) discussed the importance of insects, especially cockroaches, as infection carriers. She spoke of discoveries made along this line in carrying out some investigations in her native city. WATSON (Baltimore) thought nursing bottles need not be boiled an hour or two, claiming sterilization could be effected by bringing to the boiling point. He advocated the feeding of raw milk if it could be gotten pure, and mothers were intelligent. STOWELL (New York) favored the use of raw milk and gravity cream. In summing up, PARK said great care should be exercised in determining the causative organism.

Landry's Paralysis in Children, with Report of a Case.—HENRY E. TULEY (Louisville, Ky.), defined the disease and described the pathology and characteristic symptoms, discussing its relation to acute anterior poliomyelitis or infantile paralysis. He cited a case he had observed in a child two years and three months old, in which there was inability to walk following an injury. There was slight elevation of temperature and little or no sphincter involvement. He described in detail the symptomatology and course of the disease which ended fatally in this case. He said in treating the condition, elimination should be gotten by all the emunctories.

[To be continued.]

Section on Ophthalmology.

FIRST SESSION (CONTINUED.)

CASEY A. WOOD (Chicago) announced that he would, on instruction from the section, present a resolution to the house of delegates in reference to the placing of methyl alcohol among the poisons. He was accordingly instructed.

Tumors of the Orbit.—H. V. WÜRDEMAN (Milwaukee) read a paper on this subject, giving a new classification of these growths in accordance with the demands of modern pathology. He considered them as neoplasms (1) inflammatory swellings; (2) primary and secondary; and (3) as anomalies. Among the neoplasms he directed attention briefly to those beginning in the eyeball (1) and primary orbital neoplasm (2) including those primary to the mesodermal tissues, those primary to the bony walls of the orbit and pia, those primary to the optic nerve and sheaths, those primary to the lacrimal gland, those extending from the skin, conjunctiva, and sinuses; those of metastatic origin, teratoid tumors, cysts, angiomas, and pulsating exophthalmos. Among orbital inflammations he mentioned the primary and secondary varieties and orbital protrusions from inflammation in neighboring sinuses. The various orbital anomalies were described. The paper was well illustrated by 200 or more photographs, drawings, and wet specimens. A feature of this paper was the use of the Hoy opaque projector with which the photographs, specimens, etc., were placed behind a very intense illumination and projected through a powerful lens on a screen much in the same manner in which an image is focused on the ground glass plate of a camera. Color details were retained. A watch in motion was projected by this apparatus.

Discussion was opened by C. S. BULL (New York City), who stated that he concluded that if the orbital tumors develop in the orbital tissue proper, sheath of the nerve, or periosteum and are encapsulated the prognosis is good, but if not encapsulated, independent of the origin of the growth, the prognosis is bad and each succeeding operation serves only to hasten the return of the growth and to shorten life of patient. He always gives a frank prognosis and lets the patient decide about the operation. He has observed improvement from use of röntgen ray in three cases and feels justified in using it in all cases as it undoubtedly relieves pain in every case. E. C. ELLETT (Memphis, Tenn.) cited cases of orbital growths. L. W. FOX (Philadelphia) referred to a case of orbital sarcoma in which the röntgen ray had effected a cure after operation had been rejected. He stated that he believed in the so-called inoperable cases, it was useless to perform any operation as it served to make them worse and to exaggerate any tendency to metastasis. He thought the röntgen ray prevented development of tissue and should be employed in all cases. KLINEDENST (York, Pa.) gave the history of a case of sarcoma of the orbit with the usual symptoms. J. O. McREYNOLDS (Dallas, Texas) asked if any success had been obtained in glioma with the röntgen ray. Personally he had not. In closing the discussion, WÜRDEMAN stated that benign neoplasms may be removed without the loss of the eye but usually with some loss of function; that all tumors when small should be operated on and later röntgen rayed; that benign tumors should be extirpated; that röntgen

ray was often of benefit without operation as in Fox's case, and that the röntgen ray seems to retard the growth of glioma.

A Case of Pulsating Exophthalmos: Successful Ligation of Both Common Carotids; Death.—HOWARD A. HANSELL (Philadelphia) read this paper, giving the history of a case with left-sided pulsating exophthalmos three weeks after injury to the opposite side of the face; venous congestion of the lids and ball, partial immobility of the globe, diplopia and deep-seated pain. In spite of prolonged rest in bed and medicinal treatment, the symptoms slowly increased in severity. Ligation of the left common carotid was followed by amelioration of all symptoms and recession of the globe. Relapse in four weeks, attended with retinal hemorrhages. Ligation of the right common carotid, with edema of face and brain, convulsions, and death five days later.

Intermittent Exophthalmos, with the Report of a Case.—WM. CAMPBELL POSEY (Philadelphia) gave a detailed account of this case and illustrated the paper by means of photographs projected by the Hoy apparatus. Both eyes were usually normal, but under violent muscular strain the left eye slowly protruded and by this and other signs showed venous engorgement of orbit. Symptoms rapidly disappeared on cessation of cause. There was an absence of bruit or pulsation in orbit, or of any visible or palpable tumor. No ophthalmoscopic changes. History of intermittent exophthalmos. Its great rarity; 46 cases in all literature. Symptomatology: Limitation to one eye. Ophthalmoscopic appearance negative in most cases. Diagnosis easily made from other angioma of orbit by absence of bruit and pulsation and the transient character of exophthalmos. Etiology obscure. No autopsies, and hence no pathologic anatomy. Most authorities believe cause is dilation of orbital veins from individual predisposition to weakness in walls of vessels and by relaxation of orbital fascia. Disease often congenital, but has followed blows. Prognosis rather favorable. In a few cases vision affected by retinal hemorrhage or by atrophy of optic nerve consecutive to hemorrhage into orbit, but vision usually remains good. Fellow-eye does not become affected. Degree of proptosis does not increase greatly with time. Treatment unsatisfactory. Electrolysis may be essayed or excision of varix with the knife if the tumor be accessible. Complete bibliography was appended to the article.

Discussion was opened by C. R. HOLMES (Cincinnati) with the report of a somewhat similar case which he also believed to be due to some pathologic condition of the orbital veins. The one-sided character he believes argues in favor of a local cause. He stated that sometimes it bore a relation to menstruation. L. J. BORSECH (Philadelphia) expressed surprise at the great rarity of this affection and stated he had observed several of these cases and employed tincture of gelsemium for six or eight months in them with success. LEAMAN (Milwaukee) referred to four cases in which ligation of the carotids had been performed with varying results. W. H. WILDER (Chicago) stated that he had observed several cases having similar symptoms which proved to be syphilitic in origin. G. C. SAVAGE (Nashville, Tenn.) seemed to think that these cases were all due to angioneurotic edema and mentioned several such cases of his own. W. L. PYLE (Philadelphia) related the history of a case of intermittent exophthalmos secondary to angioneurotic edema in which death ultimately resulted from edema of the glottis. R. A. RANDOLPH (Baltimore) made reference to a case of exophthalmos in which death followed within 24 hours after operation and believed that operation was contraindicated in persons over 60 years of age. In closing the discussion POSEY emphatically stated that his cases were not due to angioneurotic edema.

Diaphoresis and Diaphoretics in Ophthalmic Therapeutics.—HIRAM WOODS (Baltimore) and T. A. WOODRUFF (Chicago) read separate papers on this subject. Briefly stated, these papers consisted of the following deductions from physiology of diaphoresis and action of diaphoretics, regarding the class of ocular lesions to which such treatment should be applicable: 1. Congestive. 2. Exudative lesions of such structures as are intimately connected with bloodvessels. 3. To promote elimination of toxic products. Ocular disorders in which they are thus indicated are: 1. Uveitis, especially certain forms of choroiditis. 2. Iridic congestion or iritis. Effect, so far as observed by the writers, is not marked after formation of synechiae. 3. Retinal detachment dependent on choroidal exudate rather than that accompanied by degenerative or cicatricial changes, as in myopia. 4. Certain forms of exudative retinitis. 5. Possibly hemorrhagic orbital lesions. Narration of an observation in which it seemed to have a marked effect. 6. Toxic amblyopia. Difficulty in estimating value of such agents, when improvement follows withdrawal of toxic agent. Treatment by this method often disappointing when one would expect, *a priori*, good results. Method of application. Dosage of diaphoretic agents. Good results seen with small doses.

Discussion opened by W. B. MARPLE (New York City) stating that he believed in the use of diaphoretics, but that the patient's disinclination to inconvenience often influenced the physician in prescribing them. He advises with KIPP (Newark) the use of the Turkish bath, the indications being the same. It is especially valuable in acute uveitis. He also employs the salicylates and aspirin. These he states are less efficient than pilocarpin and the bath, but are certainly of value. In toxic

amblyopia he believes withdrawal of the poison is essential, after which diaphoresis may be of benefit. W. L. PYLE (Philadelphia) protested against the routine hypodermic injection of pilocarpin for sweating purposes, and related a fatal case following such a procedure. He prefers hot water, heat, Turkish bath, hot alcoholic drinks, and Dover's powder to produce diaphoresis in iritis and similar inflammations. He thought salicylates were less efficient and that large doses were unsafe. He employs warm atropin solutions in these cases. TIMBERMAN (Columbus, O.) agreed with the essayist, and quoted a confirmatory case. W. REBER (Philadelphia) said he relied greatly on pilocarpin when there were no evidences of organic disease. He thought there was no danger if the drug was used carefully. He employs it in iritis. S. C. AYERS (Cincinnati) believed the Turkish baths given in portable cabinets to be preferable to the use of pilocarpin. L. CONNOR (Detroit) spoke favorably of hydrotherapy, particularly the use of hot water and vapor baths as a means of producing diaphoresis. E. E. HOLT (Portland, Me.) rose to voice the sentiments of the essayists in regard to the use of diaphoresis and the means of inducing it. J. L. BORSCH (Philadelphia) stated that he employed pilocarpin, and in one instance observed alarming symptoms follow its use. F. BULLER (Montreal, Canada) believed pilocarpin to be of value, but also defended the use of the salicylates in all inflammatory and other conditions of the uveal tract, and cited several cases in which they were of value. THOMPSON (Indianapolis) questioned the accuracy of one of the cases cited, in which there was reattachment of a detached retina. He also asked regarding the use of gelsemium. WOODS, in closing the discussion, agreed with Pyle as to the danger of pilocarpin, but said that some risk always had to be assumed to bring about definite results. He acknowledged a susceptibility in some cases and in others a marked tolerance for pilocarpin. He advised great care in its use. Age should be considered, patient should be kept in bed, and small doses should be used at first. He then cited the conditions in which diaphoresis was of greatest value. WOODRUFF, in his closing remarks, said he had seen no bad effects from the hypodermic injection of gr. $\frac{1}{10}$ to $\frac{1}{4}$ of pilocarpin. He also stated that he had found the hot bath at home to be unsatisfactory.

[To be continued.]

Section on Nervous and Mental Diseases.

FOURTH SESSION.

Facial Paralysis, Bilateral with Marked Sensory and Reflex Defects, Possibly Due to La Grippe.—F. W. LANGDON (Cincinnati) described a case in a man of 51 who, after an attack of grip, suffered from severe occipital headache, and later, after a journey of 50 miles, had right lagophthalmos. Three days later he was unable to close the left eye, and suffered from disturbance of speech and swallowing. Examination showed that both facial nerves were paralyzed. There was distinct disturbance of taste on both sides. There was slight quantitative change to faradism and galvanism, but no reactions of degeneration.

A Clinicopathologic Study of Hemiplegia, with a Microscopic Examination in Eleven Cases.—T. H. WEISENBURG (Philadelphia) reported a statistical study of 150 cases of hemiplegia, in which the following phenomena were observed: Hereditary influences, prehemiplegic and posthemiplegic pain, atrophy of the muscles of the paralyzed side, the respiratory movements, and trophic disturbances of the paralyzed side.

Two Cases of Congenital Deformity, Possibly Due to Intrauterine Disease of the Spinal Cord.—C. W. BURR (Philadelphia) stated that he was unable to add any important data to the pathology of these cases reported. He displayed a number of photographs, illustrating, beside the unusual deformities, among other peculiarities, an absence of calcium salts in the bones. He believes the disease was muscular and skeletal and not a result of spinal cord disease. (Discussed by SKELLY and HERDMAN.)

A Case of Spastic Diplegia Occurring During an Attack of Pertussis, with Autopsy.—JOHN H. W. RHEIN (Philadelphia). During an attack of whoopingcough a child of 20 months lost the power of walking, and later developed spasticity of the legs and arms, nystagmus, petit mal attacks, and finally just before death, general convulsions. At the autopsy important microscopic changes were observed. The perivascular spaces were distended and there was a round-cell infiltration around the vessels. Surrounding the perivascular spaces, in the paracentral region, were found numerous fatty granular cells. There were, in places throughout the cortex, pons, and cerebellum, multiple small hemorrhages. In the cord there was degeneration of the crossed and direct pyramidal tracts.

A Promising Case of Locomotor Ataxia.—GUY HINSDALE described a case of this disease in which, under treatment, the patient gained 46 pounds in a short space of time.

The Surgical Treatment of Poliomyelitis.—W. G. SPILLER and CHARLES FRAZIER (Philadelphia) contributed the results of their experiments in the surgical treatment of this disease. In one case there was some improvement, but the conditions were unfavorable; and in the second case only fair results were obtained. In this case the musculocutaneous nerve was grafted into the anterior tibial nerve. They conclude that in these cases surgical intervention may help. The operation can not be done until after six months has elapsed from the begin-

ning of the disease. (Discussed by SINKLER, STERNE, WOLFSTEIN, and HERDMAN, and others.)

A Dynamometer for Measuring Perspiration.—H. E. WETHERILL demonstrated his instrument and made a brief report of the possible advantages.

Minor or Border-line Psychoses of Alcoholism.—F. P. NORRERY (Jacksonville, Ill.), reported cases which seemed to justify the conclusion that such cases are rare in acute alcoholism, but may appear in adolescents of neurotic types; that they are more frequent in adolescence, and up to 40 or 50 years of age; that they occur both in continuous and periodic drunkards; that the prognosis depends upon the inheritance; that the prevention of major psychoses calls for early treatment which may be said to be successful in the majority of cases.

Psychic Force.—B. F. BEEBE (Cincinnati) read a paper on this subject in which he discussed the influence of mind upon mind and mind upon body. He referred to the advantages of suggestion in therapeutics, and offered a plea for greater knowledge and employment of psychic influence by physicians, not only in their treatment of disease, but in their intercourse with mankind.

Have Drug Habits a Pathologic Basis?—A. STERNE discussed the hereditary influences bearing upon this subject, and believes that acidity occurs and exists as a true pathology, and probably is the basis for some cellular change, which change he however was unable to define.

A Case of Locomotor Ataxia with a Tremor resembling Paralysis Agitans.—JOHN H. W. RHEIN (Philadelphia) reported a case occurring in a man of 55 who developed, together with the usual symptoms of locomotor ataxia, a tremor resembling that of paralysis agitans. The autopsy revealed the characteristic lesions of locomotor ataxia, and failed to show any pathologic change which could be said to account for the presence of the tremor. The case was probably one of locomotor ataxia complicated by paralysis agitans.

Some Unusual Forms of Multiple Neuritis.—WHARTON SINKLER (Philadelphia) described some interesting cases of neuritis illustrating some unusual manifestations of this disease. Among these were multiple neuritis following the administration of arsenic and lead, and cases of septic multiple neuritis occurring after miscarriage and labor. (Discussed by RHEIN and others.)

Hysterical Delirium, Report of Four Cases.—THEODORE DILLER (Pittsburg) believes that insanity as an expression of hysteria may be unrecognized by those of experience either within or without an asylum.

A Brain Tumor with Progressive Blindness as its Most Prominent Feature, with Microscopic Report.—W. C. KENDIG and D. I. WOLFSTEIN (Cincinnati) described a case in which the autopsy showed the presence of a spindle-cell sarcoma.

A Clinical and Pathologic Study of a Number of Cases of Epilepsy.—ONUF (Sonyea, N. Y.), reported a case of this character in which he showed that in a certain number of cases there was distinct pathologic change in the brain. The true significance of this change, however, could not be determined.

[To be continued.]

Section on Pathology and Physiology.

SECOND SESSION.

Uncinariasis in the South, with Special Reference to Mode of Infection.—CLAUDE A. SMITH (Atlanta) called attention to the mild cases, in which no general symptoms appear. Cases are to be found in all the Southern States. Positive diagnosis is only possible by finding the larvae or the eggs in the stools. Wherever a severe case is found a large number of mild cases will be present, and the physician must find and treat them. Thymol should be used with caution because of the toxic effect of the drug. The eggs can be hatched by mixing feces with soil; the larvae live for three or four months. Infection occurs by the penetration of the larvae into lesions of the skin, especially in "ground-itch," a disease to which barefooted children are subject. A patient was experimentally inoculated by binding soil containing larvae upon the uninjured skin of the wrist. The success of the inoculation seems to depend upon the presence of particles of soil which offer the larvae a certain counterresistance, thus enabling them to work their way into the epidermis.

The Nature and Significance of Leukocytosis.—A. MANSFIELD HOLMES (Denver) detailed a number of theories and fallacies pertaining to leukocytosis and the causal and antagonistic factors in production. He then dwelt on the source and destiny of the cell recruits in leukocytosis and the nature and significance of the differential blood count in abnormal blood states. A differential blood count is indispensable to a correct interpretation of leukocytosis but there are additional factors to be considered. Leukocytosis was then studied in its relation to pyogenic infection: (a) The degree of virulence of the infection vs. (b) the degree of the resisting power of the organism. The range of usefulness of a leukocyte and differential count in clinical study is perhaps wider than that of a simple blood count.

Further Observations on Leukocytotoxins.—HENRY A. CHRISTIAN and THOMAS F. LEEN (Boston) considered the effect on the amoeboid motion of leukocytes of serums produced

by the injection of somatic cells (spleen, liver, kidney, heart), the effect of bacterial toxins (*Staphylococcus pyogenes aureus*, *Bacillus diphtheriae*); he made a comparison of the action of the two. The paper forms a further contribution on the subject, detailing the results of work done since the previous report before the American Association of Pathologists and Bacteriologists. More or less specific leukocytotoxins can be produced by injecting somatic cells. Natural leukocytotoxins are rare.

Studies on Antistreptococcus Serum.—D. H. BERGEY (Philadelphia) stated that studies of antistreptococcus serums have shown great variability in the powers of different serums. Practically all investigators agree in the demonstration of agglutinating powers in antistreptococcus serums, the property varying with the degree of virulence of the organism, etc. No bactericidal powers in antistreptococcus serums have been thus far demonstrated, the general opinion being that favorable influence of serum is due to stimulation of phagocytic action. The author had immunized goats and rabbits with different races of streptococci to throw additional light on the character of immunity produced in treated animals, as well as on nature of substances in serums of such animals. Serums of goats and rabbits immunized with streptococci isolated from cases of scarlatinal angina and from cow's milk showed definite agglutinating powers for homologous and for heterologous cultures. No evidence of bactericidal property was demonstrated in serums of different animals immunized with streptococci, neither could any marked evidence of stimulation of phagocytosis be determined. Preventive inoculations of the different serums into white mice, followed 24 hours later by fatal doses of streptococci, did not always protect the animals from death, though they usually served to prolong life.

A Bacteriologic and Clinical Investigation of a Curative Serum for Typhoid Fever.—WILLIAM R. STOKES and JOHN S. FULTON (Baltimore). The authors quoted the description published in September, 1901, of curative typhoid fever serum, produced by injecting hogs with typhoid cultures. This serum protected guineapigs against seven times the minimum fatal dose of bacilli. Five cases treated, three showed satisfactory drop of temperature. The present paper reports continuation of this work, and the results correspond to former tests. A long series of tests was also made to test bacteriolytic properties. The serum destroys large numbers of typhoid bacilli in dilutions of 1 to 10, while dilutions of even 1 to 1,000 showed some bacteriolytic effect. The serum was used in the treatment of 23 human cases; if used before the end of first week, results seemed favorable in most cases. The most striking effect consisted in premature fall of temperature, and improvement in general symptoms. In cases treated later, improvement was not so marked, or even not noted. This might be accounted for by gradual exhaustion of the complement by the disease. The authors pointed out that there was danger of using excessive amount of intermediary body in treatment and spoke of the inability to furnish an artificial complement at present. An elaborate review was made of experimental work of Ainley Walker in curing rabbits of laboratory typhoid infection and results from treatment of human beings by Professor Tavel, of Berne.

Bone Cysts: A Consideration of the Benign and Adamantine Denterogenous Cysts of the Jaw and Benign Cysts of the Long Pipe Bones.—(With lantern slide demonstration.) JOSEPH C. BLOODGOOD (Baltimore) stated that in his opinion the early metastasis of the tumors of bones makes it inadvisable to attempt more than a palliative operation for malignant growths, while the less malignant forms can be cured by operations which are not so mutilating as many which have been in use. He exhibited three röntgen ray photographs of rare cases of bone cysts, due to the inclusion of islands of cartilage which later break down.

A Hitherto Undescribed Intestinal Parasite of Man.—ALLEN J. SMITH (Philadelphia) states that the worm is found to be an ordinary earthworm, one of an unusual species, probably due to some error of collection. Smith substitutes another case, in which he has found a new genus of ascaris. The paper is a detailed description of the worm.

[To be continued.]

Section on Laryngology and Otology.

FIRST SESSION (CONTINUED).

The Relation of the Chemistry of the Saliva (Stalosomeiology) and Nasal Secretions to Diseases of the Mucous Membrane of the Mouth and Upper Respiratory Tract, with Special Reference to Hay-fever.—D. BRADEN KYLE (Philadelphia) reported further investigations along the line, which he has been carrying out for several years, regarding the import of salivary and nasal secretions, with practical application with reference to hay-fever. In the chemic study of the secretions three main classifications were made: 1. Secretions, nonirritating *per se* which, on exposure (when coming to the surface), undergo some chemic changes, producing an irritant. This may be noted in either an acid or an alkaline secretion. An exceedingly alkaline secretion is decidedly more irritating and productive of a more destructive pathologic process than even a strongly acid secretion. 2. Secretions which are irritating *per se* when poured out on the surface. 3. Secretions which come to the surface in a nonirritating

form, but on coming in contact with extraneous material are rendered irritant. Two principles demonstrated are: 1. In highly alkaline conditions there is an exaggerated oxidation, and the chemic change takes place in the secretion after it is poured out. 2. In highly acid conditions oxidation is incomplete, causing a great tendency to precipitate material within the tissues—an infiltration process. If hay-fever is distinctly a neurosis, why should the patient, as a rule, improve in a high, dry climate, when such altitudes are decidedly irritating to a nervous individual? Why is it that an individual, after having had hay-fever for several years, will miss one season or even two, without any treatment at all? He thinks the answer lies in the individual, at least in a majority of cases, and that the secretions of such persons having changed under certain conditions were nonirritating. Treatment, directed toward rectifying the pathologic condition of the secretions, is advised several weeks before the usual time for the hay-fever attack to come on in individuals who have been chronically susceptible, and in acute attacks the same line is carried out, though more vigorously, the secretions being rapidly shifted from acid to alkaline, or vice versa. KYLE reports 80% to 90% of cures in patients treated on this basis.

Discussion.—DALAND (Philadelphia). This is a very important and seldom recognized cause of nasal and oropharyngeal disease, and it is obvious from this paper that the same cause plays an important role in certain cases of hay-fever. The observations are interesting from a practical as well as a scientific standpoint because a proper appreciation of the chemic causes of these affections indicates a plan of treatment which has given brilliant results. It is not at all improbable that certain spasmodic bronchial affections, that are usually considered under the name of "nervous asthma," may have a like cause, and a study of this disease from this standpoint may yield similar therapeutic results. The profession has been gradually recognizing the importance of hyperacid conditions of the upper respiratory tract and mouth, but KYLE is to be complimented upon drawing attention to direct poisoning influences of the sulfo cyanids and of the marked local irritating effects of hypoaoid conditions which are frequently found in association with ammonia compounds, and at times, free ammonia. These observations are of importance to the general practitioner because of their prejudicial influences upon the general health, and there can be little doubt that certain cases of general toxemia may be due to the sulfo cyanids. On the other hand, he is inclined to believe that there are cases of toxemia of intestinal origin, usually fecal, that play an etiologic role in the production of morbid chemic states of the nasal secretions and the saliva. When we remember that in a few moments after the taking of lithium it can be discovered spectroscopically in the saliva, and that normally within eight minutes after the swallowing of one of the iodid salts, iodine can be detected in this same secretion, we realize how rapidly is the diffusion of these soluble substances, and how promptly the salivary glands excrete these substances, which here have the peculiarity of again being swallowed to be again absorbed into the circulation. KIRK (Philadelphia) stated that his observations from a dental standpoint coincided with those of Kyle, there being numerous cases in which the irritations seen about the mouth, gums, and alveolar structures are undoubtedly due to a pathologic condition of the salivary secretions. INGALLS (Chicago) expressed interest in the investigations of Kyle for two or three years, and believed there will develop many points of practical interest.

SECOND SESSION.

Lithemic Nasopharyngitis Due to Systemic Disturbances.—J. A. STUCKY (Lexington, Ky.) defined the term lithemic nasopharyngitis as that type of disease having close etiologic relationship to rheumatism or the so-called lithemic diathesis, having its origin in autointoxication caused by absorption of biproducts from the intestinal tract, or in the faulty metabolism occurring in the liver. He laid stress upon the fact that elimination is the function of prime importance, that it is not so much a matter of regulation in diet as it is the regulation of the intestinal tract, that the fact that the patient has one or two bowel movements daily is not an indication that there will be no fecal retention. He emphasized the importance of indican in the urine as a factor in diagnosis. In a series of a hundred cases in which indican was present in this class of patients, the symptoms were relieved as soon as the indican disappeared from the urine. He exhibited an apparatus consisting of a nursing bottle to which is attached at one end a rubber compression bulb and at the other opening a rubber tube with a cut-off similar to that used with a fountain syringe. This is used for making high rectal injections of soap-suds followed by olive oil, the tube being used in connection with a high rectal tube and the fluid forced in by means of the bulb.

Discussion.—CLINE (Indianapolis) believed that in our attention to surgical procedures and in collecting new instruments for operative work, we are apt to overlook the importance of systemic treatment as referred to in the paper read, which procedures may often relieve the condition without resorting to radical operations. HOLINGER (Chicago) did not altogether approve of the rectal treatment because of the danger of developing a neurotic condition in which the patient might rely on the tube for the alleviation of all ills. To this Stucky

replied, in his closing remarks, that he has never had such a result, since as soon as the acute condition is corrected the patients are encouraged to indulge in outdoor exercise and the observance of such hygienic measures as would tend to the establishing of normal physiologic functions. MYLES (New York) expressed approval of the oil treatment, having used it for some time. SMITH (Philadelphia) in addition to the rectal use of the oil advises its internal administration as well.

Reversional Vestiges in the Human Pharynx as Sources of Irritation.—NORVAL PIERCE (Chicago) stated that the title was somewhat erroneous, in that his paper has to do simply with one reversional vestige, namely, the styloid process. Though this subject has been treated by several foreign authors, and while cases have been reported on this side, yet, so far as he has been able to discover, this is the first time the subject has been treated in American literature from the standpoint of comparative anatomy. He took up in the beginning the aboriginal skull, the connections between the base of the skull and the hyoid bones in the lower animals, the appearance of the styloid and the stylohyoid ligaments. He referred to instances of bony connection between the styloid process and the hyoid bone in man, and brought out the point that a long styloid process and projection upward from the hyoid bone are reversions to the lower animal types of connection, referring to cases in which these anomalies have occurred. The paper showed thorough research, and brought out many interesting applications, which may be made practical in diagnosis and treatment of apparent anomalous conditions in man. In the treatment of these conditions Pierce made the point that we should be conservative in the removal of these bony projections.

Discussion.—MYLES (New York) agrees with Pierce that the removal of these bony projections are in most cases unnecessary. He referred to his having observed a case in which the styloid process approached the anterior pillar of the fauces. ROY (Atlanta) referred to two cases reported at Atlanta at a previous meeting, in which "bones in the tonsils" were found to be extensions of the hyoid bones. HOLINGER (Chicago) stated that these suggestions may be of value in the diagnosis of bony growths encountered in adenoid operations. CASSEBERRY (Chicago) suggested that calculi and cartilaginous formations may be mistaken for the styloid process. TURNER (Edinburgh) stated that the paper is especially valuable from the standpoint of comparative anatomy and may throw light on many conditions observed in the human being. He thinks that Holinger is likely mistaken in his supposition that the styloid may be encountered in removing adenoids, that it may more likely be found to be a prominent first cervical vertebra. HOLMES (Cincinnati) reported a case operated upon in which a projection into the tonsil was removed with forceps and scissors.

[To be continued.]

Section on Materia Medica.

SECOND SESSION.

Relation of Internal Secretions to Epilepsy, Puerperal Eclampsia and Kindred Convulsive Disorders.—CHARLES E. DEM. SAJOUS (Philadelphia) bases his paper largely upon the experiments of others and says he does not lay so much stress upon his own investigations if they do not coincide with the results of investigators whose experiences are of 20 or 30 years' standing. He believes, however, that the pituitary body, thyroid gland and adrenal are physiologically allied, and that the secretions of the adrenal are concerned in raising the blood-pressure. Experimenters, he says, have shown that blood taken from the vein of the adrenals and injected into an animal possessed the property of increasing blood-pressure the same as adrenal extract. The splanchnic plexus regulates the amount of blood going to the adrenals and in that way regulates the function of these organs. Stimulation of splanchnics failed to show the least evidence to vasomotor constriction or dilation in the adrenals. Pavy, he maintains, showed that division of the nerve from the superior ganglion to the cord in the spinal canal produced diabetes mellitus. Removal of the ganglion produced the same effect. The administration of adrenal extract has been found to give rise to glycosuria. In discussing the part played by the pituitary body, he says, there is an intimate relationship between this organ and the adrenal for by stimulating the pituitary body there is an increase in the cardiac power, an increase in the arterial tension and an increase in the cerebral pressure, practically the same phenomena obtained by the administration of adrenal extract.

Discussion.—STERN (New York City) believes that the physiologic investigation must be corroborated by other observation. In regard to the production of glycosuria he says there are many other extracts that produce glycosuria beside adrenal extract.

The Indications for and the Nature of the Various Hypnotic Drugs in Mental Diseases.—ALFRED R. DIFENDORF (Conn.) classifies the insomnias he purposes to deal with into two groups: 1. The insomnia which precedes or is found in the early stages of the mental derangements; these he regards as the prodromal insomnias. 2. Those insomnias that come on after the mental conditions are well established. Of the first group he enumerated a few of the characteristic symptoms,

such as various peculiar sensations in the head, a fullness of the head, irritability, malaise, fear, suicidal attempts or tendencies, loss of weight, alteration in the sexual functions, at times loss of the sexual desire, other times an increase. If the treatment of these conditions and the insomnia be appropriate it may do much in preventing the mental derangement. In speaking of the treatment he lays particular stress upon the removal of such conditions that may or do give rise to anxiety, fear, or irritating effect. These conditions do much to produce not only the insomnia, but also the mental disturbances. He particularly emphasizes that hypnotic drugs should be resorted to only when everything else fails. He urges that hot drinks, hot broths, and exercise should be given to relieve the insomnia of these conditions. When these measures fail he advises the use of bromin salts in small doses which he believes are the best hypnotics for this form of sleeplessness. Trional, he says, is better than sulfonal because it does not tend to accumulate, and is not so liable to produce untoward effects. It must be given in hot water, and can be given for a period of two weeks when its employment should be stopped because it also produces accumulating effects in time. The insomnias of the second group depend upon the psychoses themselves, and he says, the hypnotics are necessary to the treatment of these conditions in many instances. But even in these conditions prolonged baths should be first tried. These baths can be continued for long periods of time without producing any deleterious effect; the patients may remain in them for two hours at a time. It, says Diefendorf, may be necessary at first to give the patients small doses of hyoscin hydrobromate to quiet them while in the bath. When baths, massage and electricity fail, he combines chloral hydrate with the bromids, except in cases of fatty degeneration of the heart, other lesion of the heart and diseases of the bloodvessels and kidneys. If hyoscin fails, scopolamin may be given; paraldehyd may also be tried. For the insomnias of hallucinations and dementia præcox (Diefendorf) give the deodorized tincture of opium and cannabis indica if the patients are of an asthenic type and have albuminuria. For the insomnias of the depression of dementia præcox and dementia paralytica he first tries hot and cold packs. And for the insomnia of senile dementia, paraldehyd. He spoke of many new drugs which were supposed to act as hypnotics but which have not stood the test. There are two new hypnotic drugs which he believes are of value, although they have as yet not stood the test of time. The first of these is somnos, which should be given in doses of one-half to one ounce. He says there are no after-effects. The second is veronal, which is given in from three to fifteen grains. This last named drug is very expensive.

Discussion.—LOW (Philadelphia) says, because the physician neglects to direct the sulfonal to be dissolved in hot solution before it is given the desired effect is not produced until five or six hours after the administration. ROBINSON (New York City) says no hypnotic drug is without danger, and he does not believe that a drug can be produced that will be absolutely dangerless. FOSS (Arizona) maintains that hypnotics should not be used. WESTCOTT (Atlantic City) thinks the copy of the prescription upon the box or bottle is responsible for the use of hypnotics by the laity. WALL (Chicago) calls attention to the fact that digitalin sometimes relieves insomnia when other drugs fail. STERN (New York City) maintains that sulfonal is destructive to the hemoglobin and gives rise to hematuria. OSBORN says the blood-pressure has much to do with relieving of insomnia. At time the pressure is too high, then nitroglycerin will do; when it is too low, digitalis will do much to relieve the insomnia. In closing the discussion, DIFENDORF says that all means should be exhausted to relieve the insomnia before drugs are resorted to. He corroborated the view expressed by the chairman in reference to blood-pressure as a factor in producing sleep.

Chronic Arterial Hypertension.—HENRY W. COOK (Richmond, Va.) asserts that the adage "one is as old as his arteries," is no longer to be regarded as true. To illustrate this he cites the condition of the arteries of individuals in asylums and the condition of the active business man's arteries as seen at autopsy; the first are extremely atheromatous and calcareous while the latter show possible only slight evidence of atheromatous changes, yet these men are most liable to apoplexy while those individuals of asylums rarely died of apoplexy. Longevity is an inverse proportion to the hyperarterial tension. Hyperarterial tension may be due to cardiac hypertrophy, alcoholism, toxins, and it may be idiopathic. Heredity plays a part in the idiopathic hypertension. In speaking of the treatment he says amyl nitrite is of use only for instant and transitory effects. He believes that sodium nitrite is a more valuable drug than nitroglycerin. Its effects last about four hours and when given after meals even longer.

Discussion.—BARNES (Washington) alluded to the mental effect of dilating the bloodvessels; if the mind is concentrated upon a particular part the vessels of that part dilate. Posture and exercise also lower blood-pressure. Thyroid extract is of value in some cases. He agrees with Cook in the statement that sodium nitrite is a very valuable drug. SAJOUS (Philadelphia) refers to the rise in blood-pressure due to pituitary body. WALL (Chicago) maintains that nitrites are for temporary use only, but that veratrum may be administered for long periods of time. H. C. WOOD, JR. (Philadelphia) does not approve of Cook's idiopathic form of hypertension; he thinks

there must be a lesion somewhere. The use of the nitrites does not in any way effect the lesion but is merely symptomatic. He asserts that potassium nitrate has a more lasting effect than the sodium nitrite. ROBINSON (New York City) thinks veratrum viride will lower blood-pressure for weeks at a time. To lower blood-pressure the crude potassium nitrate must be used and this in all probability produces the effect as a result of the minute quantities of potassium nitrite it contains. TOMPKINS (West Virginia) relates a case in which the effects of amyl nitrite were apparent for eight or nine days. OSBORN (chairman) thinks the iodids stimulate the thyroid gland whose secretions produce a lowering of the blood-pressure. In closing the discussion, Cook says he has seen the pressure fall 40 mm. of mercury and remain 80 for three hours by the use of sodium nitrite. He does not recommend the use of aconite and veratrum viride because of the effect upon the heart.

The Control of Internal Hemorrhage by Drugs.—T. L. COLEY (Philadelphia) begins his paper by saying there is no specific treatment for internal hemorrhage. At its onset hemorrhage needs no treatment; the treatment may do harm at this time. Astringents, he says, are of value only where they can be applied locally; they are valueless when administered internally. This is true both of vegetable and mineral astringents. Adrenalin should be used locally only, since a rise in blood-pressure results from its internal administration. Ergot, for the same reason, can be used only in uterine hemorrhages. Digitalis produces in many instances harm by raising the blood-pressure. Opium does good by quieting the patient. Coley does not believe hydrastis, ipecac, calcium chlorid and gelatin are of much value in internal hemorrhages. He opposes the use of strychnin because it excites the patient, except when the hemorrhage is in the splanchnic area, then strychnin and hydrastis may be of value. Hot salt solution is undoubtedly of value. ROBINSON, in opening the discussion, says upon the whole he agrees with the author of the paper, but he prefers to combine atropin with the morphin. Large doses of bismuth, $\frac{1}{2}$ oz. to 1 oz., are useful in gastric hemorrhages. He is also favorably impressed with aromatic sulfuric acid in gastric and pulmonary hemorrhage. To control epistaxis he uses a combination of fluid extract of hydrastis and fluid extract of witch hazel. This, he says, prevents the recurrence of these hemorrhages. Gelatin, in his opinion, is of value in stopping hemorrhages. WALL (Chicago) advocates the use of atropin, especially in pulmonary hemorrhage; hydrastis is entirely too slow in its action. ABBOT (Chicago) maintains that morphin quiets the patient, while atropin dilates the peripheral vessels, especially the cutaneous, and in that way draws the blood from the bleeding area. The dose of atropin should be large and morphin correspondingly small. H. C. WOOD, JR., (Philadelphia) upon theoretic grounds maintains that atropin is contraindicated in hemorrhage since it elevates the internal blood-pressure. He believes gelatin to be of great value. COOK (Va.) says stimulation in hemorrhage is dangerous. Strychnin and adrenalin both raise arterial pressure and therefore should not be used in internal hemorrhages. Vasomotor dilators are also dangerous. ROBINSON (New York) calls attention to the fact that gelatin increases the coagulability of the blood, and that by heating the gelatin too high destroys its coagulability. Sajous points out that atropin causes a contraction of the arterioles and that the capillaries are composed of endothelial cells only and are not affected by the atropin. Coley, in closing the discussion says bismuth and ferric chlorid and antipyrin might be of value if they could reach the bleeding point. Atropin is dangerous because it raises blood-pressure. He believes theoretic evidence should be greater than clinical.

[To be continued.]

Section on Cutaneous Medicine and Surgery.

FIRST SESSION (CONTINUED).

RAVOGLI read a paper on false or cicatricial keloids, in which he differentiated between a false and a true keloid. He described a case in which there are multiple keloids of a painful character. The difference between true and false keloids was demonstrated by photographs; in these it is shown that the papillas are visible only in the true and not in the false variety. Ravogli detailed the most important etiologic factors in the formation of keloids. In considering the treatment, he said complete removal of the tissue is the best. Röntgen ray treatment has been quite satisfactory.

Discussion.—GOTTHEIL (New York) holds that every case of keloid is cicatricial in character. BAUM (Cincinnati) described a case of keloid following lupus vulgaris. MONTGOMERY (San Francisco) saw a case of symmetric keloids; they were removed by excision.

C. B. COOPER (Hawaii) was introduced. He gave an interesting talk upon leprosy in Hawaii and spoke of the destitute condition of the treasury of the Board of Health in Hawaii. In describing the possibility of contagion, he says that the only reliable procedure is in absolute segregation, although in the Caucasian race the disease is extremely mild.

Discussion.—SCHAMBERG (Philadelphia) believes in segregation of lepers. CORLETT says that lepers of Paris are allowed to live in the same hospital with other patients.

Psorospermose Cutanée Vegetante Folliculaire.—

DAVID LIEBERTHAL (Chicago) enumerated previous cases and reported a case which came under his observation in a boy aged 12, who presented very painful symptoms. The histopathologic condition present was entered into. The theory of Darier was emphasized. The macroscopic features were beautifully shown with lantern slides. He has found that the hair follicles contain most of the psorospermose plug. The etiology of this affection is said to be unknown. The face was treated with röntgen rays; the rest of the body with resorcin or ichthyol ointment and the like. At times complete excision of nodules has proved efficacious. LEUTGALT believes that the condition is caused by coecydia.

Larva Migrans.—STELWAGON (Philadelphia) reported a second case, involving the regions of the foot and ankle. The patient was a male adult, who had the eruption for 10 days. There was but one parasite found. Attempts to secure it were futile. The treatment instituted was the cataphoretic application of mercuric chlorid; this seemed to be of no value. Nitric acid was substituted, with the result that the patient recovered in a very short time. In the majority of cases the disease developed in those who had just returned from the seashore.

Discussion.—SCHAMBERG had seen a case. LORD (Baltimore) had a patient in which the site of the parasite was excised, the result being complete recovery.

Acne Keratosa.—GOTTHEIL (N. Y.) says he found but 11 cases in literature, though the condition is not rare. The lesions are acuminate inflammatory papules, but not containing pus, they are seen at all ages, but found especially in the young. The condition recovers spontaneously. He reports several cases, all of which seem to elect exposed parts for the disease. Some of the lesions were quite large—as large as a half inch. He shows microphotographs of the histology of the disease. The disease, the etiology of which is unknown, is distinctly a true hyperkeratosis.

Cover-glass Cultures and Their Possibilities in Studying the Epidermic Fungi.—J. F. WALLIS (Philadelphia) read this paper describing the tube and plate cultures in solid and liquid media. The advantages of his method are many, but the greatest is the ability of the observer to study the growth of the microorganisms through the various stages. He describes Unna's method for studying living microorganisms microscopically, and showed photographs demonstrating living fungi found in the skin and plates.

Discussion.—SCHAMBERG has seen hairs prepared in this manner, and has found that the method is most admirable. WALLIS states that he is enabled by his method to preserve his specimens.

Prurigo (Hebra) as Observed in the United States.—CORLETT (Cleveland, Ohio) said that it has been said that the Austrian prurigo does not appear in this country. He reported several cases. The first in a child, normal in every respect, in which the entire body was covered with a papulopustular eruption. The skin appeared to be dry and thickened. The lower extremities were more affected than the upper. Treatment consisted of tonics internally and local applications; the result is as yet unsatisfactory. The disease seems to be worse in the winter and spring, though it does not disappear in the summer. Corlett believes the disease more common than usually thought.

Discussion.—RAVOGLI (Cincinnati) sees on an average of from 12 to 15 cases of prurigo every year. STELWAGON says that Philadelphia furnishes no cases of prurigo.

[To be continued.]

Section on Hygiene and Sanitary Science.

SECOND SESSION.

Dairy Hygiene; with Special Reference to Tuberculosis.—RICHARD COLE NEWTON (Montclair, N. J.) described the fallacies inseparable from the diagnosis of tuberculosis in dairy cattle by means of the tuberculin test, and the futility of the restrictive measures now in use. He advocated extensive reforms in the management of dairy herds, a minimum of 1,200 cubic feet of air space for each animal, sunlight in abundance, daily exercise in all mothers, a shortened period of lactation, and the conversion of dairy cattle into beef after two or three pregnancies.

GRESSY L. WILBUR, Chief of Division of Vital Statistics of the Michigan Department of State, and Expert Special Agent of the United States Census Bureau, read a paper entitled **What the Census Bureau is Doing to Improve the Registration of Vital Statistics in the United States.** Wilbur displayed by means of a map the disgracefully small part of the United States which in 1900 constituted the "registration area," that is, the area in which returns of death are collected under local laws to 90% or more of completeness. This area included no more than nine States—the six New England States, New York, New Jersey and Michigan. The accessions to this number since 1900 are Indiana and Maryland. The establishment of the Census Bureau on a permanent footing has awakened an interest in the subject of registration in this country. Colorado has now an effective plan of registering deaths at the time and place of their occurrence. Illinois and Iowa have undertaken the work of registration, but have not as yet shown practical results. In Pennsylvania, Ohio, Florida, Louisiana and California the subject is now in active agitation. Wilbur

pointed out the essential features of effective laws and ordinances and emphasized the importance in undertaking such work of avoiding the errors which have appeared in the history of registration in the various States, and of proceeding at once upon a plan conforming as closely as possible with the standards arrived at through the combined experience of older registration States.

Is Pneumonia Increasing?—JOHN S. FULTON (Baltimore) said that for 58.5% of the population of the United States, and for 66.5% of the urban population this question can be answered in the negative, for pneumonia is definitely diminishing between the ages of 15 and 60. There remain to be considered those parts of the population above 60 and under 15. The proportion of population above 60 is at present about 6.6% of the total population. The pneumonia mortality charged against this age period has apparently increased in 10 years from 21.9% of the total pneumonia mortality to 22.6%, but the proportional part of the population in this period has risen from 6.2% in the same time. The proportion of urban population above 60 has grown only from 5.25% to 5.27% in 10 years, while the pneumonia mortality has grown from 16.1% to 19.5% of the total mortality charged to that cause. Meanwhile there have been added to the group of pneumonias a number of pathologic conditions not formerly recognized and not properly counted under a statistical head supposed to include the true pneumonias. In the last 20 years the deaths classified under the head of senile debility have materially diminished notwithstanding the inclusion from time to time of several indefinite causes of death formerly supposed to merit separate classification, and notwithstanding the increasing proportion of population in ages above 60. These considerations fully explain the apparent rise of the pneumonia account for this period, and leave the assumption of an increased incidence or fatality of pneumonia without support. For the proportion of population below 15, that found below 5 alone contributes to the apparently increasing pneumonia mortality. For this period of life only about 5% of pneumonias autopsied are found to be true lobar pneumonias. Of the remaining 95% nearly all are secondary or complicating bronchopneumonias and notwithstanding the accessory relation of the pneumococcus to a considerable number of these bronchopneumonias, they should not be so treated in statistics as to confuse our knowledge of the more definite massive pneumonias due to that organism. The secondary bronchopneumonias should be referred in the statistics to their efficient cause, whenever that is known. The apparent rise of pneumonia under the age of 5 can be shown to have consisted up to 1890 of a steady unloading of indefinite mortality accounts into the pneumonia column. The diseases of the nervous system of infants have been discharging for 30 years into the pneumonia accounts. Since 1890 a new contributor to infantile pneumonia has appeared. This, Fulton believes, is influenza, and should be charged to influenza. The relation of the influenza organism to fatal bronchopneumonias of children is strongly suggested by the statistics, and invites careful clinical and pathologic study. Speaking of the statistics of cities, Fulton attacked especially the statistics of Chicago, which he said showed pneumonia in relations quite inconsistent with their claimed general mortality, the known age distribution of the population, and the published mortality from other diseases of childhood. For instance, he said, then the claimed proportionate mortality of 26% for ages under 5 would, upon their published ratio of mortality from pneumonia, require that 400 or more of any 1,000 deaths under 5 should be charged to pneumonia, and then every conceivable method of adjusting their published pneumonia mortality to their population would result in a relation just as monstrous.

[To be continued.]

AMERICAN ACADEMY OF MEDICINE.

Twenty-ninth Annual Session, Atlantic City, N. J., June 4 and 6, 1904.

[Specially reported for *American Medicine*.]

[Continued from page 980.]

The Relations of Dentistry and Medicine.—EDWARD C. KIRK (Philadelphia) stated that dentistry has had a dual origin; its problems in pathology have kept it in relation with medicine, and the requirements for skill in relation with the artisan. He traced the development of dentistry as a separate profession, the establishment of dental colleges, societies, and literature. The relationship between medicine and dentistry is the expansion of dentistry to include the fundamental portion of medical training. The dentist lacks the educational training that leads to the medical degree, and in a technical sense he is not a physician, but he does not lack medical training, as in the professional training of dentists today the requirements for the first two years are the same as in medicine. The dental course is now four years, and to acquire the degree of medicine and dentistry would involve time and money undesirable and unnecessary. The issues which the dentist is called upon to treat are rarely those of life and death, but they are problems

which are intimately associated with bodily health and personal comfort. More rational understanding of the interdependence of pathologic phenomena of the faulty nutrition in even so local a condition as dental caries, has come to be viewed as a diathetic fault or error of metabolism in the buccal secretions, charged with waste products, or as a pabulum of fungi. The constant presence of specific pathologic bacteria in many locally healthy mouths, causes inquiry into the question of immunity, the chemistry of abnormal metabolism, as factors to disease predisposition. For these reasons the dentist and the practitioner will in future be brought closer and closer together. It may also be possible in future to discover evidence of disease by studying the oral secretions when no other evidence of its presence exists, or when the patient is not aware of such disease.

The Relations of Physicians to Dentists.—JOHN S. MARSHALL (read by the assistant secretary) stated that there is still a question in the minds of a good many medical men as to whether or not the dentist is entitled to be classed as a medical specialist, and to be consulted on the same professional and ethical grounds as other specialists, and quoted definitions of the words "physician" and "dentist" by various authorities. "Dentist" no longer indicates the narrow field of the dental region, and the term stomatologist has been suggested as a substitute to define more clearly the sphere of dental surgery. Stomatology would include that department of medicine and surgery relating to the study of diseases and injuries and irregularities of teeth, their treatment, preservation, replacement of lost teeth by artificial substitutes and the treatment of diseases, injuries, and deformities of the oral cavity, the jaws and accessory sinuses. He outlines the course and term of study of the dental student, together with the subjects covered in his curriculum, and concludes that the dental surgeon is entitled to be classed as a specialist in medicine. He cites the relationship of dentistry to medicine, and asks why pregnancy sometimes causes toothache or produces pyorrhea alveolaris, and extraction in a pregnant woman may produce abortion. Why it is never wise to cap an exposed pulp in a malarious region, why an impacted third molar causes deafness or reflex neuroses in various parts of the body? Alveolar abscesses as causes of septicemia or chronic abscess cause pyemia, and disorders of the mouth cause intestinal disorders. Uterine irritations or displacement may cause gingivitis. No plea is made for the recognition of the dentist as a specialist, as he has already achieved this position, dentists having been invited to appear before the American Medical Association and the International Medical Congress, and the mere fact that the dentist does not hold the M.D. degree should not debar him from his just rights to fellowship to the medical profession. Dentistry was the first to organize special schools and to confer special degrees and the younger specialties like ophthalmology, rhinology, etc., have since been organized in all the large colleges. Dentistry itself has developed to such an extent that it also has been subdivided into separate specialties, such as orthodontia, oral surgery, operative dentistry, etc.

[To be continued.]

AMERICAN GYNECOLOGICAL SOCIETY.

Twenty-ninth Annual Meeting, Held in Boston, Mass., May 24, 25, and 26, 1904.

[Specially reported for *American Medicine*.]

[Continued from page 980.]

The Value of Nonoperative Local Treatment in Pelvic Disorders.—WALTER P. MANTON (Detroit, Mich.) said that there were three factors which, among others, were largely responsible for the neglect of medical gynecology: 1. The average physician's lack of knowledge in the accurate diagnosis and local treatment of pelvic disease. 2. The allurements and fascinations of surgery. 3. Competition in the field of practice. In the best of hands the results from local treatment in pelvic diseases were frequently slow in manifesting themselves, and discouragements were often met with, but in suitable cases persistent effort would ultimately attain the desired end. The objects of local treatment were the relief of pain and irritation, often of a reflex nature; the allaying of congestion and inflammation; the absorption of the products of inflammation, and the reposition of displaced organs. In the regulation of the uterine functions, in congestions and mild inflammations of that organ and surrounding parts, and in displacements of the uterus, with and without adhesions, the application of proper local treatment was of signal value; while in prolapse of the tubes and ovaries, even in the presence of extensive adhesions, but without ascertainable morbid changes in the organs themselves, vaginal tamponade offered the simplest and most efficient means of reposition and cure.

Treatment Preparatory to Operation.—HENRY C. COE (New York) introduced his remarks with the statement that while his early training had led him to believe that such treatment was practically indispensable in cases of so-called "cellulitis," subsequent experience had convinced him that this notion was not in accordance with pathology or common sense. He had expressed scepticism in this subject as long ago as 1886,

when he read a paper of the "Exaggerated Importance of Minor Pelvic Inflammation," and subsequent experience had only served to confirm his opinion that old pelvic exudates and adhesions were not *per se* a contraindication to operations on the uterus. Modern aseptic technic was a sufficient safeguard against danger from this source. The reader contrasted the old practice of keeping the patient in a hospital for several months, with the preparatory treatment between each minor operation, with the present plan of performing combined operation at one seance, and sending out in three or four weeks. He questioned the actual value of the hot vaginal douche, local applications to the vaginal fornix, treatment of the ectopic cervix, etc., previous to trachelorrhaphy, since the diseased tissue would all be removed at once by amputation. At the same time, he admitted the remarkable results often observed as regards the absorption of extensive pelvic exudates. Acute and subacute inflammations in and around the adnexa formed the real contraindication to operation, and doubtless surgeons were not always as careful as those of the former more conservative generation in selecting their cases. Competition and the rush of modern life were responsible for some ill-advised operations, minor as well as major. In major operations the author thought that (excluding pus cases) general preparatory treatment of the patient was rather more important than local. He believed, however, that the admirable results obtained by the pioneers in the treatment of vesicovaginal fistulas were due to careful preparatory treatment, such as the division of cicatrices, stretching of the vagina, etc. Fortunately we were seldom called upon to handle such complicated cases as those described by Sims, Emmet, and Bozeman. With all our improvements in technic we have not yet outgrown all the wisdom of our old teachers.

The Value of Postoperative Local Treatment.—J. RIDDLE GOFFE (New York) said the experience of all observers was that local treatment relieved congestion, pain and discomfort, inaugurated, hastened, and accomplished the absorption of edema, plastic exudate, adhesions, and pseudohypertrophy. If it would relieve these conditions, how much more certainly would it prevent them? It had been found serviceable in preventing the deposit of plastic exudate and the reformation of adhesions in cases in which these were present at the time of operation. It was especially valuable in cases subjected to vaginal section for the relief of sterility. The author reported several instructive cases to substantiate the points made in his paper.

The Implantation of the Human Ovum in the Uterus.—CHAS. SEDGWICK MINOT (Boston) discussed this subject, by request. He said that the human ovum produced upon its exterior during its earliest stages of development a thick layer of cells, the trophoblast. The function of the trophoblast was to corrode away a portion of the mucous membrane of the uterus, making a cavity in which the ovum lodged itself. The trophoblast thereupon underwent a hypertrophic degeneration, such as to produce a series of irregular spaces, which persisted and became the intervillous spaces of the placenta. Papillary outgrowths of the chorionic mesoderm meanwhile penetrated the trophoblast, initiating the formation of the chorionic villi. The trophoblastic cells over each mesodermic outgrowth persisted in two layers, the inner cellular, and the outer syncytial. These two layers represented the first stage of the villous ectoderm. Similar observations had been made upon primates, and were compared with those upon the human subject. He compared briefly the method of implantation in man with that in other animals, to show that the trophoblast was of general occurrence, and that by destroying uterine tissues it inaugurated the formation of the true chorionic placenta.

[To be continued.]

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

Tenth Annual Meeting, Held in Chicago, Ill., May 30, 31, and June 1, 1904.

[Specially reported for *American Medicine*.]

Officers.—The following officers were elected: President, F. C. Cobb, Boston, Mass.; vice-president of the Southern Section, Wm. Cheatham, Louisville, Ky.; vice-president, Middle Section, Thomas Hubbard, Toledo, O.; vice-president, Eastern Section, S. MacCuen Smith, Philadelphia; vice-president, Western Section, W. B. Shields, St. Louis, Mo.; secretary, Wendell C. Phillips, New York, N. Y.; treasurer, Ewing W. Day, Pittsburg, Pa. Boston, Mass., was selected as the place for holding the next annual meeting.

An Address of Welcome was delivered by FRANK BILINGS (Chicago).

President's Address.—NORVAL H. PIERCE, in his address, pointed out the great changes that have been wrought in the special domain of laryngology, rhinology, and otology during the life of the society. Ten years ago it was hardly more than a matter of sprays and spurs, of snares and syringes. The members no longer confined themselves to intralaryngeal, intranasal and intracranial operations, but by most radical external surgical procedures it was the aim to cure the most extensive diseases

of the nose and accessory sinuses, the larynx, the pharynx, the ear, and neighboring parts within the cranial cavity. This change has taken place gradually. It took years of endeavor to set the bounds of laryngoscopy, rhinoscopy, and otoscopy. Latterly, by the work of Killian, Jensen, and of many of the fellows, the advance has been made more rapidly, so that at the present time the well-rounded and successful specialist must not only possess that special skill and dexterity which enable him to examine successfully the larynx, the nose, with the orifices of the several accessory sinuses; the ear, both by otoscopy and by means of complex functional tests, but he must combine with [this a broad surgical knowledge equal to that of the general surgeon, and an ever-accessible knowledge of regional anatomy superior thereto. Thus do they prove the right to exist as specialists and members of the surgical department of the great science and art of medicine; but he expressed the fear that the pendulum might swing too far in the direction toward radicalism. With the technic of external operations firmly within grasp, were not the members liable to resort to them prematurely—to forget that much might be done by more conservative local measures, etc.?

Some Points in the Pathology of Bone Cysts in the Accessory Sinuses of the Nose.—A. LOGAN TURNER (Edinburgh, Scotland), by invitation, read a paper on this subject. An analysis of the various published cases illustrating this condition revealed the interesting fact that in some the bony cavity merely contained air, in others the contents were of a mucoid character, while in a third group of cases pus or mucopus was found.

Purulent Otitis Media Complicating Typhoid Fever.—EWING W. DAY (Pittsburg, Pa.) read an exhaustive paper on this subject in which he considered deafness, otitis externa, disorder of the perceptive apparatus, acute catarrhal otitis media, myringitis, and acute purulent otitis media as complications of typhoid fever.

Chronic Otitis Media.—JAMES F. MCKERNON (New York City) reported a case of chronic otitis media, complicated by chronic mastoiditis and jugular bulb thrombosis, with operation and death. The patient, a boy of five, had scarlatina seven months previously, with a discharge from both ears. One ear ceased running after six weeks; the other continued to discharge intermittently. During the periods of intermission the child was peevish, drowsy, and constipated; the tongue coated; the breath foul. There were headache and earache. While the ear discharged the patient's condition was approximately normal. Three weeks after the ears became affected there was pain behind both ears, worse on the right side, for ten days. On examination the right canal was found red, excoriated, and filled with foul, thick discharge. The drum was perforated over the Eustachian orifice, and in the posterior superior quadrant granulations and dead bone were discovered. The left drum had healed. A diagnosis of intratympanic caries was made and operation advised, but refused, although the dangers of delay were pointed out. Under the usual palliative treatment the discharge stopped for a time, but recurred. About two months later the condition within the ear was found somewhat better. Operation was again urged, but was declined as before. Three months later the discharge increased again, and operation was agreed to. Examination at this time failed to reveal any signs of mastoid trouble, but the general physical condition was not so good. Temperature, 99° F. When the mastoid was opened the cortex was dark; the antrum, tip, zygomatic root, and several medullary spaces behind the sigmoid groove contained thick creamy pus. The bone was necrotic between the canal and sigmoid groove, down to the bulb. The posterior canal wall was removed and the typical Schwartze-Stacke operation done. A skin graft was placed over the entire middle-ear cavity and antrum. All went well until the eighth day, when the patient complained of headache and photophobia and became restless. The temperature rose to 104°, preceded by vomiting. The condition gradually improved for a week, with no marked variations in temperature. Several consultations were held, and irregular typhoid, central pneumonia, and meningitis were suggested. On the eighth day the child became drowsy and irritable, complained of posterior headache, and refused nourishment. After some delay in obtaining permission, an exploratory operation was performed, the writer suspecting an intracranial condition, resulting from the previous long suppuration. The child's physical condition at this time was poor. The bone over the sinus being removed, an incision was made an inch long, gelatinous clot removed from the torcular end, establishing a blood current from this direction. The bulb was then curetted and some firmer clot removed without, however, establishing a flow of blood. The jugular vein was therefore resected, together with several enlarged glands. The patient's condition was good at the end of the operation, but he never regained consciousness, and died 20 hours afterward. No autopsy. The author had since had two other cases with a similar history, in which early operation resulted favorably. He was unable to say whether or not any other intracranial condition existed in the case detailed, but if so, it was obscure. There were no chills or chilly sensations to suggest sinus involvement. In conclusion, the writer sounded a note of warning in atypical cases against delaying too long a search for the cause in the original focus of infection, when the patient did not progress well.

[To be continued.]

ORIGINAL ARTICLES

SOME REMARKS ON THE TREATMENT AND AFTER-TREATMENT OF CONGENITAL DISLOCATIONS OF THE HIP.

BY

ADOLF LORENZ, M.D.,

of Vienna.

Ever since my first communication, concerning the treatment of congenital hip-dislocations by the bloodless method, I have followed with great interest the experiences and reports of other physicians with reference to the subject, having been always prepared, from whatever source it might have arisen, to adopt that which was better. In spite of this consummate purpose to better my method, by judging and trying various suggestions, this method has nevertheless remained completely unchanged in its entirety, during a trial of 10 years, and I have nothing more of importance to add to what I have already described in my book¹:

As to the technic of the reposition, I have nothing more to add; but I may say that it makes very little difference, by what method the reposition is brought about, whether by the lever maneuvers of abduction, or whether by extension. Instrumental aids (machine contrivances—extension tables) are in neither case necessary. It is best to emancipate oneself from machine assistance. In the case of children under the age limit, the manual reduction is, as it were, playfully easy, and attained without exertion, so that the use of any such machine appliances ("Boston Machine") seems to me superfluous, to say the least. But when I add that by mechanical methods the intimate contact between operator and working object is lost completely; that he no longer can judge the resistance offered by the soft parts; that he no longer can palpate the fundus of the acetabulum and its borders, using the head of the femur as a probe; that he can no longer picture to himself the relations about the acetabulum—then I must designate the application of a reduction machine as a disadvantage.

Moreover, the complicated extension appliances are superfluous, and are indeed under certain circumstances harmful in effect. Rhythmic manual traction overcomes every resistance, without carrying with it the danger of permanent traction. A method is not characterized by the art and manner of *reposition alone*, but it is characterized by the after-treatment, especially by the retention methods.

The most important rule in the retention is the temporary fixation of the thigh in *right-angled abduction*. It is important to note that this right-angled abduction does not follow indifferent or common extension (ordinary extension of the standing position) but from right-angled flexion. When a thigh flexed to a right angle is abducted to a right angle, it comes to lie between the sagittal, in the frontal plane. A child lying upon the back, whose thigh has been thus carried from right-angled flexion into right-angled abduction, shows therefore the following peculiarities in the way it manages its lower legs; the extended leg on the sound side lies with the posterior side and heel in contact with the underlying surface; the affected leg, on the other side, has its entire outer surface, as well as that of the foot, in contact with the table; the thigh forms a right angle with the side of the trunk; the knee-joint is bent to a right angle. If turning the thigh inward upon its longitudinal axis, is designated inward rotation, and turning it outward, outward rotation, then the position described entirely is distinct from such rotation, that is, the limb is turned neither inward nor outward. In this position, which we call the "*primärstellung*," or primary position, the reduced hip is fixed for from six to seven months on the

average, by a plaster to the knee, leaving that free. If one observes the gait of such a child, one sees that the lower leg, on the operated side, owing to its dead (intrinsic) weight, is directed somewhat behind the frontal plane, so that the foot is stepped upon with its inner edge, wherefore it is indicated to raise the outer border of the shoe about 1 cm. This placing of the right-angled flexed lower leg behind the frontal plane results from the turning of the right-angled abducted thigh inward; while the leg is in function, the right-angled abduction of the thigh is associated with a slight inward rotation. This, however, is so slight, even in the functioning leg, that one may speak of the rotation in the primary position as an indifferent one. So long as this *primärstellung* is maintained, the femoral head remains in slight or extensive (surface) contact with the acetabulum, according to whether it is shallow or deep, assuming of course, that the reduction has been properly carried out.

From this, the principle is deduced, that this *primärstellung* is to be preserved as long as possible. In the *primärstellung*, a "*relaxation nach hinten*" (posterior relaxation) (which would mean a complete failure) is as good as (completely) ruled out. And just as impossible is a relaxation upward (anterior upward relaxation, or subspinal position).

The only relaxation possibility exists in the inward direction, that is, medianward from the acetabulum. Should this condition occur remedy may be effected at a later period. Such a relaxation position, as well as a relaxation upon the edge of the horizontal ramus of the pubic bone, I have observed, when, for purposes of security, retention of right-angled abduction had been combined with overstretching or hyperextension (the right-angled abducted thigh being pushed behind the frontal plane). I therefore no longer apply hyperextension, but content myself with right-angled abduction.

In cases of very bad stability of the *primärstellung*, the right-angled abduction may be exaggerated so that the angle, which the trunk and thigh make with each other, becomes acute (negative abduction). But, as a rule, this means is also superfluous. For the primary position the simple right-angled abduction, as a rule, is sufficient. On account of the fixation in this position during a period of several (5 or 6) months, there results an artificial right-angled abduction contracture, because certain *pelvitrochanteric* muscles undergo shortening, due to the fact that their insertions are brought closer together continuously for a considerable space of time. This acquired shortening of *pelvitrochanteric* muscles is of the greatest importance in the after-treatment. With the gradual diminution of right-angled abduction, the shortened *pelvitrochanteric* muscles are rendered highly tense and this tension acts as a retention factor, because, by this means, the femoral head is pressed against the rudimentary acetabulum.

During late years I have carried out the after-treatment in the following manner: After the primary position of right-angled abduction has been maintained for five or six months (in cases of bad stability even longer), the plaster is removed and as a rule no subsequent one is applied.

In unilateral cases the right-angled abduction is corrected by gymnastic means *only so far* as to permit the child to walk easier. A high sole of 3 cm. or 4 cm., worn under the healthy foot, serves to maintain a considerable abduction angle. If the abduction contracture is very rigid, a simple bandage is applied, which draws the leg somewhat medianward. This bandage consists of a pelvic girdle, and a leather gaiter, about the breadth of a hand, which is applied to the knee of the crippled leg. This pelvic girdle and gaiter are bound together before and behind by a strap or straps, which may be shortened, in this manner bringing about adduction. Wearing this leather bandage, children are able to walk very well. *The correction into normal (indifferent) exten-*

¹ Heilung der angeborenen Hüftverrenkung durch unblutige Einrennung und funktionelle Belastung.—Toepfliz & Deuticke, Wien, 1900.

sion must take place very slowly, occupying a period of many months or indeed a year. I hold firmly to the principle that, during the after-treatment, the facility, active and passive, of easily and unresistingly attaining the "primärstellung" (right-angled abduction) is more important than the correction of the primärstellung into the normal extension. Active and passive leg exercises, therefore, should have for their purpose, not merely to correct, but must also fulfil the important task of securing the facility of easily attaining the primärstellung.

To this end the child is laid in a plaster-bed at night. This is made by laying the child prone upon its front and modelling it with the reduced thigh placed in right-angled abduction. Such an abduction appliance, which is, so to speak, nothing more nor less than the posterior half of a fixation plaster, is accordingly well padded. In this manner we secure the exact maintenance of the primärstellung by night, whereas by day a gradually diminishing abduction is admissible. To attain right-angled abduction, the most important active exercise is that in which the child lies upon its well side and brings the crippled leg gradually to the perpendicular against light manual resistance. This sort of after-treatment is of especial importance in such cases in which the acquired abduction contracture is of lesser rigidity and the joint more or less "wobbly." In case of very rigid abduction contracture, it may at times be necessary to correct the same to an easier walking attitude, by bringing it forcibly down under light narcosis. In such cases, there is no danger of relaxation, and the facility of again obtaining the primärstellung is of no concern under these circumstances.

The further correction, from the primärstellung into ordinary extension advances the more noticeably as the limb assumes an attitude of outward rotation, because the head of the femur does not plunge properly into a socket which is too flat. If this outward rotation disturbs one, it may be combated by methodic inward rotation. A certain degree of outward rotation remains persistently, and I can see absolutely no disadvantage therein. Forcibly rotating the thigh inward may lead to posterior relaxation of the head, and so to complete loss of the result sought for.

Moreover, after attaining the normal extension attitude of the leg, a high sole of about 1 cm. to 2 cm. retained under the foot of the well side is advisable in order to secure a habitual abduction in the reduced joint. Soles of equal height, in which any residual shortening is eventually compensated, are only admissible after the stability of the position permits it.

Mutatis mutandis, the same laws hold in the after-treatment of double luxations. Here, too, I have departed from overstretching (hyperextension), as this tends in the same way to bring about relaxation upon the horizontal ramus of the pubic bone, and I content myself with right-angled abduction, which, only in very unfavorable cases is increased to negative abduction. The primärstellung is held fixed for five or six months by means of plaster. If at the end of that time the joint is still wobbling, then the primärstellung is held fixed anew for another two or three months. As a rule, however, a second plaster is not applied.

If the primärstellung is found strongly contracted, a correction of the same into the walking position (*i. e.*, in abduction lessened only so far that it is possible to walk) is undertaken, under light narcosis. This correcting plaster remains only a very short time—perhaps eight days—after which gymnastic treatment begins. In cases of lesser rigidity of the primärstellung, no second plaster is applied, and gymnastic after-treatment begins immediately after the removal of the fixation plaster.

The lessening of right-angled abduction is brought about in a gymnastic way by active and passive exercises promoting abduction, and at first only carried so far

as to acquire a pretty fair degree of abduction, by which walking may be possible. In order to secure this position and to prevent the undue abduction of the legs, a small leather bandage is applied. This consists of a stocking fastened about the knee-joint on each leg, and the two connected before and behind by a narrow strap. Correction to the normal standing position of extension of both legs must be allowed to take place very slowly and carefully during a period of many months.

Here again I hold to the principle that the facility of easily gaining the primärstellung is more important than the correction. So long as it is possible to attain the primärstellung actively and passively, easily and without pain, so long may we be sure of retaining the femoral head, at least, in that best possible position, which we were able to gain at the time of the reposition. Action of the adductor muscles is lastingly eliminated. Children who have been treated in this fashion, are able, without any trouble, to assume the so-called "trick position" or "split attitude," which is the ability to sit upon the perineum with the legs thrust apart at right angles. After gymnastic treatment has fulfilled its purpose of correcting the primärstellung into the normal extension attitude, then the only remaining problem consists in retaining the easily attainable primärstellung. This is done by using a plaster-bed at night. This is modelled over the pelvis and thighs of the pronated child, the hips being in the primärstellung, and thus, after it is padded, represents a mould, which corresponds in a manner to the posterior half of the original fixation plaster. The outward rotation which accompanies diminution of the primärstellung, and which is somewhat more frequent in double cases, is treated gymnastically, yet nevertheless corrects itself spontaneously to a certain degree, after a long time, so that, indeed, it becomes of no concern whatever. The foregoing method of treatment is so simple that it may be carried out at home by the mother without the least trouble.

As to the results, they are entirely satisfactory, at least as regards function.

If head and socket are fairly well developed, then we may succeed in fixing the femoral head in the acetabulum and in arriving at a faultless result, at least as regards function. Absolutely normal anatomic relations can naturally seldom be attained, and the expert will recognize a reduced joint as such, as well in the röntgen picture as by clinical examination; in many cases, however, such a complete restitution *ad integrum* is reached that one may speak of a cure in its strictest sense. But even an imperfect anatomic result is compatible with a satisfying and even good functional result, providing that the head has found a bony support upon the os ileum.

Very often, in bringing down the leg, the femoral head shifts its position upward and fastens itself in the region of the anterior inferior spine. In such a case one refers to it as *forward transposition*. I believe this expression is poorly chosen, because a faultless retention of the head in the acetabulum is brought about also by a *transposition* of the luxated head forward. I refer to such a case as a *relaxation forward and upward*, or an *anterior superior relaxation*, or as a *subspinal position*. Such a position is very easy to recognize clinically, because the pulse of the femoral artery beats no longer upon the rotating head, but interior to it. The head of the bone is therefore located somewhat too far external and somewhat too high, but still always below and inside of the anterior superior spine. The slight residual shortening that remains does not interfere essentially with the functional result, but in these frequent cases, the pelvitrochanteric muscles must be nursed and maintained with especial care. Posterior relaxations (which represent complete failure) fortunately occur very seldom. Only in three cases (so far) have I had to repeat the reduction on account of posterior relaxation, and in this second reduction, which was made about two years

after the first operation, I have every time been surprised to find a better primary position than at the time of the initial reposition.

In several cases I have met a position of the head which represents, so to speak, an intermediate position between anterior superior relaxation and posterior relaxation. I have called this position "lateral apposition." Such cases represent anatomic results to the slightest degree, or are perhaps complete anatomic failures; the head hardly touches the acetabular surface at all. The upper end of the femur is closely applied to the side of the ileum in a practically sagittal direction (lateral apposition), the trochanter being behind; the head is found at the outer end of the inguinal sulcus and located somewhat below and *outside* of the anterior superior spine. It would be an error to refer to this position of the head as posterior luxation, as the anterior pole of the head still extends to the inguinal sulcus and may indeed perhaps cause a perceptible prominence there. Motion at the joint is essentially limited, especially the inward rotation, which is almost impossible, and every attempt in that direction calls forth energetic muscular resistance, manifested in the patient by a decided movement of defense. But even this evident anatomically bad result is in reality not synonymous with a functionally bad result. Indeed such children walk surprisingly well after compensation of the residual shortening, although, of course, the limp remains noticeable. But other complaints disappear and as regards the endurance of such children, it satisfies all reasonable demands. One need feel no fear whatever that lateral apposition represents a step to posterior relaxation and thus to a complete loss in the result. I have seen on the contrary that this lateral apposition has remained unchanged for many years. It is very probable, that the striking frequency with which relaxation occurs forward or superiorly forward, is caused by the pathologic anteversion of the femoral neck.

In order to remedy this difficulty, it was proposed by Schede, as is well known, to select abduction and inward rotation as the primärstellung, to fix in this position for several months, and finally to correct the excessive inward rotation by osteotomy in the lower third of the femur, while at the same time the upper part of the bone is held in its position of inward rotation by means of a golden nail driven through trochanter head and neck. From a theoretic standpoint, there is nothing to bring forward against this proposal. Indeed, I had myself pointed to the possibility of doing away with artificially gained rotation positions by means of osteotomy (with subsequent *diolatio ad periferiam*), before the osteotomy was proposed by Schede for this purpose. With marked anteversion of the neck, we must as a matter of fact, point to the primary position of inward rotation, followed by osteotomy of the femur, as the only means of preventing anterior superior relaxation or lateral apposition. In spite of which, I have never as yet carried out osteotomy, but have contented myself with those functional results which, in cases of strong anteversion, are attainable by a bloodless way. In several cases, which had been treated by primary inward rotation and subsequent osteotomy I have seen very bad results from the treatment owing to posterior relaxation.

This danger of posterior relaxation is occasioned by the excessive rotation inward; it requires strong hyperextension of the joint to lessen this danger. Added to this it is to be noted that in cases in which the neck of the femur is anteverted to a marked degree, the acetabulum is also usually underdeveloped, and is therefore able to offer little support to a femoral head, even if it is normally directed. In such relaxations, I have arrived at quite satisfactory functional results by the bloodless treatment carried out subsequently.

If on the one hand, I concede that one is fully authorized in using a primary position of inward rotation followed by osteotomy, in cases of marked anteversion, I

must state on the other hand, that all my patients have been so satisfied with the bloodless treatment, that I have as yet, not found occasion to complicate my method, which was conceived as a bloodless one, with any supplementary bloody operation.

It is by no means seldom, that patients will not agree to a transition from a bloodless to a bloody treatment, and therefore interrupt the treatment to their own detriment. In one very interesting case of this kind—it was a case of double dislocation—the hips were fixed in the primary inward rotation position on account of unfavorable anatomic relations, for a very long time (over a year) and were next to be corrected by bilateral osteotomy. The parents refused consent and stopped treatment, which was therefore continued further by the bloodless method. It was found possible to diminish the inward rotation by methodic gymnastics without the feared luxation taking place. Proof therefore was offered, that the proposed osteotomies were unnecessary.

If one concedes that the procedure of Schede may be of use in some cases of marked anteversion of the neck, on the other hand it is firmly established that it is unnecessary to do osteotomies in more than half the cases, as was practised by Schede. Till now I have not in a single case had recourse to such a means, and, although I have not always satisfied myself, I have nevertheless been rewarded with the satisfaction of my patients by using a bloodless method.

According to approximate statistics of end-results of such cases, in which a period of at least two to three years has elapsed since the reduction, the relation between anatomically good, and anatomically imperfect results is brought out by the following:

Out of 364 cases of unilateral dislocation 218 gave anatomically good results while 127 showed subspinal positions (anterior relaxation, upward and outward) and 19 showed lateral appositions.

Out of 158 cases of bilateral dislocations, 70 showed good anatomic results on both sides, 19 resulted in subspinal positions on both sides, 7 showed lateral apposition on both sides, 49 resulted in anatomically good results on one side, while the other side became subspinal; in 4 cases one side became anatomically replaced, while the other side showed lateral apposition; in 9 cases one side was subspinal, the other lateral apposition. Taking all the hips together ($364 + \text{twice } 158 = 680$), 358 of these show good anatomic results, i. e., 52.6%—a good half of the cases.

Further, I wish to be permitted a word upon the age limits for bloodless reduction. I believe that the endeavors to increase the upper age limit are not justified by the results obtained by forcible reduction of old luxations, and that these results do not make up for the great danger which goes hand in hand with forcible redressment. Putting aside exceptional cases, I still believe that the age of 9 years to 10 years should be the limit for reducible unilateral cases, and 7 years to 8 years for the bilateral. In individual cases beyond the age limit, reduction has been effected after repeated sittings. I do not favor reducing by degrees in this manner. As we approach the upper age limit, the reduced joints tend to a stiffening which often simulates a functional ankylosis.

If reduction is impossible in cases beyond the age limit, using a reasonable amount of force, there is still a thankful object to be gained by bloodless therapy. In such cases, in both unilateral and bilateral luxations, I employ the so-called "inversion" of the joint, that is, reversing the existing position of the joint into an opposite "habitual" position. Under all conditions, such old dislocations manifest adduction contractures, combined with more or less flexion. We have, therefore, to deal with the task of changing an existing flexion adduction position into one of habitual abduction hyperextension. This "inversion" is executed in exactly the same way as an intended reposition.

First, one does away with the resistance of the adductors by subcutaneous, bloodless myorrhexis, and obtains a considerable abduction. Then the subspinal soft parts are severed by subcutaneous myotomy, and hyperextension of the joint is attempted. The procedure, according to the principle of modelling "redressment," is continued till a considerable abduction hyperextension attitude is possible without undue tension of soft parts. This attitude, which is quite compatible with the walking posture, is sustained for two months or three months by means of a plaster, allowing the knee-joint to be free. We concern ourselves here not with a reduction, but with forcing the head against the upper outer end of the fossa inguinalis. This driving the head forward takes place owing to the ever-stretching hyperextension. By stretching the adductors, we try to gain a sinking of the corresponding half of the pelvis, and therewith an apparent compensation for the shortening.

The acquired habitual inversion of the pelvis on the corresponding side (by the habitual abduction position of the joint) also creates, on account of the accompanying apparent lengthening of the leg, *much better mechanical conditions for the weight-bearing function* of the head of the bone. Under the previously existing adduction, the head finds no support on the steep external surface of the ileum; the entire weight of the upper half of the body is borne by the stretching of the pelvitrochanteric soft parts, from which arises the painful exhaustion, after the use of the leg for a short time. After establishing the habitual abduction attitude, the relations become far more favorable, because the more horizontally placed center of the ileum offers a better bony support, and acts in a manner as an improvised acetabular roof. After-treatment consists in active and passive abduction and hyperextension gymnastics, with attention to the pelvitrochanteric muscles.

The result of such palliative treatment by the "inversion" of the luxated joint, lies, in the case of unilateral luxation, in the noticeable apparent lengthening, in the disappearance of the pain, in the marked improvement in the limp, and above all, in the acquirement of a very satisfactory power of endurance in walking.

In bilateral dislocations the thing to be aimed at, above all, is the improvement of the attitude of the trunk by lessening the significant lordosis; the necessary hyperextensibility of the joints must be maintained, by daily applications of heavy weights upon the buttocks, with the knees firmly supported. Long-continued attention to the pelvitrochanteric muscles (in which the exercise of alternately standing on one leg, at the same time holding the pelvis as horizontal as possible, plays an important role) becomes an essential step in the after-treatment. Such patients, when provided with good supporting corsets, display at times quite unexpectedly good functional results, as apparent in the appearance and power of endurance in walking, as in the shape of the trunk. In any case, it is firmly established that such results are attainable in a simpler and easier way than by subtrochanteric osteotomies, without at the same time sharing the disadvantage of the shortening which is a necessary accompaniment of the operation.

With reference to the lower age limit of bloodless redressment, I take the stand that it should not be lowered too much, for practical reasons. As a rule, the dislocation is not discovered till the child begins to walk. This holds especially in the double cases, in which there is no inequality in the lengths of the legs and therefore no indication for an examination. But even in unilateral cases, if the existence of a subluxation or even a complete dislocation is discovered, the child being as yet still unable to walk, and the evident disturbance in function has occasioned an examination, I hold that it is not opportune to begin treatment at once, because it means a never-ending torture to the delicate

child as well as to the parents. Before beginning treatment, I wait not merely till the discrepancy in the gait declares itself beyond any question, but till the child is able to keep itself clean. Then, for reasons which are easily deduced, the treatment is so much simplified that I am accustomed to wait till the expiration of the second year before attempting reduction. It pleases me most, if the children come to me for treatment after the expiration of the third year. By this time the unclean accompaniments following reduction are done away with; and on the other hand there is the important advantage that the greater tone of the soft parts materially enhances the stability of the primary position after the reposition is brought about, and so increases the chances for permanent retention.

In conclusion, as to the practical value of the röntgen images in judging prognosis and the results arrived at, I must say, first of all, that to question the scientific value of the investigation of cases by such means (radioscopy) is farthest from my intention, as goes without saying, but I must warn against basing judgment as to prognosis, upon the röntgen picture *alone*, and underrating or perhaps overlooking entirely the clinical aspect. On the contrary, the clinical examination as regards prognosis seems to me far more valuable than the röntgen picture. Interpretation of such an image with reference to the direction of the neck of the femur is unreliable, if the rotation position of the leg during the exposure is not well understood or not carefully taken into calculation. On the other hand, a single grasp of the trained hand (with the transverse knee axis placed in the frontal plane) is sufficient to convince one, not only as to the anteversion (if more than slight), the size and the development of the head, but also as regards the length of the neck.

Again, in forming judgment as to the condition of the rudimentary acetabulum, the röntgen picture is liable to mislead, for it may induce one to believe an acetabulum to be well preserved and of sufficient depth, whereas its dimensions may be altogether imperfect on account of the thickening of the cartilaginous cover. Of course, even the clinical examination with reference to acetabular relations may be unable to lead to correct conclusions. But with regard to this point, I should like to communicate my experience, that in cases in which the head and neck have been well developed and well directed, I have found, with extraordinary frequency when it came to reduction, that I was dealing with a proportionately well-preserved acetabulum, so that, if I have a good femoral neck, I conclude that I have a good acetabulum, and herein I have seldom been wrong. The most unmistakable conclusions as to the acetabulum are to be drawn from the clinical aspect after the reduction is completed, the great test being the primary stability of reposition. In the act one may use the head as a probe, and picture to oneself with great exactness the edges and the depth of the socket.

A further advantage of the clinical examination in establishing the prognosis is still to be mentioned, namely, that by this means one can form a good judgment with regards to the elasticity of the soft parts. I regard a röntgen picture merely as supplementary evidence in the investigation, with reference to prognosis, and lay greatest stress upon the aspect brought about by clinical examination. He who reasons in the opposite way will err much oftener.

Also in judging the anatomic results secured, does the clinical examination give sufficient evidence; from the points of evidence shown above, it is certainly not difficult to distinguish a normal position of the head, from a relaxation upward and forward, or even from a lateral apposition. The röntgen picture gives absolutely reliable information in judging correctly the position of the head as regards its height in the vertical sense, but it throws no light upon the question as to whether

the head is further forward or behind in the sagittal direction. The stereoscopic röntgen image alone displays complete clearness of the relations, and is of the greatest value.

However, it would be an error, and would lead to an absolute undervaluation of the practical worth of the method, if we formed our judgment of the functional results of the bloodless reposition from evidence drawn from radioscopy alone. We should come to the unjustified as well as false conclusion, that the method is valueless in nearly half of the cases, which conclusion is entirely inconsistent with everyday experience. If the functional—that is to say, the practical result is satisfactory, I do not lay too much stress upon the röntgen picture. *Nil perfectum sub sole!*

SURGERY OF HYDROCEPHALUS.*

A Historic Review.

BY

BENJAMIN MERRILL RICKETTS, PH.D., M.D.,
of Cincinnati, Ohio.

CHAPTER I.

Aspiration.—This method has been most universally employed. There is some difference of opinion as to where the trocar should be made to enter the place from which the fluid is to escape. The principal caution to be observed is injury to bloodvessels and sinuses. When possible the opening should be made in the fontanels. When the ventricles are involved the site of tapping is at the lateral angle of the anterior or posterior fontanel because of the absence in this locality of vessels and sinuses.

An opening in the basilar arachnoid cavity is sometimes best, and the arachnoid cavity should be opened before the cyst of spina bifida is punctured when this is an associated condition. When such exists the canula may be inserted above the spina bifida for temporary drainage until the incision in the spina bifida sac has become united.

Dr. Stevens proposed trephining the cranium of Dean Swift in 1745; this is the first recorded suggestion for this operation. Dionis' suggests draining the arachnoid cavity through the various sutures and fontanels.

Le Cat, October 23, 1744, punctured for hydrocephalus.

Remmet, of Plymouth, 1778, used the trocar in removing 80 ounces of fluid from a patient with hydrocephalus.

One of the earlier reports on surgical operations for hydrocephalus was by Odier, 1785.

Vose, 1818, successfully treated hydrocephalus by a surgical operation in which he removed the fluid.

Textor, 1821, no doubt prompted by the brilliant results obtained by Vose, succeeded in benefiting an extreme hydrocephalus by aspiration.

During the year 1821, Lizars, Freckleton and Delafield each operated for this condition, with more or less benefit.

Michaelis, 1822, employed paracentesis for hydrocephalus.

Fenoglio, 1823, punctured the subdural space for the accumulation of fluid resulting from injury.

Ruppius, 1823, removed the fluid by trocar in a case of hydrocephalus.

Gray, 1825, records a case of hydrocephalus in a child 9 months old, in which the head was tapped three times.

Sym, 1826, and McComb, 1831, each report repeated puncture in a case of chronic hydrocephalus.

Dubruell, 1837, mentions a case of the voluminous

formation of fluid in the meningeal cavities relieved by puncture through the occiput.

Conquest, 1837, mentions tapping the head in 19 cases of hydrocephalus, once successfully.

Kilgour, 1840, records two such cases, in which operation was done by puncture.

Petit, Huster, Boerhaave, De la Motte, Pare, Portal, Richter, Golis, Breschet, Bayer, Dupuytren, and Physick, each condemned the trocar.

Battersby² also condemned its use for hydrocephalus.

West, 1842, before the days of aseptic surgery, collected 55 cases of tapping for hydrocephalus, with 40



12,584, U. S. Museum.—Hydrocephalus. Plaster cast of head of adult male, showing hydrocephalus. Measures 21.5 inches sagittally from nasal point toinion; 21 inches coronally between tips of ears; and 25 inches horizontally on level of glabella.

deaths and 15 cures. Fifteen appeared at birth; 36 before 6 months of age, and 4 not given.

Dickinson reported 26 cases; 4 began at birth, 16 before 6 months, and 6 near 2 years.

Edward, 1846, cured a patient with hydrocephalus by puncture and drainage, as did also Kilsell in 1849.

Battersby, 1850, reports three cases of congenital hydrocephalus, in which he employed puncture with the evacuation of sanguineous fluid.

Malgaigne only aspirated under four months of age, and in older patients when life was threatened.

Langenbeck, 1850, operated by puncturing the cranial cavity through the orbit, entering the anterior horn of the lateral ventricle, passing the trocar under the lower lid.

Geo. C. Blackman, 1854, records 69 operations, from which the following deductions are made: There were 24 males, 20 females, and in 15 cases sex was not stated; 32 patients were under 1 year, 2 of these being under 1 month; 6 patients were from 1 to 2 years, one 2 years old, and the ages of 17 were not given. Sixteen recovered, and 53 died. Ages in patients that recovered were 12 years; 2, 4 months; 1, 3 months; and 1, 20 months. The ages of 8 are not given. In the patients that recovered, congenital enlargement occurred in 1, and in the others from a few days to 14 months after birth. There were 8 females, 5 males, and in 3 sex was not given.

In the patient 12 years old, the head was a third larger than was natural; 6 pounds of fluid was drained away in 20 days. Patients were heard from, 90 days to 8 years afterward. Health and intellect were good in all

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of them. In those that died, death occurred from 1 to 115 days afterward.

Autopsy showed dilation of the ventricles, atrophy of the pineal gland, and very little trace of choroid plexuses. The cavity of the brain was filled with clear water, brain was atrophied; dura mater thickened, pia mater inflamed.

Gibson, 1857, records a case of spina bifida with post-natal hydrocephalus in which paracentesis capitis was performed 17 times.

Thompson, 1864, cured a patient with hydrocephalus by paracentesis capitis.

A case of chronic hydrocephalus in which the patient was successfully operated upon, is reported in the *Glasgow Medical Journal*, 1866-67, 1, 162.

Kidd, 1866, records a cure following paracentesis for chronic hydrocephalus.

Palmer, 1884, cured a patient with chronic hydrocephalus by tapping.

Morris, 1887, speaks of a case of hydrocephalus in which the patient responded to surgical treatment.



From U. S. College Veterinary Surgeons, Washington, D. C. Skull of hydrocephalic calf two days old.

A. D. Stapleford, Cincinnati, February, 1904, reports the following:

In the case of congenital hydrocephalus, 1887, I performed paracentesis of the cranium by the use of a small trocar, one-eighth inch in diameter. Selected site for puncture at a point one and a half inches to right of median line on a line corresponding to union of frontal with parietal bone. Withdrew four ounces of clear straw-colored fluid at first sitting. The anticipated collapse did not occur. There were no difficulties experienced. Four ounces was removed each succeeding day, closing the opening each time with pad of iodoform gauze held firmly in place with strip of surgeons' rubber adhesive plaster. At times I felt that I could remove any quantity with impunity, and would often allow double the usual quantity to drain away. The total amount removed, (about 13 pints), did not all exist at the same time, as the cavity was observed to refill during the intervals of removal. The residual fluid which I was unable to withdraw amounted to between one and two pints. The enormous growth of bone on the left side was not discovered before the operation, it was thin and had not interfered with the translucency of the cranium. Its presence made it impossible to empty the cavity completely, and would have rendered nil any good effect of the operation had the child continued to live.

Ewart and Dickenson, 1891, report two cases of chronic hydrocephalus in infants in which treatment consisted of tapping and the introduction of air in the place of the fluid.

Mauny, 1893, trephined and drained in hydrocephalus.

Roswell Park, 1893, "operated at the base posteriorly, gouging away the bone one inch below the superior curved line of the occiput, and a half inch to the right of the median line, incising the dura mater, and with a probe opening up the subarachnoid space."

Moseley, 1894, aspirated the lateral ventricles for hydrocephalus.

Glynn and Thomas, 1895, record a case in which they trephined and opened the fourth ventricle with recovery of the patient.

Bilhaut, 1895, made a circular craniectomy to drain in hydrocephalus.

Gordon, 1897, mentions the treatment in a case of adult hydrocephalus by supratentorial and subtentorial operation.

Good, 1897, cured by operation a patient with hydrocephalus and Jacksonian epilepsy.

Bruce and Stiles, 1897, drained through the fourth ventricle in a case of acquired hydrocephalus due to chronic nontuberculous basal meningitis.

Stewart, 1897, reports a case of unilateral hydrocephalus, epileptiform convulsions, and hemianopsia, treated by drainage of lateral ventricle.

Deelen, 1898, punctured and drained the lateral ventricle in hydrocephalus.

Grosz, 1899; Keen, 1899; and Dehler, 1899, each resorted to ventricular drainage for hydrocephalus.

Davis, 1900, made a craniotomy and drained in a case of hydrocephalus.

Ricketts reports three cases, viz., (1) rupture of lateral ventricle; (2) operation; (3) operation.

Cumston³ reports a case of spina bifida in a child of 11 months. Family history of syphilis, a brother or sister of the child had hare-lip. Fourth and fifth thoracic vertebrae. Operation, cyst connected with cord. Dissection, sac cut away. Death on fifth day. Anterior fontanel became tense. Autopsy, ventricles distended with fluid. Internal and external hydrocephalus present.

CHAPTER II.

Lumbar puncture to drain hydrocephalic fluid has not as yet resulted in a cure. In a few cases, slight improvement and considerable comfort have ensued. Repeated punctures at intervals varying in length have been practised aseptically, but the cerebral fluid cannot be removed by a lumbar puncture in all cases.

However, this method might prove successful if continuous aseptic drainage could be maintained from the onset of the disease.

Quincke, 1891, resorted to lumbar puncture for the relief and cure of hydrocephalus.

Koster, 1892, succeeded in removing the cerebral fluid, but without any permanent beneficial results.

Parkin, 1893, made basal drainage in hydrocephalus.

Raczynski, 1898, resorted to lumbar puncture in a case of hydrocephalus.

Maisch, 1897, made repeated lumbar punctures for the relief of hydrocephalus, with resulting great improvement and comfort.

Bauermeister, 1898; Pozzolo, 1901; and Varavssilis, 1901, each resorted to lumbar puncture in cases of hydrocephalus.

Tyler and Williamson, 1903, discovered hydatid cyst in the spinal canal by aspiration.

CHAPTER III.

Subcutaneous Drainage.—Feiss suggested subcutaneous drainage, and it was practised by Türck, 1885 to 1890, but without avail.

Senn⁴ attempted to drain subcutaneously in a case of internal hydrocephalus, the object being to avoid infection. The patient died somewhat unaccountably. No autopsy was permitted, though marked improvement seemed to follow the operation.

He says, "the case indicated that subcutaneous drainage is preferable to open drainage, and proves conclusively that the cerebrospinal fluid is quickly absorbed by the connective-tissue elements as soon as it escapes from the ventricles."—(*Journal American Medical Association*.)

CHAPTER IV.

Compression of the cranium for hydrocephalus has been frequently practised with more or less benefit, for almost a century.

Muslin bandages have been firmly adjusted and readjusted daily, and kept moistened with water to contract them.

Adhesive plaster has also been applied after the scalp has been divested of its hair. Straps of this material do not require readjustment as often as muslin.

Rubber bandages are probably the most desirable for bandaging the head in treatment of hydrocephalus as the pressure is greater, more uniform and constant, less objectionable than plaster and can remain longer than muslin without readjustment.

Blanc, 1821, mentioned compression as a most efficacious means of effecting a cure in certain cases of hydrocephalus.

Girdlestone and Costerton, 1822, employed compression with most satisfactory results in certain cases of hydrocephalus.

Barnard, 1825, successfully treated a patient with chronic hydrocephalus, by compression.

Compression is mentioned in the *London Lancet*, 1838, 1839, i, 376, as a most useful method in dealing with hydrocephalus.

Trousseau, 1843, resorted to compression with gratifying results in a case of chronic hydrocephalus.

Baader, 1848, employed compression, and the application of turpentine in the early stages of chronic hydrocephalus, with beneficial results.

Phillips, 1857, resorted to elastic pressure in a case of hydrocephalus.

Didion, 1858, combined compression with drainage in a case of hydrocephalus with marked improvement.

Roux, 1859, employed this treatment in a case of hydrocephalus, benefiting the patient materially.

Lowenhardt, 1888, compressed in hydrocephalus, greatly lessening the size of the head for a considerable time.

CHAPTER V.

The seton has been employed for many years in the treatment of hydrocephalus. It is especially adapted to the arachnoid type, and in the early stage of the disease.

It is efficacious, as it permits of constant drainage indefinitely or until the desired end is accomplished, whether it is partial or complete obliteration of the arachnoid cavity or otherwise.

The seton can be used in any form of hydrocephalus, gauze probably being the most desirable material to be employed.

It should be passed through the anterior fontanel, its exit to be the posterior fontanel on each side of the median line, and it should be reapplied daily with aseptic precautions.

History.—Chater, 1845, treated a patient with hydrocephalus by instituting drainage and seton; death followed.

Grantham, 1854, reported a case of hydrocephalus in which he made repeated punctures and employed the seton.

Demeaux, 1854, drained and introduced a seton in a case of hydrocephalus.

Kennedy, 1867, records his observations on hydro-

cephalus, and its treatment particularly by the use of setons.

A case of hydrocephalus is reported in the *Irish Hospital Gazette*, 1873, i, 134, in which cure followed the use of the seton.

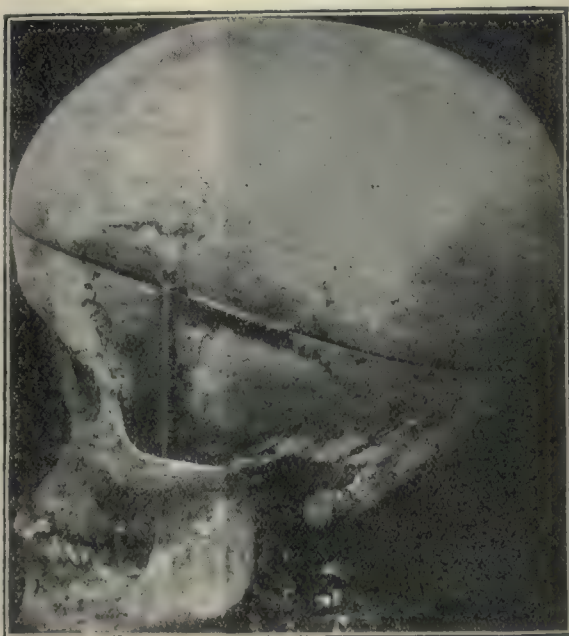
Haven, 1882, resorted to puncture and "antiseptic" drainage in hydrocephalus.

CHAPTER VI.

Cranial injection is one of the most dangerous, irrational, and ineffectual of all the methods employed for the cure of hydrocephalus.

Various kinds of astringents and irritating solutions have been used with but little if any good effect. They have been injected into the cyst both before and after the removal of its contents. Some operators have increased the strength of the medicament, at the same time removing more or less of the contents at intervals of days, weeks, or even months.

Injection of Iodin.—Boinet, 1856, after removing the



6,410, U. S. Museum.—Skeleton of a dwarf Chippewa Indian squaw, aged 85. The brain of this subject constitutes specimen "1,031 b" of the Anatomical Section. The dura mater and scalp constitute specimen "1,031 C" of the Anatomical Section.

fluid in a case of congenital hydrocephalus, injected tincture of iodine.

Hayden resorted to the same treatment during this year.

Brainard, 1859, made multiple injections of tincture of iodine into a hydrocephalic tumor.

Racis, 1865, made repeated injections of iodine in a case of chronic hydrocephalus.

Lauder, 1881, employed iodine injections in cases of hydrocephalus.

CHAPTER VII.

Internal Treatment.—Greatwood⁵ claimed to have effected a cure in a case of hydrocephalus by the internal administration of potassium hydriodate.

CHAPTER VIII.

Topical Treatment.—Hannay,⁶ 1843, applied a liniment combined with ipecacuanha to the scalp in hydrocephalic cases.

Electricity.—Brenner and Januszkewitsch, 1870, employed galvanopuncture in a case of hydrocephalus.

CONCLUSIONS.

1. Excessive secretion of the cerebral meninges may occur in any form of animal life.
2. The various forms of vegetable life are subject to excessive local or general secretion to a fatal degree.
3. Hydrocephalus, ventricular or meningeal, may develop in utero or at any time throughout infant or adult life.
4. The cases of spontaneous recovery are probably numerous, especially in infant life, in which the arachnoid is alone involved.
5. All cavities may unite, with or without external rupture; when so, it is usually fatal, not necessarily instantly so.
6. Spontaneous rupture may occur externally or subcutaneously, with an occasional recovery.



Hydrocephalus and spina bifida, 7 months.
(From personal collection.)

7. The effusion may be into the lateral third or fifth ventricle, or it may be in the arachnoid or subarachnoid cavity, one or all.

8. A clot in the arachnoid cavity may cause a cyst which will enlarge, with all its consequences.

9. Syphilis, tuberculosis, and rickets have been assigned as causes of hydrocephalus, but such have never been proved; the cause is yet unknown.

10. Sometimes zones of new osseous material are scattered here and there in the meninges, and sometimes upon or in the brain substance.

11. The septum lucidum is invariably thickened, as are the cerebral meninges in general.

12. Probably the greater number of cases of early hydrocephalus, whether of the third, fourth, fifth, or lateral ventricle, or of the

arachnoid variety, can be cured by some form of drainage.

13. Continuous drainage by seton or the repeated use of the trocar has given the best results in the way of benefit or cure.

14. Spinal drainage has been practised in a very limited degree, and its value is as yet undetermined.

15. Subcutaneous drainage has not resulted in a cure, but there seem to be many possibilities for this method.

16. Trephining for drainage is only resorted to in cases in which the fontanels have been closed by bony union.

17. Results from drainage are more favorable if done when the presence of fluid is first detected.

18. It is sometimes necessary to drain both hemi-

spheres, together with the right and left cerebellar cavity.

19. The secret of curing arachnoid hydrocephalus by drainage probably lies in obliterating the arachnoid cavity. However, this can be done with hydrocephalus of the third, fourth, and fifth ventricular variety.

20. The cardinal principle in this, as in all operations upon the brain, is asepsis.

CHAPTER IX.

Pathology.—The word hydrocephalus should be applied to noninflammatory cerebral exudation. It is found alike in both animals and man and is due to the same causes, although they are not definitely understood.

Breschet gives five varieties: (1) Between dura mater and brain; (2) between dura and parietal arachnoid; (3) in cavity of arachnoid; (4) ventricles (most common); (5) between arachnoid and brain.

It is thought that the children of cretinous parents, and those suffering from myxedema, are especially subject to hydrocephalus. No explanation being given, Dickenson believes rickets to be a cause.

Syphilis, both hereditary and acquired, has been accredited as being a cause, while tuberculosis has been more frequently so. Embolisms and neoplasms varying in type have no doubt been properly classed as exciting causes.

Arachnoid engorgement from any cause, such as rheumatism, gout, and the infectious diseases, are supposed to be a causative factor.

Rokitansky⁷ believed the seat of hydrocephalus to be in the lateral ventricles, while Rilliet and Barthez⁸ thought that hemorrhage from the arachnoid membrane is the cause of fluid in the arachnoid cavity, for in this variety the fluid generally contains blood.

The disease may originate in the third, fourth or lateral ventricles, or anywhere in the arachnoid cavity. It, however, is supposed to occur rarely in the arachnoid sac.

A blood clot in this sac may cause excessive and serous effusion.

The development of the disease may be unilateral or bilateral, and remain so, or when in one ventricle it may rupture into the other or into the arachnoid cavity, one or both, and thus become general in character.

Nélaton thought that spontaneous recovery would result from diarrhea, copious perspiration and cutaneous eruptions.

Hubbell⁹ reports a recovery following cutaneous eruption upon the head.

In either event there may be spontaneous rupture externally with or without recovery. If rupture does not occur externally and the fluid is not removed artificially, hypertrophy or atrophy of the brain may ensue, with all its consequences.

Zones of new osseous material are now and then found scattered here and there in the meninges, and sometimes upon or in the brain substance.

It is not known whether or not they are a cause or a consequence of the disease.

The cranial bones separate in the young before union of the sutures as they never separate after that time, consequently hydrocephalus is confined to infancy. The disease may not manifest itself until a time when the sutures should be united, but the formation of the fluid begins before the sutures unite, and is the means of preventing their union.

Blackman says: "In the majority of cases the fluid is confined to the ventricles; rarely in the arachnoid cavity."

However, this statement is very much questioned as there seems to be no special age for hydrocephalus.

J. Lewis Smith thinks congenital hydrocephalus is due to syphilis alone.

Spina bifida is sometimes associated with hydrocephalus.

Destruction of bloodvessels, laceration or pressure has in a few instances resulted in gangrene of the brain substance, and in certain other cases of continued severe pressure the septum lucidum has been found very much thickened.

Retzius, of Stockholm, has a collection of large hydrocephali.

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A full bibliography to this article will be appended in the reprints.

CONCERNING THE EMBRYOLOGY OF KIDNEY ANOMALIES.

BY

A. G. POHLMAN, M.D.,

of Baltimore, Md.

Johns Hopkins University, Department of Anatomy.

The reports on cases of faulty development are of little assistance to the laboratory investigator of embryologic processes, partly because such reports are made in the light of a curiosity, and partly because the writer is not well enough informed in the particular embryology of the case to know what facts are essential in making his observation useful. The majority of cases—say of unilateral kidney—are described in greatest detail as to the relations of the usually quite normal kidney, when the real interest lies in the one which is absent and, as will be mentioned in a later paper, in the condition of the sex gland and the genital tract, particularly on the affected side.

It seems to me that a plea for the cooperation of the surgeon and gynecologist is not out of place at this point. The demand for material is very great, and strong efforts to make the physician realize how important the embryos that come into their hands are to the anatomists, have been made notably by Professor Mall, of Johns Hopkins, and by Professor Minot, of Harvard. Personally, as a specialist in the anatomy of the urogenital system, I wish to illustrate how important the clinical side of embryology is, by mentioning one case in which a process, although constant, is extremely obscure. I refer to the descent of the testicle. And while the reasons for the male sex gland assuming its position in the inguinal region may never be known, there is great probability that the actual mechanics will be worked out, provided the investigators are furnished with sufficient—unlimited—material.

It is important to come into close relation with the pathologist as well, for many things which are developmentally abnormal are first discovered on the post-mortem table, perhaps because they give no pathologic manifestations during life and because some are impossible to diagnose, at least as yet. Reference is made later to cases of double ureter, and I will state that only two cases were found in over 60 embryos. I know of no cases reported in the literature. The two embryos were luckily of an age to be of most service in placing the embryology of the double ureter on a sound basis. The exceptional fetus that may throw light on the wandering of the sex gland, may be one in five hundred.

The short tabulation I offer on the anomalies of the kidney is of course imperfect and incomplete. It will require years of work and an intimate knowledge of the enormous literature before a system such as this will be so perfect that but few cases will not conform. However, should these brief articles merit the attention of the profession, they will surely be the means of placing

more material in the hands of embryologists. This will certainly be a stimulus to the anatomist to keep in touch with the application of the facts bearing on the clinical side of his subject, and an inducement to the physician to keep his laboratory colleague supplied with what he needs most—embryos.

The trouble in preserving and sending embryos is not great. Formalin 10% is a simple and effective preservative, and if there is any doubt as to the strength of the solution, the stronger the better. Mutilation of the embryos should be avoided, and they should be handled as little as possible. All embryos are acceptable, and no selection should be made whatever. In sending, the bottle should be filled completely with fluid to prevent injury in transportation, and such history as may be obtained, forwarded with the specimen. Any anatomic laboratory where research is going on, will be only too delighted to receive such contributions.

Anomalies in general may be divided into two main classes: those which may be said to have a definite embryologic origin and those which are beyond such an explanation. In the former class are such abnormalities as Meckel's diverticulum, cleft palate, canal of Nuck, imperforate anus, etc.; while in the latter class may be grouped, acephalic monsters, multiple extremities, etc. I will confine myself to those anomalies which may be explained from a developmental standpoint; will establish a scheme from the probabilities of faulty development and will compare it with actual cases. To understand the abnormal it is necessary to review the normal, and the article will therefore be divided into three parts:

(a) The general embryology of the kidney and ureter.

(b) The probabilities of faulty development.

(c) Actual cases corresponding with the foregoing.

In defense of the words, "probabilities of faulty development," I would say that practically all the possibilities mentioned were worked out from a knowledge of the normal processes, before any reference to the literature was made. That there may be more, goes without saying.

A. *The General Embryology of the Kidney and Ureter.*—The Wolffian duct is of mesodermic origin. It is connected with the Wolffian body (mesonephros) above; grows down toward the tail and finally comes to empty into the cloaca. (The cloaca divides later into a ventral segment forming the bladder and the urogenital sinus and a dorsal segment entering into the formation of the rectum.) The duct reaches the cloaca in human embryos of about 4.0 mm. greatest length, and at a trifle older stage (5.0 mm.) each duct gives off a bud dorsally—the renal bud—at a short distance from the cloacal wall. The renal bud grows into the surrounding, and as yet undifferentiated mesoderm and specializes it about its blind end. This specialized tissue stains darker and has a different arrangement from the surrounding tissue and is called the renal mesenchyme. The two buds lie so closely together that the two masses of mesenchyme almost touch in the median line. They are placed just in front of the second sacral vertebra.

Before a stage of 10 mm. is reached, the two buds sprout at the blind end—an upper and lower sprout—representing the future upper and lower pelves of the adult kidney. A subdivision of the developing tract may now be made; that portion of the bud that lies between the Wolffian duct and the point of sprouting, is the ureter; the place of division, the future pelvis of the kidney and all that lies distal, capped by renal mesenchyme, is the kidney proper. The kidney has assumed the distinct "bean shape" and its upper border is at the brim of the pelvis.

The two kidneys lie parallel to each other and grow progressively upward until the upper end of the kidney is in the mid-lumbar region (14 mm.) when each undergoes an axial rotation bringing the hilum, that up to this time has been directed ventrally, toward the

median line. The kidney reaches its normal height in embryos of 25 mm. to 30 mm. length or at about the end of the second month. It is after this period that vascularization is effected as may be inferred from the fact that the renal artery is given off at a right angle to the aorta. The increase in size of the kidney is proportionate to the body size, at least in all the stages investigated (up to the fifth month).

The ureter, it will be remembered, extended dorsally from the Wolffian duct at a short distance from the cloaca. The segment of the duct lying between the cloaca and the bud disappears, and at the same time the ureter loses its dorsal position and comes to lie laterally to the duct. This occurs at about the same time that the kidney undergoes rotation. Finally at a trifle older stage, the ureter opens laterally to the duct and in the further growth, due perhaps to a down-growing of the genital ducts and to an increase in size of the bladder segment above, loses its relation to the duct completely and is found opening higher and more laterally, as is normal in the adult.

Personally, I attribute the change in relation entirely to the development of the upper part of the ventral segment of the cloaca into the urinary bladder and do not believe there is any ground to assume that the male genital duct (Wolffian) grows down the urogenital sinus just because this is the case in the female (Müllerian duct). This point will be considered in greater detail later.

To summarize the development as described we find the following facts:

I. That the renal bud arises dorsally on the Wolffian duct after the duct has reached the cloaca, and at a short distance from its entrance.

II. That the buds grow dorsally and that they lie closely together, each being capped by a specialized mesodermic tissue, the renal mesenchyme.

III. That each bud divides into an upper and lower sprout at some distance from the Wolffian duct.

IV. That the kidney wanders upward from a position in front of the second sacral vertebra, rotates at the mid-lumbar region and finally reaches its normal height at about the end of the second month.

V. That the kidney becomes vascularized after it reaches its normal height.

VI. That the ureter changes its position on the Wolffian duct from dorsal to lateral, and finally comes to empty distinct from it.

VII. That the ureter loses its relation to the Wolffian duct entirely and comes to empty higher and more laterally.

It is quite impossible to consider the development of the urinary organs in any detail and only the grosser changes in position have been mentioned. Those developmental faults which may be explained by this review will be considered and are therefore those occurring before the third month.

B. The Probabilities of Faulty Development.—Each heading of the review will be taken and considered from a standpoint of possible developmental fault. In the report on the cases, the headings and subheadings will be referred to by number and letter.

I. That the renal bud arises dorsally on the Wolffian duct after the duct has reached the cloaca and at a short distance from its entrance.

(a) *The Wolffian duct might not reach the cloaca.* This is inferred on the ground that such faults are sometimes found in the development of the Müllerian duct, which is of similar origin and has a similar growth. Should the duct not reach the cloaca, there is no reason to suspect that the renal bud would develop; (1) because the stimulus to the growth of the bud is probably due to the cloaca, and (2) the direct pathology of the duct not reaching the cloaca is sufficient to admit of a doubt that normal structures will arise from it. We would expect the kidney absent and the sex gland affected, particularly in the male. All the genital tract developed from the Wolffian duct would be atrophic or missing.

(b) *The renal bud might not be given off after the duct has*

reached the cloaca. In this case it will be clear from the embryology that there would be absence of the kidney. The kidney present would naturally be hypertrophied to compensate, but not necessarily affected otherwise. The fact that the bud is not given off, points to further abnormalities in the Wolffian system, which we will not consider.

(c) *One bud might be given off some time after the other.* It is quite natural to infer from our knowledge of the rapid growth of the kidney that one kidney may be placed lower than the other, and this may account to some extent for congenital low positions of one kidney, or even both, if both buds are belated.

(d) *The renal bud might be given off at the cloaca.* This was formerly thought to be the case. It is unlikely that any abnormality would result.

(e) *The bud might be given off at a greater distance from the cloaca than normal.* In this case it would probably take a longer time for the ureter to assume its position lateral to the Wolffian duct (see later VI), and delay its growth into the bladder.

(f) *The bud might arise other than dorsally.* A species of ectopia would probably result. Would be extremely uncommon and difficult to surmise.

II. That the buds grow dorsally, and that they lie closely together, each being capped by specialized renal mesenchyme.

(a) *The buds might not grow dorsally.* Would result in ectopia renalis of a very unusual form. (See I f.)

(b) *The two buds might come to lie too closely together and the masses of mesenchyme fuse.* The growing together would, of course, be a permanent one. It would result in any form of horseshoe kidney, depending on the amount of fusion. This form of anomaly would be more probable if one kidney were in advance of the other, and if this were the case, there would be likelihood of the upper kidney in its attempted rotation dragging the lower kidney across the midline. (See IV d.)

(c) *The two buds might be surrounded by one mass of renal mesenchyme.* Would result in a form of horseshoe kidney, which would be difficult to separate from the former variety. There would probably be no rotation whatever and no distinctness as to the two kidneys. Would be one diffused mass, with no marked subdivision, having two ureters.

(d) *The sprouts of the buds might each be surrounded by an independent mass of mesenchyme.* This would result in two distinct kidneys on one side and would account for the rare cases of supernumerary kidney.

(e) *The renal mesenchyme might not develop.* Would be very difficult to tell from I b. Theoretically, there would not be any disturbance of the male genitals as an accompaniment. That one might find traces of a ureter is unlikely.

III. That each bud divides into an upper and lower sprout at some distance from the Wolffian duct.

(a) *Might not divide into major sprouts.* The ureter must divide or there would be kidney deficiency, but the main budding might be suppressed and there would be one major pelvis. This might also result in the later stages of the development of the kidney.

(b) *There might be more than two major sprouts.* Would result in more than two major pelves, and even be exaggerated into ureter faults. (See III, c.)

(c) *The sprouting might be too near the Wolffian duct.* This would result in incomplete double ureter. There being but one orifice in the bladder, and any form of reduplication depending on the proximity of the division from an exaggerated pelvis to almost complete double ureter.

(d) *The sprouting might be directly at the duct.* Would result in complete double ureter. Two orifices in the bladder. For further account see report of original case.

IV. That the kidney wanders upward from a position in front of the second sacral vertebra, rotates in the mid-lumbar region and finally reaches its normal height about the end of the second month.

(a) *The kidney might remain in any position from the second sacral vertebra to the normal.* Cause would be doubtful. (See IV, c and I, e.)

(b) *Might reach normal height early—no abnormalities.*

(c) *Might not reach normal height before the vascularity was effected.* This would be a distinct cause for low positions. (See V, b.)

(d) *The kidney might not rotate, or undergo a false rotation.* In case the kidney is fixed below the midlumbar region, it would be found to lie, hilum ventrally, because at this stage no rotation has occurred. The false rotation has already been alluded to under II, b and c. The lower kidney would be the crossed one.

V. That the kidney becomes vascularized after it reaches its normal height. A stage after 25 mm. to 30 mm.

(a) *The vascularization might be belated.* Probably no effect.

(b) *Vascularity might wander into the renal substance too early.* Might be a cause of low fixation taken in connection with a belated renal bud. In case the vessels entered before the kidney was rotated they might come from any adjoining artery and enter at any point on the surface of the organ, even posteriorly. The lower the fixation, the more the probability of abnormal arteries, because of the splitting of the aorta into the iliaes and the still lower division of the iliaes. The more adjoining arterial trunks, the more numerous the vessels.

VI. The ureter changes its position on the Wolffian duct from dorsal to lateral, and finally comes to empty distinct from it.

(a) *The ureter might remain attached to the Wolffian duct,* and would naturally open in common with it or into parts developed from its lower end.

(b) *The ureter might open laterally to the Wolffian duct and on a level with it.* Opening in this case would be found in the prostatic urethra.

VII. The ureter loses its relation to the Wolffian duct and comes to empty higher and more laterally.

(a) *The ureter might have an orifice anywhere from the entrance of the Wolffian duct to its normal position.* To be spoken of later under case VII, a.

In referring to the embryology I would mention the admirable article by Keibel on the origin of the bud and its earlier development.

I would like to acknowledge the kindness of Professor Mall in placing his collection of human embryos at my disposal, and also to thank Professor Keibel for the loan of embryo Piper, one of the abnormal ones reported. I am indebted to Mr. Max Brödel for valuable suggestions as to material collected on the embryology of the tract, which I find he has worked upon with a similar object in view as that of this paper.

C. Reports on some cases.

I—(a) Case reported by Ballowitz:

Left kidney and ureter missing in an adult male; no trace of renal vessels. There were many defects in the genital apparatus. Left vas deferens absent and only a mass of connective tissue found in place of the left vesicula seminalis. No opening in the prostatic urethra on the left of the colliculus. The testicle was descended, but atrophic. Right kidney and right inner genital tract normal.

Mention is made that some Wolffian remains were found in the rudimentary epididymis, and there is, of course, no proof that the Wolffian duct did not reach the cloaca and then atrophy. However, it seems fair to suppose, as the individual was entirely normal on the right side, that a mechanical interference with the descent of the left Wolffian duct would explain the matter very satisfactorily.

Cases have been reported with congenital absence of the kidneys on both sides. These monsters are, of course, not viable, and therefore have no clinical significance.

I—(b) Case reported by Menzies:

Similar to the foregoing; the left kidney was missing, but there was no implication in the genitals whatever. Both testicles and cords were normal. A similar case is also reported by Tweedy in the female. The proportion of single kidney, according to Tweedy, is four to one in the males.

I—(c) Case reported by Howden.

Left kidney normal. Right kidney found below the bifurcation of the aorta with its upper end between the fourth and fifth lumbar vertebrae. The hilum pointed to the front. Ureter opened into the bladder normally. Arteries entered irregularly—some posteriorly. Arteries derived from aorta, sacra media, and the right internal iliac. The testicle was small and atrophied. Epididymis was rudimentary. Vas deferens but a fibrous cord, and vesicula seminalis absent on affected side. Testicle retained.

According to our tabulation the Wolffian duct must have reached the cloaca and atrophied later. It is interesting to note the opening of the ureter on the affected side was normal. Microscopic examination might have shown traces of the Wolffian duct in the prostatic region.

II—(d) Report of M'Murich with excellent account of the literature of crossed dystopia. The kidney may be fused in almost any fashion. Horseshoe kidneys are usually low; I am almost tempted to say always. The ureters are usually to the front because the rotation is interfered with, and if one kidney is rotated, it is the higher one, and lies above the mid-lumbar region.

In an as yet unpublished case, Brödel finds a kidney joined to its fellow at the upper pole and lying back of the aorta. The case, so far as I know, is unique, and if I may be allowed to suggest its causation, was due to a fusion of the renal mesenchyme, and owing to a faulty development of the sacra media artery, the kidney mass was allowed to slip behind the well-developed hypogastric arteries, and once under the aorta, kept

that relation to that vessel. The hila were to the front. The report on this case will be of great interest.

III—(a) To quote Brödel:

"Such cases are extremely uncommon, and when found are usually the first indications of hydronephrosis which, by the dilation of the pelvis obliterates the division into the upper and lower segment."

At a later stage than is discussed in this paper, the division into an upper and lower pelvis is lost temporarily, and a single large pelvis might be a result of a persistence of this condition.

III—(b) Case reported by Richmond.

There were four ureters coming from the hilum of each kidney, and at a distance of four inches from the kidney they formed a pelvis from which a ureter proper arose. There were also signs of abnormality in the genital tract.

It may be perhaps inferred from this case that the ureter sprout undergoes a second major division which is as yet unknown to us or the case may be quite unique in this respect.

The case showed bilateral symmetry which corresponds with what Brödel maintains—that anomalies of the pelvis are always bilateral.

III—(c) Incomplete double ureters are so common that they scarcely need reporting here. They should always be considered incomplete unless each of the double ureters has a separate orifice in the bladder. The relation of the two incomplete ureters is similar to the double one and will be described further on.

III—(d) I take pleasure in presenting two cases in embryos.

Embryo Mall 175 (13 mm.)

Two ureters arise from the left kidney. The one from the upper part of the kidney lies ventrally and is somewhat smaller than the one from the lower part of the kidney. As the two ureters approach the urogenital sinus they curve around the Wolffian duct, the one ventral coming to lie close to the duct and the one dorsal lying more laterally. The three openings are at the same level and are arranged from the mid-line laterally; Wolffian duct, ureter from the upper part of the kidney and then the ureter from the lower part.

Embryo Piper-Keibel (24 mm.)

In this the relation of the ureters is the same excepting at the sinus. Owing to the development of the bladder the more lateral ureter has been carried higher than the more median one. This corresponds to the findings in the adult—that the ureter from the upper part of the kidney opens into the bladder somewhere between the opening of the usually normal orifice of the posterior ureter (from the lower part of the kidney) and the orifice of the vas deferens, and is due to the swinging laterally of the ureter on the duct and the development of the bladder. Reasons more completely dealt with under VII, a and b.

IV—(a) Case reported by Farquharson. (See also Howden.) Right kidney normal. Left kidney lay in front of the bodies of the fourth and fifth lumbar and first sacral vertebrae and only slightly to the left of the middle line. The blood-supply was naturally abnormal. The kidney was not rotated and the ureter came directly from its ventral surface.

IV—(d) Already referred to in the cases of horseshoe kidney (see II b and also above IV a.)

V—(b) The normal blood-supply to the kidney has been most admirably worked out by Brödel. Abnormal arteries seem to come directly from the neighboring trunks and in nonrotated kidneys may even enter posteriorly. The more numerous the adjoining arterial trunks, the more numerous the bloodvessels entering the kidney. (See accounts of low-placed and horseshoe kidneys.)

VI—(a and b) Find reference to these cases in a general way in article by Arneil in the "Reference Handbook."

VI—(c) The case of the Mall embryo. Know of no such case in the adult, but it is fair to assume that such a condition might persist.

VII—(a) Cases talked over with Brödel. May occur in single orifices, but more evident in double ureter. (See below.)

VII—(b) A hint has already been made that the reason for the position of the ureter lateral and above the genital duct was due to the development of the bladder. I have measured the path of the ureter from the time it loses its relation to the Wolffian duct to a time when it is relatively in its normal position and find that it grows proportionately upward and outward. This is verified by the findings in abnormally placed ureters in that they are always in the path of what might be considered their normal development. In double ureters the more lateral one has the same course as the usual normal and the more mesial one is placed in a position of disadvantage and lies, always the case, somewhere between the Wolffian duct and the normally placed orifice.

It may sound a little like heresy to say that the bladder is developed entirely from the cloaca, but such is the interpretation I place on my findings and believe that the double ureter has a decided bearing on this point.

How much clinical importance these developmental facts may possess is a very difficult matter to say. Cases of unilateral kidney are extremely uncommon, although two cases of direct clinical bearing have been mentioned: The one of Polk, in which a single kidney was removed,

and the case reported by Taylor of fatal injury to a unilateral kidney.

In the male the misplaced kidney would not be any element of danger. A case, however, has been reported in a pregnant female in which a tumor was discovered at the brim of the pelvis which occluded the inlet, and abortion was induced. It was not until a second abortion with fatal termination that the obstruction was found to be a horseshoe kidney. Just so in any developmental aberration, the importance clinically is entirely a matter of personal equation. Such direct anatomic facts as the proper placing of sutures in the kidney or where the incision should be made into a kidney from an intimate knowledge of the bloodvessels, always find a place in practical surgery. It only remains to be seen how much may be accomplished by the combined effort of the practising physician and the laboratory investigator.

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TWO CASES OF FATAL POISONING (CRIMINAL) BY STRYCHNIN, WITH A REPORT OF THE TOXICOLOGIC EXAMINATION OF SOME OF THE ORGANS.

BY

JOHN MARSHALL, M.D.,

of Philadelphia.

Professor of Chemistry and Toxicology, University of Pennsylvania.

On Wednesday, October 1, 1902, about 12.30 p.m., John Coffin, aged 11 years 8 months, and Price Jennings, aged 14 years, schoolboys residing in Camden, N. J., left home presumably to spend the afternoon in usual boyish amusements. Their failure to return in the evening alarmed their parents, and the police were notified of their disappearance. On Friday afternoon, October 3, the body of one of the boys, Price Jennings, was discovered by boys in an unused field at Haddon Heights, a few miles below Camden. The boys, however, were in such a condition of fright that they neglected to notify the authorities at once. About 7.30 p.m. of the same day two men, residents of the locality, found the body lying under an old chestnut tree. They described the position of the body as lying on its back, right arm drawn up toward the body, the left arm extended in a straight line from the body; head turned to the side, the mouth partly open, with a frothy discharge on the lips. The coroner was at once notified by telephone, and he immediately proceeded to the place described by the men, but on account of the darkness and the locality being unfrequented, he failed to find the body. The following morning he again visited the locality and succeeded in finding the body, but it was not

until 11.30 a.m. of that day, October 4, that the body reached the morgue in Camden. During the morning of the same day (October 4) the body of the smaller boy, John Coffin, was found in the same field, about 40 paces distant from the place where Jennings' body had been found. The body when discovered was lying on its back, with the head to one side, one arm drawn up toward the body, the other extended in a direct line from the body, the hands half closed, the legs somewhat spread apart and slightly drawn up; the eyes partly open, the lips apart, and a frothy discharge on the lips. This body was brought to the morgue shortly after noon of October 4, and the autopsies of the bodies were made the afternoon of the same day, by Professor W. L. M. Coplin, with the cooperation of Dr. W. S. Jones, county physician. The autopsy disclosed marked decomposition of the body, maggots having been already developed on the eyelids and lips. There was no undue rigidity. The lungs exhibited a settling of blood in some portions, but no organic lesions were anywhere observed. While the autopsy excluded death by violence, no evidence of the cause of death was discoverable.

The atmospheric conditions prevailing at the time of the disappearance of the boys were such as would favor putrefaction and would readily account for the marked evidences of decomposition observed in the bodies, and the absence of rigor and opisthotonos.

On the night of September 30, according to the records of the government weather-observer for Camden, there was a heavy rain, which continued until 6.45 a.m. of the morning of October 1, during which time the rainfall amounted to 1.81 inches. On October 1, light rains occurred from 8.05 a.m. to 11.28 a.m., the temperature varying from a minimum of 62° F. (16.6°C.) to a maximum of 72° F. (22.2°C.), the humidity at 8 a.m. being 95%, and at 8 p.m. 75%. On October 2 and 3 there was no rainfall and the temperature varied from a minimum of 54° F. (12.2°C.) to a maximum of 72° F. (22.2°C.). The humidity at 8 a.m. on October 2 was 78% and at 8 p.m. 74%, and at 8 a.m. on October 3, 75% and at 8 p.m. 45%. There was cloudiness during the night of October 3, and during the night of October 4 there were light rains at various intervals of time. From this information it is obvious that the soil must have been saturated with moisture. The temperature during the period averaged about 65° F. (18.3°C.) and the humidity of the air was quite high.

At the autopsy of the body of Price Jennings there were removed for toxicologic examination, the stomach and its contents, one kidney, the brain, a portion of the intestines, and a portion of the liver. By inadvertence the portion of liver was placed on top of the portion of intestines contained in a glass jar, and consequently any fluid which may have exuded from it prior to the analysis would be included in the analysis of the portion of intestines. Each of the other organs, however, was placed in a separate glass jar. About 250 cc. of urine was removed from the bladder.

At the autopsy of the body of John Coffin there were removed for toxicologic examination, the stomach and its contents, one kidney, and a portion of the liver.

In the toxicologic examination I was associated with George M. Beringer, A.M., Ph.M., of Camden, who examined the stomach and its contents, one kidney, portion of intestines, portion of liver, and 150 cc. of the 250 cc. of urine, all from the body of Price Jennings, and I examined the brain and the remaining 100 cc. of urine from the Jennings body, and also the stomach and its contents, one kidney, and a portion of the liver, all from the body of John Coffin.

As the authorities suspected that the boys had died as a result of the administration of "knock-out drops" (chloral hydrate), the toxicologic examination was first directed toward the detection of that substance. The examinations were made by us, independently of each other, in our respective laboratories. The material first examined

by each of us was the urine of Price Jennings, but the examinations failed to determine the presence of chloral or its product, trichlorethylglycuronic acid (urochloralic acid.) Likewise, examination for morphin and metallic poisons failed to determine their presence. The urine was highly albuminous, and after having coagulated the albumin by means of heat and subsequent filtration, the filtrate was evaporated nearly to dryness on a water-bath and the residue was repeatedly extracted with alcohol. The alcoholic extract was then evaporated to dryness and the residue treated with water, and this final solution was rendered slightly alkaline with ammonium hydroxid and extracted in a separatory bulb with chloroform. The chloroform extract was intensely bitter, and on testing residues obtained by evaporating small volumes of the chloroform extract to dryness, with the potassium dichromate-sulfuric acid test, the peculiar succession of colorations attributed to strychnin promptly appeared. In the examination made by each of us there was not obtained from the urine a weighable quantity of the alkaloid. One of us (Marshall), injected a few drops of the small quantity of aqueous solution hypodermically in the lumbar region of a small frog with the production of tetanic convulsions in the animal.

These tests having satisfied both of us that the toxic substance for which search should be made was strychnin, independent examinations for that alkaloid were made by us of the various tissues, in which examination each of us used an identical method.

In brief, the method adopted was as follows:

The solid organs were cut into very small pieces by means of a scissors, and the mass covered with distilled water, to which a small quantity of alcohol had been added, and the mixture was acidulated with acetic acid. This was warmed at a temperature of about 80°C. on a water-bath for about an hour, with occasional stirring and testing with litmus paper to determine the reaction of the mixture, and the addition of more acetic acid to keep the liquid acid in character, when found necessary. The mixture was then strained through washed cheese-cloth placed over washed muslin; the mass on the cloth was washed with water acidulated with acetic acid, and the washings were added to the filtrate. The liquid (filtrate and washings) was concentrated to a small volume on a water-bath, allowed to cool, and treated with an excess of strong alcohol to precipitate albuminous and other interfering substances. The precipitated substances were removed by filtration, the precipitate was washed with strong alcohol and the filtrate, to which the washings had been added, was evaporated on a water-bath to a syrup-like consistency and then diluted with water and rendered distinctly alkaline with ammonium hydroxid. This liquid was placed in a separatory bulb, chloroform added, and the contents vigorously agitated to extract the strychnin. Extraction of the alkaline aqueous liquid with chloroform was made twice after the first extraction and the three chloroform extracts were combined, evaporated to dryness spontaneously at ordinary room-temperature, the residue was treated with a small quantity of water, rendered distinctly acid with acetic acid, and placed in a separatory bulb and extracted twice by agitation with chloroform. The chloroform extracts were discarded, and the acid aqueous liquid was then rendered alkaline with ammonium hydroxid, placed in a separatory funnel and extracted with three separate portions of chloroform. The chloroform extract was allowed to evaporate spontaneously, and the resulting residue, after repeated purification by extracting in turn its acid and alkaline solutions in the manner just described, was finally obtained in a colorless condition.

EXAMINATIONS OF TISSUES MADE BY MR. BERINGER.

Stomach and its contents of Price Jennings.—The stomach had been cut open in the course of the autopsy. It was in a somewhat decomposed condition and emitted a putrid odor; the walls showed no evidences of irritation or inflammation. It contained only a small amount of food and mucus; a small quantity of the contents had passed through the cut into the glass jar in which the stomach had been placed. Portions of raisin skins were detected by the naked eye in the mass of food, and by means of the microscope powdered cinnamon and starchy material were detected. Examination was made for chloral hydrate, chloroform, morphin and metallic poisons with negative results. The amount of strychnin recovered from the stomach and its contents was 0.0014 gm. equivalent to 0.001794 gm. of strychnin sulfate.

Liver of Price Jennings.—The portion of liver examined weighed 865 gm. and exhibited strong evidences of decomposition. The amount of strychnin recovered was 0.003 gm., equivalent to 0.003844 gm. of strychnin sulfate.

Another portion of the liver was examined for volatile

poisons, cyanids, chloral hydrate, and metallic poisons with negative results.

Kidney of Price Jennings.—The one kidney examined weighed 120 gm.; 90 gm. were employed for the examination for strychnin and from this quantity of tissue 0.005 gm. of strychnin, equivalent to 0.0064 gm. of strychnin sulfate was recovered.

The remaining 30 gm. of kidney were used in an examination for chloral hydrate, metallic and other poisons with negative results.

Intestines of Price Jennings.—Decomposition to a marked degree had occurred in the tissue of the intestines which at places was yellow and green, and emitted a foul odor; 620 gm. of intestine and contents were examined for strychnin, from which 0.007 gm. of strychnin, equivalent to 0.00897 gm. of strychnin sulfate was recovered.

From the above portions of tissue Mr. Beringer recovered a total of 0.0056 gm. strychnin; equivalent to 0.007175 gm. of strychnin sulfate.

EXAMINATIONS OF TISSUES MADE BY DR. MARSHALL.

Stomach and its Contents of John Coffin.—The inner walls were slightly pink. No odor resulting from decomposition was observed. Contents were salmon-colored and semifluid. Volume of contents 150 cc. Weight of the stomach without its contents 186 gm. The material from the stomach contained starch granules in masses about the size of a mustard seed, skin and fragments of the interior substance of raisins, seeds resembling raisin seeds. The starchy masses on examination under the microscope were found to be exactly like the columnar structure of the periphery of a chestnut kernel. The strained liquid from the contents of the stomach measured 75 cc. Of this liquid 25 cc. were used in an examination for chloral hydrate, hydrocyanic acid, morphin and metallic poisons, with negative results. The remaining 50 cc. were added to the stomach tissue and small amount of solid stomach contents.

From the 186 gm. of stomach tissue, 50 cc. of liquid contents and possibly 6 gm. of solid contents 0.0038 gm. of strychnin, equivalent to 0.00486 gm. of strychnin sulfate was recovered.

Portion of Liver of John Coffin.—The weight of liver with accompanying bloody fluid was 837 gm. The tissue showed only very slight evidences of decomposition. It was not disintegrated nor to any extent softened. The tissue was very dark and emitted a disagreeable odor.

From the 837 gm. of material 0.0027 gm. of strychnin, equivalent to 0.00345 gm. of strychnin sulfate was recovered.

One Kidney of John Coffin.—The weight of the kidney with the bloody fluid which accompanied it was 105 gm. (75 gm. kidney, 30 gm. fluid).

The tissue was in well-preserved condition. The interior was slightly red and had a fresh appearance.

From the 105 gm. of material employed, 0.0007 gm. of strychnin, equivalent to 0.00088 gm. of strychnin sulfate was recovered.

Brain of Price Jennings.—The brain with the fluid accompanying it weighed 1,650 gm. The tissue had softened to a very considerable extent.

From the 1,650 gm. of material 0.0005 gm. of strychnin, equivalent to 0.00062 gm. of strychnin sulfate was recovered.

The total quantity of strychnin recovered from the amount of tissue of John Coffin was 0.0072 gm., equivalent to 0.00919 gm. strychnin sulfate.

The strychnin recovered by each of us responded promptly and highly satisfactorily to the potassium dichromate-sulfuric acid test and to the physiologic test on frogs. Furthermore, the various residues obtained by one of us (Marshall) from the tissues of John Coffin were aggregated and a portion was employed for a melting point determination and it was found that it melted sharply at 268° C., corresponding to the melting point of strychnin.

It was ascertained that Paul Woodward, a young man aged about 26, a resident of Camden, had been with the boys on the afternoon of October 1, when they left their homes. Suspicion was cast upon him of having poisoned the boys with the object of robbing them. He was arrested on October 5, and placed on trial on November 12, before Judge C. G. Garrison, the prosecution being conducted by Prosecutor of the Pleas Frank T. Lloyd, Esq., assisted by the assistant prosecutor, F. Morse Archer, Esq. At the trial it was shown, that Woodward had planned to have the boys obtain money from their homes and run away with him. His movements on October 1, the day of the disappearance of the boys, were traced, and he was identified as having purchased cinnamon buns at a wayside booth on the road leading to Haddon Heights, and that the two boys were with him at the time. This probably accounts for the presence of powdered cinnamon as detected by Mr.

Beringer in the stomach contents of one of the boys, and for the skins of raisins found by Mr. Beringer and by me in the separate stomachs. He was also identified as having been engaged with two boys in obtaining chestnuts from a tree near the road adjacent to the field in which the bodies of the boys were discovered. This accounts for the presence of small particles of raw chestnut kernels detected by me in the stomach of young Coffin. Woodward admitted having accompanied them to within a mile or two of the place where the bodies were found. Up to almost the last day of the time taken by the prosecution in the progress of the trial, the authorities were unable to locate the place where Woodward had purchased the strychnin. By accident, however, the Prosecutor of the Pleas learned that he had purchased strychnin at a certain apothecary's in Camden, but the clerks were unable to identify the accused. By good fortune it was ascertained that possibly the strychnin had been purchased from a clerk who had been connected with the establishment during the summer, but who had resigned to take a position in a near-by city. This clerk was quickly brought to Camden and identified Woodward as having purchased strychnin in amounts of from 3 grains to 5 grains on two separate occasions. Woodward then admitted the purchases of strychnin, stating that he had purchased it for the purpose of killing animals that were destroying his pigeons. The trial lasted until November 17, when the jury rendered a verdict of guilty of murder in the first degree. In due time Woodward paid the penalty of his crime.

THE ANTISEPTIC TREATMENT OF SMALLPOX.¹

BY

SAMUEL M. WILSON, M.D.,

of Philadelphia.

During the last few years an unusual interest in smallpox has been shown, particularly in regard to its diagnosis. Interest is always felt in the question of treatment. This has two objects: Assisting the patient to recover his health and, if possible, to protect him from disfiguring scars. Most clinicians treat the disease on general principles, light diet, and cold baths or sponging, during the primary fever; symptoms that assume prominence being met by any means that appear suitable.

When the suppurative stage is reached, we have to deal with a general septic condition, calling as usual for supporting treatment and the free use of stimulants, particularly alcohol. Internal antiseptics appear useless.

Various plans to avoid scars have been tried. Many still follow the old method of excluding light from the sickroom, and applying some emollient, such as vaselin or glycerin, incorporating usually an antiseptic, but mainly with the object of preventing early rupture of the pustule. Others prefer to puncture the vesicle and apply a wet dressing of an antiseptic solution or plain water. The use of red window glass or red curtains seems useful, but is said to prolong convalescence, and it is doubtful if the withdrawal of the ultraviolet rays of light is not injurious to the patient, as well as to the microorganisms at fault.

The frightful scarring shown by some of those who have recently recovered from the disease proves that the plans in common use frequently fail. I would like, therefore, to draw attention to a method that has been recommended by several writers: The daily use of scrub baths. Some of the more recent textbooks refer to it. Perhaps the main reason that it is not generally adopted, is that it is rather painful to the patient, after vesiculation has commenced. Used thoroughly before the primary papules develop, it appears to prevent vesiculation.

¹Read at a meeting of the Philadelphia County Medical Society, April 13, 1904.

Instituted too late for that, it does away, to a great extent, with the repulsive appearance and foul odor characteristic of patients treated without this means.

If the patient is not seen until vesiculation has begun, the summits of the vesicles must be punctured, compresses of full strength hydrogen dioxid solution applied, and these followed by a mask wet with some antiseptic. A solution of mercuric chlorid—1 to 1,500, gives good results. This need remain in place for a few minutes only. The hydrogen dioxid followed by the mask may be used several times daily if desired, and appears to add to the comfort of the patient, as well as to promote desquamation.

In two unvaccinated young girls in whom vesiculation was commencing when the patients were first seen, the scrubbing, combined with puncture of the vesicles, was very successful. Where the treatment was thoroughly applied, on the hands and face, the vesicles, although large and numerous, left only a few faint traces, almost imperceptible, except on close examination. The legs and feet received less care, and several wellmarked pits resulted. Neither patient was seriously sick after the seventh day of the disease.

If the characteristic umbilicated pustule fails to develop, it is practically impossible to declare a case, in which recovery occurs, to be one of smallpox. In several cases in which a probable diagnosis of beginning varioloid was made, the scrubbing treatment, with toilet sandsoap, was applied promptly. Four of these patients were in one family. In each a vesicular rash appeared, drying in a few days, but leaving a few perceptible scars. In two other cases, a daughter, and subsequently her mother, a macular rash developed, followed by desquamation, and the patients showed no further evidence of being ill, the disease lasting four days in the mother and five in the child.

The treatment was used in other cases also; but the six mentioned are reported because, in them, the severity of the primary symptoms left little doubt of the diagnosis.

STRANGULATED FEMORAL HERNIA CONTAINING THE VERMIFORM APPENDIX.

BY

EMERY MARVEL, M.D.,

of Atlantic City, N. J.

While the inguinal canal has been found the receptacle for nearly every organ contained in the lower abdomen, such as for instance, the intestines, omentum, vermiform appendix, appendices uteri—even the bladder and the uterus itself—it is rare that the content of a femoral hernia is other than small bowel or omentum. It is this rarity of occurrence that prompts my reporting the following case:

The patient was a Russian Hebrew, aged 68, married, and the mother of five healthy children. She has been forced to work hard all her life, but has had no severe illness. She first noticed a mass in her right groin about six years ago, which she says came on while she was lifting a filled wash-tub. Since then this mass has frequently come down, but it could always be easily replaced. She has suffered considerable abdominal pain, and has been obliged to go to bed with the distress and to remain there two or three days at a time on several occasions during the past three years. It was in a similar condition that she went to bed during the present attack, June 13, 1902. This last attack began with abdominal pains, most severe in the right inguinal region, followed by nausea and vomiting. A physician was summoned who told her she was suffering from appendicitis. He put her to bed, prescribed castor-oil and some other remedies. The pain and vomiting continued, and great prostration followed.

June 15, 1902, two days after the onset of the attack, I found her markedly prostrated, with sunken eyes, and severe cramp-like pains coming on at intervals of 15 to 20 minutes. Vomiting was persistent, and she showed an apprehensive expression. Upon examination a mass the size of a hen's egg was found in the right groin, just beneath Poupart's ligament. The right abdomen was rigid, and whenever she would have the cramp-like pains, a circumscribed mass the size of a double fist would form in

the abdomen. This would disappear with the cramp to form again with the next cramp in another part of the abdomen. This changing abdominal mass was most probably due to resisted peristaltic action, which also produced the colicky pain. A diagnosis of femoral hernia was made, and immediate operation performed two hours later at the Atlantic City Hospital.

Operation.—An incision was made directly over the mass down to the sac of the hernia, sac was opened, the incarcerated bowel recognized, the constricting ring was cut and the bowel freed and replaced in the abdomen. The finger was inserted in the abdomen through the femoral ring, when the vermiform appendix was recognized and brought out. It was folded upon the cecum and constricted at a level with the cecal constriction produced by the incarceration of the ring. The appendix was about seven inches long, enlarged at the tip, with a foreign substance in the lumen. The mesoappendix, as well as the mesocecum was very much elongated, and allowed of my bringing the appendix easily out through the femoral canal. The appendix was dissected out, amputated, stump invaginated, and cecum replaced again. The opening was treated to obliterate the canal, silver wire being used.

Union was gained by first intention, and the patient left the hospital on the thirteenth day.

The patient was seen February 7, 1904, 20 months later. She had been doing the same laborious work as before, and says she has no more pain, and is perfectly well. Inspection of the parts shows a firm closure of the canal.

This case seems worthy of consideration on account of the infrequency of the appendix being found in a femoral hernia; the predisposing factors in permitting the appendix to be removed without enlarging the femoral ring; and as showing the favorable reaction and repair in the aged.

It is not so uncommon to find the appendix in various diseased conditions in the inguinal canal, yet the infrequency of its being found in the femoral canal is proved when one looks up the literature of the subject. Two cases are reported by J. Henry Barbal;¹ another by A. E. Barker.²

The predisposing factors in this case were evidently those usual to hernia—weakened spot, intraabdominal pressure, etc.—with the addition that the mesocolon (cecum) and mesoappendix were greatly elongated and permitted of unusual excursion of the organs suspended by these ligaments. Reynolds³ reports an obstruction due to torsion of the colon, in which case the mesocolon was sufficiently long to permit the cecum to find its way to the left hypochondriac region. The elongated mesocolon I consider the special contributing cause.

The removal of the appendix through so small an aperture in so remote a position may be of interest, but with a long mesoappendix and one drawn out very thin it was most easily accomplished.

Much has been written to show the great danger in major operations upon the aged. Wyeth's recent series of papers has done much to remove this prevalent delusion. This case, it is true is but one, but it can well be added to the evidence to prove that the aged may, and most often do recover and repair with favorable comparison to the young.

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Increase in Mortality of New York.—According to the Bulletin of the New York State Department of Health, 13,700 deaths occurred during the month of April. The bulletin states that this month has generally the uniform mortality of about 10,500, and is seldom subject to fluctuation. However, the number of deaths for this April is within 300 deaths of April, 1891, and within 600 of that of the month preceding, so that it stands the third highest on the record of monthly deathrates. It is further exceptional in that it is sequent to a series of months of excessive mortality. In the four months of this year there have been 53,000 deaths in this State, against 44,500 for the same months in 1903, and 43,300 in 1902. At this rate for the year there would be 160,000 deaths against 130,000, or against our average yearly mortality of recent past years of from 125,000 to 130,000. The chief increase in mortality is in diseases of the respiratory system, and especially from pneumonia, from which there were 2,500 more deaths than in the four months of the two preceding years. The increase has been general throughout the State.

SPECIAL ARTICLES

STATE REGISTRATION OF NURSES.¹

BY

MAUD BANFIELD,
of Philadelphia.

Superintendent of the Polyclinic Hospital, Philadelphia.

It has seemed to me that I should be shirking an obvious responsibility if I neglected this opportunity of putting before you the case for the State registration of nurses. Graduates very soon scatter, and are difficult to reach, and so are their friends, but private nurses and the general public are really much more concerned in the subject of registration than those who occupy well-defined positions in institutions. With comparatively few exceptions the need for registration is but little understood, and the evils consequent on the lack of it are put down to many other causes. And yet one can hardly pick up a nursing or hospital journal nowadays without seeing articles about it. It is, however, nothing new—nothing which has not already been tried. In New Zealand, registration has been in successful operation for more than two years. Australia has had a State registration law in satisfactory operation since 1899. England, always conservative, has now a bill before Parliament, and although one bill was blocked on the second reading, that is a mere preliminary.

In this country, registration has already been secured in five States—North Carolina, New York, New Jersey, Virginia and Maryland. A bill passed both Houses in Illinois, but did not succeed in becoming a law. Massachusetts hopes to pass its bill at the next legislative session. Iowa is making more or less tentative efforts, and Pennsylvania—well, Pennsylvania depends upon each one of its friends present tonight to assist it, and with their assistance and approval we hope that a bill will pass the next Legislature. It is a nonpolitical bill, and there is nothing to be gained by its promoters but hard work and the public good. With the example of the other States before us, we should be enabled to avoid many of their difficulties, and there is no reason why Pennsylvania should not distinguish itself by passing one of the best bills.

The objects of the State registration of nurses are: 1. The protection of the public. 2. The protection of the nurse. 3. Improvement in educational standards. If a doctor or a patient desires a nurse who will have sufficient knowledge to call the physician at the first sign of hemorrhage after a bad operation, or the first symptom of collapse in typhoid or pneumonia, he will not desire to pay \$20 to \$25 a week to a young woman from a correspondence school who may never have seen a sick person, but he will desire a woman of knowledge and sense who will do all that can be done to prevent a precious life ebbing away through lack of warning to the physician. Registration, however, will not prevent anyone from employing the young woman from the correspondence school if he prefers to do so. It will lay down no law as to the money her employers should pay her. They may, if they please, pay as much or more than they do to a nurse who is really a nurse. It will merely enable them to ascertain, in a manner which is at present impossible, whether they are getting what they pay for. It will enable them to ascertain at once that the woman whom they admit to their homes and families in a most intimate relation, is, for instance, not a Jane Toppen, who proved to be a dismissed pupil from a large New England hospital, and who was said to have poisoned five of her patients, apparently because it interested her to do so; but it will not prevent them employing a Jane Toppen if they prefer. It will not prevent any woman, who may choose to nurse the sick, continuing to do so; it will only prevent her claiming to be a trained or registered nurse, when she is not, and often thereby bringing shame and disgrace on a body of honorable, hard-working women.

Thus you will see that it does not go so far as the doctors' laws which prevent anyone practising medicine without a license. Women may still practise nursing without a license,

¹ An address delivered at the Commencement Exercises of the Polyclinic School for Nurses, April 29, 1904.

but it will not be impossible for the public to ascertain that they are employing such a person, as is frequently the case now. There is nothing to be alarmed at in the proposed legislative action, unless by those people who do not wish to be known for what they are. Legislation, as all are aware, is never retroactive, and it therefore will not affect, and has not affected, in any State where such a bill has been passed, those who are at present practising nursing.

Judge Harlan, of the Supreme Court of Maryland, said recently, while speaking of the legislation already in force in New York, New Jersey, Virginia, and North Carolina:

An examination of the legislation in these States will show that no new departure has been attempted; that only the same protection for the public and for the profession has been sought in the case of the trained nurse as that which has long been enjoyed by the professions of law and medicine and various other callings, whose following by unskilful or incompetent persons is supposed to touch the public health or public weal. With this exception, that, whereas no one is permitted to practise law or medicine, or some other callings, unless duly licensed thereto, the trained nurses with that modesty and fairness characteristic of their sex have not asked that all unregistered shall not be permitted to nurse, but only that they shall not be allowed to do so as registered nurses.

If the lawyer and the public receive protection against the knave and the shyster—if the doctor and the public receive protection against the charlatan and the quack—if even the sanitary plumber and the public receive protection against the bungling upstart, why are not the public and the trained nurse equally entitled to protection against ignorance and incompetence?

The legislation which you are about to seek is conservative, salutary, beneficial. I see no just reason why a wisely framed bill should not receive the approval of the Legislature, and I can only say, in conclusion, that if my poor aid can help you in any way in accomplishing your desire, I shall be glad to have you command my services.

Dr. William H. Welch, of the Johns Hopkins University, says in connection with the same matter: "I feel confident that it will succeed, because it is so manifestly right."

One of the most noteworthy benefits observed in those States which have already secured registration is the improvement in, and the attempt at uniformity of, training in the best hospitals of those States. Very many training school committees, and even training school superintendents, desire to do the very best thing which can be done with the resources at their command, but it is certain that they frequently do not quite know how or where to begin, and the task seems to them entirely beyond their strength. The first result of these bills, I might say the immediate result, is the establishment of central examining boards for nurses. In New York, the State Board of Regents has just issued an application form for registration or accrediting of training schools, in which are given the details of the graduation standard fixed by statute for New York State. It states clearly a certain standard of preliminary education, of professional education, and the subjects of State examination. It also gives a few simple and practical suggestions for lines of development.

It is noteworthy that the board of governors in each State but one is composed entirely of nurses appointed by the governors of the various States from nominations sent in by the State associations of nurses.

Dr. Welch, further on in the address from which I have quoted, says:

The great advantage of this legislation will be for you, as it has been for the medical profession, an elevation of the standards of education of the trained nurse.

He also says:

I noticed in several of the States the law was almost imperilled by efforts to secure the presence of physicians upon these examining boards. Now I am quite sure that it is not the function of the physician to examine nurses. They have something to say in the training of the nurses; the nurses should not go forth without having come under the guidance of the physician, but your profession is a skilled profession which requires special knowledge, and a special knowledge that is possessed by the trained nurse, and not by the physician. Akin as the professions of medicine and nursing are, they are still distinct professions, and there is no necessity, in my opinion, and there are certain disadvantages in the requirement that physicians should be members of the examining board. Most of these laws provide that the examining board shall consist of persons chosen, or at least nominated, by the State Association, and that seems to me probably the wisest method.

These two features then are the ones which insure that the registered nurse has the requisite training and has the requisite knowledge. They insure that she has been graduated from a recognized training school, one with the proper standards as regards the period of study and practical training. The law further provides that after the nurse has given evidence that she possesses the preliminary training she must pass an examination, not by her own training school, where conditions come in that do not absolutely insure the necessary qualifications, but before a separate and distinct examining board. Those are the essential features, as I understand it, of the law—the existence in the first place of a State Association of nurses, in the second place a provision in the law for a suitable preliminary training, and in the third place, the passing of the examination of a board of examiners who have not of necessity been the candidate's own teachers.

Now, what objection can possibly be raised against this desire on the part of the nursing profession? No real objection, but you are likely, I suppose, to encounter some opposition, and I suppose that opposition will be based upon the idea that such a law as this sets up an unjustifiable distinction; that it sets apart a certain class from others. But the distinction is one eminently desirable, namely, that the term "registered nurse" shall mean that here we have nurses who possess certain defined qualifications. At present a diploma does not mean that, of necessity, so that you require protection on account of the inflow into your profession of those who claim the same without having fulfilled the same qualifications. Therefore, this argument, which is the only one that occurs to me, is one that you will be able to meet when you go before the Legislature at Annapolis—that you are proposing a distinction, but one based upon right and justice, and one that it is certainly eminently desirable to make. The best argument, perhaps, is that of the benefit to the whole community, because the great majority of people have at present no way of determining who are the really qualified nurses, while the institution of the title of "registered nurse" would overcome this difficulty.

From every point of view that occurs to me, your movement is one that should have the support and sympathy, especially of the members of the legal profession, of the members of the medical profession, and of all women who are interested in improving the opportunities for women of higher professional and practical work, for skilled nursing is a great field for woman's activity. I wish you all success in your efforts, and shall be glad to be of any assistance to you in my power in securing the desired legislation.

In every State in which this matter has come up, the best element in the medical profession has been of the greatest help. You might well ask: If this is the case, if it is such a manifestly desirable thing from the point of view of the public, and of the nurses, what objection can there be to it, and why is it necessary to discuss it at all? In some States there was little or practically no opposition. Objection is sometimes made, however, by so-called schools which profess to turn out nurses competent to care for the sick, after a ten weeks' course of lectures in a commercial building, or by mail. During this time the students may or may not learn a certain number of details by rote, but the care of the sick, the symptoms and accidents of disease, it is indisputable, cannot be learned in ten weeks, even if more than an hour or two a day of lecturing is devoted to them. That is surely sufficiently obvious on the face of it. Opposition may also possibly come from special hospitals, which do their nursing cheaply by calling themselves "training schools." By arranging an interchange of work, however, these latter can probably be ultimately benefited by this educational movement.

It is, perhaps, worth while to devote a small amount of attention to the commercial schools before alluded to, inasmuch as in this city a claim has been put forth and widely advertised, that this is the only way of providing the people of moderate means with cheap nursing, or at least nursing within their means. This is a very specious plea, and, of course, receives immediate sympathy from all who do not know better. It has not been found necessary in other countries and in other cities to solve this problem in this way. It seems to me it can never be necessary or wise under any conditions to attempt to solve a difficulty by merely pretending to supply that which you do not and cannot and never will be able to supply. That might do for children or fools, but surely not for the wideawake American with his wits about him. For it can hardly be considered reasonable to suppose that well-educated and intelligent women would spend long days and longer nights for three years and more, studying disease, learning to observe symptoms and report them with absolute sureness and accuracy, acquiring a knowledge of how to meet emergencies, and, not least, that deftness of

touch which comes through practice alone—if all or any of this could be acquired in a few weeks in a few dilettante lectures! The workingman, too, or the clerk with a small income, what has he done that he should suffer thus? His life, his health, is of really more immediate value and importance to him than is that of the millionaire to him. For every week during which he is incapacitated means a serious strain on the family resources. It is undisputed that really good nursing care hastens recovery in the majority of instances. Hence our hospitals. *Charities* of last week said:

It is a well-established and conceded fact that there is a commercial value to human life; that it costs a certain amount of money to bring a child up to the earning point, and that once brought to the earning point that human life is worth to the State a certain sum of money. The sum varies in different States, and it cannot be estimated in America at less than \$1,000 per capita.¹

So it hardly seems sensible to allot to the care of a person who admittedly cannot know her business, the charge of anything which is of \$1,000 value to the State, and infinitely more to the family of the individual. No one advises cheap doctors for them, or even first year medical students. The best talent, surgical, medical, and nursing, is provided in hospitals. The President of the United States could secure no better. They "don't like hospitals." Well, that is rare now. And few of the working-class are sick because they like it, anyhow. The only sensible thing to like is to get well as quickly as possible. If, however, there are reasons which seem to the patients good and sufficient for remaining with their families, the difficulty of caring for them is not necessarily met by sending incompetent nurses. The district or visiting nursing system of England was well organized even before the Queen's Jubilee Fund was established. This, as perhaps you know, was an offering made by the women of England to the Queen on the occasion of her silver jubilee. It amounted to several hundred thousand pounds, and was devoted by the Queen to founding and endowing a very comprehensive and thorough system of nursing, by thoroughly trained nurses, under central authority, for the care of the sick poor in their own homes, and also for the care of those who were able to pay only a small fee. This system covers like a fine network the large cities of England and Scotland, and many of the country districts. It is also beginning in Ireland.

In Chicago, one of the wisest and most acceptable charities is the Crerar Fund, which sends a nurse to just such families as you have in mind on the payment of four, six or seven dollars per week, and makes up the nurses' pay to the regular living wage. In this city there is the Visiting Nurse Society, which will provide properly trained nurses free, or on payment of 50 cents per visit. If this society were properly supported by the charitable, and efficiently organized so as to cover the whole city of Philadelphia as required, you would find lecture and correspondence school nurses, as such, obviously no addition to the competence and wealth of the community. Surely, in this very generous country, Philadelphia will one day possess such an endowment as we have spoken of. Until then, let those of moderate means patronize the numerous hospitals, or the Visiting Nurse Society.

Now we have spoken of the advantages of a law recognizing and regulating our work as a profession. We have considered what we want and what we wish others to do to help us, but the most important matter of all is, what is the nurses' own responsibility in the matter and what they will themselves do to help it forward. A Chicago nurse who had done much for her profession said a year or two ago:

It is exasperating to the leaders in any line of work to see about them those who could be their helpers, but who will not exert themselves. These are they who sit back and criticise the often faulty work done by others. Perhaps the work is faulty through lack of help which they could have given. Perhaps they think that if their own personal work is well done they have fulfilled their duty. They fail to realize that those who are not helping are hindering, that affairs of moment which will affect them personally in time are hanging in the balance, and that the influence of each person counts in the turning of the scale.

Emerson says:

If you act, you show character; if you sit still, you show it. You think because you have spoken nothing when others spoke, and have given no opinion on the times, that your verdict is still expected with curiosity as a reserved wisdom. Far otherwise; your silence answers very loud. You have no oracle to utter, and your fellow-men have learned that you cannot help them.

It has been realized that the technical training of a nurse is of great help in many vocations beside that of actual nursing: In school inspection, in settlement work, in charity organization work, as sanitary inspectors, factory inspectors, sweatshop and bakery inspectors. In all these branches it is rapidly becoming recognized that the special training received is of the greatest utility to those whom she serves. It may well indeed make us feel very humble to think of the enormously wide and varied field there is open to us just as soon as we are able and willing to accept our opportunities. I say "accept" advisedly, for in this work it hardly seems as if we had to seek them. They seek us, and if happily we are able to do anything which is worth while to others it seems to me it meets with full appreciation. In claiming the right to registration and recognition by the State, it must be remembered that we add to our responsibilities. It seems to me that too often we claim responsibility without realizing that the first requisite is that we ourselves should be capable of worthily and adequately mastering the responsibility we claim. When we get our bill, if we do get it, we shall but be beginning work. It will not be the end but the beginning. You will not be able, it will not be possible for you, to stand aside and say: "O well, I don't care about it, I take no interest in it, it is nothing to me." Remember that indeed your silence speaks very loud. You are a hindrance and a stumbling-block. This I am sure none of you here present tonight would wish to be. I would therefore beg you to remember always the importance not only of invariably doing good work, but of living up to your obligations in every way. These are exacting, but since you have chosen to make yourself a member of the profession of nursing you must abide by your choice. You could not, in my estimation, have chosen better work, but you have not chosen a pathway strewn with roses, or if indeed there be roses, as who shall deny, there are likewise many thorns.

The privilege of service is, however, a very great one. You will remember that the motto of the King of England is "Ich dien"—I serve. The king is indeed the servant of his people. He frequently puts aside his own comfort, his own convenience, his own taste, in order the better to serve his people. His people expect it of him as their right, and so it is. You also serve. We expect it of you. It is our right that you think before all things of your responsibilities. See that having chosen this noble service you serve not only the individual but the State and your profession at large, and in every way "walk worthy of the calling wherewith you are called."

The Odor of Races.—According to an editorial in the *New York Times*, a Japanese doctor of medicine publishes a treatise concerning the odor of the occidental races, sustaining the proposition that at first the orientals do not like it. They grow used to it in time, however, and finally, with continued experience, do not notice it at all. It seems to be his opinion that each race has its peculiar fragrance, that it is partly radical but is in a measure influenced by dietary and other conditions. So far as his people are concerned they do not smell each other, but he does not think this is conclusive proof that they are odorless. They probably have their own perfume perceptible to aliens—the Russians can smell them a long way off—but among themselves it is not noticed. It is, however, nothing like the pungent and penetrating emanation proceeding from the western nations, in which traces of garlic and ancient cheese and the volatilization of a coarse and overabundant dietary are so sure to be found. The theory thus developed is a curious one, and it is more curious still that it was left to Japan to give it development and formulation. If it signifies a particularly refined sensibility to odors among that interesting people their possession of it may readily be admitted, as their old dower is refinement and not in any single manifestation, but covering every phase of perception. Perhaps in this they do not exceed their near neighbors the Chinese, who may equally find the smell of foreigners disagreeable, but who have hitherto been too proud and stoical and contemptuous of the pungent and effluvious barbarian to say so. That country has had unrivaled opportunities to study the odor of countless tribes of outlanders from the beginnings of its recorded history and before, but so far has not said a word about it.

¹ *Charities*, April 23, p. 423.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

June 11, 1904. [Vol. XLII, No. 24.]

1. Some Aspects of Medical Education: President's Address. JOHN H. MUSSER.
2. Prognosis: Its Theory and Practice: Oration on Medicine. GEORGE DOCK.
3. The Association of Surgical Lesions in the Upper Abdomen: Oration on Surgery. WILLIAM J. MAYO.
4. Preventive Medicine: Its Achievements, Scope and Possibilities: Oration on State Medicine. HERMANN M. BIGGS.
5. The Prophylaxis of Tetanus. S. C. STANTON.
6. Prostatectomy: Report of 51 Cases Operated on from May 6, 1901, to February 28, 1904. JOHN B. MURPHY.

1.—See *American Medicine*, Vol. VII, No. 24, p. 933.2.—See *American Medicine*, Vol. VII, No. 24, p. 939.3.—See *American Medicine*, Vol. VII, No. 24, p. 943.4.—See *American Medicine*, Vol. VII, No. 24, p. 946.

5.—**Prophylaxis of Tetanus.**—S. C. Stanton gives the statistics showing the distribution of tetanus in the various States, and the death curve according to months, the upward start occurring in May, and reaching its maximum in July, and then declining to October. The greatest mortality is before the age of 19, and that below 14 is three times as great as that between 15 and 19. In 1903 the total of deaths from Fourth of July injuries was 465, of which 406 were due to tetanus. There is no convincing evidence that blank cartridges contain tetanus bacilli except as a rare contamination. They are present in street dust and on the persons and clothing of the injured, and are carried into the wound at the time of the accident. Prophylaxis requires the enforcement of existing laws regarding the sale of toy pistols and other dangerous toys; the enactment of laws by Congress, State legislatures, and municipalities prohibiting the manufacture and sale of toy pistols, blank cartridges, dynamite canes, and caps, cannon crackers, etc.; the open treatment of all wounds, swabbing them with 95% carbolic acid, followed by open dressing and drainage; the immediate use of tetanus antitoxin in all Fourth of July wounds, and those received in barnyards, gardens, or other probably infected places. Antitoxin should also be injected as soon as symptoms appear, though the percentage of recoveries is small when the treatment has been delayed so long. [H.M.]

Boston Medical and Surgical Journal.

June 9, 1904. [Vol. CL, No. 23.]

1. Prognosis: Its Theory and Practice. GEORGE DOCK.
2. Carcinoma Basocellular: A Group of Superficial Gland-like Tumors of the Skin, of Relatively Slight Malignancy, Including Rodent Ulcer. S. C. EMLEY.
3. The Relation of the Burn to the Bullet Hole as Evidence of Homicide vs. Suicide: Report of the Nagle Case. JAY PERKINS.

1.—See *American Medicine*, Vol. VII, No. 24, p. 939.

2.—**Carcinoma Basocellular.**—S. C. Emley states that Krompecher has called attention to a peculiar superficial tumor of the skin, which he places in a class by itself, because it is neither typical carcinoma nor typical adenoma. Clinically, they appear as fungoid tumors or as ulcers, occurring most frequently in the skin of the face or of the female breast. They may occur on other parts of the body, but never at the junction of mucous and epidermal surfaces. Histologically, they originate from the malpighian basal layer or its embryologic equivalents. Emley has examined 37 of these tumors removed from 35 patients. Clinically, the glands were not found involved in any instance. The average age of the patients was 51; recurrence has been observed in 8 of the patients; the duration of the growths varied from 40 years to 2 months. The development of these tumors from the basal layer of the epithelium, from hair follicles, or from the necks of the sebaceous glands, is definitely established. The tumors showed a preponderance of flask-like masses of cells, and most of the 37 tumors studied Emley designates as "bulbous"; those which are not characterized by such formations correspond to the "cystic" or "styloid" varieties of Krompecher. These varieties are described in detail, rodent ulcer being classified as belonging to the last. [A.B.C.]

3.—**Relation of the Burn to the Bullet Hole as Evidence of Homicide vs. Suicide.**—In this paper Jay Perkins

recounts the circumstances, which in brief are as follows: A drunken Frenchman and his wife occupied a tenement basement. In the early morning a shot was heard by neighbors and presently the woman announced that her husband had committed suicide by shooting himself. The ball had entered 1½ in. above and a little anterior to the junction of the ear to the head, on the right side. The hole was surrounded by a burn, which, however, extended farthest from the hole, in the direction of the mouth. The wife was arrested and tried for murder. Perkins, who was called to testify for the State, had observed in experimental work that when a bullet hole is surrounded by a burn in clothing or hair, the burn always extends farthest from the hole on the "hammer" or "sight" aspect of the revolver. He contended that it was highly improbable that the dead man in this case would have held the pistol as indicated by this burn. In a review of literature, he found an article by Fish,¹ in which he took the same ground as Emley does. Reese and Draper hold to the same opinion. The defendant was acquitted, but Emley insists that all of his work makes him more firmly convinced than at first that in the relation of the burn to the bullet wound we have an accurate guide as to the position in which the revolver was held as regards the sight side of the revolver, this relation being more marked the farther the revolver is held from the object fired at until the point at which the burn fails to appear is reached. [A.B.C.]

Medical Record.

June 11, 1904. [Vol. 65, No. 24.]

1. The Association of Surgical Lesions in the Upper Abdomen. WILLIAM J. MAYO.
2. Prognosis: Its Theory and Practice. GEORGE DOCK.
3. Preventive Medicine: Its Achievements, Scope and Possibilities. HERMANN M. BIGGS.
4. Exercise in Relation to Diabetes. LOUIS BARKAN.

1.—See *American Medicine*, Vol. VII, No. 24, p. 943.2.—See *American Medicine*, Vol. VII, No. 24, p. 939.3.—See *American Medicine*, Vol. VII, No. 24, p. 946.

New York Medical Journal.

June 4, 1904. [Vol. LXXIX, No. 23.]

1. Fractures of the Lower End of the Radius. VERTNER KENERSON.
2. The Fever of the Puerperium (Puerperal Infection). JAMES HAWLEY BURTENSHAW.
3. The Medical Aspects of Decapsulation of the Kidneys for the Cure of Chronic Bright's Disease. ARTHUR R. ELLIOTT.
4. A Consideration of the Surgical Treatment of Chronic Bright's Disease from the Ophthalmic Standpoint. GEORGE F. SUKER.
5. A New Operation for Puerperal Sepsis. SWITHIN CHANDLER.
6. Case of Atheroma and Aneurysm of the Abdominal Aorta at the Age of 21 Years. CHARLES B. ANDREWS.

3.—**Medical Aspects of Decapsulation of the Kidneys for the Cure of Chronic Bright's Disease.**—A. R. Elliott says the condition is produced by a chronic toxemia, either systemic or infective in origin, widespread arterial and cardiac degenerative changes which are permanent, and in their development constitute the threatening element of the disease. General edema or anasarca in chronic renal disease is in many instances largely cardiac dropsy, brought about by advancing myocardial degeneration. It is occasionally so in chronic parenchymatous nephritis, and almost invariably so in chronic interstitial nephritis. In like manner, developing anuria and uremia in chronic nephritis may be largely cardiac in production, the functional inadequacy of the kidneys having its inception in the fall of blood-pressure incident to circulatory failure. In the later stages of chronic nephritis, of whatever character, the case is apt to take on these cardiac aspects, which virtually convert the therapeutic problem into a question of sustaining a failing heart. Albuminuric retinitis must be looked upon as one of the terminal symptoms of chronic nephritis. The concordance of opinion places a limit of two years upon the prognosis after development of this complication. The statistics gathered by Suker of cases operated on, show that in place of prolonging this limit of expectancy, operation has a decidedly contrary effect. Elliott says the mere fact that the general condition of the patient improves somewhat after decapsulation does not establish the validity of the operation for hygiene and

¹ Boston Medical and Surgical Journal, October 2, 1894.

rest will do the same for the patient to a remarkable degree in many cases. As the factors of hygiene and rest are invariably associated with the surgical procedure, it is possible that the resulting benefit may, to some extent, accrue from those sources. The results of experimentation demonstrate that within a period of three and a half months after decapsulation, a new, and in most cases, a tougher fibrous envelope has taken the place of the original capsule. This fact may account for the many relapses and deaths after that period in cases operated on, and in chronic cases, at least, it narrows the prospect of improvement to a period of months. [C.A.O.]

4.—The Surgical Treatment of Chronic Bright's Disease from the Ophthalmic Standpoint.—G. F. Suker concludes as follows: (1) As at least 25% of all cases of chronic Bright's disease present evidences of retinal or other serious fundus complications; (2) as these various fundus complications are usually of the degenerative inflammatory type, attended by like changes in the kidneys; and (3) as the cardiovascular system is, or shortly will be, seriously involved; and (4) as such changes may develop without any subjective symptoms on the patient's part; and (5) as these retinal complications have been accepted as indicative proof of a general circulating systemic toxin, and designating the acme of the development of the Bright's disease; and (6) as the death-rate of this class of cases under the best medical treatment (both hospital and private practice) is about 75% for the first year, and at least 85% for the second, scarcely any subjects surviving three or four years, while, in cases operated on it is 100% for the first year; and (7) as these fundus findings are of paramount prognostic import in an inverse proportion to the age of the patient; and (8) as the medical aspect of this question, as presented by Dr. Elliott, offers as good, if not far better results than the decapsulation in like cases—therefore must this climactic array of positive clinical data not be disregarded on the part of the surgeon in endeavoring to establish the validity of this operation under discussion. This is at least true for the complicated cases; especially so, when it can be said that the patients in some cases verily died because of the operation and others in spite of it, while all complicated ones operated on fell within the two year limit. Finally, the writer says that he has ample reasons to believe conservatively, from facts above detailed, that he has conclusively proved decapsulation of the kidney for chronic Bright's disease to be absolutely contraindicated in such cases as present a retinitis or a neuroretinitis, with or without hemorrhages. [C.A.O.]

5.—Puerperal Sepsis.—Swithin Chandler describes an operation which he believes to be the advisable procedure in severe cases. He makes an incision posteriorly to the cervix in the posterior vaginal wall; then passes a pair of long blunt-pointed forceps, slightly curved, in the cervical canal, up into the cavity of the uterus; then punctures the posterior wall of the uterus in the center, near the top of the uterus. He then introduces with two fingers a piece or strip of iodoform gauze through the posterior vaginal opening previously made, clasps the gauze with the forceps, and drags the same through the uterine wall and out through the vagina. He repeats this by puncturing the uterus on each side, but posteriorly and just about the middle of the body of the same, drawing the gauze through the same as in the first attempt. Chandler reports four cases. He considers the operation conservative, easily performed by the experienced and logical, because it treats the organ as an infected part, and gives drainage to the uterus and those tissues and vessels shown by postmortem examinations to be affected. The mortality is greatly lowered and the operation gives superior results. [C.A.O.]

6.—Early Atheroma and Aneurysm.—The case reported by C. R. Andrews is that of a man of 21. Prior to his death a marked initial regurgitant murmur was recognizable, and at the postmortem his heart was found somewhat hypertrophied; on the upper surface of the mitral valve was discovered a large warty growth capped with calcareous deposits. The aortic valves were also sclerotic and thickened. The arch of the aorta was atheromatous and studded with several ulcers, which had extended through the intima. The arteries of the extremities were atheromatous, though not so markedly so as the arch of the aorta. Just about the location of the celiac axis was a

sacculated aneurysm 4.5 cm. in diameter. The thrombus within the aneurysmal sac was rather firm and laminated, the blood having coagulated in concentric layers at different periods of time. The patient complained of no pain, and gave no symptoms which would have led one to suspect the condition. [C.A.O.]

Medical News.

June 11, 1904. [Vol. 84, No. 24.]

1. Some Aspects of Medical Education. JOHN H. MUSSER.
2. The Association of Surgical Lesions in the Upper Abdomen. WILLIAM J. MAYO.
3. Prognosis: Its Theory and Practice. GEORGE DOCK.
4. Preventive Medicine: Its Achievements, Scope and Possibilities. HERMANN M. BIGGS.
5. Pathology and Treatment of Simple Fracture of the Patella. ELLSWORTH ELIOT, JR.

1.—See *American Medicine*, Vol. VII, No. 24, p. 933.

2.—See *American Medicine*, Vol. VII, No. 24, p. 943.

3.—See *American Medicine*, Vol. VII, No. 24, p. 939.

4.—See *American Medicine*, Vol. VII, No. 24, p. 946.

5.—Pathology and Treatment of Simple Fractures of the Patella.

—The conclusions of Ellsworth Eliot, Jr., are: 1. Owing to the not infrequent uncontrollable rotation of the lower fragment, through an arc of 90 degrees on its horizontal axis, accurate apposition of the fractured surfaces cannot always be secured and under these circumstances the ultimate result of conservative treatment could scarcely prove satisfactory. 2. Suitable apposition may also be prevented by the interposition of torn shreds of capsule, by extravasated blood clot and possibly also by the interposition of untorn periosteum, conditions which can be recognized and remedied only by exploration. 3. Suture of the fragments permits of simultaneous suture of the torn capsule, a procedure of the greatest importance for restoration of joint security. 4. The results of suture are almost invariably excellent, and the risk of operation is comparatively slight. 5. In no way does the writer desire to belittle the risk of operation. On the contrary, the exercise of the most rigid aseptic precautions both in the preparations for and in the carrying out of the operation itself cannot be too greatly emphasized. Far better, in any instance, where for any reason, the highest degree of surgical asepsis cannot be practised, to advise some non-operative procedure than to subject the patient to the possibility of a septic arthritis with all its direful consequences. [A.B.O.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Typhoid and Malarial Fevers.—Major Edward Carter¹ gives a review of the morbidity and mortality in Chickamauga while the troops were stationed there in 1898. He deals at length with the condition with reference to typhoid and malarial fevers, and mentions an improvised method of reducing temperature in the fever cases when a cold plunge or cold sponge could not be had. A rectangle of bolsters, muslin, etc., was made about the patient, and these were covered with a rubber blanket, which was pressed down between the patient and the long side bolsters to make a waterproof trough on each side of the patient; cracked ice was laid on the rubber blanket over the legs, thighs, abdomen, and thorax of the patient, and a thermometer placed in his mouth and an ice-cap to the head. His conclusions are: (1) The waters of Crawfish Springs and the Chickamauga river were contaminated; (2) the contamination was greatest probably in June and in the early part of July, 1898, due to storm water; (3) flies contaminated the food; (4) while typhoid fever generally exists near Chickamauga Park, it hardly arises to the dignity of an epidemic; (5) many cases, diagnosed malarial fever at Camp Thomas and among the rural population near Chickamauga, were cases of typhoid fever with no malarial complication; (6) malarial fever did exist to some extent at and near the general hospital at Crawfish Springs; (7) malarial and typhoid fevers may coexist in the same patient, but this rarely occurs. [A.B.C.]

Simulation of Urethritis and Cystitis among Soldiers.

¹ Journal of the Association of Military Surgeons, February, 1904.

—Artificial stimulus is sought by soldiers to produce the effects of bladder disease and gonorrhea, in the desire to avoid service. Gallenkowski¹ has found epithelium of ciliated type, and evidently of nasal origin, in the urine of soldiers at the military hospital. Urethral injections of lemon juice and quinin have been employed to cause an appearance of cystitis. It will be necessary to secure the diagnosis through microscopic and chemic tests, for the ingenuity of these malingerers is limited only by their opportunities. [T.H.E.]

Early Recognition of Tubercle in the Lungs.—Isambard Owen² states that the means of making an early diagnosis in pulmonary tuberculosis still rests chiefly upon physical examination; bacteriology has supplemented, but can not replace it. We must not only detect the presence of tuberculous lesions when they exist, but must make sure of their absence when they do not exist. Training not only in physical diagnosis, but in the postmortem room is of the highest importance. In necropsy of bodies which present no evidence of tubercle, the proportion in which the occurrence of healed tuberculous ulcers is found is placed by some authors as high as 30%, by others considerably lower. It is one of the earliest experimental observations on tuberculosis that caseous material remains permanently infectious, that the tubercle bacillus can rarely be detected in it, yet it can be readily cultivated from it in the body of susceptible animals, hence the importance then of recognizing the disease before caseation is apparent. Except in cases where early hemoptysis draws attention to the lungs, it is doubtful if we often see the patient in the initial attack. A slight attack of tuberculosis may cause either no symptoms or none [that will lead the patient to seek medical advice. Intermission and remission in the symptoms of pulmonary tuberculosis are to be remembered, and the intermission which is normal in the disease is often attributed to some drug used in the course of treatment. Chronic consolidation of the apical portions of the lungs is seldom anything but tuberculous, and the preliminary search for signs of trouble is, to a large extent, a search for the consolidation, the direct signs of which are tubular, or harsh breathing, bronchophony, dullness on percussinn, etc. [A.B.C.]

Yellow Atrophy of the Liver.—Edwards and Smith³ report the case, calling attention to the rarity of the disease. In Guy's Hospital during the 27 years from 1864 to 1890 only 11 cases were met with; Osler mentions in 1898 that it had never happened to him to see a case. The disease is more common in women than men; the various causes assigned are mental emotion, syphilis and alcoholism. None of these were in evidence in the reported cases. The whole duration of illness in the present case was but 11 days. Not only did the patient make no complaint previous to the date assigned, but there was no jaundice nor any other sign pointing to illness. The patient was a man of 47, who had previously been in good health; he suddenly complained of feeling ill and was found to be jaundiced. The jaundice increased in spite of purgation and on the eighth day the patient became delirious, the icterus was more intense, the liver dullness was markedly diminished; on the ninth day the condition was unchanged, except that liver dullness was still further diminished and there was obstinate constipation. On the tenth day delirium had passed into coma, there was stertorous breathing, inability to swallow, contracted pupils and on the following day the patient died; the temperature never rose above 99°. Necropsy showed a flabby liver which weighed 32 ounces; the remaining viscera were apparently normal. Microscopic examination of the liver showed it to be a case of acute yellow atrophy. [A.B.C.]

The Early Diagnosis of Tuberculosis of the Lungs.—C. G. H. Baumler² states that in the majority of cases a somewhat persistent cough is the only symptom which induces a patient to seek medical advice; commonly, however, other symptoms subjective or objective, are always present, which, in connection with cough or without it, may raise a suspicion that tubercles have formed in the lungs. Foremost among these are febrile symptoms, lassitude, pallor, shivering, night sweats, loss of appetite and weight. In these suspicious cases

it is of importance to take the temperature several times daily continued over a considerable period. A continuous slight elevation of temperature or loss of appetite, if not explained by other discoverable disease, is extremely suspicious of pulmonary tuberculosis, which sooner or later will become apparent by distinctly local signs. These latter vary according to the kind of change which the disease induces; alveolar, lobular infiltration, and bronchial breathing being the gross anatomic evidences of the disease, together with diminished or altered resonance on percussion and altered breathing, especially over the apices of the lungs, which in the overwhelming majority of cases are the first parts to be affected. A careful comparison of the two sides and of corresponding points will lead to the discovery of very slight changes, though it is to be remembered that slight differences in the two sides exist normally. The microscope is, of course, of importance, but after all, the principal reliance, especially after failure to find tubercle cells, rests on physical examination. [A.B.C.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

The Anatomic State in Appendicitis and Indications for Appendectomy.—Karewski¹ believes that appendicitis granulosa is the beginning of various forms of the disease that may either recover quickly or may terminate rapidly in death. The condition may become chronic and extend throughout a period of years without producing any appreciable change in the organ. The symptom-complex is varied and in many instances it is difficult to come to a definite diagnosis. Karewski believes that with the first symptoms pointing to the appendix the organ should be removed. [J.F.]

Tropical Liver Abscess.—J. A. Koch² says in all probability the ameba giving rise to liver abscess is identical with the ameba of dysentery. Since the parasite is found in all the layers of the intestinal wall it is reasonable to suppose the ameba coli reaches the liver by the portal system. There seems to be some doubt in Koch's mind whether the ameba is alone responsible for the production of the abscess, or whether there is associated with it other pyogenic organisms. He does not agree with other authorities that alcoholism accounts for the frequency of liver abscess in the male, since in many of his patients alcohol was rarely taken. If the pain is constantly referred to the same place in the region of the liver, the abscess in all probability is then superficial; in deep-seated abscesses the pain is usually diffuse, or referred to different places. He recommends aspiration as a means of localization, but says the puncture should never be made below the margins of the ribs, nor does he advise multiple punctures. After finding the abscess, Koch says that at least 15 gm. or 20 gm. of pus should be withdrawn to relieve the tension and to prevent the possible escape of the abscess contents into the peritoneal cavity after withdrawing the needle. He says it is much better to let the needle remain in the abscess and operate at once. [J.F.]

The Treatment of Ozena with Paraffin Injections.—Fliess¹ maintains that ozena is due to widened nostrils; he meets this alteration in the nasal passages by injecting paraffin into the tissues bordering the widened or atrophied parts. This method does not cure a well-established ozena, but it ameliorates the condition greatly. In all the patients he treated by this method there was a marked improvement. [J.F.]

Postoperative Engrafting of Echinococcus Cysts.—Madelung² in a man from whom he removed a hydatid cyst of the liver two years later found two cysts in the scar of the original wound. The patient told him these nodules appeared three weeks after leaving the clinic. Madelung at a second operation ascertained that these nodules were true hydatids and were in the wall of the abdomen only. He believes the small cysts lodged in the abdominal wall at the time of the operation and found a suitable soil there for their growth. [J.F.]

¹ Il Polliclinico (Rome), No. 15, 1904.

² British Medical Journal, April 2, 1904.

³ The Lancet, March 26, 1904.

¹ Berliner klin. Wochenschrift, 1904, No. 10.

² Mittheil. a. d. Grenzgebiet. d. Med. u. Chirg., 1904, Bd. xiii, Heft 1.

American Medicine

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Free Public Baths.—With the advent of warm weather comes the necessity of providing free public bathing opportunities for all who may wish them. It is a public health question, one of money saving and good policy, not one of benevolence or pleasure giving. That veteran general in this cause in New York City, Dr. Baruch, may feel that few have accomplished more actual good for the community than he. After years of tireless advocacy the New York Academy of Medicine finally gave formal approval of his method, while two or three charitable societies took it up and constructed public baths in accordance with his ideas. In 1895 a mandatory public bath bill was passed by the Legislature. The mayor gave his permission, and steps were taken toward the building of the bath in Rivington street. Last year 700,000 working people made use of this bath, and in the public schools 30,000 children used the rain baths which have recently been established in the school-houses through Dr. Baruch's efforts. In opening the Millbank bath, Dr. Baruch said: "Naturally enough, it is a matter of considerable satisfaction to me to be able to tell you that outside of New York there is no city in the world where anybody may go into a public bath, as he goes into a public park, and enjoy its privileges without cost. I think the realization of that fact alone is ample compensation for all the years of hard work it has cost, to say nothing of what has been achieved in other communities all over the world." There should be a Dr. Baruch in every city and town of the country, and the profession will second his efforts whenever he appears.

The noisy, sickness-creating, wound-making, and death-bringing Fourth of July will soon be here and the medical profession will be called upon to meet the unwelcome burden of caring for the injured. The Women's Christian Temperance Union has started a crusade against the noise of explosions in the vicinity of hospitals, and thus again shows its recognition of great social evils and of right methods of overcoming them. Chicago, where the toy pistol has been barred for some time, is, if possible, to allow no giant crackers, no revolvers, nor any explosive that has dynamite in its composition. To make amends to the small boys, however, the city authorities contracted with an amusement company to set off fireworks in designated parts of the public parks, and furnish to all the youngsters who

apply, free crackers of the small and traditionally harmless Chinese type. They will be shown how to explode them, and, presumably, warned against holding them between the teeth as they go off. A policeman, a fireman, a doctor, a teacher, and a member of the Illinois Naval Reserve will be stationed at each celebration center. Cleveland has passed a municipal ordinance against the sale of toy pistols and blank cartridges. St. Paul has provided against the sale of fireworks in that city during the thirty days preceding the Fourth. Discussion of the oratorical substitute for the real fireworks and the reading of patriotic essays have all but ceased; and the general opinion seems to be that Chicago has hit upon the right solution. Cannot the rulers of other American cities be moved to check the mimic wars which kill and maim more victims than many deplored battles of great armies? If the united local professions would bring their influence to bear upon mayors and police departments, the evils might be largely prevented.

Fourth of July Tetanus.—The annual "patriotic" sacrifice to Moloch is close at hand, and, unless the people have become wiser within the last twelve months, we shall have a repetition of the fatalities from lockjaw that startled the country a year ago, when 413 cases of the disease occurred, with only seven recoveries. According to the investigations of the *Journal of the American Medical Association*, 363 of these accidents were the result of the use of blank cartridges. Injuries with shooting crackers, Roman candles, and other kinds of fireworks seem far less prone to lead to tetanus. The tetanus bacillus is widely disseminated in street dust, garden earth, stable manure, etc. It is doubtful whether it is contained in the blank cartridge itself; it is more probable that the wads carry the bacillus from the dirt on the children's hands into the wound. The bacillus is anaerobic; therefore, it thrives best in small wounds that are more or less occluded. When, as is usually the case, there is mixed infection, the other organisms, by using up the oxygen, render the soil more suitable for the development of the tetanus bacillus. The bacillus is not found in the blood, but only at the site of the wound. Its toxin is extremely virulent, and seems to reach the central nervous system principally by traveling up along the nerve sheaths and axis cylinders. For this reason there is a period of incubation of considerable

length, during which preventive measures, such as antitoxin injections, are of unquestionable value. When the symptoms have once developed, however, the power of the antitoxin to cure the disease is greatly reduced; and if the symptoms appear the first week antitoxin is almost powerless to prevent a fatal termination. It is probable that the antitoxin, when subcutaneously injected, reaches the nerve cells concerned in the same manner as does the toxin, through diffusion along the nerve fibers; but by injecting it into the spinal canal it is brought into more immediate contact with the ganglion cells. During the last epidemic, notwithstanding the extensive use of antitoxin, the mortality was over 95%. This goes to show that to prevent the disastrous results of our barbarous methods of celebrating the Fourth, we cannot depend on antitoxin, but must have recourse to anticipatory injections in every case in which a child receives even the slightest wound through playing with fireworks. The tetanus bacillus is very resistant to antiseptic agents and to heat, and its spores can stand boiling and strong solutions of carbolic acid. Hence mere cleansing of wounds, and even cauterization, are entirely inadequate measures. Caustics, moreover, have a tendency to seal the wound, and thus to give the anaerobic tetanus bacillus a better opportunity to develop. The only rational treatment is to lay the wound freely open and remove all foreign particles. It must be remembered that the explosive force of the toy pistol is so great that wads and dirt particles are often driven deep into the tissues, and sometimes several inches along the tendon sheaths. After the wound has been laid open and thoroughly cleansed—and, of course, this is possible only under an anesthetic—it must be lightly packed with iodoform gauze. It will probably be difficult to persuade parents to allow their children to be anesthetized when they have sustained only trifling wounds on the hands or the face; nevertheless, as this is the proper treatment, we must make every effort to obtain their consent for carrying it out. We fear physicians have been somewhat derelict in teaching the importance of radical methods in treating Fourth of July injuries.

Responsibility of the Authorities.—In order to bring the matter before the public in as impressive a manner as possible, circulars should be printed and distributed to all the houses of the city, through the police force, or in other ways, just as is done in the poorer districts each summer, in order to instruct mothers in the proper care of infants during the hot weather. The circular might be worded somewhat as follows:

"Over 400 fatal cases of tetanus, or lockjaw, followed last year's Fourth of July celebration. The majority of these were in children, and were sustained through the use of the toy pistol. You are therefore warned not to allow your children to use this dangerous toy. If, however, they should receive a wound in this way, or from using any of the customary fireworks, they should, no matter how small the wound is, be at once taken to the family physician or to a hospital. The wound should be thoroughly cleansed; and, if necessary, permission for the use of an anesthetic should be given. Washing the wound with antiseptic solutions, or even cauterizing it, is insufficient and will not prevent lockjaw. This disease can be

averted only by the treatment suggested, and by injecting a proper amount of antitoxin.

BY ORDER OF THE BOARD OF HEALTH."

Hospitals should be prepared to give injections of antitoxin, the prophylactic dose of which is 10 cc., or, for a small child, 5 cc. The expense of prophylactic injections should, it seems to us, be borne by the city, inasmuch as, by permitting the use of dangerous toys, the municipality is indirectly responsible for the development of many of the cases of tetanus. In addition to supplying the antitoxin for this purpose to hospitals, Boards of Health should furnish it on demand to physicians for use among the poor. A careful record of all cases of lockjaw following the celebration of Independence Day should be kept in hospitals and by physicians in private practice. These records should be sent to the Bureaus of Health. *American Medicine*, also, would appreciate the receiving of such reports from physicians.

Metaphysic methods in therapeutics are advised by the superintendent of an asylum in a recent annual report, which, if accepted by the profession, must add a multitude of new agents to the already terrifying lists of the books on materia medica. For an attack of melancholia a sudden change of native to a foreign tongue is commended. But would not the patient have first to learn the foreign language? For patients frenzied by excitement the repressing quality of the color blue is advised. This suggests a number of questions as to the colors of wall papers and decorations in the various rooms and wards of hospitals and asylums, and their effects upon the different diseases of the mind. Doubtless, all office seekers should be received in the blue room of the White House. In the words of the report: "It is probable that a field, as yet unexplored, lies beyond the ken of this age, in the mental sway of vibratory light and sound on the brain through the eye and ear systematically applied in the treatment of mental and nervous diseases." Still more decided grows the doubting smile of the quizzical reader, as he reflects upon the frank acceptance of the *Hold-in-Thought* methods of the faith-curists. "One is happy because he laughs and sad because he cries."

Lately in the case of a young woman depressed in spirits the experiment of verbal substitution—suiting the action to the word—was made with considerable evidence of encouragement. In lieu of the reiterated voicing of her grief, "if sister Sallie had not died, I would not be here," she was induced to repeat after the nurse in drill form, for several short periods daily, the reassuring sentiment, "I will be brave, I will be brave," with appropriate intonation and gesture.

One of the odd reversals of logic, as regards this therapeutic method, is that "it shows the marvelous influence of the body over the mind and what may sometimes follow its application." Possibly that is added to avoid claims of conversion by the faith-curists, but it will scarcely prevent them.

The Keeping Quality of Butter.—Recent studies upon the keeping quality of canned butter by Lore A. Rogers, Government Expert in Dairy Bacteriology, have led to certain very important conclusions. Abnormal

changes in butter may be brought about by decomposition of one or all of three groups of chemic compounds, sugar, nitrogenous constituents, and fat. Jensen has shown that the action of air upon butter does not directly increase its acidity but supplies oxygen to certain organisms that are active in acid production. This, however, cannot explain the changes in canned butter which, though it is hermetically sealed, becomes after a time acid and assumes a disagreeable, biting flavor that is described as "fishy" or even becomes rancid. The studies in question were made upon samples of butter of this description, most of it having been kept for at least a year. In addition, two lots of fresh butter were examined from time to time until the "fishy" flavor developed. Briefly, the results show that these changes in butter are most probably due to the action of fat-splitting enzymes instead of nonspore-forming organisms, the only other alternative. The practical deduction from the studies is that in preparing butter that is to be held for any extended period of time hermetically sealing is not sufficient, as this does not exclude certain anaerobic yeasts nor prohibit the action of the fat-splitting enzyme carried into the butter from the milk. To remove these two factors, the milk or cream should be pasteurized at a temperature high enough to destroy the enzyme and the starter prepared in such a way as to minimize the danger of contamination by yeasts. The life of unpasteurized butter will be prolonged by holding it at a low temperature.

The Specialist and the General Physician.—New light is thrown on the old question of the relative provinces and abilities of the general physician and the specialist by a learned writer in that learned periodical, *The Medical Brief*. The learned writer is evidently scornful of specialists, and by implication advises his fellow general practitioners not to refer their cases of diseases of special organs to the specialist, but to treat such diseases themselves. He illustrates by "a case of iritis conjunctivitis." The poor parents sacrifice everything in order to consult the specialist, according to the foolish advice of the incapable general physician. "The specialist, after making considerable to do about the matter, prescribes a 2% solution of cocain, charges a good round fee, and sends the parents home rejoicing." Now the way the learned writer would advise is shown in a case thus reported:

The child was suffering with a small ulcer on the outer border of the iris; this had caused considerable inflammation of the cornea and conjunctiva, from which the child was unable to bear light or see. I prescribed a 2% solution of cocain, to be used until the inflammation had subsided.

There are a number of queries and conclusions concerning the report and advice, as, for instance:

1. What is "iritis conjunctivitis"?
2. What sort of anatomy and diagnosis is shown in the statement "an ulcer on the outer border of the iris?"
3. Is the treatment of these two diseases with cocain alone common among the general physicians and the specialists who write for or subscribe to *The Medical Brief*?
4. How often is cocain used in ocular diseases to cover

up the ignorance of the disease present and give the patient temporary relief of pain?

5. How frequently are conjunctivitis, iritis and keratitis confounded in diagnosis, with consequent failure to prescribe the appropriate remedies necessary to save the eye in each type of disease?
6. What is the use of medical journalism of a certain kind?

Logomachy in medicine has in some departments reached such a degree of absurdity as to defeat its own object and become a suicidal *reductio ad absurdum*. To name a pathologic condition properly is always wise and desirable, but as each individual case of disease differs in some one or in many respects from that of every other, it manifestly becomes impossible to devise any nomenclature which shall apply to and adequately express the single clinical and pathologic fact before one. The multiplication of terms delighted in by the logomachy scientists may serve no other purpose than that which Goldsmith hinted in his description of the village schoolmaster:

For e'en though vanquished he could argue still;
While words of learned length and thundering sound
Amaz'd the gazing rustics rang'd around;
And still they gaz'd, and still the wonder grew
That one small head could carry all he knew.

Such an effect upon a few innocent practitioners some medical journal articles may have, with confessed pleasure, also, and increased consultation practice upon the part of the writers. But do they help toward an understanding of the case? Do they unravel any mysteries? Do they aid in curing the patient? It would sometimes seem that the design is to mystify, rather than clarify, and as for therapeutics, that is not considered at all, and is wholly "another matter."

Cures for Migraine.—The extent to which clumsiness and unscience can go in ignoring the etiology of a disease, and in attempting to cure the effects without the least search for the persisting cause, is well illustrated in the history of the mysterious affection called migraine. The profession has seemingly settled down to a condition of utter apathy as regards this mysterious and protean disease, out of which a few physicians arouse themselves occasionally to jeer at any one who suggests a cause and cure on rational grounds. The street car signs are sure of an infallible cure-all. A few of the proprietary preparations that have been dignified with names are "migrol," "migrosine," "migranine," etc., for putting into the stomach. The most amusing of the articles of the materia medica, however, designed against the disease are those for external application. One of these was called the "migrainator," from which one would naturally and philologically suppose it was designed to cause and not cure the disease. It is described as an apparatus for the relief of migraine, consisting of two plates held by a spring, in order to produce compression of the temporal arteries, and the regulation of blood to the head. Why not put a constricting band about the neck, the tension to be varied *pro re nata*?

AMERICAN NEWS AND NOTES

GENERAL.

American Dermatological Association.—At the twenty-eighth annual meeting, held at Niagara Falls, on June 2 and 3, 1904, the following officers were elected for the ensuing year: President, Dr. William T. Corlett, of Cleveland, Ohio; vice-president, Dr. Frank H. Montgomery, of Chicago; secretary and treasurer, Dr. Charles J. White, of Boston; member of council, Dr. John A. Fordyce, of New York. It was decided to hold the next meeting of the Association in New York City, on December 28, 29 and 30, 1905.

Public Health Conference.—At the second annual conference of State and Territorial Health Officers with the United States Public Health and Marine-Hospital Service, held in Washington, June 3, Surgeon-General Wyman announced two new divisions of the service—zoology and pharmacology. Committees were appointed to consider the questions of prevention and spread of epidemic diseases, morbidity and mortality statistics, State legislation, and education. Committees also were named for the special investigation of cholera, yellow fever, plague, smallpox, tuberculosis, leprosy, and typhoid fever.

Pan-American Congress.—The next meeting will be held in Panama, the latter part of December. The Pan-American Congress meets every three years. It was started by Dr. William Pepper, of Philadelphia; Dr. C. A. L. Reed, of Cincinnati; Dr. Albert VanderVeer, of Albany; and Dr. H. L. E. Johnson, of Washington. The first meeting was held in Washington, in September, 1893, the second in Mexico, in 1896. The third was to have been held in Venezuela, in 1899, but was given up on account of the war in that country. The place of meeting was changed to Cuba, but had to be postponed until 1901, on account of the fever there. These meetings have always been well attended, and it is thought that Panama will be an interesting place for the convention. Further particulars will be sent out from time to time to the journals, together with notifications of the different officers appointed to represent this and other countries.

Dairy Inspection and Pasteurized Milk.—A New York exchange, commenting editorially on the impure milk-supply of New York City, says: This is a matter to which the public does not give sufficient attention. Pasteurized milk is free from impurity, and its use should be encouraged in every way possible. There should be a guarantee as to the purity of milk served in every city, but no such guarantee exists, except as to a comparatively small quantity, such as the pasteurized milk. About 1% of the milk sold in New York is called "certified milk," because the owners of the cows have voluntarily submitted to an inspection of their animals, and have received certificates that their cows are free from disease. But the purity of the remainder of the milk sold is uncertain. Tuberculous cows are frequently discovered, and the milk from such is sold in various cities. Dr. Koch, of Berlin, expressed the opinion that the germ of bovine tuberculosis is not transmissible to human beings. There has been good authority to the contrary, and an English commission which has been investigating the question has recently published a report to disprove the Koch theory. There should be an inspection of the cows that furnish milk for sale in any city. It is a necessary safeguard. But until such a system is provided and carefully enforced, the only safeguard is to use pasteurized milk, or that which is known to have undergone proper inspection.

Miscellaneous.—**California:** Dr. Walter Lindley, the editor of the *Southern California Practitioner*, has recently been elected Dean of the Medical College of the University of Southern California. This Los Angeles school is now entering its twentieth session. Dr. Lindley was one of the organizers of the school, and is professor of gynecology in that institution.—**Boston:** The number of deaths reported to the Board of Health for the week ended June 11, was 164, as compared with 189 the corresponding week last year. This makes a mortality for the recent date of 14.17 per 1,000. A number of important changes and additions will be made in the faculty of the Boston University School of Medicine at the beginning of the next school year. The curriculum will also be changed to meet the needs of the modern practitioner. Charles H. Thomas has been elected associate professor of clinical medicine, J. E. Briggs associate professor of surgery, and Edward E. Allen associate professor of anatomy. All three have been connected with the faculty as instructors and lecturers. Those newly elected are: Walter T. Adams, M.D., of Waltham; Edwin W. Smith, M.D., of East Boston; Albert S. Briggs, M.D., of Newton; and Frederick W. Colburn, M.D., of Boston. The other appointments are: Chas. T. Howard, lecturer on minor surgery; William H. Waters, lecturer on pathology and curator of the museum; and Orville R. Chadwell, instructor in microscopy and assistant in pathology.—**Philadelphia:** Sir Frederick Treves, the noted English surgeon, has recently been the guest of Dr. J. William White, and he had conferred upon him the honorary degree of LL.D. by the University of Pennsylvania at the recent commencement exercises.—Dr. W. C. Holloper has resigned from the visiting staff of the Methodist Episcopal Hospital, Philadelphia.

Patent Medicines and the Postal Department.—On June 1 Postmaster-General Payne made a declaration defining the attitude of the United States Postal Department to patent medicine advertisements. It is as follows: A large number of complaints having been received by the first assistant postmaster-general protesting vigorously against the United States mails being used for the purpose of circulating newspapers and other literature containing advertisements of alleged cures; the acting postmaster-general transmitted a number of these advertisements to the assistant attorney-general for the postoffice department, with the request for an opinion as to whether or not their transmittal through the mails constituted a violation of law. Mr. Robb, the then assistant attorney-general for the postoffice department, rendered an opinion, holding such advertisements a violation of law. The only intention which has ever been entertained by the administrative officers has been to suppress the advertisements, which the law officer of the department has held to be improper. Of course, the postoffice department has never had any intention of starting a crusade upon patent medicines, or of establishing a censorship upon advertisements printed in newspapers. There has been no change in the policy or practice of the department; the facts simply are, that certain abuses having been called to its attention, it has acted thereon as required by law. In the regular course of business in the office of the assistant attorney-general a number of cases were presented, in which so-called cures were complained of as being worthless, as well as the literature of the company selling the article of being improper. Analyses of these so-called remedies developed the fact, that in most instances the ingredients were simply starch and sugar. In a number of instances the pills and drugs contained ingredients injurious to the system and forbidden by law to be sold. It having thus appeared that these companies were defrauding the public by means of false and fraudulent representations made through the mails, the issuance of fraud orders was recommended to the postmaster-general, and accordingly issued by him. No action has been contemplated by the department save in these cases of impropriety and fraud.

EASTERN STATES.

Got \$18,500 for an Injured Eye.—A verdict of \$18,500 against the New York, New Haven & Hartford Railroad Company was given for personal injuries to Bessie M. Dresser. She lost an eye by being struck by a piece of casting from the tender of a passing train while she was a passenger on another train between Myrick and New Bedford on March 22, 1902. She sued for \$50,000 damages, and the company denied its liability. The piece of iron broke through the window glass opposite her seat and lodged in her eye.

Free Dispensary Work in Boston.—Commenting on the work accomplished at the Boston Dispensary, an exchange states that 20 years ago it had a staff of 39 physicians and its callers who sought aid numbered 31,725, or an average of 103 a day; last year the visits numbered 89,207, or 295 a day on the average, and it had the services of 77 physicians and surgeons, given without compensation. Besides this "office practice," as it might be called, the dispensary's 13 district doctors made 20,501 visits to patients' houses, and altogether 92,162 prescriptions were put up by its apothecaries. In spite of the fact that the Boston Dispensary is dependent on charitable generosity, it has kept out of debt and has so managed its affairs as to have an income to meet current expenses.

NEW YORK.

Bequests to Charity.—Miss Emily A. Watson has given \$25,000 to the Home for Incurables, for the purpose of adding a story to the south pavilion.

Money for Public Baths.—More than a million dollars has been appropriated by the Board of Aldermen for free public baths, \$345,000 being allowed for Brooklyn, \$633,000 for Manhattan, and \$75,000 for the Bronx.

Adulterants in Sweets.—Adulterants highly injurious to the health have been found in innocent looking cakes, cheap caramels and other sweet stuffs sold freely to children in New York City, and a report has been made to the Attorney-General of the State by chemists working under direction of the State Department of Agriculture. In one instance 11 grains of paraffin were found in four small chocolate covered cakes. The chemists declare that paraffin resists the action of strong acids, and is highly injurious to the digestive organs. Evidently it had been used by the bakers and candy manufacturers to keep their products from becoming stale. Other samples of candies disclosed anilin dyes and lead poisons. Injurious coloring matter was not confined to cheap candies, but was found in some of the most expensive varieties that are made.

Pulmonary Tuberculosis in Street Cleaners.—Dr. Woodbury, Street Cleaning Commissioner of New York City, has begun a personal investigation of the physical condition of the 6,000 street cleaners employed by the department. With the assistance of six physicians assigned to him by the Health Department, he will continue the examinations daily until all the men have been examined. This investigation has been

undertaken because of numerous printed reports which claim that many of the street cleaning force have become tuberculous from inhaling the dust of the streets. Already many cases of tuberculosis have been found but as a result of the examinations made thus far Dr. Woodbury states that the number of men suffering from pulmonary troubles would not be anywhere near a third of the total sweepers, and that he believes the number would be even less than a third of the men who are on the sick list. Out of 910 drivers in Manhattan, between January 1 and May 1, 144 reported ill from pulmonary diseases, of these cases 112 were bronchial and only three tuberculous. Of 430 drivers in Brooklyn 61 had pulmonary troubles, 43 being bronchial and 10 tuberculous.

SOUTHERN STATES.

To Vaccinate Policemen.—Orders have been issued by the Police Board of Baltimore, Md., that the entire Police Department must be vaccinated. The work is the result of a request made by the Health Department to the Police Board that members of the department, who frequently come in contact with persons suffering from smallpox, should, as a precaution, be vaccinated. The work is to be done by the health wardens, and the matrons, stablemen, and scrubwomen are all included in the order.

Doctors' Decision Final.—News from Washington states, that at the Cabinet meeting held recently it was decided that hereafter neither the President nor the Navy Department would entertain appeals from applicants for admission to the Naval Academy at Annapolis from the decision of the medical examining board. This decision is probably due to the fact that with the system of stricter examination of candidates much confusion has arisen from the appeals and protests which have been made to the authorities at Washington.

WESTERN STATES.

The Lowest Maximum Temperature.—Maximum temperatures at western cities Sunday, June 12, from the Weather Bureau reports: San Luis Obispo, 80°; Los Angeles, 80°; Portland, 80°; Carson City, 84°; San Francisco, 90°; Red Bluff, 100°; Fresno, 104°; Yuma, 104°; Phoenix, 110°; San Diego, 66°.

Fresh Milk on the Latin Plan.—A Chicago exchange states that St. Louis capitalists are reported to be interested in a plan to relieve Chicago's scarcity of milk and improve the quality of food given to infants. They propose to establish a number of distributing stations in Chicago from which goats will be sent out whenever an order for fresh milk is received. And, since there are dangers for the babies in the nursing bottles as well as in the ordinary milk of commerce, it is planned to have the infants take their nourishment entirely from the goats, a method which is said to be in vogue among the Latin races.

Mortality of Michigan during May, 1904.—The total number of deaths registered in Michigan for the month of May was 2,937, corresponding to a deathrate of 13.9% per 1,000 population. There were 275 fewer deaths than for the preceding month, and the rate was nearly 2% per 1,000 lower. Important causes of death were as follows: Pulmonary tuberculosis, 208; other forms of tuberculosis, 30; typhoid fever, 60; diphtheria and croup, 42; scarlet fever, 20; measles, 46; whoopingcough, 10; pneumonia, 271; cancer, 114; accidents and violence, 186. Typhoid fever diminished in prevalence, while considerable increase may be noted in deaths from measles. By ages there were 521 deaths of infants under 1 year; 195 deaths of children aged 1 to 4 years, and 935 deaths of elderly persons over 65 years of age. There were 3 deaths from smallpox during the month, 1 in Beaver township, Bay county; 1 in the city of Three Rivers, St. Joseph county, and 1 in the city of Saginaw.

FOREIGN NEWS AND NOTES

GENERAL.

Chinese Medical School.—News from Peking, under date of June 15, states that Si Liang, viceroy of the province of Sze Chuen, is arranging to open a medical school with French instructors. Thirty students from the Chinese troops have been designated to receive medical instruction, returning eventually to their respective regiments.

Mosquito War in Samoa.—It is reported that the United States naval authorities in Tutuila, Samoa, have begun a general crusade against the mosquito. The effort is being made not solely nor even principally because of the annoyance of the mosquito, but as a means of saving the Samoan people of Tutuila from the scourge of elephantiasis. It is believed that this disease, which claims nearly half the people of Samoa as victims, is due to a parasite which lives in the mosquito. The mosquitos dying and falling into the stagnant pools of the islands liberate the parasites, scattering them broadcast in the water which the natives drink. The naval commandant believes that by warning the natives of the danger, and by

draining and filling up the worst pools and eventually all of them, the spread of the disease may be checked.

Bubonic Plague in Peru.—News from Guayaquil, under date of June 11, states that news has reached there of an outbreak of bubonic plague at Paita, Peru (on the border of Ecuador and Peru), and is causing a great panic. The Board of Health is acting energetically to prevent the introduction of the plague there. The port has been closed to arrivals from infected ports, and a sanitary cordon has been established at the frontier to prevent the introduction of the plague by land.

The Sixth International Congress of Physiology will be held at Brussels, in the Institut Solvay, from August 30 to September 3, 1904, with Professor Heger as president. One session will be devoted to the report of the International Commission appointed at Cambridge in 1898 for the unification of standards in physiology, and to the nomination of a committee of arrangements for the following congress. If the number of communications warrants, special sections in physiologic chemistry or in experimental psychology will be organized.

Decrease in London's Deathrate.—According to statistics recently issued the deathrate for London for the year 1903 is the lowest hitherto recorded and was below that of 1902 by 2.00 per 1,000. The estimated population of Greater London was 6,806,296 and the mortality rate was 14.5 per 1,000 as compared with 18.5, 17.7, 16.3 severally in the four preceding years. Of this number 4,613,812 were estimated to be living in Inner or Registration London, the deaths numbered 72,109, births 130,906, showing an excess of 58,797 births over deaths. Smallpox was returned as the certified cause of only 13 deaths during the year 1903, as compared with 229 and 1,314 in the years 1901 and 1902 respectively. Pulmonary tuberculosis accounted for 7,347 deaths, which compares with an average of 8,176 in the 10 years since 1893. The birthrate for the whole United Kingdom for the three months ended March 31, 1904, was 28.1 per 1,000 and the deathrate 18.7 per 1,000.

Surgical Treatment of a Wound of the Heart.—A correspondent writes from Paris to the London *Lancet* that at the meeting of the Society of Surgery which was held on April 27, M. Richet read an account of an operation performed for wound of the heart. The left ventricle had been perforated by a revolver bullet 8 mm. in diameter, which had also grazed the greater curvature of the stomach, the upper border of the spleen, and the lower border of the left lung. The patient, a man, aged 34 years was taken into hospital 15 minutes after the accident. He was at once given injections of caffeine and of artificial serum and the operation was begun in 1½ hours after the accident. The wound of entrance was in the fifth interspace and there was pneumothorax. A large flap was made from the whole thickness of the thoracic wall and the two wounds in the heart and those in the pericardium had been sutured with catgut, when the heart ceased to beat despite direct massage of the organ being employed. M. Richet reminded the meeting that his first similar case had been successful, and that he had shown the patient before the society in perfect health.

OBITUARIES.

Nathan Smith Davis, the eminent Chicago physician and author, June 16, aged 87. He was a native of New York City, having been educated at Cazenovia and was graduated from the College of Physicians and Surgeons, at Fairfield, N. Y., in 1837. He practised in Binghamton, N. Y., from 1847 to 1849, during which time he was lecturer at the College of Physicians; in 1849 he was called to Chicago to occupy the chair of physiology and pathology in Rush Medical College; later he was called to the chair of practice of medicine in the same institution. He became editor of the *Chicago Medical Examiner* in 1860, and conducted the *Northwestern Journal* for more than twenty years. He was one of the founders of the Northwestern University, of the Chicago Academy of Science, and of the Washington Home for Reformation of Inebriates. In 1883 he was called to the editorship of the *Journal of the American Medical Association*, which position he held for six years. He was president of the International Medical Congress in 1887, and was for many years Dean of the Northwestern University, which position he resigned in 1898. He was a member of the staff of the Mercy Hospital for forty years; was a voluminous writer and a highly esteemed and public-spirited citizen.

Charles Mann, at his home in Nicholasville, Ky., June 1, from paralysis, aged 67. A graduate of the Medical College of Ohio, Cincinnati, in 1861, and for forty years a member of the American Medical Association; member of the Kentucky State Medical Society and of the Jessamine County Medical Society. He was an army surgeon in the Confederate service during the Civil war. He was well known and esteemed in the vicinity of his home.

James Simpson, of Philadelphia, at the German Hospital, June 20, aged 65. He graduated from Jefferson Medical College, and during the Civil war had charge of the Government Hospital, in Alexandria, Va., for several years. He was chief of the staff of physicians to St. Mary's Hospital. He was well known in Philadelphia, where he had an extensive practice in the southwestern section of the city.

Joshua C. Noyes, of Oshkosh, Wis., in St. Mary's Hospital in that city, June 7, after an operation for amputation of the leg for osteosarcoma, aged 64. A graduate of Rush Medical College, in 1863; member of the American Medical Association and army surgeon in the Confederate service during the Civil war.

Pohattan A. Jordan, of Beaumont, Texas, at the Sister's Hospital, in that city, May 31, aged 67. A graduate of the University of Pennsylvania, and formerly preceptor in anatomy in the University of Georgetown, Medical Department. He was an army surgeon in the Confederate service during the Civil war.

Lawrence G. Andrews, formerly of Youngstown, Ohio, at the Western Pennsylvania Hospital for the Insane, Dixmont, where he had been a patient for 20 years, June 1, aged 75. A graduate of the Cleveland Medical College, in 1854. An army surgeon in the Federal service during the Civil war.

John M. Jackson, at his home in Columbus, Ky., May 31, from Bright's disease, aged 76; a graduate of the University of Louisville, medical department, in 1859, and an army surgeon in the Confederate service during the Civil war.

Myron H. Andrews, at his home in Detroit, June 3, from pneumonia, aged 87. A graduate of the University of Buffalo, (N. Y.), in 1847. City physician in Detroit from 1888 to 1891.

Emanuel L. Howerter, of pneumonia, at Kempton, Pa., March 25, aged 41. A graduate of the University of Pennsylvania, in 1889.

Elmer A. Johnson, of Danville, Ill., in Champaign, Ill., June 3, aged 36. A graduate of Rush Medical College, Chicago, in 1897.

Edgar R. Rust, formerly of Westmoreland County, Va., recently in Southern California, where he had gone for his health, aged 44.

Fred. L. Henkel, of Staunton, Va., near New Market, Va., May 21, aged 50; a graduate of the University of Pennsylvania in 1879.

James M. Clement, in Philadelphia, Pa., June 12, aged 67. A graduate of the University of Pennsylvania, in 1862.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended June 17, 1904:

SMALLPOX—UNITED STATES.		Cases	Deaths
California:	San Francisco.....	May 29-June 5....	1
Dist. of Columbia:	Washington.....	May 28-June 4....	7
Florida:	Jacksonville.....	June 4-11.....	1
Georgia:	Macon.....	June 4-11.....	1
Illinois:	Chicago.....	June 4-11.....	1
Iowa:	Dubuque.....	June 4-11.....	2
Kentucky:	Covington.....	June 4-11.....	2
Louisiana:	New Orleans.....	June 4-11.....	5
Maryland:	Baltimore.....	June 4-11.....	6
Michigan:	Detroit.....	June 4-11.....	3
	Grand Rapids.....	June 4-11.....	1
Missouri:	St. Louis.....	May 28-June 4....	22
Nebraska:	Omaha.....	June 4-11.....	3
New Hampshire:	Manchester.....	June 4-11.....	8
New York:	Buffalo.....	May 28-June 4....	5
	New York.....	June 4-11.....	1
Ohio:	Cincinnati.....	May 27-June 3....	10
	Dayton.....	June 4-11.....	2
	Toledo.....	June 4-11.....	1
	Zanesville.....	Apr. 30-May 7....	1
Pennsylvania:	Altoona.....	June 4-11.....	4
	Philadelphia.....	June 4-11.....	4
	Pittsburg.....	June 4-11.....	2
South Carolina:	Greenville.....	May 28-June 4....	2
Tennessee:	Memphis.....	June 4-11.....	4
	Nashville.....	June 4-11.....	2
Washington:	Tacoma.....	May 29-June 6....	1
Wisconsin:	Milwaukee.....	June 4-11.....	6

SMALLPOX—FOREIGN.		Cases	Deaths
Austria:	Prague.....	May 14-21.....	12
Brazil:	Campinhas.....	Apr. 17.....	Epidemic.
Canada:	Winnipeg.....	May 27-June 4....	2
China:	Canton.....	Apr. 26.....	Present.
Colombia:	Barranquilla.....	May 23-29.....	1
France:	Paris.....	May 21-28.....	13
	Bradford.....	May 7-21.....	11
	Bristol.....	May 14-21.....	5
	Dundee.....	May 21-28.....	1
	Edinburgh.....	May 21-28.....	2
	Glasgow.....	May 27-June 3....	334
	Hull.....	May 14-28.....	8
	London.....	May 21-28.....	33
	Manchester.....	May 14-28.....	6
	Newcastle-on-Tyne.....	May 21-28.....	2
	Nottingham.....	May 21-28.....	7
	Sheffield.....	May 14-21.....	2
	South Shields.....	May 14-28.....	15
India:	Bombay.....	May 8-17.....	46
	Karachi.....	May 8-15.....	7
Italy:	Leghorn.....	Apr. 10-17.....	1
	Palermo.....	May 7-14.....	1
	Nagasaki.....	May 1-10.....	40
Japan:	Panama.....	May 22-June 5....	1
Panama:	Moscow.....	May 14-21.....	15
Russia:	Odesa.....	May 21-28.....	5
	St. Petersburg.....	May 14-28.....	25

YELLOW FEVER.

Costa Rica:	Limon.....	May 21-June 4....	3
Ecuador:	Guayaquil.....	May 11-25.....	24
Mexico:	Coatzacoalcas.....	May 21-28.....	3
	Jalilpan.....	May 21-28.....	2
	Merida.....	May 22-June 4....	5
	Salina Cruz.....	May 28-June 4....	1
	Tehuantepec.....	May 22-June 4....	11
	Vera Cruz.....	June 4-11.....	1

CHOLERA.

India:	Madras.....	Apr. 30-May 6....	1
Turkey in Asia:	To May 9.....	165

PLAGUE—INSULAR.

Hawaii:	Honolulu.....	June 8.....	1
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PLAGUE—FOREIGN.

Africa:	Cape Colony.....	May 9-16.....	1
Arabia:	Aden.....	May 15-24.....	4
Argentina:	Tucuman.....	May 7.....	Present.
Australia:	Brisbane.....	Apr. 16-30.....	4
	Sydney.....	Apr. 9-26.....	4
Egypt:	Port Said.....	Apr. 30-May 7....	3
	All Egypt.....	Apr. 30-May 7....	41
Formosa:	.....	Apr. 23-May 14....	1222
India:	Bombay.....	May 10-17.....	567
	Karachi.....	May 8-15.....	127
Peru:	Lima.....	May 7-14.....	9

Changes in the Medical Corps of the U. S. Army for the week ended June 18, 1904:

RAND, Captain **IRVING W.**, assistant surgeon, is granted leave for twenty days, to take effect June 14.

HAVARD, Colonel **VALERY**, assistant surgeon-general, is relieved from duty at the U. S. Military Academy, West Point, N. Y., and will proceed about September 1 to Governor's Island, N. Y., and report to the commanding general, department of the East, for duty as chief surgeon of that department.

GILCHRIST, First Lieutenant **HARRY L.**, assistant surgeon, is granted leave for ten days, to take effect June 20.

BARRY, **EDMUND**, contract surgeon, is relieved from duty at Fort Dade, to take effect at such time as another medical officer shall be assigned to duty at that post, and will then repair to Washington, D. C., for annulment of contract.

WHITE, **FOREST E.**, sergeant first class, will be sent to Columbus Barracks for temporary duty as soon as his services can be spared at Columbia Arsenal, Tenn.

KIERSTED, First Lieutenant **HENRY S.**, assistant surgeon, now on duty at Camp U. S. Troops, Mount Gretna, Pa., will return to Fort Myer upon the arrival of First Lieutenant **Percy L. Jones**, assistant surgeon.

ADAIR, **GEORGE F.**, contract surgeon, now on temporary duty at Fort Hamilton, will return to his proper station—Fort Wadsworth.

MINOR, **J. C.**, contract surgeon, is granted leave for fifteen days, from about June 25.

PORTER, **LEWIS B.**, contract surgeon, will, upon the expiration of his present leave, proceed to his home for annulment of contract.

EISENMAN, **FRANCIS J.**, sergeant first class, now at Brooklyn, N. Y., upon expiration of furlough granted him from the Philippines Division, will report at Fort Leavenworth to relieve Sergeant First Class **Brown F. Atkin**. Sergeant First Class **Atkin** will be sent to Columbus Barracks for duty.

HARTUNG, **HENRY**, sergeant first class, Fort Myer, will be sent to Columbus Barracks, reporting to the commanding officer, third infantry, for duty with that regiment en route to Alaska. Upon arrival in Alaska he will be sent with Company D, Third Infantry, to Fort Davis to relieve Sergeant First Class **Thomas Person**. Sergeant First Class **Person** will be sent to Seattle, Wash., reporting by telegraph on arrival, to the military secretary, War Department, for further orders.

HARSON, **HARRY**, sergeant first class, is relieved from further duty in the Philippines Division, and will be sent to San Francisco, Cal., reporting for further orders.

KEENEY, **JOHN M.**, contract surgeon, leave granted January 2 is extended one month.

PHILLIPS, **Major J. L.**, surgeon, temporarily in charge of the office of chief surgeon of the department of the East, is relieved temporarily from his present duties as post surgeon, Fort Jay, and attending surgeon at headquarters, and will report direct to division headquarters for duty in connection with the field exercises at Manassas.

STILES, Captain **HENRY R.**, assistant surgeon, leave on surgeon's certificate granted May 21 is extended three months on account of sickness.

Vose, First Lieutenant **WILLIAM E.**, assistant surgeon, is granted leave for two months, to take effect upon the arrival at Fort Logan H. Roots of a medical officer to be ordered there to relieve him.

FISHER, **WILLIAM C.**, contract dental surgeon, is relieved from duty at Columbus Barracks, and will proceed to Fort Sheridan for duty.

STONEY, **RANDELL C.**, contract surgeon, is granted leave from June 18 to July 3.

GIDDINGS, First Lieutenant **EDWARD F.**, leave granted May 5 is extended one month.

ALLEN, **IRA A.**, contract surgeon, is relieved from duty in the Philippines Division, and, upon expiration of leave, will proceed from New York City to Fort Dade for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended June 18, 1904:

HART, **G. G.**, acting assistant surgeon, ordered to the Alliance for temporary duty, and on arrival of that vessel at Culebra, W. I., detached and ordered home to wait orders.—June 10, 1904.

MINK, **O. J.**, and **PORTER**, **F. E.**, assistant surgeons, appointed assistant surgeons, with rank of lieutenant, junior grade, from June 7, 1904—June 13, 1904.

CHAPMAN, **R. B.**, assistant surgeon, detached from the Naval Hospital, Mare Island, Cal., and ordered to the Navy Yard, Washington, D. C.—June 15, 1904.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-fifth Annual Meeting, Held at Atlantic City, N. J.,
June 7 to 10, 1904.

[Specially reported for *American Medicine*.]

(Continued from p. 977.)

House of Delegates.

Committee on Hygiene.—J. N. HURTY (Indiana) read the report, recommending the adoption of the report referred to it relative to vital statistics, and the report was adopted.

Delegates to International Congresses.—President MUSSER was empowered to appoint any members as delegates who desired to attend the following meetings and whom he might designate: (1) International Otological Congress, which meets in August this year at Bordeaux; (2) the Röntgen Ray Congress, which meets in Berlin, 1905; and (3) the International Congress of Medicine, to appoint an organizing committee of 12 or 15 to take up the organization in this country.

Proposed Committee on Cancer Investigation.—J. C. HEMMETER (Baltimore) offered a communication with reference to the organization and the appointment of a Committee on Collective Cancer Investigation; referred to the Reference Committee on Hygiene and Public Health. This was later recommended favorably and the report adopted.

Committee on Legislation: Purification of the Mails.—The National Auxiliary Congressional and Legislative Committee, to whom was referred the resolution indorsing "the action of the postmaster-general, in enforcing the statute which prohibits the use of the United States mails for the distribution of obscene advertisements and fraudulent compounds and appliances," reported that they recommend the adoption of the resolution. The committee also advised the adoption of the resolution urging the proper federal and State authorities to take the necessary steps to protect life and eyesight from the pernicious influences of wood spirit or methyl alcohol and its various preparations. The committee then recommended the adoption of the report of the Committee on National Bureau of Medicines and Foods and the accompanying resolutions. E. ELIOT HARRIS (New York) moved the adoption of the report and its consideration in the committee of the whole of the House of Delegates immediately. The House then went into the committee of the whole with Harris as chairman. After considerable discussion, the committee arose, and the House of Delegates was called to order by President Musser. Harris reported to the House that the committee had instructed him to report unfavorably on the report of the special Committee on Medicines and Foods. He also reported instructions that the report on the communication from the Michigan State Medical Society was laid on the table. The report of the committee of the whole was adopted, and the original Committee on Medicines and Foods discharged.

Committee on Reapportionment of Delegates for the respective States and Territories for 1905, 1906 and 1907, reported as follows, the report being adopted:

State.	Members.	Delegates.	State.	Members.	Delegates.
Alabama.....	1,295	3	Missouri.....	1,400	3
Arizona.....	95	1	Montana.....	60	1
Arkansas.....	711	2	Nebraska.....	658	2
California.....	1,505	4	New Hampshire.....	350	1
Colorado.....	518	2	New Jersey.....	1,122	3
Connecticut.....	605	2	New Mexico.....	63	1
Delaware.....	154	1	New York.....	1,704	4
Dist. of Columbia.....	447	1	North Carolina.....	800	2
Florida.....	236	1	North Dakota.....	115	1
Georgia.....	650	2	Ohio.....	2,451	5
Hawaii.....	.....	1	Oklahoma.....	163	1
Idaho.....	75	1	Oregon.....	222	1
Illinois.....	3,981	8	Pennsylvania.....	3,799	8
Indian Territory.....	168	1	Rhode Island.....	274	1
Indiana.....	1,947	4	South Carolina.....	207	1
Iowa.....	1,511	4	South Dakota.....	160	1
Kansas.....	562	2	Tennessee.....	1,004	3
Kentucky.....	1,361	3	Texas.....	2,321	5
Louisiana.....	819	2	Utah.....	89	1
Maine.....	461	1	Vermont.....	403	1
Maryland.....	715	2	Virginia.....	1,096	3
Massachusetts.....	2,681	6	Washington.....	420	1
Michigan.....	1,672	4	West Virginia.....	600	2
Minnesota.....	863	2	Wisconsin.....	1,185	3
Mississippi.....	606	2			

An additional report was adopted later, apportioning to New York a delegate for each 500 of its actual members and minor fraction, this for the years 1905, 1906, 1907.

Permanent Committee on Sections.—The Reference Committee on Constitution and By-Laws reported that in the opinion of this committee a permanent committee on sections and section work "to direct and advise in matters of section work," "to effect and maintain needed reforms," and "to devise ways and means of preparing the programs," would interfere with the prerogatives and autonomy of the chairmen and secretaries of the various sections, and therefore they do not recommend the appointment of such a committee.

Orations.—*Medicine*, CHARLES G. STOCKTON, Buffalo, N. Y.; *Surgery*, JOHN COLLINS WARREN, Boston, Mass.; *State Medicine*, GEORGE BLUMER, San Francisco, Cal.

The time for the next annual meeting was, on motion, left to the President, Secretary, and the Chairman of the Committee of Arrangements.

Scientific Exhibit.—A. P. OHLMACHER (Ohio) on behalf of the Reference Committee on Sections and Section Work, reported that the committee recommended to the Board of Trustees of this Association that an annual honorarium of \$500 be granted to the director of the Scientific Exhibit, and that F. B. Wynn be continued in the capacity of director of the Scientific Exhibit. The report of the committee was adopted, and the recommendation was reported favorably and referred to the Board of Trustees.

Committee on Hygiene.—J. N. HURTY (Indiana), chairman, said that the second annual report of the Committee on Prophylaxis of Venereal Diseases is an able and full report, treating of the moral and economic necessity of the prevention of venereal diseases, and that the Reference Committee recommends the acceptance of the report in general, but does not indorse the suggestion that "the time has arrived for the organization of a national society for the study and prevention of venereal diseases," but believes that for the present the Section on Hygiene and Sanitary Science will be equal to the task of doing the work necessary for the opening of this important matter. Adopted as read. Hurty also presented the endorsement of the Reference Committee on Hygiene and Public Health upon the following resolutions:

WHEREAS, The acquisition by the United States of insular possessions, in which a considerable amount of leprosy exists, particularly in Hawaii, has increased the responsibility of the government in the case of these unfortunate beings; therefore, be it

Resolved, That the American Medical Association urges on the Federal authorities the establishment of an experimental station, including hospital and laboratories, at the leper settlement in the Island of Molokai, Hawaii, for the investigation and study of leprosy, looking especially toward the cure of the disease. Adopted.

Amendments to Constitution.—S. L. JEPSON offered the following amendments to the Constitution:

Amendment to Chapter 7, Section 1 (page 7 as revised): Nominations for office, except that of the Treasurer, shall be made orally, but no nominating speech shall exceed two minutes in length. Any nominee receiving a majority of the votes cast shall be declared elected.

The Treasurer shall be nominated by the Board of Trustees.

J. N. McCORMACK offered the following amendments:

To amend Section 1, Chapter 4, of the By-Laws by striking out Section 1 and inserting in lieu thereof the following: "Time of Elections.—The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the session."

And to amend Section 3 of the same chapter by striking out said section and inserting in lieu thereof the following: "Nominations for President shall be by ballot. All other officers shall be nominated by a committee of seven, representing the various geographic divisions of the country as nearly as may be."

These will lie over until next year.

Materia Medica Section.—The Section having received the report of the change of the present name of the section to that of "Pharmacology," by unanimous vote, requested that the title of the section be "Pharmacology and Therapeutics." G. ELIOT (Connecticut) offered the following amendment:

Proposed amendment to the By-Laws: Chapter 3, Section 1: That the name of the Section of Pharmacology be changed to the Section of Pharmacology and Therapeutics.

This will lie over until next year.

Section on Practice of Medicine.

SECOND SESSION (CONTINUED).

Treatment of Arteriosclerosis.—J. M. ANDERS (Philadelphia) divides cases of arteriosclerosis into these etiologic categories: 1. Those due to toxic agents in the blood, as in chronic alcoholism, syphilis, gout. 2. Those caused by constant ingestion of an excess of hydrocarbons or nitrogenous foods. 3. Cases dependent on constant hypertension due to muscular overexercise. 4. Cases of aortic regurgitation. 5. Cases due to senile degeneration. Prophylaxis should begin in early life. Regulation of the occupations of childhood is important; special attention should be given to the selection of foodstuffs in regard to the processes of katabolism that are engendered in their disposal. Athletic sport may cripple the arteries. Patients who are the subjects of arteriosclerosis are to be thoroughly investigated to determine their powers of assimilation, etc. Though many can resist the action of alcohol and gormandizing, diet in the great majority is of prime importance. When gormandizing or even overeating shows injurious effects the strictest living must be enjoined. Animal foods, if in moderation, may be beneficial rather than harmful. Water is to be freely ingested. Gouty individuals should live an outdoor life. In the early stages muscular exercise, well regulated, is of value in pumping from the system waste products. Massage is also to be employed. The quantitative estimation of the chlorids, urea, etc., while efforts are made to increase elimination must be constantly made. Without

proper attention the urea is usually 25% to 35% below normal. Warm baths materially lower blood-pressure and also assist in elimination. The expedients named are of major importance as compared with drugs in the management of cases of arteriosclerosis. Anders specially emphasized the importance of competitive athletics as a cause of the disease. The medical profession should urge moderation in games, particularly the more active ones. Warnings should be given those instructors in charge of universities and schools where athletics enter so largely into the life of the students. Here is where prophylaxis is of the utmost value. There is serious doubt if arteriosclerosis is ever arrested by the use of drugs, but they may retard its progress. The iodids do not lower blood-pressure in the early stages, but may do so later in the course; they are specially valuable in luetic cases. The results with nitrites and nitroglycerin were illustrated by charts showing sphygmographic tracings before and after their administration. Both dilate the arterioles and lower blood-pressure; the best results were obtained from the nitrites. Their effects are however evanescent.

Discussion.—ALFRED STENGEL (Philadelphia) said that arteriosclerosis from the aspect of the clinician differed from that of the pathologist. From the standpoint of treatment there is but little use to recognize the disease when nephritis or angina pectoris has supervened. It must be taken at an earlier period. Stengel still believes that alcohol is an etiologic factor, though of more importance is the relation of athletics, infectious diseases, etc. The latter are, to some extent, under the control of the physician, while alcohol and syphilis are but slightly manageable. An individual may apparently recover from an infectious disease, but later on arteriosclerosis comes to the front and steadily progresses. This means that physicians are to conduct convalescence with greater care, especially in typhoid fever. Some say that a year or more should be taken to recover from this disease, and this time is not excessive. It does not mean that the physician should actually visit the patient during this time, but his advice is needed regarding work, diet, and other points in the daily life of the individual. Cardiovascular diseases do occur in athletes at varying periods after their active exertions. The important point in arteriosclerosis is the early recognition; this is possible only by careful observations of blood-pressure, both at systole and diastole and by observance of the heart sounds. F. C. SHATTUCK (Boston) said that the papers on arteriosclerosis emphasized the fact that causes in medicine are rarely seen by the physician; he sees the results. The statistics of CABOT are possibly somewhat misleading, because they deal entirely with the poorer classes; it is in men who carry the burdens of business life, the captains of industry, who are under great strain, and who often carry strain badly, that alcohol is not well borne. From these men, statistics were not obtained. Such men may be apparently well, but add alcohol, and disease results. The alcohol drinkers who escape arteriosclerosis are not the weight carriers in the strenuous life. W. KRAUSS (Memphis) spoke of the parenchymatous changes in organs due to toxins in the blood, and the difficulty of eliminating other factors as causes of the condition. Patients who have had an infectious disease are much more liable to be affected by alcohol. He prefers to study syphilitic disease of arteries by itself, instead of under the head of arteriosclerosis. C. G. STOCKTON (Buffalo) reiterated the importance of abdominal pain as possibly depending upon arteriosclerosis; when this occurs the disease is usually far advanced. Treatment to be effective must be begun early, but it is not absolutely hopeless even in advanced cases. He cited several personal observations where individuals with arteriosclerosis and renal lesions are still alive and if anything, in better health at the expiration of five to seven years. Treatment has been simple and consists of restricted diet, exercise, taking of fluids, shunning of alcohol, and the systematic use of baths, that dilate the capillaries without markedly affecting the circulation in general. For this purpose, short hot air vapor baths, frequently given, produce the best results. If nitroglycerin is employed, it should be given hourly in small doses instead of at longer intervals. Stockton speaks a good word for the iodids; these, with vapor baths and nitroglycerin when necessary, form the principal active treatment. S. J. MELTZER (New York) spoke of the effect of local causes in producing arteriosclerosis as trauma, activity of organs, etc. If these findings of certain observers be true, then the deductions of Thayer may need revision if they are based on radial artery conditions alone; the latter may be local arteriosclerosis. Neither has Cabot the right to say that the etiologic power of alcohol is a myth unless he has studied the arteries of the splanchnic area. Meltzer closed by saying that alcohol in disease is often a blessing, in health often a curse. R. H. BABCOCK (Chicago) agreed with the remarks of Shattuck. At the present time one is not safe in attributing etiologic influence to any one factor. In all studies of the question the manner of taking alcohol should be considered. If large quantities of beer are consumed, the amount of fluid must be taken into account; in addition to this is the nutritive material in the beer. Babcock emphasizes the importance of strain as well as of alcohol in the production of the lesion. The types accompanied by hypertrophy of the heart are the ones that soon terminate fatally. F. R. WEBER (Milwaukee) believes that the explanation of the lesion must be sought in the poisoning of cell protoplasm. Osmosis is also of importance. Experiment with barium chlorid resulted in the pro-

duction of endarteritis in five months. BOARDMAN REED (Philadelphia) called attention to one point that was apparently overlooked by the previous speakers; that is the dose of alcohol. When this is considered, Cabot's view that alcohol does not cause arteriosclerosis may not appear inconsistent. Alcohol, in small or moderate doses, may produce arteriosclerosis indirectly by its action upon the gastrointestinal tract. The habitual whisky "soak" largely lives upon the alcohol that he takes in enormous quantities, and it may not result in arteriosclerosis. A. MCPHEDRAN (Toronto) in replying to remarks of a previous speaker said that the consumption of stronger alcohols in Canada is not excessive, and neither is arteriosclerosis. In connection with the epidemic of arsenical neuritis from English beer some few years since, he stated that probably some accessory condition was necessary before alcohol could cause arteriosclerosis. The variability of vitality of tissue in different persons must always be remembered. He thought that in decrying excessive muscular exercise some of the speakers had not said enough regarding the good effect of judicious athletics. It is constant instead of intermittent tension that causes arterial disease. A. JACOBI (New York) said that we employ mercury and the iodids for syphilitic arteritis, and yet we are told that the drugs themselves may cause the condition we are treating. The two do not agree. WELCH spoke of obstruction as a cause of hypertrophy of the heart; this brought to mind certain cases of congenital smallness of the arteries, in which a large heart would naturally be expected. On the contrary, the heart in such cases is normal in size or smaller than normal. Hence, obstruction itself does not appear to be the cause of hypertrophy. THAYER, in closing, said that in his investigations he had taken the condition of the radial only as an index of changes elsewhere. All evidence points to the fact, that continued or intermittent strain is the main great cause of arteriosclerosis. DRENNEN replied that we must use iodids and mercury in the treatment of syphilis; he does not object to their use, but he is opposed to the methods by which they are commonly employed. They should be used for a limited length of time only. Cabot said that in regard to competitive athletics as a cause of arterial disease, rowing is immoderate if any of them are, yet the published results of an examination of the Harvard men failed to show arterial changes. In the autopsy cases of his series the splanchnic area was not involved.

[To be continued.]

Section on Surgery and Anatomy.

FOURTH SESSION.

A Large Retroperitoneal Tumor Successfully Removed by Operation.—GEORGE BEN JOHNSON (Richmond, Va.) The tumor described was a retroperitoneal lipoma, a rare form of tumor of which 42 cases have been collected by Adami. The patient, a woman of 35, suffered from indefinite pains in the abdomen and was very much run down in health. At the time of operation a tumor was found which extended from the diaphragm to the pelvis. As the kidney was involved, it was necessary to remove it with the tumor. One of the great difficulties of the operation was in freeing the vena cava. The patient made an uninterrupted recovery. At the time it was removed it was thought to be a tumor of the pancreas, and it was sent to Opie, of Baltimore, for examination. The pathologic diagnosis given in detail showed it to be a fatty tumor. Tumors of this kind give very indefinite symptoms, which are usually caused by pressure, in this way interfering with circulation, the flow of intestinal contents, or of the bile, or they give trouble in breathing through pressure on the diaphragm, or pain from pressure on the nerves of the lumbar plexus. The difficulties in operation are caused by involvement of important organs.

Drainage of the Biliary Passages the Most Important Feature in the Surgery of the Gallbladder and the Bile Ducts.—MAURICE H. RICHARDSON (Boston) has come to take the position that gallstones should be removed whenever their presence is known, whether they offend or not, provided the condition of the patient permits. A few years ago he presented a paper advocating the removal of gallstones in case they caused trouble, but since that time he has become more radical in his views. The gallbladder should be drained in every case, he believes, until bile has entirely ceased to flow. If a biliary fistula persists, it is evidence either that the common duct is obstructed or that a stone has been left. A muscle-splitting incision should be used, which greatly lessens the danger of postoperative hernia, and also avoids injury to nerves. Gastric or hepatic symptoms, even if slight, are often of great significance, and failure of patients to make a complete recovery after abdominal operations, is often explained by the presence of gallstones. Gallstones never do any good, and they frequently do great harm. No other means of removal exists, except operation. In his experience Richardson has had better results from simply draining the gallbladder than from removing it entirely. When excision is done, symptoms frequently appear some time after the operation. In all operations on the biliary passages he advises drainage.

Gallstones in the Common Duct.—ARCHIBALD MACLAREN (St. Paul, Minn.) believes that it is doubtful if gall-

stones very often pass through the common duct leaving the gallbladder entirely free, and as long as they exist in the gallbladder the patient is usually subject to recurring attacks of cholecystitis. In passing through the common duct, stones are very likely to lodge, producing cholangitis, pancreatitis, or giving rise to the formation of a larger crop of gallstones back of the obstructing stone in the gallbladder or in the duct. Robson estimates that there is one case of stone in the common duct for every five cases of gallstone. Mayo places the frequency at one to seven. The inflammatory changes often produce contracture of the gallbladder and give rise to chronic obliterative inflammation. Operation was advised before stones had an opportunity to reach the common duct or give rise to other symptoms. Beside the diseased conditions mentioned, cancer is a common late result of stone in the duct. In order not to overlook stones, MacLaren advises using a long incision, giving free opportunity to examine the duct, using a sand bag to arch the spine forward toward the incision, and great care in thoroughly exploring the duct. In his own experience he has seen 47 cases of gallstone with 12 common duct stones.

Discussion.—JOSEPH D. BRYANT (New York City) agrees with Richardson as to the necessity of using drainage in all cases, and in operating in all cases as soon as a diagnosis is made. THIENHAUS (Milwaukee) called attention to the three distinct sections of the common duct which we have to deal with in operations of this kind. In the case of stone in the papillary portion of the duct he believes that the stone can best be removed by opening the duodenum as was first suggested by McBurney. MOORE (Minneapolis) regards the gallbladder as a safety valve which should not be removed in these cases if it is avoidable. He reported the case of a girl of 13, who had been jaundiced for several years, upon whom he operated, removing a stone from the common duct. On the third day after operation the patient showed symptoms of cholemia and had a convulsion. He made an incision into the loin, and through this drainage opening removed over a quart of bile. The patient recovered. This case emphasizes the necessity for draining not only the biliary passages, but the surrounding space, for slight leakage is inevitable. LAPLACE (Philadelphia) approves of long incisions, believes in the necessity for drainage, not only of the duct but the surrounding space, and believes that the irritation of the stone frequently tends to produce cancer. MAYO (Rochester, Minn.) believes that early operation for gallstones is as necessary as early operation for appendicitis. He does not agree that cholecystectomy is an obsolete operation. When the gallbladder is thrown out of use by stone, and contracture follows, it is safer to remove it. It is perfectly safe to leave the cystic duct open and drain with gauze and tube. BLOODGOOD (Baltimore). The results of operations at the Johns Hopkins Hospital would uphold the position taken by Richardson and MacLaren. Cholecystectomy has been employed in a large number of cases with very satisfactory results, Finney having been a strong advocate of this operation when it was not in general use. While the results of this operation have been satisfactory, splendid results have also followed cholecystostomy in suitable cases. Unfavorable results have occurred only from the presence of stones left in some of the ducts, or in cases where there has been prolonged inflammation. RICHARDSON, in closing, agreed that the gallbladder should be removed in certain cases, or it would prove a source of trouble later. MacLaren said that he had also had Moore's experience as regards leakage, but not in cases in which a drainage-tube had been properly sutured in place with catgut and surrounded by a pursestring suture.

Appendicitis in Children.—A. J. MCCOSH (New York City.) No surgical disease offers more surprises than appendicitis, and the diagnosis is frequently difficult. The best results both as regards saving life and the strength of the abdominal wall follow early operation, but in children, particularly, the symptoms are often masked and the diagnosis is somewhat more difficult than in adults. It is hard to definitely locate pain with children, they are often restless, they generally dread palpation, and complain that the pain is as great in one place as another. The abdominal walls are usually everywhere rigid. Vomiting is the most persistent symptom. The diagnosis has to be made between gastroenteritis, diaphragmatic pleurisy, and a low pneumonia. The blood count is of value, the differential count of more value than a simple white cell count. The iodine test he has also found of some value. The progress of the disease is often insidious, and in doubtful cases it is wise to operate at once. Of late, however, McCosh has been inclined more than formerly to delay operation in certain cases. In over 1,100 cases the patients were between 20 and 35 years in over 50%. Under 15 years in only 15% of the cases; his youngest patients were 12 months, 12½ months, and 16 months of age. Because of the difficulties in diagnosis, early operation is of more importance than in adults. The onset of general peritonitis is more insidious.

Should the Appendix be Removed When the Abdomen is Opened for Other Causes?—FLOYD W. McRAE (Atlanta) has performed 272 appendectomies, and in 40 cases he has removed the appendix at the time of other operation. In one case he did dilation and curetment, removed a cyst of the cervix, anchored a floating kidney, and removed the appendix at one operation without unusual shock or without unduly prolonging the operation. Nonremoval of the appendix, he believes, is the most frequent cause of incomplete cure following

abdominal and pelvic operations, for the inflammation frequently coexists with floating kidney, gallbladder, and rectal troubles, as well as with inflammatory conditions within the pelvis. In this, as with other operations, the golden rule should be observed when we decide whether the appendix should be removed or not.

[To be continued.]

Section on Obstetrics and Diseases of Women.

THIRD SESSION.

Surgical Treatment of Bilocular Uterus and Bifid Vagina.—H. W. LONGYEAR (Detroit) called attention to the scarcity of the literature on this subject, explained his method of treating such malformations, and reported two cases. A biseptate vagina is nearly always accompanied by a bilocular uterus. Longyear's method consists in grasping the vaginal septum for its full length with forceps, both posterior and anterior. He then cuts with scissors as near to each forceps as is convenient, and then sears the cut surface with the cautery. He now introduces the cervical dilator, one jaw into each os of the double cervix, cuts between them with the cautery, now with blunt-pointed scissors he cuts the septum well within the uterus, swabbing and packing with iodoform gauze. In both of the two instances reported the patients suffered much from dysmenorrhea. One patient showed the whole left side of the body better developed than the right, even to the uterus itself. In this instance the patient was extremely neurotic, a badly diseased ovary was removed, but the dysmenorrhea continued so severe that the patient became a drug fiend, and finally as a last resort the other ovary was removed.

Discussion.—BACON (Chicago) could see no reason why a double vagina and a bilocular uterus should produce dysmenorrhea. DUNNING (Indianapolis) has had two such cases. In neither instance was the deformity discovered until the woman came into labor. In both cases the septum between the ovaries and in the vagina was torn through, and in one instance in which the septum was thick and tough, a bad laceration resulted. He doubts the wisdom of ever cutting the septum within the uterus. JOHNSTONE reports a case in which a woman had a miscarriage, and he later curetted her uterus thoroughly. Somewhat later it was noticed that the abdomen was enlarging, she had fainting spells and other disorders attributed to the uterus, her life was threatened; abortion was induced, and she was delivered of a five months' fetus. This could not have been in the uterus, normally, at the time of the curetment, and investigation showed a bilocular uterus. Thus two impregnated ovaries were in the uterus at the same time, and in each locale. CARSTENS (Detroit) reports that a woman in the third miscarriage had a retained placenta. In removing it a septum was found in the uterus. This was removed and several successful pregnancies resulted. DORSETT (St. Louis) reported an instance in which he divided the vaginal septum and also for a short distance that in the uterus. He feared to go too high in the uterus least he open into the peritoneal cavity. Operation should depend on the nature of the condition.

A Plea for More Thorough Examination of Doubtful Specimens of Ectopic Pregnancy.—J. WESLEY BOVÉE (Washington, D. C.) held that many cases of so-called tubal pregnancies, when thoroughly and systematically examined by the microscope are found in reality not to have been pregnancies, but tubal hemorrhages, or some condition other than pregnancy. The tacit conception that all such are pregnancies does great wrong to virgins and widows who may happen to suffer from this condition. Among the cases he has operated on since he began a systematic microscopic examination of these removed masses there have been 10 which proved other than pregnancies. Of these a hematosalpinx existed in six. He urges microscopic examination in all doubtful cases. The symptomatology is the same in all these cases.

Ectopic Gestation with Atypical Symptoms: Report of Cases.—WALTER B. DORSETT (St. Louis) said our knowledge of the symptomatology of ectopic pregnancy is far from complete. Bland Sutton has said that a healthy tube is more apt to contain an impregnated ovum than is a diseased one. Right-sided tubal pregnancy may be mistaken for appendicular abscess. He had operated on 41 cases of extrauterine pregnancy with six deaths. In some the diagnosis of the true condition was not made prior to the operation, but the patients' symptoms demanded surgical interference regardless of the exact condition. A ruptured pregnant tube may reveal no direct evidence of the pregnancy at the time of operation because the peritoneal fluid may have digested the small fetus and the chorionic villi. Several specimens were exhibited, and cases were reported in detail. Extrauterine pregnancy is more frequent than is commonly supposed, and its symptoms are often atypical.

Discussion.—F. F. LAWRENCE (Columbus, O.) reported an instance in which two tubal pregnancies occurred in the same patient within 14 months. There is no dependence to be placed in the pulse and temperature in these cases. Every doubtful specimen should be examined microscopically. MASSEY (Philadelphia) believed too many of these patients are operated upon. Watch the patient and be guided by her condition. HUMMISTON insisted that the uterus and adnexa may be normal

and yet there occur a tubal pregnancy. Early operation in rupture gives the only hope. He would operate even in shock, giving hypodermoclysis at the same time. STONE held that the microscope may not reveal positive evidence of a pregnancy, even when the mass is such, because the fetus and chorionic villi have been digested. DUDLEY (New York City) insisted on early diagnosis and early operation. In a nonseptic condition he would not remove the tube and ovary of the affected side. This is the practice of Ohlshausen, and is correct. In conclusion, BOVÉE held that the microscope should show positive evidence of pregnancy two or three months after rupture, should such a time elapse before operation became imperative or death occur. He would never leave the tube and ovary of affected side.

[To be continued.]

Section on Diseases of Children.

FOURTH SESSION.

Hematuria as the Earliest or only Symptom of Infantile Scurvy.—JOHN L. MORSE (Boston) stated that hematuria, though generally considered to be an unusual and unimportant symptom of infantile scurvy, was in many cases the earliest and only manifestation of the disease. He cited several cases showing how the hematuria had led to a diagnosis of scurvy, the bloody urine being present days or even weeks before any other symptom appeared. The speaker said the most common cause of uncomplicated hematuria in infants was scurvy.

Discussion.—AGER (Brooklyn) spoke of the difficulty of collecting urine in young children asking that the speaker explain his methods. STOWELL (New York) employed a small rubber catheter in securing urine for examination. He emphasized the importance of a more careful and systematic examination of the urine in children. He discussed the etiology of hematuria, citing the rarity of calculus as a causative factor in children as compared to its frequency in adults. He thought hematuria might be due to some specific germ. He said adrenalin at present gave the best curative results. McCLANAHAN (Omaha, Neb.) believed scorbutus was easily cured if recognized early, but too frequently it had progressed too far when diagnosed.

Intestinal Obstruction in Children.—JOHN F. ERDMAN (New York City) spoke first of intussusception. He said the diagnosis of this condition was made more often by the presence of mucus, bloody mucus or bloody stool than by the sausage-shaped tumor in the right iliac region. He thought the tumor was more likely to be round, or nodulated and movable than sausage-shaped and that the condition must exist some time before the tumor could be palpated. Sudden and violent pain is the first symptom, later becoming recurrent and colicky. There is a rise of temperature of 1° to 2° F. He discussed the difficulty of making a differential diagnosis from appendicular masses and other conditions simulating intussusception. He doesn't advise the use of enemas for reduction after the condition has existed six hours but advocates the use of enemas just prior to operation. He described in detail his method of operating and advised against the employment of traction in reduction. The appendix is usually removed. He usually makes his incision through the right rectus muscle as the ileocecal variety is the commonest and it lessens the liability to hernia. Examine carefully the abdominal contents for other causes of intussusception which not infrequently exist. The child usually has an enteritis following correction of the condition, passing greenish, foul-smelling stools. He spoke of cases of spontaneous reduction but thought they were rare and not usually complete. He spoke of the diagnosis and methods of treating strangulated hernia saying that 8.8% of all cases occur in children.

Discussion.—ABT (Chicago) thought cases of intestinal obstruction were not all mechanical, but often paralytic. He cited several cases he had seen that simulated obstruction, but thought they might be instances of ptomain poisoning. FISHER (New York) stated that children did not bear laparotomies well, the question of shock being the greatest factor. KELLY (Cleveland) advocated the use of opium early in the attack to produce spontaneous reduction as it quiets peristalsis. He thought manipulation if correctly employed was beneficial. In the use of injections of air and water to reduce an intussusception he thought air would be better if it could be measured. He often employed air first and followed it by water. A pressure of four or five pounds kept up for fifteen minutes he considered better than a higher pressure for a shorter time. HAMILL (Philadelphia) discussed the methods used in experimenting upon animals for the reduction of intussusception. MORSE (Boston) stated that children bear operation well if kept warm. In summing up, ERDMAN said that pressure of even six pounds could not be kept up. He said shock was primarily the cause of death in operating upon these cases. Hemorrhage from bowels nearly always follows reduction by manipulation. He stated that his operations were done in from 11 to 20 minutes, including the excision of the appendix. Intussusception will completely occlude the caliber of the gut.

Perinephritis in Children.—W. R. TOWNSEND (New York City) defined the condition as an inflammation of the tissues around the kidney, and said it was frequently dis-

cussed under the terms paranephritis, epinephritis, and perinephritic abscess. The disease is comparatively infrequent in children, but an erroneous diagnosis is made in 50% of cases. A correct diagnosis of the condition is rarely made before the appearance of the abscess, though it is possible in most cases if proper examination is made. The disease is described as primary or secondary, acute or chronic. In discussing the etiology he said it usually followed exposure, injury, excessive exercise, infection of perinephritic tissue, perforation of intestinal tract, extension from surrounding tissues, etc. It may follow typhoid, gallstones, pleurisy, pneumonia, etc. Eighty percent of primary cases, and all secondary cases end in abscess. It may be mistaken for neuralgia or lumbago. Frequently it is diagnosed as Pott's disease, as the spine is held rigid to lessen the pain. If psoas contraction occurs there will be flexion of the thigh and lameness with inclination of the body toward the affected side. Constipation is the rule, probably due to the great pain caused by defecation, though diarrhea has been noted. The disease is probably most often mistaken for Pott's disease, hip-joint disease, or infectious osteomyelitis of the spine. The speaker brought out the principal points of differential diagnosis between these conditions. If abscess exists, prompt surgical interference is necessary. He reported a number of cases in which an erroneous diagnosis had been made, all of these recovering promptly after operation.

Discussion.—JACOBI (New York) said the condition may be caused by a distended colon or by infection from the colon and suggested constipation as a cause as well as an accompaniment of the disease.

Diagnosis of Enlarged Bronchial Lymph-nodes in Children.—ALFRED FRIEDLANDER (Cincinnati) described these various glands and their anatomic relations. He discussed the frequent occurrence of these enlarged lymph-nodes saying they were but the precursor of tuberculosis, in fact, the autopsies in the majority of cases proved them to be tuberculous. He spoke of the liability of measles, whoopingcough and allied conditions to lay the foundation for tuberculosis. Tuberculosis in childhood is almost always a lymphatic involvement. It is very important that at least a presumptive diagnosis be made early, because of the amenability of the condition to treatment at that time. One of the first symptoms of enlarged bronchial glands is a paroxysmal cough. The appetite is capricious and anemia is often present which should always be looked upon with suspicion. The bronchial glands lie under an unyielding portion of the chest and when enlarged give many varieties of pressure phenomena. A sign of value in diagnosing this condition is a greater degree of enlargement in the subclavicular glands than those of the cervical region. A sign of some diagnostic value is a venous hum heard over the manubrium sternal when the child holds its head back and eyes looking toward the ceiling. An examination of the blood revealed a lymphocytosis in all cases studied.

Discussion.—GILBERT (Louisville, Ky.) spoke of the diagnosis of enlargement of the bronchial lymph glands, saying he usually recognized the condition by the appearance of a paroxysmal cough not relieved by the ordinary cough remedies. In such instances he employs iodid of potassium, which usually clears up the condition. JACK (Buffalo) believes the spasmodic cough of asthma and allied conditions was due to enlarged glands rather than to muscular spasm of the bronchial tubes. He believed the enlargement was due to material carried there by the circulation, these glands being the dumping ground for the blood. The question of adenoids and their harmful results was dwelt upon at length by the various members of the section. FRIEDLANDER thought that adenoids had received their full quota of consideration, and that other conditions might occasionally be present, demanding attention.

The Importance of an Early Aural Examination in Acute Inflammatory Diseases in Children.—JAMES F. MCKERNON (New York City) emphasized the necessity for frequent aural examinations during the course of acute inflammatory diseases. He said thorough and systematic examinations of the ear should be made regularly in children suffering from the exanthematous diseases. He described the methods of manipulating the parts so as to give space for viewing the deeper structures. The failure of the temperature to subside after an acute infection is not infrequently due to middle-ear disease. In an acute coryza, where the nose is blown often, mucus may be forced into the eustachian tube and an otitis media set up. Disease of the labyrinth often occurs in the course of enteric fever. In an acute middle-ear suppuration, with some temperature and a discharging ear, the danger of intracranial involvement is great. The writer had seen at least seven cases of involvement of the jugular bulb without the mastoid structures being affected. If acute cases were early recognized and treated, there would be no chronic cases.

Discussion.—JARECKY (New York) also recommended routine examinations of the ear in acute infections. He discussed the methods of examining ears of children as compared with those used in the adult. If any bulging occurs promptly incise the drum and wash out with an antiseptic solution. WALKER (Chicago) said otitis media could simulate almost any disease and cited a case diagnosed as pneumonia and typhoid which later proved to be middle-ear suppuration. HAMILL (Philadelphia) stated it was almost impossible for a man other than a specialist to diagnosticate otitis media before rupture of

the drum occurs. FISCHER (New York) discussed the temperature of otitis and its fluctuating character. He had seen cases in which the temperature was apparently normal and thought too much stress should not be laid on this symptom as a factor in diagnosis. Too strenuous cleansing of the nose may result in otitic disease. NYACK (New York) cited a case in which he had made careful observations and strongly endorsed routine, aural examinations. Chairman KERLEY said in 51 cases he had examined, the temperature was about his only guide. He emphasized the importance of otoscopic examination. He had three cases in which there was involvement of the jugular bulb and streptococci were found in the blood. McKERNON advised against the use of peroxid of hydrogen in irrigation as it may displace infectious matter and induce mastoid disease. He would incise immediately in all cases of bulging of the membrane and sometimes when no bulging occurs. He thought that in every case there had been temperature even though it were not present at the time of the examination. Never use a douche or spray in the nose of a child but wipe out the nasal chambers with a cotton drip probe.

[To be continued.]

Section on Ophthalmology.

SECOND SESSION.

Is Bilateral Operation for Cataract ever Justifiable, and if not, How Soon after the Operation on the First Eye is it Safe to Extract the Second Cataract?—A. W. CALHOUN (Atlanta, Ga.) read a paper with this title and referred to a circular letter he had sent to 57 American ophthalmologists to determine this question. He briefly stated the replies, which were equally divided on both sides of the question. He quoted cases in which anomalous healing, infection, and other complications affecting the first eye would have been more serious in prognosis had both eyes been operated upon at the same sitting. He also cited cases in which unfavorable results followed the bilateral operation and cases in which the eyes were operated upon separately, with a bad result in the first eye and a good result in the second at a much later period. He thought the dangers from temporary mental perturbation, sneezing, coughing, etc., were of more serious import following the bilateral operation. Personally, he would not submit to bilateral operation and said he believed it to be unjustifiable for the following reasons: The danger and numerous sources of infection; the menace to the eye through the occasional anomalous healing process of the corneal wound; the peculiar helpless condition of the patient with double extraction, and the depression of spirits in the event of serious inflammation retarding recovery; the great advantage and value of the experience gained by the single operation; the various accidents followed by a possible sympathetic inflammation which necessitate enucleation of the eye upon which the operation is performed; and the disturbed mental condition, such as hallucinations, acute mania, etc., that may arise and retard the healing process. He also gave a number of sound reasons why the second cataract should not be extracted at all if the first operation was successful. He never urges the second operation when the first is successful unless the patient especially desires it, then if at the end of six or eight weeks there is an entire subsidence of inflammatory symptoms the second operation is performed.

Discussion was opened by J. M. RAY (Louisville, Ky.), who agreed with the essayist as to the unjustifiability of the operation, and stated that it was seldom necessary to consider the procedure, as few cataracts mature at the same time. Usually one is mature before the other. He had never performed the bilateral operation, but saw no reason why the second eye should not be operated upon eight days after the first if the patient so desired it, and there were no inflammatory symptoms. He objected to the bilateral condition in patients over 70 years of age. J. L. THOMPSON (Indianapolis) related his early experiences with the bilateral operation and the good results he obtained, but stated that now he prefers not to consider the operation except under certain circumstances. He urged the necessity of iridectomy and especially a preliminary iridectomy in all cases. H. A. HANSELL (Philadelphia) said he had operated upon 12 cases bilaterally with encouraging results, and that he could see no greater danger in the double than the single operation with the usual precautions. He always consulted the desires of the patient in the matter, allowing him to share the responsibility. S. B. MUNCASTER (Washington) also discussed the paper, giving his opinion and results in the operation. P. A. CALLAN (New York City) believed Calhoun to be too radical in condemning the operation, and stated that he had frequently performed the operation without bad results. He always operates thus if the patient desires it and the cases are uncomplicated. He thinks the patient should be given all the vision possible. CLARK (Columbus, Ohio), did not think the patient's desires should influence the question of operation, and believed that the surgeon should decide the matter on his own judgment, as the responsibility rested entirely with him. THORPE took part in the general discussion, and asked the essayist if he had ever performed the bilateral operation on a patient 40 years of age for congenital cataract. Calhoun, in closing the discussion, remarked on the unanimity of opinion concerning this operation. He stated that at one time he operated

bilaterally, with success, but seeing a case of failure in the hands of a colleague, has since deterred him from employing this procedure. He thought the period of eight days suggested by Ray was too short, and believed a period of six to eight weeks was none too long. He recalled no case of bilateral extraction for congenital cataract in a patient of 40 years. He then related the histories of several cases of traumatic cataract and showed their relation to the bilateral operation.

Reclination of the Lens, under Certain Conditions a Justifiable Operation.—E. T. ROGERS read this paper which consisted of a definition of the operation and the various forms of couching together with a brief history of the procedure and the various methods employed by regular and irregular surgeons. He quoted statistics from various sources and reported several cases with favorable results. He also made a comparison of the results following traumatic dislocation of the lens. The essayist made reference to a circular letter he sent to 73 leading ophthalmologists concerning the operation of reclination and tabulated their opinions with a view of determining whether or not the operation was justifiable and the conditions in which it may be of value. The reader then recited the history of a case in which one eye alone was present and was cataractous and other operative measures were impracticable on account of an intractable conjunctivitis and dacryocystitis. Six months after the operation of reclination vision was fairly good but the result at the end of a year was not so good. Neuralgia was present as a complication. He concluded from his observations that in cases in which opening of the eyeball for the extraction of the lens was contraindicated for any reason that this operation should be at least considered.

Discussion was opened by L. W. FOX (Philadelphia) who stated that he rejected the operation on account of the great liability to be followed by glaucoma and iridocyclitis which complications more than overbalance its good results. He urged treatment of the conjunctival and lacrimal conditions over a much longer period and the employment of less strong solutions. He advised in intractable cases with cataract, ligation or extirpation of the sac and then removal of the lens by extraction. He briefly referred to his antiseptic technic in the preparation of the patient for operation stating that it was especially applicable to these cases. He applies gauze pads saturated with a 1 to 5000 bichlorid of mercury solution to the eyelids continuously for several hours before the operation and immediately before the operation thoroughly flushes the cul-de-sac with sterile boric acid solution by means of a pipet connected to an irrigating bottle by means of rubber tubing. He also made mention of Manthner's method of reclination and stated that he spoke of it only to condemn it. He said he was opposed to the routine practicing of the procedure and to teaching of it as such but would be slow to criticize it in individual cases taking into consideration the personal equation of the operator. H. V. WÜRDEMANN (Milwaukee) said he was convinced that it should be rejected and did not think that conjunctival and lacrimal disease to be sufficient indications for its performance as he feared puncture of the eye in these cases more than corneal section. He had only seen one case in which reclination was indicated. In this instance nature had performed a partial reclination in one eye and he then performed a complete reclination in the other eye, holding the lens down for five minutes, and obtained good results. J. R. THOMPSON (Indianapolis) stated that in fluid vitreous in which nothing else was practicable he had performed it with gratifying results, but preceded it and other cataract operations with a preliminary iridectomy. PARK (Harrisburg) mentioned a case in which reclination was accidentally performed during an attempt to perform the extraction operation. The results were good and had remained so for 8 years and the patient was thinking of having a similar operation on the other eye. S. D. RISLEY (Philadelphia) related the history of a colored man on whom a surgeon reclined the lens on the roadway with an ordinary needle; 12 years later he consulted Risley and then had fluid vitreous, floating lens, atrophic choroiditis, and extremely poor vision almost to the degree of blindness. He believed that atrophic choroiditis was a common sequel in all these cases. In closing the discussion, Rogers stated that he thought the cases in which it was indicated were very rare, but they did exist. He accepted the dangers and complications mentioned as possible, but he thinks the individual features of each case should be considered. In response to Risley, he doubted whether the choroidal condition had not previously existed.

[To be continued.]

Section on Pathology and Physiology.

THIRD SESSION.

Physiology of the Middle-ear.—J. HOLINGER (Chicago). The middle-ear consists of the eustachian tube, the mastoid cells, and the drum cavity which contains the membrane and the ossicles. The first two are accessories of the third. The middle-ear apparatus consists of the membrane plus the chain of ossicles. The paper further discusses the physiologic action of this apparatus according to Helmholtz's analysis of the work of Zimmermann, and of Bezold's contradictions of the same and the theories which the latter has elaborated. The function of the mastoid cells and of the eustachian tube is, according to

Holinger, simply that of an air reservoir. One of the main points brought out by the paper is the value of the careful observation of pathologic conditions in the analysis of old theories and in the formation of new.

The Anatomy of Bartholin's Glands; Cysts of Bartholin's Glands.—THOMAS S. CULLEN (Baltimore). These glands, first described by Duvernoy (1631) and first carefully studied by Bartholin (1676), are situated in the lateroposterior wall of the vagina, about 1 cm. from the posterior margin and are about the size of an elongated pea. The glands consist of a collecting duct with many secondary ducts running from them into definite lobules of irregular form. In the early embryo the glands appear as solid cords passing from the urogenital sinus. The main duct near the vagina is lined by squamous epithelium, nearer the gland by transitional epithelium, the superficial layer of which is cylindric; the secondary ducts are lined by transitional epithelium or one layer of cuboidal; the gland proper is lined by one layer of cylindric epithelium which closely resembles that of the glands of the cervix uteri. As a result of inflammatory processes the duct may become occluded and retention cysts result. The form of the cyst will naturally vary according to the point where the occlusion occurs.

The next paper, **Further Studies on Bacterial Intracellular Toxins**, VICTOR C. VAUGHAN (Ann Arbor), excited the greatest interest of any of the papers presented to the session. The toxins are obtained by chemie extraction of masses of bacteria grown in tanks containing 22 square feet. The studies have been followed for the past six years, and show that many bacterial cells are more or less poisonous. The work has been done mainly with colon, typhoid and anthrax. From these pathogenic organisms toxic substances have been split off by the use of dilute acids. It seems to matter little whether this acid be a weak or a strong dilution, which goes to prove the chemie nature of the process. These toxins are called basic toxins and are not protamins. With aqueous alkalin solutions the extracts are mucilaginous, almost impossible to filter. But if the cells be treated with 2% solution of caustic soda in alcohol the extract is perfectly clear and filters readily. The substance purified by repeated washing and redissolving is soluble in water. This is powerfully toxic, killing guinea pigs of 400 gm. weight in a few minutes. Experiments are now in progress to determine if the injection of these extracts will confer an immunity to subsequent inoculation with the living germ. The work has progressed sufficiently to show that immunity can thus be induced. On the basis of these results Vaughan has elaborated a slightly new idea of immunity, though it is really nothing more than the reduction of Ehrlich's theory to more definite chemie terms. The paper is of the greatest value and interest, since it is the first step, and a long step, toward placing the theory of immunity upon a definite, chemie basis.

The discussion by TERRELL (Galveston), CLEMENS (Rutledge), SEWALL (Denver), MELTZER (New York), and VAUGHAN dealt with several minor points which were not quite clear in the paper. HALL (Chicago) moved a vote of appreciation of the excellence of Vaughan's paper, which vote was unanimously passed.

The Pelvic Ureteral Sheath and its Relation to the Extension of Carcinoma Cervicis Uteri.—JOHN A. SAMPSON (Baltimore). The pelvic portion of the ureter is surrounded by a sheath which is apparently derived from the tissues which surround the ureter. This sheath is of a definite anatomic structure, and is of great importance to the ureter, since it forms a channel in which the ureter may slide as it contracts, and protects the ureter, together with its bloodvessels, from the invasion of newgrowths or of inflammatory processes. On the other hand, the involvement of the sheath by a neoplasm or an inflammatory process compresses the ureter, causing hydronephrosis, and predisposing the kidney to infection.

The next in order was the business meeting of the session. Upon motion of Rosenau, Washington, the secretary was instructed to cast a unanimous ballot for the names presented by the nominating committee, for president, Winfield S. Hall, Chicago; for secretary, Henry A. Christian, Boston; for delegate, Joseph MacFarland, Philadelphia.

The Passage of Different Foodstuffs from the Stomach.—W. B. CANNON (Boston). Different foodstuffs mixed with bismuth subnitrate can be studied in passage from the stomach by the röntgen ray. Aggregate length of shadows cast by food in the small intestine indicates the relative amount passed from the stomach at different observations. The three kinds of foodstuffs, similar in amount and consistency, were fed separately. Carbohydrates and fats begin leaving the stomach soon after ingestion; carbohydrates leave rapidly, fats slowly. Proteids begin passing out much later than the others, and go slowly. The remarkable difference between proteids and carbohydrates can be explained by assuming that free acid opens the pylorus. Proteids delay the appearance of free acid and therefore do not pass out immediately. Acid proteids leave the stomach as quickly as carbohydrates; and carbohydrates made alkaline leave slowly, like proteids. Proteids fed first delay the passage of carbohydrates fed later. As is known, acid in the duodenum prevents food leaving the stomach. This effect is exerted on the pylorus. Free acid, therefore, opens the pylorus from the stomach and closes it from the duodenum. In the duodenum the acid is soon neutralized, whereon acid in the stomach opens the pylorus and more food passes.

Discussion by HALL (Chicago), HARRINGTON (Boston), BERGEY (Philadelphia), TURCK (Chicago), SMITH (Atlanta), and CANNON, turned upon minor details of the subject.

Extensive Thrombosis of the Sinuses of the Cerebral Dura, with a Report of Two Cases.—WILLIAM G. SPILLER and C. D. CAMP (Philadelphia). The first case was in a feeble-minded child. Many of the sinuses of the dura were occluded, and some of the cerebral veins were greatly distended with coagulated blood. Inflammation of the pia was found. The specimen in the second case showed old occlusion of the superior longitudinal sinus, and the formation of new blood passages within the dura. The difficulties of clinical diagnosis and the theories of the causation of this form of thrombosis were discussed; the writers inclined to the idea that the process could be explained by some of the newer ideas concerning the coagulation of the blood. In the discussion, WELCH (Baltimore) pointed out the mechanical conditions which must be considered in every case where a small vessel empties into the side, or at an angle in a large vessel, causing a vortex in the blood current, and favoring the formation of agglutinated masses of blood-platelets or of Arnold's bodies, which is more probably the cause of the thrombosis than the coagulation of blood.

A Case of Diffuse Encephalitis Showing the Pneumococcus.—W. N. BULLARD and F. R. SIMS (Boston). **A Case of Cortical Hemorrhage following Scarlet Fever.**—E. E. SOUTHARD and F. R. SIMS (Boston). These two papers were read by E. E. SOUTHARD (Boston). The two cases were very briefly presented. Southard calls especial attention to the faults of the technic which is usually followed in the study of the pathology of the brain, namely, that of throwing the brain into a 10% solution of formalin, and then expecting the neuropathologist to obtain a clear idea of bacterial invasion or of the encephalitic process.

Borated Food as a Cause of Kidney Lesions.—CHARLES HARRINGTON (Boston). Adverse opinions concerning the advisability of permitting the use of boron compounds as food preservatives are based chiefly on untoward results of boron medication, not infrequently observed, and on acute symptoms occurring soon after experimental ingestion of borax and boric acid or of foods containing them. Favorable opinions are based mainly on the absence of subjective symptoms in experimental feeding, and also on the fact that certain individuals have taken borax daily for long periods with no apparent injury. The object of most of the scientific work done with reference to the borax question has been the determination of the effect of the drug on digestion and metabolism. Research to determine what lesions may be caused by long-continued ingestion of borated food. Of 12 cats kept under precisely similar conditions and fed on the same food, 1 received no added chemical, 6 received a daily dose of borax, and 5 received a daily dose of another food preservative. After 16 weeks they were killed and their organs examined microscopically. Extensive lesions of the kidneys, and practically nothing else, were found in 5 of the 6 borax-fed cats and in none of the others. Conclusion drawn that borax is a dangerous food preservative.

At the close of the session, MYASHIMA, who is representing the Imperial Japanese Institute for Infectious Diseases, of Tokio, at St. Louis, presented, upon invitation, some very remarkable drawings and specimens, and read an important contribution to our knowledge of malaria. The only type of malaria encountered in Japan is the tertian form; there is also but one species of Anopheles to be found there. But in Formosa several of the types of malaria are seen, among them the estivoautumnal form, and cases of this disease are constantly being imported into Japan from Formosa, yet no cases are seen except in patients who have contracted the disease in Formosa. The conclusion is drawn that the species of anopheles which occurs in Japan is able to transmit the parasite of tertian fever, but not the form which causes the malignant type; in other words, a given species of mosquito may be able to harbor the plasmodium of only one form of malaria, and be immune to the other forms of plasmodiums. In the discussion, WELCH (Baltimore) pointed out the great importance of this observation, and expressed the pleasure of the section in greeting the representative of Japanese research.

[To be continued.]

Section on Laryngology and Otology.

THIRD SESSION.

Hemorrhage of the Larynx.—JOHN EDWIN RHODES (Chicago) classifies hemorrhage of the larynx as (1) cases in which loss of blood through the mucous membrane of the larynx manifests itself mainly by hemoptysis; (2) in which there is no spitting of blood, but in which evidences of hemorrhage are found on careful laryngoscopic examination of the larynx in an extravasation of blood in the tissues beneath the mucous membrane; in these cases precision in diagnosis is desirable. The etiology is dependent upon injuries, inflammation, local diseases, bloody dyscrasia and unknown causes. Particular stress was laid upon the fact that the exciting cause is often from unusual vocal effort, though it may be from coughing, vomiting, etc. The condition is rare and the pathology little understood. All forms of ulceration may lead to hemorrhage. The paper embodies a very careful and thorough review

of the literature on the subject with a report of cases of his own, as well as those which came under the observation of other authors. Under treatment the most important factor is always rest of voice, upon which too much stress cannot be laid.

Discussion.—DONNELLAN (Philadelphia) mentioned a case observed in association with the gouty diathesis, which was at first supposed to be of tuberculous origin. He referred to the importance of laryngeal hemorrhage in reference to insurance. He also mentioned a case in which the stopping of bleeding hemorrhoids was followed by laryngeal hemorrhage. CASSELL-BERRY (Chicago) mentioned two cases resulting from violent use of the voice, one in the case of a "rooster" at a football game, and the other a speculator at the Board of Trade. Another case referred to was a hemangioma of the vocal cord caused by cauterization.

A Review of 100 Operations for the Correction of Deviation of the Nasal Septum: Remarks on Septal Operations.—JOSEPH S. GIBB (Philadelphia). This was a report of cases in which several methods for the correction of septal deviation were employed. The following is a summary of the conclusions: (1) No single operation suitable for all cases of nasal septal deflection is known; (2) each case should be a study in itself, and the judgment of the surgeon must determine the operative measure best suited for that particular case; (3) the Asch operation is eminently satisfactory in the large number of cases in which the cartilaginous septum alone is deflected; (4) deviation of both cartilaginous and osseous septums offers the most difficult problem to solve, and no one operation meets every indication, but in many the Watson-Gleason offers a good chance for success; (5) there are some cases in which the removal of spurs, either cartilaginous or bony, will accomplish the best results without the formidable division of the septum; (6) there is a certain number of cases which must be classed as inoperable; (7) perforations occur in about the same number of cases in all operations in which an entire division of tissues of the septum is effected.

Discussion.—MYLES (New York) reported in his experience success and failure in all methods and stated that in some cases he has found it better to take off a part of the deflected projection of the septum and a part of the outer wall. WHITE (Boston) and FREER (Chicago) spoke in favor of the resection method as being the most satisfactory yet devised for every class of cases. This is the operation devised by Freer and reported for the first time two years ago.

Throat Complications of Typhoid Fever.—FRANCIS J. QUINLAN (New York) brought out in a very clear and forcible manner the importance of symptoms on the part of the larynx and trachea in typhoid fever which are frequently considered as of little consequence, yet may result in sudden and unexpected death. Pharyngitis: May be slight catarrhal: membranous, serious and fatal; diphtheric, not very uncommon. Tonsillitis: Special of typhoid—tonsillotyphoid or pharyngotyphoid. Laryngitis: Under this class he makes two divisions: (1) Laryngotyphoid, respiratory disturbances sometimes initial stage of typhoid; (2) late manifestation of typhoid apparently less frequent in America than on the Continent. Varieties: Mucous, edematous, diphtheric, perichondritic. Following this he treated of symptoms, physical signs, history of cases, treatment and termination.

Spontaneous Tonsillar Hemorrhage.—LEWIS S. SOMERS (Philadelphia). This paper consisted in the report of a case, a woman, aged 71, with left peritonsillar abscess, which was followed by spontaneous rupture, profuse hemorrhage, two days later, controlled by pressure. There was destruction of tonsil by abscess, and erosion of the artery of anterior pillar of the fauces. Following this was a brief report of similar cases from literature, from which he brought out the point that early evacuation is necessary to prevent erosion of arteries, especially the internal carotid, which was involved in most cases. Severe or fatal hemorrhage usually occurs late in second week and may or may not be preceded by several moderate bleedings. The relation of hemorrhage to time of rupture of abscess shows that any serious loss of blood does not usually occur for several hours or even a day after the pus has spontaneously evacuated. Usually two or more severe hemorrhages occur before the patient succumbs, and the outcome of every case is very grave. In all cases the gravity requires energetic treatment, even to the ligation of the carotid artery.

Tuberculous Laryngitis: Prognosis and Treatment.—THOMAS J. GALLAHER (Denver, Colo.). The reparative process in the larynx is influenced by the amount of pulmonary involvement. Nil if extensive and rapidly breaking-down pulmonary areas; more favorable if slight pulmonary changes and good general condition. Unless the pulmonary and general conditions improve there will be no local reparation. If the entire larynx is involved including the perichondrium and cartilages the case is hopeless. Ulcerations in the commissure and on the epiglottis are most intractable; those on the cords less so, while superficial ulcerations are more amenable to treatment than deep ones following marked infiltration. Lesions in the larynx he classified as follows: Infiltration, superficial and deep; ulceration, superficial and deep; both associated with more or less edema. Treatment: Palliative; cleansing larynx and soothing applications. Radical: Curetment, followed by strongly germicidal remedies; insufflations. Where there are ulcerations with vegetations, remove adventitious tis-

sue so that the remedies may reach the parts. After such process the author finds best results from formaldehyd solution, 3% to 5%, followed by insufflation of aristol and orthoform. Lastly, intratracheal and laryngeal injections of oil containing menthol and oil of cinnamon.

A Report of Some Unusual Intubation Cases.—BURT RUSSEL SHURLY (Detroit). The paper included a consideration of intubation in private practice, giving technic with complications, with report of cases. Summary of conclusions: 1. The O'Dwyer tubes and instruments are generally satisfactory; no cheap modifications or substitutes are desirable. 2. Digital exploration of structure about the entrance of the larynx important in diagnosis. 3. Failure to intubate due to operator more often than condition of larynx. 4. Obstruction of tube more frequent after large doses of antitoxin. 5. Early intubation advocated in private practice and removal of tube on fourth day. 6. Antitoxin shortens the time of wearing tube from two to three days. 7. In dangerously obstructive papillomatous cases in children, intubation is indicated as the primary operation, as it is also in acute laryngeal stenosis of adults.

The Radical Operation for Chronic Suppurative Frontal Sinusitis.—W. FREUDENTHAL (New York) stated that in order not to be misunderstood in his conclusions he believed that the great majority of cases improve under intranasal treatment. In others the symptoms may be more pronounced, but the patients would rather endure them than undergo a serious operation, hence by all means first try intranasal procedures. Conclusions: 1. He commends the conservative treatment suggested by Kuttner of Berlin. 2. In those cases in which operation is necessary, Killian's method seems at present to give the best results. 3. The first opening in the frontal sinus must always be made below the outlined bridge, and only after exploring the sinus should another above it be made. 4. In the latter case we may leave a bony bridge, which helps toward improving the cosmetic effect. 5. Closing of the external wound immediately after operation is by far preferable for such cosmetic effect.

Following this the section adjourned for a demonstration by A. LOGAN TURNER (Edinburgh) who by special invitation presented a paper on **The Operative Treatment of Chronic Suppuration of the Frontal Sinus, with Special Reference to the Method of Killian**. Owing to the universal reputation of Turner attained by his extensive and thorough research of sinus disease, this paper had been looked forward to as one of the most important events of the meeting. Beside the members of the Laryngological Section many from the other sections of the Association were present. His paper was greatly elucidated by lantern demonstration of specimens of cadaveric dissections and actual operations. From several points of view the subject is one of deep interest and along with the surgery of the other nasal sinuses the history of its gradual development is a very engrossing one. In connection with the advances in this department, Americans have taken a prominent place, in proof of which need only be mentioned the names of Holmes, Lothrop, Douglass, Mosher, Howard, Ingersoll, Pearce and Bryan, among others.

Indications for opening the sinus: The somewhat numerous fatalities which have occurred after operation, the fact that relapses are not infrequently met with, and the possibility of considerable disfigurement attending a radical procedure are factors which must naturally cause the surgeon to weigh carefully the circumstances connected with each case before he urges operation upon his patient. Till more extended experience and improvements in our operative technic make it possible to recommend operation in every case with almost certain knowledge of obtaining permanent cure, with smallest amount of disfigurement, we must recognize certain symptoms and local conditions which make surgical interference imperative, namely: (1) symptoms suggesting cerebral complications; (2) pain, usually of the nature of headache, which may be of a very severe and persistent type; (3) distention of one of the bony walls of the cavity, or the presence of a fistula discharging externally. If the general health of the patient is evidently affected by the continued suppuration, or if he should suffer from great mental depression and anxiety regarding his condition, a state of affairs which sometimes exists in these cases, we should not refrain from urging the operation. So far as we are able to ascertain, we cannot draw definite conclusions as to the percentage of cases of frontal sinus suppuration in which intracranial complications arise. That they do occur, there is ample evidence to show, and there is the possibility that they may even occur more frequently than statistics would indicate, the more aggravated symptoms in some cases relieved by treating the intranasal condition. If nasal polypi are thoroughly removed, along with anterior end of middle turbinated bone, and the anterior ethmoidal cells opened into, better drainage may be established and the outflow of secretion rendered more easy.

Operative procedure: Notwithstanding numerous operations and their various modifications, many of which are associated with names of different surgeons, there are only two main principles involved. (1) The sinus is opened and drained into the nose, but its cavity is preserved; or, (2) the sinus is obliterated by the removal of one or more of its bony walls so that there is no longer a cavity to deal with. The Ogston-Luc operation consists in opening the frontal sinus through its

anterior wall, size of opening being relative to the dimensions of the cavity in careful curetting of its interior, and in establishing a large communication between the sinus and the nose at the same time destroying the anterior ethmoidal cells in the region of the nasofrontal duct. Drainage into the nose is insured by the introduction of a strip of gauze through the nasofrontal aperture and the operation is completed by immediate suture of the skin incision. Probably used more widely than any other, yet results show that the class of cases suitable for it is small, due to anatomic causes. Illustrated with figures; considered in all its aspects. The frequency of ethmoidal suppuration associated with frontal, noted, as observed by different authors, the total figures showing that in 172 cases in which chronic suppuration of frontal sinus existed the ethmoidal cells were implicated in 102, or in 60%. In operation for obliteration of sinus, the method of Kuhnt is described, in which the whole of the anterior wall and also to greater or lesser extent the floor is removed. Postoperative mortality considered. Disfigurement. Osteoplastic operation used by some by raising a bone flap from anterior wall of sinus. Killian operation, for which the author claims the best radical treatment of the disease with a minimum disfigurement. Killian advises it in all cases even when there is no discomfort beyond slight nasal discharge. Should a more general and extended experience prove equally satisfactory, it is possible that in the Killian operation we have at least obtained a method of dealing with chronic frontal sinus, suppuration in large and complicated cavities, which may be regarded as the method *par excellence*. The whole sinus with its recesses and partitions is thoroughly inspected and the cavity is almost completely obliterated by the resection of its anterior and inferior bony walls. Further by the removal of the ascending or frontal process of the superior maxilla, excellent access is obtained to the ethmoidal cells and a large opening of communication is thus made between the frontal sinus and the nasal cavity, establishing good drainage. To reduce to a minimum the deformity, which may follow so extensive a dissection, the supraorbital bony margin is preserved as a bridge between the gap formed by removal of the anterior sinus wall and the floor.

Conclusions: No single method of procedure applicable in all cases of chronic suppuration in frontal sinus. When sinus is small and can be thoroughly inspected through aperture made in anterior wall, and when no ethmoidal disease coexists, simple opening by Ogston-Luc method may prove satisfactory. In every other class of cases he would recommend and practise obliteration of sinus by removal of its anterior and inferior walls. Whatever be the exact radical procedure adopted, there is no doubt of the value of removing the ascending process of the superior maxilla in order to gain better access to the ethmoid labyrinth and nasal cavity. The section extended a unanimous vote of thanks to Turner.

[To be continued.]

Section on Materia Medica.

THIRD SESSION.

Drugs Irritant to the Kidneys, and Hence to be Avoided in the Impaired Kidney Function.—TORALD SOLLMANN (Cleveland, O.). Read by Hatcher. If all irritants to the kidneys are to be avoided, stimulants cannot be given nor can diuretics or the potassium salts be employed. He emphasizes the fact, that the experiments made upon animals are not always applicable to man. He believes the urine should be examined before and after the experiment. Sollmann lays stress upon the importance of the percentage of proteids in the urine of nephritis. This percentage is not increased by either water or diuretics, but the reduction of the water increases the albumin content. Irritants absorbed injure the kidneys in small doses, and some irritants attack certain structures of the kidney more severely than others, as for instance, cantharides, which affects the glomeruli primarily, and secondarily the tubules.

Some Aspects of the Newer Physiology of the Gastro-intestinal Canal.—LAFAYETTE B. MENDEL (New Haven, Conn.) announced that, according to some of the later investigations, it is found that there is very little peristalsis in the cardia of the stomach; here salivary digestion continues for some time. The motility of this organ is principally confined to the pyloric end. Free hydrochloric acid, he says, in the stomach stimulates the pylorus to relax and allows the food to pass out, while acid in the duodenum stimulates the same structure to contract and causes the flow of bile. He attributes the flow and production of secretion as being due, to a certain extent, to chemic and psychic influences. In speaking of the functional adaptability, he calls attention to the fact, that the quality of the diet influences the amount and character of the elements in a secretion; for instance, a large meat diet gives rise to an abundance of trypsin, and a large vegetable diet calls for an abundance of amylase. Errors in diet produce alterations in the quality of the secretions. The acid chyme seems to be influential in the stimulation of the intestinal juices, for when this chyme is no longer acid the intestinal juices are no longer secreted. To the mucous membrane must still be ascribed the

power of changing the peptones before entering the blood. The absence of autodigestion in the pancreas is due to the lack of trypsin in this organ. The autodigestion of the stomach and intestines is prevented by antipepsins and antitrypsins. The intestines, he believes, are greater excretory organs than is generally held, for he said the strontium salts, no matter how administered, are largely excreted by the intestines. The feces, he says, are not merely residue of foodstuffs, but are composed, to a large extent, of metabolic products.

Etiology and Pathology of Gout.—THOMAS B. FUTCHER (Baltimore), in discussing the etiology of this affection, thinks heredity is a very important predisposing factor. The disease is more frequent in the white male; he has seen it in two negroes; the initial attack usually occurs between the thirtieth and fortieth years. Alcohol stands next to heredity as a predisposing cause, but is usually seen after the use of fermented alcohols; not very frequently after the use of distilled alcohols. Food is an etiologic element if taken in unnecessary quantities with insufficient exercise; if the amount of exercise is sufficient to utilize all the food ingested it is not a causative factor. Lead, Futcher says, is a frequent cause of gout. He maintains that the uric acid theory can not be ignored as yet. In gout, he asserts there is an increase in the amount of uric acid in the blood owing to the deficient excretion by the kidneys. In discussing the pathology of gout Futcher says the biurate of sodium is deposited in the superficial portion of the articular cartilages farthest from the circulation. He says the alkalinity of the blood is not diminished. The lesions associated with gout are chronic interstitial nephritis, arteriosclerosis, myocarditis, endocarditis, terminal pericarditis, and emphysema.

[To be continued.]

Section on Cutaneous Medicine and Surgery.

THIRD SESSION.

Dermatitis Herpetiformis.—WM. T. CORLETT (Cleveland, O.) reported a case treated with röntgen ray. Adult male, with a questionable family history; personally has had all diseases of childhood. Dermatitis began two years ago with progressive emaciation and glandular enlargement. General physical appearance of skin yellowish, with excoriations on back and extremities; epidermis quite thickened. Temperature, pulse and respiration normal. Externally treated by röntgen ray, the patient standing about six inches from tubes; internally, tonics. Three months later patient was found to be cured. CURRIER has seen a similar case that was sent to arsenic springs. Result, cure.

A Comparison of Radiotherapy, High-frequency Therapy and Phototherapy in Skin Diseases.—C. W. ALLEN (New York City) presented the paper. Each has its own therapeutics. In the actinic rays nearly every case receives burns of more or less degree. Mycosis fungoides, in Allen's experience, has been cured by röntgen ray. Arc-light therapy is limited to a few skin diseases. The ray influences mucous membrane infinitely better than actinic light. The greatest results of the treatment of lupus vulgaris have been obtained by Röntgen, of Copenhagen. Radiotherapy is advantageous in that it is less painful than röntgen ray. In epithelioma curettage should be practised in conjunction with röntgen ray. Phototherapy should be continued until a cicatrix is formed. The field of usefulness of röntgen ray is by far broader than that of the Finzen treatment. With high-frequency spark it is possible to remove lesions of lichen planus erythematosis. He cites a case which high-frequency current cured in one sitting. Röntgen ray is better in every respect than phototherapy or radiotherapy. Allen gave the technic in using high-frequency current.

Iodin, its Absorption and Elimination.—BAUM (Chicago) spoke of the therapeutic value of the inorganic salts of iodine, the channels through which it is eliminated and conditions under which vicarious elimination takes place. Metallic iodine is very difficult of absorption if applied locally. He gave examples of untoward effects of the drug on skin, mucous membranes, blood, and the blood-pressure, and reported a case in which potassium iodid had been administered in lethal dose and found 13 minutes later in the urine. He believes that iodine salts gives better results than iodine *per se*.

Röntgen Ray in Skin Diseases.—PFAHLER (Philadelphia) reported two cases of nevi, both of which were benefited by the application of röntgen ray, also a case of lupus vulgaris in a physician treated by röntgen ray, 13 applications given in six weeks with good results. There appeared a spicule of bone at the external canthus of right eye, which disappeared under treatment. Pfahler treated a case of epithelioma of the lip, using surgery as an adjunct to röntgen ray. In this patient he believes neither procedure alone would have produced a cure. Röntgen ray, in Pfahler's opinion, is the best treatment for acne, especially when carried to the extent of an erythema.

The Consideration of Late Hereditary Syphilis.—CAMPBELL (Chicago) read a paper describing the means of diagnosis. Long periods of latency occur in acquired syphilis. He mentions the diagnostic value of Hutchinson's teeth in

the condition; these are present in the minority of cases. Interstitial keratitis is also a valuable symptom in diagnosis. Deafness and acute ulcerative destruction of hard palate are good points to note. Late hereditary syphilis may affect the skin as gummas; these may ulcerate. Cases of late hereditary syphilis are not very frequent in literature. He reported a case of effusion in both knees, due undoubtedly to syphilis, as family history proved.

Discussion.—BRINKMAN has never seen locomotor ataxia in which a history of syphilis could not be elicited. BULKLEY has seen a case of hereditary syphilis in a man aged 30.

The Treatment of Lupus Erythematosus by Repeated Applications of Ethyl Chlorid.—HARTZEL (Philadelphia.)

A Case of Continuous Acrodermatitis Controlled by Röntgen Ray.—MONTGOMERY thinks that this disease should not be classed with dermatitis repens which it resembles closely. In acrodermatitis no cutaneous atrophy occurs. It has little or no tendency to invade parts other than the digits and extremities and is very difficult to cure as a rule. The condition manifests itself by vesicles which may become pustular. The disease is of long duration. The patient was a healthy male adult, in whom the affection was confined to the fingers entirely. He had been treated without benefit for a long period of time by others. Montgomery tried Lassar's paste with slight amelioration of the burning sensation of which the man complained. Finally röntgen ray treatment was instituted. Nine exposures were given an erythema developing therewith. The lesions disappeared entirely. Subsequently the patient returned with a few new vesicles, but these yielded quite promptly to the röntgen ray.

[To be continued.]

Section on Hygiene and Sanitary Science.

THIRD SESSION.

Purulent Conjunctivitis and Blindness.—EDWARD JACKSON (Denver, Colo.). Not all purulent conjunctivitis of the newborn is due to the gonococcus, but the gonococcus is the agent of that sort of purulent ophthalmia which terminates in life-long blindness, causing in Europe 30% and in this country 15% to 18% of this terrible disability. The true significance of these figures becomes apparent when one realizes that this blindness is almost entirely preventable. Clean midwifery will greatly diminish the number of cases of ophthalmia neonatorum, but will not wholly prevent it. Special local prophylactic measures are required whenever there is reason to suspect that the vagina may harbor the gonococcus. No better procedure has been suggested than the Crêde method of dropping a single drop of 1% or 2% solution of nitrate of silver from a glass rod upon the cornea and allowing the solution to flow to all parts of the conjunctival sac without any other manipulation than holding the lids apart. Nitrate of silver still remains the best agent for this purpose, though there is a hope that some of the less irritant salts of silver may be found as effective. When purulent ophthalmia occurs, treatment, in order to save the sight, must begin before the cornea is visibly involved. Frequent cleansing with bland fluids, avoiding mechanical disturbance of the inflamed area, and paying especial attention to the overhanging corneal margin, will give the best chance of avoiding corneal injury. The chances of acquiring gonorrheal conjunctivitis in adult life should be fairly impressed upon the public mind. Gonorrhea is a malignant contagious disease, and should be publicly recognized and dealt with as such.

HENRY D. HOLTON (Brattleboro, Vt.) reported the consideration of the subject by the Conference of State and Provincial Boards of Health, and the tentative recommendation of a circular letter to physicians asking for information concerning the prevalence of venereal diseases, and requesting the distribution to venereal patients of a circular of advice in the following form:

This is handed you by reason of the exceedingly disastrous results that follow these diseases, so destructive to the health of our population that sanitarians in all parts of countries have become seriously alarmed. A large percentage of the cases of blindness, as well as inability to perform any of the duties of life, and death at an early date, are results of these diseases. Syphilis (or pox) is especially a disease from which innocent persons may suffer, as it usually produces sores in the mouth or on the lips, hence may be conveyed by kissing, drinking from the same cup, or using anything that has been put to the lips or into the mouth of one affected by the disease. These diseases are often communicated when the patient thinks he has recovered. Hence marriages contracted at this time of the disease result in much unhappiness, and often in the death of the wife. To protect yourself and others, we earnestly advise the following:

IN THE INTEREST OF PREVENTION OF YOUR DISEASE.

What to do, and what not to do, to get well and to prevent giving your disease to any other person. Follow strictly the advice of your doctor, use no other treatment. Remember that it takes a long time to entirely recover. Wash your hands with soap and hot water whenever you have had occasion to in any way handle the private parts. Do not have intercourse, and avoid all sexual excitement until your physician says you are completely cured. Do not allow any person to use any cup, glass, spoon, fork, or anything that you have put in your mouth. Do not kiss any one, or wipe the face of a child with the handkerchief you have used. Always use a separate towel.

[To be continued.]

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[Continued from page 980.]

Ethical Pharmacy.—A. L. BENEDICT (Buffalo, N. Y.) stated that the one department in the modern drug store which receives the least attention is the prescription counter and if the prescription calls for drugs a little out of the ordinary, the purchaser may be told that it will require several days to fill it. This state of affairs is brought about by competition; in some localities there is one drug store to every five physicians and each store employs one or more assistants. These individuals, who are nearly all graduates in pharmacy, must derive their support from the profits of the store and it is difficult to see how this can be done on prescription work alone. Consequently the druggist must find some other source of profit and adds one department to another, and failing to do this his store would soon decline in popularity. The druggist cannot help himself out of the present predicament without the assistance of the medical man. The solution of the problem is simple in theory and in occasional instances is carried into successful practice: Find a pharmacist who is capable and willing to conduct a legitimate pharmacy and to dispense with all other departments, eliminate the middle store and the show window, and find 20 or more physicians to guarantee to him their active support. Other druggists may not like this, but they have the privilege of competing for the same class of trade. Such course may lead to a suspicion of interested motives, but this arises under existing circumstances.

A Protest against Proprietary Products.—A. MANSFIELD HOLMES (Denver) said it is startling at this date with our broad, high standards of civilization that there is such a prevalent mysticism in our therapeutics. With each year the number of "pathies" and "isms" increases, and with each advancing step of science and research the general public becomes more easily misled by sophistry. The proprietary trust and its parasitic allies are well organized, while the unsuspecting public is without organization. The harm from these proprietary preparations comes from employing harmless ingredients in secret concoctions made to rob the public. Other preparations may contain valuable ingredients in a secret formula, and on the mystery pertaining thereto, large profit is charged. The third kind, which should receive the most condemnation, is that class which contains not only the secret factor, but also dangerous poisonous ingredients, powerful therapeutic agencies to be placed before the public and used without restrictions. This induces the practice of self-treatment and over-treatment, the formation of the drug habit, injuring health and lowering the public standard. In dealing justly with the subject the other side should be considered. There should be some law of compensation for new discoveries in medicine. Steps should be taken to encourage original research with more than transient honor as a reward for brilliant discoveries. The discoverer of an alkaloid, such as cocaine, of organic or bacteriologic extracts or antitoxins, which confers worldwide blessings on humanity, should not be permitted to serve the remainder of his life with nothing more than an empty honor. The men who discovered the possibility of controlling and preventing the spread of malarial and yellow fevers deserve more than the honor of having their names placed on the pages of medical literature for a few days. The greatest benefactors have received the least honor. If this idea were carried into execution legitimate therapeutics would mount to a higher standard and the commercialism of the trust would find less field for conquest.

Synonyms in the New United States Pharmacopœia.—JOSEPH P. REMINGTON (Philadelphia) said a comparison of the nomenclature used in the first edition of the United States Pharmacopœia of 1820 with the present of 1890, would show that much progress has been made through the adoption of certain principles which are well recognized and have at last become thoroughly established among English speaking nations. There are radical differences in the views held by those in authority in the various countries. Synonyms which have come into common use are most bewildering to the scholar, but exceedingly interesting when traced to their original sources. The object of the paper is to draw attention to the nomenclature in the forthcoming pharmacopœia. The present edition recognizes several names for the same substance, that of commercial arsenic has five different names. The largest consumption of arsenic in all countries is not in medicine but in the arts. Difficulties have arisen in using terminology in the new edition. One of the principal objects of the pharmacopœia is to establish standards of official substances. Arsenic which comes from abroad need not be separated from its most natural impurities; the manufacturer merely needs to know the percentage of arsenic trioxid in a certain substance, but the pharmacologist must know to a fraction of a percent the impurities of the product and the physical and medical properties of the contamination. Within the last few years, by the passage of what are termed pure food laws, the United States Pharmacopœia has come into prominence on account of being taken as a standard

for these products. Some of the decisions have caused much embarrassment, even among honest druggists, some of whom have been penalized for substances not up to the standard and not intended for use in medicine. Such, for example, is HCl, used for renovating brick fronts. In the forthcoming pharmacopeia this will be removed by a clause that these substances apply only to those used in medicine and if the druggist dispenses cheap, impure substances for internal use the fault can be easily detected. In the use of synonyms great harm also has resulted. Laudanum, for instance, is sold in different strengths and the dosage varies accordingly; the best class of druggists will not dispense two preparations of different strength. Cold cream as made for a number of years has come to mean an oleaginous soft ointment containing rose water, frequently made by a process entirely different from the official formula. If the synonym cold cream is abandoned in the pharmacopeia no excuse can be offered in dispensing anything but the ointment of cold cream. The liability of prosecution will compel greater care on the part of druggists. Physicians sometimes do not exercise sufficient care in employing official names. It is not wise to abandon all control of synonyms by eliminating them from the book entirely, but they will be employed only in the index.

[To be continued.]

AMERICAN GYNECOLOGICAL SOCIETY.

Twenty-ninth Annual Meeting, Held in Boston, Mass.,
May 24, 25, and 26, 1904.

[Specially reported for *American Medicine*.]

[Concluded from page 978.]

Bathing During the Menstrual Period.—J. CLIFTON EDGAR (New York) presented the following conclusions on this subject: 1. All forms of bathing during the menstrual period are largely a matter of habit, and usually can be acquired by cautious and gentle progression; but not for every woman does this hold good, and surf bathing, where the body surface remains chilled for some time, should always be excepted. 2. A daily tepid sponge bath (85° to 92° F.) during the menstrual period is not only a harmless proceeding, but is demanded by the rules of hygiene. 3. In the majority of, if not all, women, tepid (85° to 92° F.) sponge bathing after the establishment of the menstrual flow, namely, second or third day, is a perfectly safe practice. 4. Furthermore, in most women the habit of using the tepid shower or tub bath after the first day or two of the flow can with safety be acquired.

The Streptococcus in Gynecologic Surgery.—HUNTER ROBB (Cleveland, Ohio) stated that in order to arrive at some definite conclusions with reference to *Streptococcus pyogenes* as a cause of death in his work, he had made an analysis of all his cases in which this organism had been found during the past 6 years. In the past 6 years he had had 137 cases of abortion, including a few cases of labor, in which it was necessary to carry out some form of treatment. Of this number, 104, or 75.9%, recovered; 17, or 12.4%, were improved; 1, or .8%, was unimproved; and 15, or 10.9%, died. In 16 of the 137 cases the streptococcus was found. The total number of all his cases in which the streptococcus was found was 40, consequently those in which this organism was found following an abortion or labor constituted 40% of the total number of streptococcus cases from every source. Of these 16 patients (streptococcus cases) following abortion or labor, 4, or 25%, recovered; 3, or 18.75%, were improved; 9, or 56.25, died. In the whole 48 cases from every source, in which the streptococcus was found, the results were as follows: Recovered, 20, or 50%; improved, 6, or 15%; deaths, 14, or 35%. The streptococcus was found in the following combinations given in order of frequency: (1) Streptococcus alone; (2) streptococcus and *Staphylococcus pyogenes aureus*; (3) streptococcus, *Staphylococcus aureus*, and *Bacillus coli communis*. In all these cases, except three in which they were obtained from the vagina, the organisms were obtained from the uterus, the adnexa, the culdesac, or from several of these situations. In other words, they were found to be present in places which were admittedly not their normal habitat. In the past 5 years he had had 724 abdominal sections, with a total number of 32 deaths, or 4.43%. In 7, or 21.9%, of them, the *Streptococcus pyogenes* was demonstrated. In all, there were 19 cases of abdominal operations in which the streptococcus was found. Of this number, 12 recovered, or 63.2%; and 7 died, a mortality of 36.8%.

The Nature of the Indications for Operation for Fibroid Tumors of the Uterus.—CHARLES P. NOBLE (Philadelphia) presented a table of the degenerations and complications in a series of 1,188 cases of fibroid tumors operated upon by Martin, Noble, Cullingworth, Frederick, Scharlieb, and in a series reported by Hunner and MacDonald. Especial attention was called to the relative frequency of adenocarcinoma of the uterus as compared with epithelioma of the cervix. The deduction drawn from this fact was that fibroid tumors were a direct predisposing cause of cancer of the cervix. A careful consideration of the facts presented, said the author, should convince anyone with an open mind that the classic teachings

concerning fibroid tumors were erroneous. This teaching was that fibroid tumors of the uterus were benign growths, which usually produced but few symptoms, and which after the menopause underwent retrogressive changes, becoming smaller or disappearing; that the chief danger of fibroid tumors consisted in the fact that at times they caused hemorrhages from the uterus, and that rarely they cause trouble because of their size or on account of pressure on adjacent viscera. An analysis of the 1,188 cases showed that because of the degenerations in the tumors about 16% of the women would have died without operation; about 18% would have died from the complications present. In addition, it was well known that a certain percentage would have died from intercurrent diseases brought about by the chronic anemia present in many of these cases, and by injurious pressure from the tumors upon the alimentary canal and urinary organs. In short, at least a third of the women having fibroid tumors, as shown by the author's table, would have died had they not been submitted to operation.

Treatment of Gonorrhea.—HENRY T. BYFORD (Chicago) advocated prolonged irrigations with hot water as a basis, and spoke of frequent injections of hot water as a substitute for prolonged irrigations. He detailed his experience with urethritis in the male, and referred to hydrogen dioxide and unirritating germicidal solutions as substitutes for plain water injections, and gave their application to gonorrhea in the female. He pointed out the advantages of this treatment.

PHILANDER A. HARRIS (Paterson, N. J.) exhibited and described a new uterine obstetric dilator.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

Tenth Annual Meeting, Held in Chicago, Ill., May 30, 31,
and June 1, 1904.

[Specially reported for *American Medicine*.]

[Continued from page 978.]

What the Laryngologist may do for the Correction of Some of the More Common Forms of Defects of Speech.

—G. HUDSON MAKUEN (Philadelphia), after dwelling upon the growth and expansion of the work of the laryngologist, rhinologist, and otologist, continued by saying that they had neglected a field which seemed to him to be of great importance. He referred to that of defects of speech, the treatment of which had either been entirely neglected or relegated to quacks. The medical man should do all in his power to suppress quackery, both in the interest of suffering humanity, as well as in his own interest. It had been estimated that there were over 300,000 stammerers in the United States alone, and this was only a small portion of those having some form of defective speech. Every one of these cases, in Makuen's opinion, was a proper subject for medical supervision, and he thought that these disorders of speech should come within the domain of the laryngologist, rhinologist, and otologist, and that defects of vision were scarcely of more importance than defects of speech. He estimated that the exciting cause in 95% of all cases of stammering might be looked for in a morbid condition of some portion of the respiratory tract. Adenoids, enlarged turbinates and chronic rhinitis were causes of stammering. The laity and some physicians thought children would "grow out of" speech defects, and, therefore, they became nerve habits before any treatment was given. Makuen explained why children stammer, and he also explained his treatment, which consisted in the removal of all physical obstructions to normal respiration, and in the teaching of physiologic breathing and the elementary sounds used in language. Digestive disturbances should be corrected, tobacco and stimulants of all kinds interdicted and the nervous system supported by nourishing food and plenty of sleep. A little mental science must be judiciously mixed in with the treatment, and suggestion always plays an important part. Makuen had found the use of hypnotism of immense value, as an adjuvant in certain selected cases, and he emphasized the importance of syllabic speech. There were 44 elementary sounds used in language, represented by the letters of the alphabet. The articulation of a word was a combination of two or more elementary sounds arranged in their proper sequence, and a syllable was a combination of elementary sounds which might be given with a single respiratory impulse. Words of two or more syllables should have as many impulses as there were syllables. Stammerers should be taught to speak, and as far as possible even to think, in syllables.

Multiple Chronic Sinusitis Operated upon by the Maxillary Route.—T. PASSMORE BERENS (New York City) reported a series of 14 operations through the maxillary route, with empyema of the maxillary antrum, ethmoid cells, and sphenoid sinus. The operation which he described in detail was performed as he saw it carried out by Jansen of Berlin. Following the description of the 14 cases, Berens concluded with these remarks: "To summarize, all of the patients but one had disease of the sphenoid sinus; in 12 of these, occipital and vertical pains were present; in 8—all with sphenoid disease—the pains extended also into the face, and were neuralgic in character, while in 4 cases the pains closely simulated

tic douloureux. These cases were all cured except two, viz., Case 12, which was malignant, and Case 9, in which suppuration returned several times in the sphenoid, each return being marked by an attack of "tic." It seems to the writer that the presence of pain in the vertex and occiput or in trigeminal neuralgia when accompanied by pus in the posterior nares is symptomatic, almost diagnostic of sphenoid disease. In 12 of the patients there was pain in the region of the eye, especially in the region of the inner canthus. This pain was explained at the time of operation by the finding of disease in the most anterior ethmoid cells. In all of the cases excepting Case 5, there was a total absence of frontal sinus disease; and since they all were chronic cases, most of them of many years' duration, it is interesting to ask: What factor was present to preserve the frontal sinus from the primary infection, to cure it if was infected, or to protect it from subsequent invasion by the disease already established in the ethmoid region? Were the teeth the prime factors of the infection of the antrum, with a subsequent extension of the suppurative process upward and backward into the ethmoid cells and sphenoid sinus; and, if so, why, again, did the frontal sinus escape? In eight of these cases the teeth were found diseased at the time of operation, or there was a clear history of diseased teeth, at least of dentalgia. That diseased teeth cause many cases of antrum disease is not questioned, but, on the other hand, the writer believes that many a tooth has been sacrificed when proper treatment of the antrum would have saved it. A tooth having roots protruding into a suppurating cavity—the roots protected by only a thin mucous membrane periosteal covering—could readily become diseased by contiguity of tissue; and the writer believes that in at least some of his cases this actually has taken place, at least to the extent of producing dentalgia. In all of the cases excepting Case 12 and Case 9, there was a complete and permanent relief from pain following the operation. Of the nine cases operated upon more than a year ago, four have had a return of pus. Two of these cases were in the ethmoid region, and were cured by subsequent curetment; one was malignant, and one was in the sphenoid. The continued suppuration in the latter case was probably due to a prolongation of the sinus into the wing of the sphenoid bone, or some other similar condition. The return of pus in the ethmoid region was the result of fear born of inexperience of perforating through the internal plate of the ethmoids. Experience having given a better technic, the cases operated upon later had practically a complete exenteration of the ethmoid cells, and have not since suppurated. There has been a troublesome crust formation in four cases; but there was an atrophic process present throughout the whole of the nasal cavities before operation in these patients. The tear duct was cut off in at least half the cases, but this has caused no symptoms, the duct simply emptying higher up. Arterial hemorrhage deep in the wound was easily controlled by artery forceps in three cases. The possibility of hemorrhage in this locality certainly demands the most open kind of a wound that it is possible to secure in any operative procedure that may have to be undertaken. In any of these three cases the hemorrhage would have been practically beyond control had the operation been performed by the intranasal route." In conclusion, the operation as described was advised only after a careful study of each case, and where the hope of a cure by milder measures could not be held out to the patient.

LEWIS A. COFFIN (New York City) reported four operative cases of **sinusitis in children**, and presented specimens illustrating the development of sinuses.

H. HOLBROOK CURTIS (New York City) read a paper on **chronic empyema of the sphenoidal sinus**, with indications for treatment.

Treatment of Tuberculous Laryngitis.—S. E. SOLLY (Colorado Springs, Col.) read a paper on this subject. In his opinion, most physicians were too timid in handling the tuberculous larynx, resorting in their blindness to superficial treatment, and to sedatives in their mistaken kindness, when in most cases they had far better use radical measures.

JOSEPH A. WHITE (Richmond, Va.) reported a case of **mastoiditis**, which was complicated by nephritis and erysipelas.

Tinnitus Aurium, and its Treatment.—W. S. BRYANT (New York City) read a paper on this subject, in which local treatment only was considered. This was found to be the same as the treatment for deafness with few exceptions. Many of these arose because the disturbance was of more delicate nature than that causing a loss of hearing alone. It therefore required still greater care in manipulation. Too energetic treatment might tend to increase rather than decrease the symptom. In a large proportion of cases the sound-conducting mechanism was at fault, and required treatment more than any other defect in the complicated condition which gave rise to the tinnitus. Neurectomy had been tried in cases of grave tinnitus with unsatisfactory results, owing to the poor technic employed, and the selection of improper cases. Further attempts would undoubtedly develop a comparatively safe and sure method. Treatment in objective tinnitus was chiefly directed to lessening the sounds, and later to dulling the patient's perception of them. In subjective tinnitus the local treatment was chiefly directed to lessening the perception of the tinnitus by the ear, and the improvement of sound conduction; secondarily, to lessening the sounds themselves. Most of the tinnitus under this head was dependent on pathologic conditions of the mucous

membrane of the Eustachian tube and tympanum, which were themselves dependent on like conditions in the nasopharynx. The treatment was worked out on the lines required by a classification of the varieties of tinnitus, which the author submitted.

[To be continued.]

AMERICAN GASTROENTEROLOGICAL ASSOCIATION.

Seventh Annual Meeting, Atlantic City, New Jersey, June 6 and 7, 1904.

[Specially reported for *American Medicine*.]

The President's Address.—S. J. MELTZER (New York) gave a history of the Association since its organization in Philadelphia in 1897. He stated that the Association was not essentially an organization of stomach specialists, but that the aim of the society was to bring together all the workers in the United States, who contribute to the knowledge of the stomach and intestinal canal. He remarked the fact that the general practitioner's work necessarily led him into this field, which he stated was too large to be worked with profit by a single set of men, although it is essential that every student have a knowledge of the working part of the intestines. He recommended that the anatomists, the pathologists and clinicians all meet together and exchange their views.

Symposium on Gastric Ulcer: Clinical Recognition.—J. C. HEMMETER (Baltimore, Md.) gave a review of the history of the clinical recognition of gastric ulcer. He stated that there was no reference made to such a condition in the writings of Hippocrates, the first instance being recorded in the sixteenth century when in the report of a postmortem examination, there when noticed unmistakable ulcers and cicatrices. The next case is that reported by Bowie in 1679, in which a young woman 18 years of age was seized with a condition showing signs of perforating ulcer of the stomach, dying three days later, and post-mortem showed that such a condition existed. He stated that to Joshua Bailey belonged the credit of having first accurately described the anatomic properties of gastric ulcer, in 1793, which was followed by a full account of the symptoms by John Abercrombie in the *Edinburgh Medical and Surgical Journal* in 1824, including the latent cases, great diversity of symptoms and modes of death, he speaking of it as gastritis with infiltration. He stated that Craveley published in 1829 to 1845 the most classical picture of the disease ever given, the next to it being that of Rokitsky, which appeared 1836, and was based on an analysis of 39 cases. Since that time the literature furnished 304 articles, only a few of which would stand the test of modern criticism. He also referred to the works of von Jaksch, Brinton, Hauser, and Fittler.

The Bibliography of Gastric Ulcer.—CHARLES D. AARON (Detroit, Michigan) covered in his remarks a period from 1894 to 1904, and embraced 841 papers on gastric ulcer, dealing with the etiology, pathology, symptomatology, diagnosis and treatment, and the relationship between gastric and other diseases, considering the etiologic significance of syphilis, arteriosclerosis, tuberculous gastric ulcer, and gastric ulcer in pregnancy. There were 437 papers on the surgery of gastric ulcer during the past 10 years, including the reported cases of perforating gastric ulcer successfully treated by surgery, and outlining the means of diagnosis and symptoms of this condition. Almost every country in the world was represented in the contributions to this literature. He remarked upon the advances made during that period, which he believed could be mainly attributed to the increased skill in diagnosis.

The Pathologic Anatomy of Gastric Ulcer.—HARLOW BROOKS (New York) based his paper upon statistics from the Bellevue Hospital. In 1,000 consecutive autopsies the condition was present eight times, and spontaneous healing had taken place but two times. The lesions had been found to be present in every case in which it had been diagnosed as such. The records of the entire Bellevue Hospital from January 1, 1904, to May 1, 1904, show over 2,000 autopsies with gastric ulcer in but three instances. The condition is most frequently found in the young, and is generally single, although it may be multiple, and when of the latter type the age of the different lesions varies. Statistics of the location have been furnished by Brinton, Einhorn, and others, showing that the frequency of occurrence is in the following order: Posterior surface, lesser curvature, then the pylorus, and lastly, the anterior wall and fundus, even extending into the duodenum—his own personal cases having been located near the pylorus. While location is of much importance as to prognosis, unfortunately it cannot be determined clinically. The ulcer is usually conical or funnel-shaped in form, sometimes oval or sausage-shaped, the latter being usually more shallow than the former. When seen in its early stages it has the punched-out appearance, but in old ulcers this and also the conical form may be lost. The size of the ulceration varies very much, and secondary invasion is usually present in the very large ones, which may be as large as 10 cm. by 15 cm. As a rule the size of the acute ulceration is much smaller, according to Einhorn being not larger than a 25-cent piece, and in the author's experience not larger than a five-cent piece, but the matter of size is relatively of little importance, as it will vary if the stomach is contracted or dilated. The depth

of the ulcer varies, being usually increased by secondary infection, and the floor is usually covered by blood clot and inflammatory tissue. Perforation depends largely upon the extent of the ulcer, the rapidity of the process, and the location of the lesion. The author believed that there were a large number of cases of small ulcers which heal spontaneously without symptoms sufficiently marked to necessitate the calling in of a physician, his opinion being that the healing was due to granulations springing from the base rather than the sides of the ulcer. He also felt that gastric ulcer was sometimes followed by carcinoma.

Pathogenesis of Gastric Ulcer.—W. G. MACCULLUM (Baltimore, Md.) referred to the fact that Virchow as early as 1855 expressed the opinion that gastric ulcer was due to some circulatory disturbance, which would interfere with the blood-supply over a limited area. He referred to the work of Rote and Müller, who tied the arteries of the stomachs of dogs with absolutely no results, and that of Cohnheim by the injection of lead chromate until he filled the small branches of the arteries. He exhibited several specimens of the stomachs of dogs, upon which experiments had been made both by inserting a circular row of sutures around the stomach wall and by injection. The wounds heal in a short time and the dog usually dies of pneumonia. Embolism is not thought to be a frequent cause in human beings; nor are vascular changes, such as thrombus, hyaline degeneration, etc., as the condition frequently occurs in young persons in whom no vascular disease exists. Anemia, congestion and traumatism, as from long continued pressure, were also mentioned as probable causative factors; while other authors have stated that long continued disturbance of the central nervous system will produce hemorrhages and erosions in the stomach. As it occurs frequently in chlorotic girls, experiments have been made by bleeding dogs, which do not heal so rapidly. Hyperchlorhydria, he stated, was a frequent, although not a constant, symptom in gastric ulcer, and might also be found in other conditions, referring to the work done by Matas in this direction.

[To be continued.]

AMERICAN SURGICAL ASSOCIATION.

Twenty-fifth Annual Meeting, Held in St. Louis, June 14, 15, 16, and 17, 1904.

[Specially reported for *American Medicine*.]

The Association met in the assembly hall of the Board of Education, under the presidency of N. P. Dandridge, of Cincinnati, O.

President's Address.—President DANDRIDGE departed somewhat from the practice of his predecessors, and instead of bringing before the Association some medical topic based on his own work, or attempting a discussion of some subject of active interest, he took the members to the backwoods, and interested them in the life and exploits of a pioneer doctor. He depicted a man of high scientific attainments and true culture, with all the elements of character which become the doctor and the man. He gave an exhaustive sketch of Antoine Francois Saugrain de Vigni, who was born in Paris, February 17, 1763. He came from a long line of librarians, booksellers, and printers, who, as far back as Charles IX, in Lyons, and Henry of Navarre, had served the royal family of France. His knowledge of mineralogy made his advice often called for in the development of the mines in the Ohio Valley. In the wilderness he supplied himself with ink from a natural chalybeate water and an infusion of white oak bark, and when in need of a fire lighted it from a lens made by two watch crystals with clear water between. Dr. Saugrain gave notice of the first vaccine matter brought to St. Louis, and indigent persons were vaccinated gratuitously. He practised in St. Louis till his death, in 1820. He must have been eminently successful, for he left a large landed estate for the support of his wife and six children. His scientific work lives in tradition, and has gained for him the title of the "First Scientist of the Mississippi Valley."

What are the Minimum Requirements for Aseptic Surgical Operations in Hospitals where the Surgeon is Assisted by a Large Staff of Internes and by Nurses from a Training School?—This subject was discussed with great detail by GEORGE H. MONKS (Boston, Mass.).

Minimum Requirements for Aseptic Operating in a Hospital in which the Personnel of the Operating-room is Permanent.—A. J. OCHSNER (Chicago) pointed out the fact that with a permanent personnel a definite system could be developed, which was most satisfactory, because the observations which suggested changes as well as those which confirmed satisfactory methods, could be carried through a large continuous series of cases under unchanged external conditions. Stress was laid upon the importance of simplicity in the methods chosen. The less that was done in any given case the slighter was the likelihood of doing harmful things. There should be uniformity in carrying out a plan of work, in order that everyone connected with the system might know what had been done and what was to be done by the other members of the personnel in any given case. Above all things, the methods should be reasonable in their details. This would make the work more attractive, and consequently more satisfactory to those engaged

in its prosecution. The author then gave a detailed account of the system followed by him and his assistants at the Augustana Hospital, where he had had an opportunity to develop uniform methods with permanent conditions during a period of 15 years. The system comprised disinfection of patient, operator, assistants' and nurses' hands, instruments, silk, silk wormgut, horse-hair, drainage-tubes, hand brushes, dressings, implements, towels, sheets, etc. The author also discussed drainage and irrigation. Stress was laid particularly upon the danger arising from tying sutures too tightly, thus causing pressure necrosis, which favored the development of microorganisms accidentally introduced. The method of selecting assistants and nurses was described, and a table illustrating the manner in which each assistant recorded the progress of the wounds under his care was appended.

CHARLES HARRINGTON (Boston, Mass.) read a paper, by invitation, in which he detailed his studies in asepsis. These three papers were discussed jointly.

DEFOREST WILLARD (Philadelphia) said that surgeons who had to deal with the practical side of asepsis in surgical operations knew that their results satisfied them to a certain degree, but it must be confessed that they had failures, and it was very essential to know whether the failures were due to the method or methods employed, or whether there were difficulties which could not be overcome. Difficulties would beset surgeons, but the question resolved itself largely into one of extreme care on the part of everyone, from the surgeon down to the lowest assistant, who had the materials in charge or in preparation. There could be no doubt that a hospital which had permanent assistants, permanent nurses, was the one that was likely to secure the best results from operative procedures on the patients under its care. CHARLES B. NANCREDE (Ann Arbor, Mich.) emphasized two important parts, one of which was inhibition, and the other tissue resistance. A germ might be inhibited to the point that would render it safe in a given wound. JOHN E. OWENS (Chicago) stated that different results were reported by different surgeons after using the same methods, and he had often wondered whether some of them might not have been due largely to the habits of surgeons. So far as the disinfection of hands was concerned, a few years ago he was compelled to stop the use of corrosive sublimate on account of the condition of his hands, and since then he had been scrubbing them thoroughly with soap and water, keeping the nails of the fingers pared down, and afterward washing the hands with salt solution and alcohol, and he thought his results were as good in hospital work as where other chemicals for sterilization were used. W. W. KEEN (Philadelphia) spoke of his own method and the results which he had obtained by some experiments. He had adopted for several years past for the cleansing of his hands a method which was first directed to the attention of the profession by Weir, namely, the use of chlorid of lime and carbonate of soda. The hands were washed thoroughly with soap and water, and in order to do this he had in his own private hospital and at the clinic at Jefferson, little egg boilers, which were practically hour-glasses or sand-glasses that were reversible. These were marked "soft boiled, well done and hard boiled." Soft boiled corresponded to about three minutes; well done, five minutes, and hard boiled, seven minutes. He told his assistants that when they had scrubbed their hands until the sand had reached "well done," good and faithful servant, they should stop. Every person, who took an active part in his clinic, had a culture taken from under the thumb, or one or two finger-nails, particularly at the root of the nail, and from the free surface of the skin. During the last winter there were 213 cultures made, from the hands of himself and his assistants in the clinic at Jefferson. Of this number, there were only three cases in which any culture was obtained. This made practically a sterility of 97%, and an infection of about 3%. There was but one person who was free at every clinic, and that was the head nurse, who was a permanent official in the operating-room. All the other nurses, and all the assistants, except his principal assistant, changed every three months. He thought the method of keeping such a record of every person's hands served an admirable purpose by creating a sort of rivalry among those who were endeavoring to have clean hands before operation, and it was more to prophylaxis in preventing infection than in the results obtained he attributed the value of the method. W. B. COLEY (New York City) did not believe sufficient stress had been laid upon sterilization of the skin, and although some authorities maintained it could be done properly in a few moments before operation, his experiments showed that with careful preparation the day before operation, in addition to what was done on the day of operation, sterilization of the skin even then could not be said to be perfect. In 250 cases in which he had examined portions of the skin or Reverdin grafts, taken from the field of operation immediately before, 25, or 9%, of the cases showed all kinds of cultures, some of them being staphylococcus and streptococcus. The only case of suppuration in 200 cases showed a pure culture of the streptococcus. Carefully sterilizing the hands, using tincture of green soap, applied carefully, brushing and hot water, then washing thoroughly with 95% alcohol, with the use of rubber gloves, would give as good results as any of the measures which rendered the hands very hard. With reference to primary union, an important element in aseptic surgery was to guard against the bruising of tissues.

[To be continued.]

ORIGINAL ARTICLES

ABDOMINAL PAIN FROM UNSUSPECTED IRRITATION AT THE INTERNAL HERNIAL RING.¹

BY

CHARLES G. STOCKTON, M.D.,

of Buffalo, N. Y.

This paper has to do with a cause of abdominal pain, which, while it may not be unfamiliar to some, has nevertheless generally escaped description in literature and appears to be overlooked by the profession. The importance of the subject rests not so much in the severity of the pain experienced, although this at times is great enough to induce semiinvalidism, but in the fact that it explains pain which might otherwise be attributed to graver visceral lesions and for the relief of which fruitless exploratory incisions might be undertaken. Some of my cases have been regarded as instances of chronic appendicitis, nephrolithiasis and questionable affections of the colon. In my experience the condition has always appeared in male adults, usually men of relatively active life. I have seen it in advanced age, and in young men, but never in adolescence. The chief symptom complained of is pain, generally referred to the lower quadrants of the abdomen, but occasionally appearing in the upper quadrants as well. Sometimes this pain is described as colicky in character, sometimes as a continuous misery; at other times as burning in character and suggesting irritation to the peritoneum. There is rarely localized tenderness, although it sometimes occurs. Occasionally there is a sense of abdominal uneasiness complained of, a vague unrest that seems difficult to describe; at times the patient speaks of moderate disturbance of the intestine as though occasioned by intestinal flatus, and one patient suffered from severe gastric eructations. Generally these symptoms are relieved when the patient lies down; but this is not always the case, and some have experienced more pain when attempting to rest than when actively engaged in exercise. As a rule, exercise increases the distress, especially lifting or other efforts causing increased intraabdominal pressure. Several of my patients have been traveling men who complained that they suffered when riding on the cars, or in carrying in the hand sample cases or other heavy articles. These disagreeable sensations are sometimes persistent, at other times intermittent in appearance. For instance, an individual may be free from the sensation for a month, and then there is a return for some weeks, and again an intermission. Like other abdominal troubles it is likely to give rise to apprehension and nervousness on the part of the patient, and when the diagnosis is not made and the patient fails to experience relief from treatment he is likely to go from physician to physician. A number of my patients have been habitual drug-takers. The anatomic basis for these symptoms is to be found in a slightly over-patulous state of the internal hernial ring; not a condition so advanced as to admit of evident and easily recognized protrusion of the intestine or omentum, but one in which a slight bulging may be detected on palpation, when the patient undergoes abdominal strain such as is produced by bearing down or coughing. The sensation communicated to the palpating finger is often quite unlike that of ordinary hernia. It is as though a very thin and almost inappreciable membrane presented at the opening in the inguinal canal with a sensation of slight elasticity, as though a moderate gaseous pressure was operating behind it.

I go into these apparently insignificant details of

description for the reason that the condition is so easily overlooked, and in certain cases is difficult to recognize even when pointed out by one familiar with the condition. In some cases it would appear that the irritation is seated in the peritoneum alone; in others the small intestines would seem to be involved, but never have I seen in these patients those symptoms and signs which usually accompany ordinary inguinal hernia, and in only one of my cases has there ever occurred a recognized protrusion of the hernial sac. It is interesting to note that the symptoms described occasionally occur in those having an inguinal canal so small that one would scarcely suspect it as being the source of the trouble, many individuals having much more patulous inguinal rings without experiencing any inconvenience. The diagnosis, therefore, cannot rest on the mere question of the diameter of the internal ring, for the symptoms may arise in those in whom the ring is only moderately large; a condition of affairs that would not ordinarily be classed as abnormal.

In each of my cases perfect relief has been experienced by the wearing of a sufficiently carefully adjusted truss. Some patients have worn these for years, and inform me that if the truss is left off the old symptoms reappear after a few days, sometimes almost immediately. In one very aggravated case, not reported in this series, seen in consultation with Dr. Charles Cary who made the diagnosis, it was impossible to adjust a truss that would remain continuously in place, and for that reason it became necessary to resort to a surgical operation to lessen the caliber of the internal ring, after which procedure the symptoms were completely relieved.

I append the brief histories of 12 cases which represent only a proportion of those which have come under my observation during the past 10 years. Perhaps I should apologize for presenting that which may appear to some as a trivial subject for discussion, and one which probably is known to others; but as I have said, it is a condition sometimes causing great disturbance, although usually comparatively slight, is generally overlooked, even by good men, and finally, the discovery of this condition may occasionally save a patient from undergoing a useless abdominal section.

The following is one of my most interesting cases:

CASE I.—A. C. B., aged 62. The patient was rather stout, an active lawyer of New York City, a club man, highly intelligent, who subjected his symptoms to careful analysis. He complained most bitterly of disagreeable sensations in his abdomen. Many interviews and many pages of written accounts of his experiences were afforded me, but it remains impossible for me fully to understand what he attempted to explain. Among other things, he said he had a dull, aching pain during most of the time in various parts of the abdomen, accompanied sometimes by sharp twinges of pain, at other times by burning sensations. He also spoke feelingly of the distress accompanying intestinal peristalsis. He had a constant feeling of abdominal unrest. These sensations led to considerable mental uneasiness, so that he had consulted many physicians and tried various methods of cure initiated by himself. His symptoms were so vague that for a long time I failed to locate his difficulty and prescribed for him with little success at different times during a period of two years. Among other things, I recommended him to play golf, and while he found that this benefited his general health, it increased his abdominal suffering. This led to an examination of the inguinal regions, when I found a dilated right internal hernial ring, with slight bulging of what appeared to be the peritoneum. A truss was at once put on and the patient left the city. Immediately thereafter some friend recommended to him the use of a nostrum. His symptoms completely disappeared. He felt certain that it was the effect of the nostrum. I felt equally certain that the relief followed the wearing of the truss. I could not persuade him to stop the use of the nostrum and to try the truss alone. Matters proceeded in this way for over a year. Then he accidentally went without the truss for a short time, when the pain immediately recurred, although he took the nostrum constantly. After making some experiments on his own account, he wrote me that he was fully convinced that it was the truss and not the patent medicine which had relieved him. This is a somewhat remarkable case, in the complete relief which has followed this simple measure in a man who had great intelligence and who was convinced against his will.

CASE II.—L. D. P., contractor, aged 80, had pain and dis-

¹ Read before the Association of American Physicians, at Washington, D. C., May 11, 1904.

comfort of a vague character in both lower quadrants of the abdomen. He was in all other respects perfectly well. Found on both sides large internal rings; a truss was applied and relief obtained.

CASE III.—W. A. R., school teacher. Patient had been long constipated. For two years he had suffered from abdominal pain and soreness, the first intimation of it having followed unusual efforts while carrying his sick wife. He is a powerful man, and aside from the symptoms narrated, was perfectly well. I found a patulous right inguinal canal, and applied a truss, instructing him to keep his bowels open. The patient was relieved. Under date of March 14, 1904, he writes: "I followed your advice and found that the truss gave me relief as long as I continued to wear it, but it is necessary for me to wear it continuously."

CASE IV.—W. H. H., aged 28, worker in the oil fields; suffered from typhoid fever nine months before, and since has had pain occasionally, every two or three days, not always in the same part of the abdomen. A careful examination failed to discover anything wrong with him save the patulous inguinal canals, for which a double truss was applied. Relief was obtained at the time; but I have not been able to follow the subsequent history of the case.

CASE V.—E. L. H., aged 38, bookkeeper, man of delicate frame and loose tissues. Complained of pain in various parts of the body, especially in the right side of the abdomen and back; he also suffered from frequent urination. He has a floating right kidney and patulous inguinal canals. A double truss was applied with definite relief, but I have not been able to follow the subsequent history of the case.

CASE VI.—W. L. T., aged 45, office-holder, had suffered from abdominal pain for the past 20 months without assignable cause. His pain was not located in any definite point of the abdomen, but was felt in various locations. It was always worse at night and left him on rising in the morning; he had been constipated for five years; both inguinal canals were patulous. A suitable truss was fitted and four years later he reported that he had been entirely free from pain since wearing the support.

CASE VII.—H. C. R., aged 48, lumberman, had suffered for a long time past from a very disquieting but inconstant pain in the left lower quadrant of the abdomen. He was well in all other respects. He had a large hernial ring on the left side and a proper truss was applied. Six weeks later he reported that he had been entirely free from pain since wearing the truss.

CASE VIII.—F. J. C., aged 50, accountant, standing at desk. Had suffered for a long time with pain in both lower quadrants of the abdomen. There was considerable enlargement of the hernial rings with slight though palpable bulging, but no definite hernia. A double truss was applied, following which there was complete relief.

CASE IX.—Wm. G., aged 35, office work, had suffered from colicky pain in the abdomen for two years. His bowels were regular, digestion good, nothing could be found wrong with the man save that he had an over-patulous left inguinal canal with slight bulging. A truss was applied, and a year later he reported complete relief following the wearing of the truss.

CASE X.—W. R. F., aged 31, a storekeeper on docks. This patient had suffered for five or six years with noisy eructation of gas, which kept him awake at night. Of late he had been much worse. He also suffered from vague abdominal distress, poor capillary circulation and a suggestion of hypochondriasis. At one time he had an inguinal hernia which had been reduced. I immediately applied a truss and this was followed by relief of his symptoms. Nothing else seemed to have any effect upon his gaseous eructations. Here it will be seen that the disturbance was of motor as well as of sensory character.

CASE XI.—W. B., aged 60, a traveling railroad inspector. He was well until three months ago, when he began to suffer from pain in the abdomen and a sensation of dragging or pressure in the inguinal regions, slow action of the bowels, eructation of gas and a feeling of weakness or faintness in the epigastrium. The man was found to suffer from very marked chlorosis, having only 44% of hemoglobin, although the red blood count was between 4,000,000 or 5,000,000. There was found to be a right patulous internal ring. Treatment for chlorosis, while benefiting him generally, did not relieve the abdominal symptoms, so a truss was advised. He at once experienced relief, and wrote me, under date of March 9, saying, "The truss worn relieved me to a large extent from pain and aches I had on the right side of my abdomen." He goes on to say that his general health has not been improved by the remedies prescribed, and his chlorosis undoubtedly continues.

CASE XII.—A. W. H., aged 43, a traveling man. Patient had never been sick, had been a traveling man for 21 years. Complained of lumbar and abdominal pains from the border of the ribs on each side reaching down the flanks, not affecting the midabdominal regions. Careful examination revealed no reason for the pain except an incomplete right inguinal hernia for which a truss was applied and with relief. I have not been able to follow the subsequent history of the case.

A considerably larger number of cases might be reported, but this should be sufficient. It seems probable that inconspicuous umbilical or epigastric hernia may produce symptoms like those mentioned.

PRIMARY TYPHOIDAL CHOLECYSTITIS, WITH CALCULI.*

BY

FRANCIS T. STEWART, M.D.,

of Philadelphia.

Professor of Surgery, Philadelphia Polyclinic; Surgeon, Germantown Hospital; Assistant Surgeon, Jefferson Hospital; Out-patient Surgeon, Pennsylvania Hospital.

Although the condition has not attracted much attention until recently, cholecystitis occurring as a complication of typhoid fever was recognized by Louis.¹ It is probable that the bacillus of Eberth lodges in the gallbladder in the large majority of the cases of typhoid; in 66 autopsies of typhoid patients the bacilli were found in the gallbladder in 47.² It is not very unusual to find tenderness in the right hypochondrium during an attack of typhoid; less commonly a distinct swelling of the gallbladder may be felt. Most of these cases subside without surgical treatment. As with the appendix, within whose lumen bacteria perpetually dwell, so with the gallbladder, the presence of infectious organisms alone is not sufficient to give rise to serious trouble; there must be irritation from concretions or lack of proper drainage. Indeed *Bacillus typhosus* may reside in the gallbladder for years without causing symptoms. In Miller's³ case the germ was recovered from the bile 7 years after an attack of typhoid fever; Dungern⁴ isolated it after 14 years, Droba⁵ obtained it after 17 years, and Hunner⁶ found it 18 years after the primary infection. In cases of this sort the possibility of reinfection should be considered.

The relation of the clumped bacilli to cholelithiasis has been pointed out repeatedly. Although physiologists insist on its antiseptic properties, Fränkel, Krause,⁷ Miyaki⁸ and others have cultivated both the colon and the typhoid bacillus in the normal bile. It is probable that the bacilli enter the portal circulation from the intestine and are eliminated by the bile, thus gaining entrance to the gallbladder. Direct infection from the intestine by way of the choledochus and cysticus is possible, but in such an event the bacilli would have to fight their way up stream and would probably be contaminated with other microorganisms. The original demonstration of the possible pyogenic nature of *Bacillus typhosus* was made in 1887 by Fränkel,⁹ who obtained it in pure culture from a peritoneal abscess. Gilbert and Girode,¹⁰ in 1890, were the first to prove that it may produce suppurative cholecystitis. That *Bacillus typhosus* may cause a suppurative inflammation of the gallbladder in a patient who has never had typhoid fever has been noted only recently. In *Medicine*, October, 1903, Burley reports a case and gives a table of six other cases which he has collected from the literature; Richardson,¹¹ Cushing,¹ Pratt² (two cases), Mitchell,¹² Stockton and Lyte.¹³ I am indebted to Dr. Robert G. Le Conte for the privilege of operating upon and reporting the following case:

The patient, a woman, aged 26, was operated upon August 10, 1903, in the Pennsylvania Hospital. She had had three children, the last, two years before admission. Her health had always been good until ten years ago, when she experienced her first attack of gallstone colic. These attacks recurred with increasing frequency until the time of operation. There is no history of typhoid nor of any disease resembling typhoid. For three weeks before operation she was intensely jaundiced. On admission to the hospital the temperature was 101° F., and the pulse 100; there was tenderness and a slight fullness to palpation in the right hypochondrium. The examination of the rest of the abdomen was negative. Although the patient was deeply jaundiced the blood coagulated in one minute. The gallbladder was exposed by a longitudinal incision through the right rectus; it was elongated, thickened, sacculated near the duct and surrounded by a few recent adhesions. The distended fundus presented through the convex surface of the liver just above its margin and was opened at this point, giving exit to a small quantity of clear fluid and then a large quantity of sand and greenish-yellow pus. A stone about 2 inch in diameter was removed from the sacculum near the cystic duct.

*Read before the Philadelphia County Medical Society, March 23, 1904.

Although no stone could be felt in the common duct, it was incised and a probe passed up into the hepatic duct and into the duodenum without revealing any obstruction. The gallbladder was sutured to the abdominal wall with catgut and a gauze drain passed down to the opening in the common duct.

The patient made an uneventful recovery. The pus from the gallbladder gave a pure culture of *Bacillus typhosus* as is shown in the following report made by Dr. Longcope:

Cultures from gallbladder made at operation. Two agar slants. After 24 hours, incubation at 36.5° C., both show a growth of several delicate, gray, semitranslucent, small, raised colonies. All the colonies prove to be of the same variety. The organism is a delicate, actively motile bacillus which stains in a slightly irregular manner with anilin dyes and decolorizes by Gram's method. It grows delicately on agar, does not produce gas in glucose media, clouds bouillon diffusely but does not form a pellicle, produces a faint cream-colored moist growth on potato, acidifies milk very slightly after 24 hours, but causes no frothy change after a week's growth. It does not liquefy gelatin. Positive agglutination was obtained in 45 minutes with a 1 to 100 dilution of known typhoid serum.

After receiving the foregoing report some of the patient's blood was sent to the laboratory for the Widal test with a positive result.

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THE PATHOLOGIC INCREASE OF URIC ACID.¹

BY

E. E. SMITH, M.D., PH.D.,
of New York City.

Fifteen years ago it was generally believed that the formation of uric acid in man was due to imperfect oxidation. This explanation was suggested by the relation of the formulas of urea and uric acid; urea was regarded as the normal, fully oxidized end-product of nitrogenous metabolism and uric acid as a less oxidized end-product, dependent for its formation on some deficiency in the process of oxidation, for which reason oxidation stops when the nitrogenous products are in the uric acid stage. In the early nineties this deficient oxidation theory gave way to the present nuclein theory.

A certain grouping of atoms occurs in true nucleins, and their derivatives which Fischer has aptly called the purin radical. This purin radical is the central group of atoms in the molecules of a large class of substances known as purin bodies. Besides uric acid, the class includes the various xanthins, the guanins, adenin, episcarin, and carnin that occur in the animal body. These have been variously termed xanthin bodies, nuclein bodies, and alloxuric bodies by different observers, but without question the term purin bodies given by the chemist who discovered their structural relationship is best adapted to indicate them. It is now known that because of the occurrence, chiefly in true nucleins and their derivatives, of the purin radical, that in the animal body uric acid and basic purin bodies are formed as end-products of destructive metabolism. According to this view, uric acid should be regarded as a product of the metabolic breakdown of those substances, chiefly the nucleins, in which the purin radical exists, preformed.

In view of the fact that nucleins occur largely in the cell nuclei, and the belief that the white blood corpuscles

are the cells that undergo the most extensive destruction in the body, it was anticipated that uric acid excretion would be found parallel to the number of leukocytes in the blood, increasing with a leukocytosis and diminishing with a leukopenia; however, exact observations disproved this idea. At least one disturbing factor in any such relationship is the fact, since discovered, that not only is uric acid derived from the nucleins of body tissues, but also from the nucleins of food. For convenience we have come to designate uric acid formed directly from the food as exogenous uric acid, and that formed by processes of metabolism within the body as endogenous uric acid. Eliminating the influence of exogenous uric acid, exact observations show that the endogenous uric acid is not always proportional to the blood leukocytes. Evidently, either the destruction of other cells participates actively in uric acid formation from purin containing antecedents, or we must look to some other source than the purin origin for a part of the uric acid production in the body.

I am well aware that in even suggesting that we look away from the purin-containing antecedents for a source of part of the uric acid excreted, I am going against current opinion. That all of the uric acid in man is derived from this source I think is neither proved nor is probable. That in health much of the uric acid may be from such origin has been demonstrated. Because of this, it has naturally been assumed that the increase in disease is due to an increase of the nuclein destruction, but this has not been proved. That a portion of the increase may be from nuclein breakdown is possible, but considerations to which I wish to direct attention lead to the opinion that at least some, and probably in many instances most of the pathologic increase owes its origin to an entirely different source.

Consideration of the clinical states in which the amount of uric acid excreted is found to be pathologically increased, will show that the one constant manifestation in such states is exhaustion. This condition of abnormal fatigue forms a part of the clinical picture in a large number of the diseases in which the uric acid output is pathologically increased. It is well known, even with our present incomplete knowledge of the subject, that the products of destructive metabolism differ during the condition of overfatigue from what they are in the normal state. Further, in muscle experimentally over-fatigued an increased amount of lactic acid is formed, and in a person overfatigued by muscular work, the action of the fatigue products is upon the central nervous system quite as much, or even more, than upon the over-tired muscles. It has also been shown that the experimental introduction of lactic acid into the body actually leads to an increase in uric acid output, the increase being due to uric acid formation by synthesis through the combining of the lactic acid with urea.

In view of these facts, we are naturally led to inquire, whether in disease the abnormal products of metabolism do not give rise to the accompanying pathologic increase of uric acid by synthetic uric acid formation. It is my conviction that this actually is the case; that the source of the increased uric acid output in disease is in many, if not in most instances, the synthesis of abnormal products of metabolism.

Let us test this suggestion by further consideration of clinical and experimental facts. If the view is correct, there should be a uric acid increase following prolonged muscular work, if the work is sufficient to produce a condition of abnormal fatigue. That such is the case is demonstrated by various observations. Results show that prolonged muscular exercise does not produce an increased elimination of uric acid when the subject is in proper physical condition, but when he is in poor physical condition for the muscular task there is a pronounced uric acid increase. The abnormal condition of fatigue and the production of products capable of forming uric acid by synthesis afford a natural explanation of

¹ Read at the symposium on uric acid at the meeting of the Medical Society of the County of New York, March 28, 1904.

this observed uric acid increase in the subject in poor training.

It has been observed that uric acid excretion is at times much increased by alcohol. I have noticed, in experiments demonstrating this, that it is not the absolute amount of alcohol that determines the increase but whether certain physiologic effects are produced. Thus, in an individual taking alcohol in the form of whisky there was no noticeable subjective effect and no pathologic uric acid increase, while in the same individual at another time when the same quantity of alcohol was taken in the form of champagne there was a distinct effect upon the nervous system and there was a well-marked pathologic uric acid increase, results consistent with the view which we have under consideration as to the origin of the pathologic uric acid.

We might profitably consider various diseases in which there are the clinical manifestations that suggest the abnormal metabolic condition on the one hand and in which there is a pathologic uric acid increase on the other. Thus, in fevers, neurasthenia, migraine and in the postconvulsive state of an epileptic seizure such a relation may exist.

I do not maintain that the products of metabolism are the only source of substances that give rise to synthetic uric acid formation. It seems to me probable that products formed by fermentation of food in alimentation may also at times be transformed into uric acid by synthesis, thus giving rise to a pathologic uric acid production. In fact, the regular occurrence of a pathologic increase in digestive disorders is very suggestive of this origin. What I do wish to be understood as maintaining is, that while it has been amply demonstrated that the endogenous uric acid excreted under ordinary conditions of health, and which we may designate as the physiologic uric acid, is to a considerable extent, perhaps, derived from nuclein breakdown in destructive metabolism; it has not been demonstrated that the uric acid constituting a pathologic increase is from this source and that a consideration of clinical and experimental data indicates that the pathologic increase in many instances is largely derived from synthetic uric acid formation from pathologic products in the body. The products of this kind that I have suggested may participate in this increase are the morbid products of a condition of abnormal metabolism, such for example as may be induced by overfatigue, and also possibly products formed by gastrointestinal fermentation.

PRIMARY STREPTOCOCCAL MEMBRANOUS LARYNGITIS IN AN ADULT.

BY

SAMUEL McCLINTOCK HAMILL, M.D.,

of Philadelphia.

A membranous laryngitis at any period of life is uncommon. It is especially uncommon in adult life. Membranous laryngitis, due to the streptococcus, is more uncommon than that due to the Klebs-Löffler bacillus. There are, however, a number of cases of the former on record, but the majority of these were secondary to infections of the upper air passages. As a complication of measles and occasionally scarlet fever in infancy, one sees primary laryngitis, due to the streptococcus.

In Park's extensive study of membranous conditions of the larynx, he records no cases of primary streptococcal laryngitis, and no cases of primary membranous laryngitis in the adult. A limited study of the literature relating to this subject, together with information obtained from men who have had wide experience in the study of diseases of the throat and nose, lead me to believe that the condition is very unusual.

For this reason, and because of the misleading char-

acter of the symptoms, I desire to report the following case:

M. H., a female, aged 52. One brother died of tuberculosis. Her family history was otherwise good. She has had hay-fever severely for many years, and after the birth of her oldest child, 23 years ago, she had a severe puerperal infection from which she made a slow but complete recovery. For some years she had frequently recurring attacks of gallstone colic, which have ceased. For two years she has had flitting joint and muscle pains, the phalangeal joints becoming moderately swollen and inflamed. For three months prior to the present illness, she had complained of a constant sense of fatigue, which was exaggerated by moderate exertion.

On the afternoon of Sunday, April 5, 1903, she developed a sore throat. She attended church in the evening. During the night she suffered severe pain, had a mild chill and fever. Early Monday morning she called in a nearby physician, who made a diagnosis of tonsillitis. Her temperature at this time was 103° F. The pain increased during the day.

I saw her at three o'clock in the afternoon. At that time, her temperature was 103.5°. She had intense pain on attempting to swallow and was regurgitating practically all food. Her voice was hoarse but not suggestive of membranous involvement of the larynx. She had no cough.

Examination of the throat showed nothing abnormal, the visible mucous membrane was not even reddened. She had no nasal symptoms and nothing abnormal in the appearance of the nasal mucous membranes. It was assumed that the difficult deglutition and the regurgitation were due to spasm of the pharyngeal muscles, reflexly induced by the laryngeal pain caused by swallowing.

By the following morning, the pain on deglutition and the difficulty in swallowing were more marked. The character of the voice was the same and the hoarseness was not more marked than is common in ordinary severe catarrhal laryngitis. The appearance of the visible portion of the throat continued normal. The temperature had risen to 104.5°.

Dr. Edsall saw her in consultation with me at this time and agreed in the diagnosis of catarrhal laryngitis, probably one of the manifestations of a severe influenza infection. At 3 p.m. the temperature was above 104°; at 5.30 p.m. it had fallen to 101.4°. The condition of the voice had improved, and the patient expressed herself as feeling very much better. The temperature continued to fall until at 10 p.m. it reached 100°. By the following morning it had risen to 100.4°, and (although there was no change in the appearance of the throat, and the general condition of the patient was improved) we thought it advisable, owing to the continued difficulty in swallowing and a scarcely perceptible obstruction to the entrance of air, to have Dr. Walter Freeman make an examination of her larynx. His report follows:

"The pharynx is in very fair condition, also the rhinopharynx. The epiglottis is swollen to six times its usual thickness and is covered with ecchymotic spots and dilated blood-vessels. The interior of the larynx is lined with a membranous deposit which seems to be very thick, and which has a dark base in the commissure. The examination of the interior of the larynx is difficult because of the swollen condition of the epiglottis."

Blood-serum cultures were made by Dr. Freeman during this examination, in tubes which had been brought to the house at the onset of the illness, but which had not been used, owing to the absence of any visible lesion in the throat. The tongue was protruded and held by the patient, the mirror introduced and the swab rubbed freely over the epiglottis. Cover-slip preparations from the swab and from the tubes after 24 hours' incubation, examined by Dr. Evans and confirmed by Dr. Ravenel, showed an overwhelming growth of a diplostreptococcus, with here and there a stray rod-like bacillus. A study of this latter microorganism showed it not to possess the cultural characteristics of the Klebs-Löffler bacillus. However, on the basis of Dr. Freeman's opinion that the condition was diphtheria and on the assumption that the Klebs-Löffler bacillus might not have been obtained by culture, the patient was treated with diphtheria antitoxin. The gradual improvement, which had begun, continued. The temperature reached normal on the sixth day of the illness. By this time the character of the voice had improved and the pain on swallowing had practically ceased, but there persisted a sense of soreness on the right side of the larynx.

On the eighth day of the illness (five days after the first examination) a second laryngeal examination was made. The swelling of the epiglottis had lessened, but there were considerable patches of very white membrane on the right arytenoid, the lower part of the posterior commissure, and in the trachea. Cultures were made from a small portion of membrane which was expectorated at this time, examination of which showed a pure growth of a diplostreptococcus. The membrane did not entirely disappear until almost two weeks after the beginning of the illness. There was never any redness nor exudate in the upper portion of the throat. There was only one of the cervical glands enlarged. There was a moderate amount of albumin present for a few days during the height of the illness. There were no complications, and the patient made a rapid and complete recovery. Her health since the attack, has been better than it had been for many months.

LITHIOMERCURIC IODID.

BY

RANDLE C. ROSENBERGER, M.D.,

AND

JOSEPH W. ENGLAND,

of Philadelphia.

From the laboratories of the Jefferson Medical College Hospital.

It has been generally assumed that the active radical of soluble mercuric salts (in their destructive action upon bacteria and bacterial products) is the mercurial, and that the higher the percentage of mercury, the more destructive the compound of bacteria. This theory is apparently confirmed by the fact that the average dose for the human being, of corrosive mercuric chlorid (which contains 74% of combined mercury) is one-half that of mercuric iodid (which contains only 44% of combined mercury). But, on the other hand, it is nullified by the fact that experiments, reported first by Dr. Eugene P. Bernard, of Philadelphia (1886), have shown that mercuric iodid is fully three or four times as powerful in its effects upon bacteria as corrosive mercuric chlorid, indicating that the combined iodine of mercuric iodid is as important a factor in the bactericidal action of the salt as the combined mercury, if not more so.

When used in the form of a germicidal solution, mercuric iodid is dissolved in water with the aid of potassium iodid, producing potassiomeric iodid. We have found that lithium iodid forms an analogous compound with mercuric iodid, possessing features of superior value. This compound contains, practically, 34% of mercury, 65% of iodine, and 1% of lithium. It is very soluble in water, and has a higher percentage of combined iodine and mercury than the potassium compound, which is due to the lower atomic weight of lithium compared with that of potassium (7:39).

As the solution of lithiomeric iodid is a much more delicate precipitant of alkaloids than mercuric chlorid or other soluble mercuric salts, it is reasonable to believe that, in view of the alkaloidal-like character of the toxins of microorganisms, it decomposes these poisonous principles more effectively than the other mercuric salts. Not being precipitated by fixed alkalies, the solution is not decomposed by the alkalies of the blood or blood-serum. Being a stronger germicide than mercuric salts generally, a less quantity is required to do a given amount of germicidal work; and hence, with its use, there is less danger of mercurial poison.

Bacteriologic tests were made of lithiomeric iodid, using solutions of the chemically pure anhydrous salt in a normal salt solution. The results of the several series of tests are given in tabular form. Growth is indicated by +; sterility by —. The experiments were controlled, and in every instance the controls grew luxuriantly.

Staphylococcus pyogenes aureus.

MOIST THREADS. STRENGTH OF SOLUTION.				DRY THREADS. STRENGTH OF SOLUTION.			
Time.	1:1000	1:5000	1:10000	Time.	1:1000	1:5000	1:10000
30 sec...	—	+	+	30 sec...	+	+	+
1 min.	—	—	+	1 min.	—	+	+
2 min.	—	—	+	2 min.	—	+	+
3 min.	—	—	—	3 min.	—	—	+

Streptococcus pyogenes.

MOIST THREADS. STRENGTH OF SOLUTION.				DRY THREADS. STRENGTH OF SOLUTION.			
Time.	1:1000	1:5000	1:10000	Time.	1:1000	1:5000	1:10000
30 sec...	—	+	+	30 sec...	—	—	—
1 min.	—	—	+	1 min.	—	—	—
2 min.	—	—	+	2 min.	—	—	—
3 min.	—	—	+	3 min.	—	—	—

Bacillus pyocyaneus.

MOIST THREADS. STRENGTH OF SOLUTION.				DRY THREADS. STRENGTH OF SOLUTION.			
Time.	1:1000	1:5000	1:10000	Time.	1:1000	1:5000	1:10000
30 sec...	+	+	+	30 sec...	+	+	+
1 min.	+	+	+	1 min.	+	+	+
2 min.	+	+	+	2 min.	+	+	+
3 min.	+	+	+	3 min.	—	+	+

Bacillus coli communis.

MOIST THREADS. STRENGTH OF SOLUTION.				DRY THREADS. STRENGTH OF SOLUTION.			
Time.	1:1000	1:5000	1:10000	Time.	1:1000	1:5000	1:10000
30 sec...	—	+	+	30 sec...	—	+	+
1 min.	—	+	+	1 min.	—	+	+
2 min.	—	—	+	2 min.	—	—	+
3 min.	—	—	+	3 min.	—	—	+

Bacillus anthracis.

MOIST THREADS. STRENGTH OF SOLUTION.				DRY THREADS. STRENGTH OF SOLUTION.			
Time.	1:1000	1:5000	1:10000	Time.	1:1000	1:5000	1:10000
30 sec...	+	+	+	30 sec...	+	+	+
1 min.	+	+	+	1 min.	+	+	+
2 min.	+	+	+	2 min.	+	+	+
3 min.	+	+	+	3 min.	+	+	+

Longer exposures were made in 1:1000 solutions, varying from 5 to 30 minutes. In the moist condition the organism was destroyed in 30 minutes; on the dried threads it was killed in 15 minutes.

As regards the antiseptic or bacterial inhibiting action of the reagent, it was found that a 1 to 16,000 solution readily inhibited the *B. coli*, *B. pyocyaneus*, *B. anthracis* and *Streptococcus pyogenes* for 24 hours.

The next experiment was to determine whether the reagent acted upon organisms in the presence of albumin, as well as in its absence. Solutions were made of the strength of 1 to 1,000, (using equal parts of a sterile normal salt solution and a 5% salt solution of a pleural exudate. The 5% solution of pleural fluid contained 2% of albumin, determined by Esbach's albuminometer.

Threads soaked for 24 hours in 48-hour old cultures of *Streptococcus pyogenes* and *B. anthracis* were used in a moist condition. No growths were demonstrable in 48 hours.

Our conclusions are that in lithiomeric iodid we have a germicide which is very much more powerful than mercuric chlorid or the usual mercuric salts in its destructive action on bacteria and their toxins, and that as it contains less combined mercury, it is, therefore, less liable to cause poisoning on absorption.

THE LARYNX IN BEGINNING PULMONARY TUBERCULOSIS.¹

BY

W. G. B. HARLAND, M.D.,

of Philadelphia.

Instructor in Laryngology, University of Pennsylvania; Surgeon, Ear and Throat Dispensary, Presbyterian Hospital; Laryngologist to Phipps' Institute for Tuberculosis.

A few typical cases will illustrate the practical value of an examination of the larynx in beginning tuberculosis of the lungs.

CASE I.—The patient, a young man, came because he thought he had nasal catarrh; he had been treated for it the preceding winter. Examination showed chronic catarrhal rhinitis and rhinopharyngitis; the vocal cords were red and granular. The latter, with the age of the patient and some suggestive symptoms, at once aroused suspicion of tuberculous infection. His

¹ Read before the University of Pennsylvania Medical Society, April 15, 1904.

lungs, which were examined by an expert, showed apical lesions. Under treatment this patient's health was greatly improved.

CASE II.—A young lady was sent for local treatment of the nose and throat. She had faulty action of the right vocal cord; the base of her tongue was swollen and coated. Examination of the lungs showed both apices involved. Under treatment this patient gained 22 pounds in less than four months.

CASE III.—A man with slight involvement of both apices was sent for laryngeal examination. The larynx was found greatly diseased—infiltration of ventricular bands and arytenoids, perichondritis of cricoid cartilage. Previous favorable prognosis was shown to be entirely erroneous; patient became rapidly worse in spite of treatment.

CASE IV.—Young man having had frequent colds in the head, was sent for nasal treatment. Cords were found congested and lung examination was advised. Physician said he had already found slight evidences of consolidation of the right apex, but not enough to warrant a diagnosis. Larynx examination made diagnosis possible.

From the foregoing it is evident that an examination of the larynx in all cases of tuberculosis can give important information. This may be positive or negative; in either case it will be of use in making a prognosis and may give valuable assistance in arriving at a diagnosis. A long-continued subacute laryngitis—a persistently congested vocal cord—may be the first clue in the detection of pulmonary tuberculosis and, on the other hand, we may find in a case otherwise deemed entirely curable, an advanced laryngeal lesion unquestionably pointing to a fatal ending.

To go into details, it may be said that quite frequently slight changes in the larynx are observed early in tuberculosis of the lungs. These changes may be classified under two heads: 1. Congestive. 2. Anemic. In the congestive class are those cases in which there is an apparently simple subacute laryngitis which persists. One or both cords are found reddened, and stay so; there may be partial paralysis of the tensor muscles of the cords. These conditions are probably due partly to cough, and partly to invasion of the deeper underlying tissues of the mucosa by tubercle bacilli, causing hyperemia and inflammatory impairment of function. Such changes are found more frequently when the tuberculous infection has followed grip or a series of colds. The local appearances, although not pathognomonic, should always suggest tuberculosis, and lead to a careful inquiry into the history and symptoms of the patient, and to an examination of the chest and sputum. The age of the patient, the persistence of the lesions, the absence of syphilis and of nasal changes that could explain the conditions present, the history of loss of weight, anorexia, etc., make the diagnosis not so difficult nor haphazard as at first sight it would seem to be.

The second class of cases includes those familiar to laryngologists, cases characterized by pallor of the mucosa of the larynx. The veins at the base of the tongue are swollen and the tongue covered with a whitish coating, indicative of gastrointestinal disorder. The vocal cords may appear congested or there may be some swelling of the tissues between the arytenoids. When infiltration has occurred it may form a reddened zone, contrasting markedly with the pallor of the adjacent mucosa; often, however, the tissues are pale from edema. In other cases, the cords are found thickened with superficial or deep ulcerations; also there may be present a club-shaped edematous infiltration of one or both arytenoids of the ventricular bands, or a turban-like swelling of the epiglottis, due to perichondritis. Infiltration in any of these localities may lead to ulceration. The lesions may exist in many combinations, so that no one picture can cover all types of the disease. A mound-like papillomatous projection of the mucosa between the arytenoids is suggestive of tuberculosis, rarely a paralysis of a vocal cord may be due to pressure on a recurrent nerve by an infiltrated apex or by enlarged glands. The following symptoms may be present: Cough, hoarseness, aphonia, dysphagia, depending upon the part of the larynx involved and nature of the lesion. Cough, however, is usually due to lung involvement. Aphonia

may be caused by physical weakness. The progress of the disease is slow, its chronic nature being of great diagnostic significance. The prognosis is unfavorable.

In conclusion, it may be said, that in the usual run of cases of beginning tuberculosis of the lungs an examination of the larynx may give the first clue to the presence of the lung infection; when the larynx is the chief seat of the disease the diagnosis and prognosis must be founded on the local appearances present. In all cases, the lesions observed in the larynx, as is true of those found elsewhere, will be of most value in making a diagnosis and prognosis when taken in connection with a thorough careful study of the case as a whole.

THREE POINTS OF INTEREST CONCERNING SMALLPOX AND VACCINATION.

BY

BERNARD KOHN, M.S., M.D.,
of Philadelphia.

In the discharge of my duties as assistant medical inspector for the city of Philadelphia, I recently encountered three cases in the same family, each of which illustrates an interesting point concerning smallpox and vaccination.

CASE I.—The first case was that of a school girl, aged 10. She had contracted smallpox, and had a fairly profuse eruption when I saw her. According to the history elicited from her mother, this girl had been vaccinated before being admitted to school some four or five years previously, and had been given a certificate of successful vaccination by the physician. Upon examination of her arms, no scars could be found.

Hence the first point to be emphasized is, that more care should be exercised in the issuing of vaccination certificates, and in admitting children to school on the strength of them.

CASE II.—Two or three days later this girl's uncle developed smallpox, the eruption in his case also being fairly profuse. According to his statement, he had been vaccinated for the first time in his life several weeks before contracting the smallpox, and had supposed that the vaccination was successful. On examination of his arm, a red patch was found, not pitted, and evidently not the result of a successful vaccination. His description of the course of the sore bore out the supposition that it had been a case of spurious vaccination due to poor virus, there having been no vesicle formation whatever.

Now here was a man who had done his duty in submitting to vaccination, and had become imbued with a false sense of security as to his immunity to smallpox. Hence my second point, that the manufacture of vaccine virus should be more carefully supervised by the government, in order to prevent the distribution of impotent virus. I should not be surprised if such distribution would account for numerous other cases of smallpox that have occurred during the present epidemic, for there has been a great deal of poor virus employed by physicians during the past two or three years.

CASE III.—The third case was perhaps the most interesting. The first patient had a young sister, a healthy, well-nourished baby, about 17 months old. The child had never been vaccinated, and of course I at once performed that operation. According to the custom in cases of exposure to smallpox, I vaccinated her in three different places, using a separate tube of virus for each site of inoculation. All three failed to show any signs of taking by the fifth day, and I repeated the operation with three more tubes. The lack of success still continuing, I vaccinated her twice again four days later, making eight trials in all. None of them took. The virus used was a very potent one that has been employed with great success by the New York and Philadelphia Boards of Health, and had produced excellent secondary takes in other members of the same family. So far as I can judge there was no serious fault in my technic of the operation. Despite intimate association with both patients whose cases are cited and despite close contact with her mother, who nursed the first patient for several days without taking any antiseptic precautions whatever, this baby did not develop smallpox, although countless opportunities for infection must certainly have been offered.

The inference cannot be avoided that this is one of those rare cases of natural immunity to smallpox, and hence to vaccinia also.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

June 18, 1904. [Vol. XLII, No. 25.]

1. Benjamin Rush. An address delivered at the unveiling of a monument erected by the American Medical Association to the memory of Benjamin Rush, in Washington, D. C., June 11, 1904. J. C. WILSON.
2. The Developmental Defects of the Skin and their Malignant Growths. Chairman's Address before the Section on Cutaneous Medicine and Surgery. HENRY G. ANTHONY.
3. The Value of Symmetry in Education and Character. Chairman's Address before the Section on Stomatology. GEORGE F. EAMES.
4. The Evolution of Standards in Dental Education. CHARLES C. CHITTENDEN.
5. Some Phases of Dental Education. A. E. BALDWIN.
6. Dental Education. A Retrospective and Prospective View. JOHN S. MARSHALL.
7. Notes on Curetage. With Report of a Case of Accidental Perforation of the Uterus. A. P. STONER.

2.—See *American Medicine*, Vol. VII, No. 24, p. 928.

5.—**Some Phases of Dental Education.**—A. E. Baldwin thinks the hope of dentistry lies in the schools connected with colleges and universities, and the elimination of those conducted by organized capital for income, or by organized professional bands, who, for notoriety or gain, carry them on, and are more anxious for numbers than intellectual prominence. [H.M.]

6.—**Dental Education.**—J. S. Marshall reviews the history of this specialty, the organization of societies; the elevation of the profession in public esteem, and discusses the need of higher preliminary requirements, the dangers of commercialism, and the necessity of placing dental schools under the control of the State or of the trustees of our great universities. [H.M.]

7.—**Curetage.**—A. P. Stoner uses the curet when the amount of retained secundines is small and the os contracted; with abundance of foreign tissue it is not reliable. In packing the uterus after curetage the gauze acts as a dam instead of a drain, and should be used only in hemorrhage. Gonorrheal endometritis should never be treated with the curet, as the tubes are already infected and the curet simply aids in spreading the disease. Comparatively few are skilled in using the curet, and cases are not properly selected. The cavity should be first explored with a dull wire curet, and then be systematically scraped with a sharp instrument. It should be washed with sterile water and no packing used, except in septic cases. A little loose iodoform gauze may be left in the vagina and changed daily. Preparation for curetage should be as careful as for vaginal section. [H.M.]

Boston Medical and Surgical Journal.

June 9, 1904. [Vol. CL, No. 24.]

1. Some Aspects of Medical Education. JOHN H. MUSSER.
2. The Association of Surgical Lesions in the Upper Abdomen. WILLIAM J. MAYO.
3. The Caspar-Hirschmann Demonstration and Photographic Cystoscope. G. S. WHITESIDE.
4. Human Slavery as a Prevention of Pulmonary Tuberculosis. THOMAS G. MAYS.

1.—See *American Medicine*, Vol. VII, No. 24, p. 933.2.—See *American Medicine*, Vol. VII, No. 24, p. 943.

3.—**The Caspar-Hirschmann Demonstration and Photographic Cystoscope.**—G. S. Whiteside calls particular attention to this new form of cystoscope. That form of cystoscope most frequently used is the one devised by Kelly. Its disadvantages are that the knee-chest position is tiresome and objectionable to an unethicized patient, and inconvenient in a completely etherized one; another is that the light used is reflected from a head mirror and the illumination is unsatisfactory. Its chief advantages are the large size of the tube, the fact that it is hollow, which permits the passage of instruments through it, and its comparatively small cost. The Caspar-Hirschmann instrument belongs to that class originally made practical by Nitze and it combines three valuable factors, namely, it may be used as a simple inspection cystoscope, or as a means of demonstrating and teaching cystoscopic and vesical pathology to students, or it may be used for taking permanent photographic records of interesting features in normal or diseased bladders. It is concerning its value as an instrument for teaching cystoscopy that the author speaks approvingly from the fact that both student and demonstrator can look through the instru-

ment at the same time. As an instrument for photographic use it is also very satisfactory. The author deals with the subject almost entirely in its relation to inspection of the female bladder. [A.B.C.]

4.—**Slavery a Preventive of Pulmonary Tuberculosis.**

—T. J. Mays reminds us that this disease was comparatively unknown among plantation slaves, while in cities in slavery days it was no more prevalent than among whites. The death-rate is now from 200% to 400% larger among negroes than among whites. The cause lies in the unequal struggle for existence with a more highly developed race. This has also increased insanity among them by 705%. Heavy economic and industrial burdens were placed on shoulders unprepared for them. This and their ignorance of the laws of physiology and hygiene, the lack of persistent employment, improper care when ill, alcoholism, and other vices, are responsible for the tremendous increase. Prevention consists in such efforts of education as will impress the masses with the importance of leading a life similar to that which made the slave practically immune. Cities should be divided into sections, each with a competent physician, whose duty it should be to make a general canvass once a month and impart advice as to food, clothing, shelter, habits, etc., to give medical counsel when needed, and send all cases needing active supervision to an institution. [H.M.]

Medical Record.

June 18, 1904. [Vol. 65, No. 25.]

1. Myelopathic Albumosuria. S. J. MELTZER.
2. The Present Status of the Surgical Treatment of Chronic Bright's Disease. A. A. BERG.
3. A Few Words Concerning Radium. HENRY G. PIFFARD.
4. Hydrocele of the Cord. Report of Cases. A. JACOBY.

1.—**Myelopathic Albumosuria.**—S. J. Meltzer reports a case and states that, though the first case of myelopathic albumosuria was reported over 50 years ago, there are not more than 30 cases on record at the present time. These occur mostly in the German literature. The essential clinical points of the disease, to state them briefly at the outset, are: Pain of the bones, especially those of the trunk; the presence of Bence Jones albumose in the urine, and a more or less rapid decline, leading invariably to a fatal termination. The occurrence of the albumose in the urine is pathognomonic for this disease. The patient was a man of 45, who had previously enjoyed good health. He complained of pains recurring at intervals, especially in the ribs and vertebra. There was Bence Jones albumose in the urine, a rapid course, and fatal termination ensued. The essential diagnostic point was the presence of albumose in quantities in the urine. No blood-examination was made and no röntgen ray pictures were taken. The majority of writers have termed this disease multiple myeloma, the prognosis of which is exceedingly grave. So far as we know, the myeloma and the presence of albumose in the urine belong together, although there are some cases of myeloma in which no albumose has been found in the urine. The author reviews the literature of the subject, referring to various previously reported cases. He believes his case to have been the first one reported as having occurred in New York City. [A.B.C.]

2.—**Surgical Treatment of Chronic Bright's Disease.**—

A. A. Berg states that the proved value of surgical measures in the treatment of some cases of Bright's disease, has led Edebohl to advise operative treatment for all cases that are fit for surgical risk. To this Berg takes exception, and states that the etiology of Bright's disease, which is merely a generic term, is variable, depending upon a number of causes, and that, while some of these are suited for surgical interference, others are only made worse by it. As to whether surgical treatment shall be instituted depends upon the cause. It is evident that pathologic division of the cases does not afford a basis for fixing the indications for medical or surgical treatment. The author, therefore, suggests that cases conforming to the following rules only should be subjected to surgical treatment: 1. Those due to malposition, either congenital or acquired. 2. Those due to the irritation of a foreign body, as a stone. 3. Those due to the toxins of bacterial life, e. g., scarlatinal nephritis, nephritis of

measles, rheumatism, etc. 4. Those due to bacterial action, exclusive of the tubercle bacillus, *e. g.*, coli group, staphylococcus, streptococcus, etc. 5. Those due to general metabolic disturbances resulting in sclerosis of the internal organs, and bloodvessels. 6. Those due to newgrowths. 7. Those due to disturbances in the general circulatory system. 8. Those due to chronic suppuration and chronic exhaustive diseases. The subject is discussed at length, and the literature reviewed to some extent. It is possible in some cases to bring about an entire lasting cure of the chronic Bright's disease by operation. There are certain cases, however, in which the surgical therapy serves only to relieve some of the symptoms, and especially the pain and hematuria. Severe nephralgia and hematuria are often the only clinical evidences of the chronic nephritis; they are usually relieved by capsulectomy, though this operation may not in any way influence the disease process in the kidney. We practise four types of operation for the relief and cure of chronic nephritis, each of which has its indications. These operations are nephrolysis, decapsulation, nephrotomy, and nephrectomy. [A.B.C.]

3.—Concerning Radium.—Henry G. Piffard, in an interesting article, defines the nature of radium, its effects upon tissues, the mechanical apparatus best suited for its employment, and gives various valuable references upon the subject. As to the nature of radium he states that: According to the researches of Rutherford, Crookes, Ramsay, Mme. Curie, and others, radium emits both "radiations" and "emanations." The radiations or so-called rays are not simple and uniform in character, but are a mixture of rays exhibiting widely different physical phenomena, and by Rutherford have been called *alpha*, *beta*, and *gamma* rays. The *alpha* rays appear to be electrons, carrying a charge of positive electricity slightly deviable by the magnet. They constitute the largest proportion of the total, but possess but little penetrative power. Glass presents an almost insurmountable barrier to their passage. The *beta* rays are electrons carrying a negative charge and are strongly deviable by the magnet, but in a direction opposite to that of the *alpha* rays. They exist in a comparatively smaller proportion than the *alpha* rays, but possess a greater penetrative power. They appear to be similar to, if not identical with, the "rays" projected from the cathode of a Crookes' tube when excited by a suitable electric current. The *gamma* rays exist in a much smaller proportion than the others, are nondeviable and possess penetrating power to a high degree. They exhibit phenomena similar to, if not identical with, the röntgen rays. The so-called radioactivity of radium is due to the combined influence of the *alpha*, *beta*, and *gamma* rays. The *emanations* of radium differ wholly in character from the radiations above mentioned. The emanation is a gas continually given off by radium, and may be collected in a separate receptacle and its properties examined. This emanation is not only of itself radioactive, but possesses the power of exciting radioactivity in other bodies in its immediate neighborhood—that is, it confers on them the ability to emit Becquerel rays similar in character to those of radium. This induced or secondary activity is not permanent, but rapidly subsides and in a few days leaves but hardly appreciable traces. These emanations of radium will not pass through glass. [A.B.C.]

4.—Hydrocele of the Cord.—A. Jacoby (New Orleans) reports several cases of hydrocele of the cord, and contends that the condition occurs more frequently than is commonly supposed. Concerning three cases which were brought to his clinic, he states that in each instance a mistaken diagnosis of hernia had been made by the attending physicians. Hydrocele of the cord is due to a serous exudate in an unobliterated portion of the vaginal process; it may be either encysted or funicular. In the latter case, when the pelvis is raised the fluid flows back into the peritoneal cavity. In some cases the cyst is circumscribed, while in others it involves the entire length of the spermatic cord or inguinal canal. There seems to be no definite cause for this condition. Trauma plays a not infrequent part, and venereal disease may be a causative factor in some instances. The treatment may be divided into three classes: (1) The use of a truss; (2) the removal of the fluid, with or without the injection of an irritant; (3) the radical methods: (a) incision and drainage; (b) excision of the sac; (c) incision

of the sac, everting it, and suture. The first two methods are rarely employed at the present time, and are of doubtful value. The removal of the sac is not difficult, and it can be easily released from the cord and excised. This is the best plan of treatment. [A.B.C.]

New York Medical Journal.

June 11, 1904. [Vol. LXXIX, No. 24.]

1. Röntgen Rays in the Treatment of Cancerous and Skin Affections, and Epilepsy, and in Diagnosis. J. HERMAN BRANTH.
2. Fractures of the Lower End of the Radius. (Concluded). VERTNER KENERSON.
3. Communities without Health Departments in the Crusade against Tuberculosis. LAWRENCE F. FLICK.
4. The Fever of the Puerperium (Puerperal Infection). (Continued.) JAMES HAWLEY BURTENHAW.
5. Constitutional Low Arterial Tension. LOUIS FAUGERES BISHOP.

1.—Röntgen Rays in Epilepsy, etc.—J. H. Branth says that in epithelioma, rodent ulcer, lupus, and some other skin affections, the röntgen rays prove an almost certain remedy. A case of lupus of 15 years' standing is reported and photographs showing a cure presented. Upon the theory that röntgen rays stimulate protoplasm into greater vital activity, the author applied this remedy in cases of epilepsy. All cases are not amenable to this form of treatment, for instance, those in which decided degenerative processes in the brain have set in. Three treatments a week are given, beginning with 5 minutes' exposure at 15 inches distance, and by degrees increasing to 10 minutes' exposure at 10 inches distance. A different part of the skull is exposed at each sitting. It is a rule, with very few exceptions, that by this form of treatment the patient gains weight at a rate that is surprising. In the cases, both *grand mal* and *petit mal*, which were treated by this remedy, it was observed, in general, that the seizures became lighter and of shorter duration, the intervals became longer, and that when a seizure occurred less prostration followed. In patients with from 6 to 8 seizures a day, after receiving treatment for a few weeks, intervals of 2 and 3 weeks have been noticed. Radiographs are given, showing the value of röntgen rays in diagnosis. [C.A.O.]

2.—Fractures of the Radius.—Vertner Kenerson takes up in detail the fractures of the lower end of the radius. In reducing this fracture, he places the patient in a high office operating chair, in the upright sitting position, with the hand extended in front, the plane of the hand perpendicular to the floor, and with a skein of yarn looped over the wrist, with the loop knot fixed at a point on the upper side of the wrist as the hand is extended. He fixes the free end of the skein of yarn to a post or to the door jamb by means of a staple, at a height corresponding to the patient's shoulder. He then grasps the patient's forearm with the hand opposite to that which is injured in the patient and makes slow, but steadily increasing, countertraction on the arm until the arm is fully extended and the wrist is tired out somewhat, and then there will appear a lessening of the deformity, and usually a complete reduction of the fracture at the wrist, without touching the point of fracture. He says the lessening of the deformity will not remain unless with the fingers of the other hand you "jack back" the fragments of the broken radius, when perfect and permanent reposition can be secured. The hand should then be held in the forced extended position until the muscles have relaxed and then the strain can gradually be lessened and the fragments will stay in place. This method of reduction is applicable to all fractures at the wrist except the interarticular fractures, which should not receive any extension, but can be replaced usually by forcibly bending the wrist forward, that is, toward the palm of the hand. [C.A.O.]

3.—Crusade against Tuberculosis.—L. F. Flick says that dispensaries are the first essential asset in a voluntary crusade against tuberculosis. Such dispensaries will answer a threefold purpose: 1. Supply material to physicians for equipping themselves as experts. 2. Give poor people with tuberculosis, who still are able to work, an opportunity for recovery without too much sacrifice. 3. Will serve as a propaganda of knowledge of the prevention of tuberculosis. Such dispensaries must supply medicine, preventive measure supplies, and food when necessary, and they must supervise treatment in the homes of the patients through competent visiting inspec-

tors. They must be equipped to give baths, sterilize clothing, and do laundry work, where these are necessary for keeping the home sterile. As a matter of economy and efficient administration, hospitals for advanced cases of tuberculosis should be run in conjunction with dispensaries for walking cases. The next step in a voluntary campaign is to establish sanatoriums for curable cases of tuberculosis which need either comparative or absolute rest. [C.A.O.]

5.—Low Arterial Tension.—L. F. Bishop discusses low arterial tension, that is, a reflex of a constitutional condition. The condition is in all probability due to an inherent defect in the nervous system, whereby it has not the proper control of the bloodvessels. The same patients who suffer from this low arterial tension are very apt to manifest other symptoms of defective nervous control, and the removal of the underlying condition will bring about an improvement in the condition. The most important element of treatment is systematic exercise. Iron and arsenic improve the condition in some cases, in other cases very hot baths take the place of vigorous exercise, and improve the tone of the circulation. Cold bathing is not beneficial in these cases. [C.A.O.]

Medical News.

June 18, 1904. [Vol. 84, No. 25.]

1. Management of Fever in Childhood. EUGENE W. MURRAY.
2. Two Cases of Paralysis of the Ulnar Nerve: One Following a Severe Attack of Typhoid Fever, the Other Caused by Pressure During Occupation. JAMES HENDRIE LLOYD.
3. Apparatus for Nitrous Oxid Ether Anesthesia. WELLER VAN HOOK.
4. A Brief Report of Four Years of Genitourinary Work in the Second Surgical Division of Mount Sinai Hospital. HOWARD LILIEN-THAL.
5. Vesical Retention of Urine. FERD C. VALENTINE and TERRY M. TOWNSEND.
6. The Danger of the Use of Opium in Infancy. T. D. CROTHERS.
7. Water Anesthesia in Surgery, and Its Suggestions in Medicine. JOSEPH CLEMENTS.
8. A New Instrument. W. A. SEDWICK.

1.—Management of Fever in Childhood.—E. W. Murray discusses the importance of understanding the normal mechanism of animal heat and the pathology of fever in order to have proper management. During acute fevers glandular activity and digestion are at a low ebb and the entire heat production is therefore probably due to oxidation in the muscles, hence wasting. Sleep is important in treatment and must not be disturbed except in sepsis and depressed brain action. Rousing from sopor is a necessity. If the fever is due to a germ, to local inflammatory conditions, or to the disease *per se*, the first duty is to keep the patient cool and quiet. A temperature of 105° F. or 106° F. can be sustained for a short time without damage, while 101° long continued is serious to heart muscles and nervous system. Strychnin, caffeine, cocain and atropin increase muscular and cerebral activity and atropin prevents perspiration. Alcohol and nicotin relax the bloodvessels and increase perspiration, morphin diminishes heat production by preventing glandular and molecular activity. The profuse perspiration from antipyrin is often very prostrating. Phenacetin is less depressing and can be used in short fevers, but cold is safer. Ingestion of ice or cold water diminishes temperature. Rectal irrigation gives good results. The ice-cap and sheet-pack may be employed. Insolation requires immersion in cold water gradually made colder by ice. In toxic fevers due to fermentation the essential in treatment is diet. Inanition fever is due to insufficient or improper food. The author discusses the best methods of feeding. [H.M.]

2.—Paralysis of the Ulnar Nerve.—J. H. Lloyd believes isolated paralysis of this nerve is infrequent. The majority of cases are due to trauma, sometimes from pressure in sleep, drunkenness, ether anesthesia, or unconsciousness from disease. The selective action of a systemic poison for one nerve is extremely rare. Lead selects the interosseous and some other branches of the musculospiral nerve, and wood alcohol the ganglion cells of the retina. An effort has been made to show that typhoid poison has a selective action for the peroneal and ulnar nerves. The writer formerly reported a multiple neuritis following typhoid, but now suspects excessive alcoholic stimulation and cold baths may have been largely responsible.

He reports an ulnar paralysis occurring during typhoid convalescence, describing and illustrating the motor and sensorial changes, electric reactions, and atrophy, and queries whether the lesion is due to the specific poison or to pressure during the delirium and unconsciousness of the profound intoxication. The second case reported resulted from daily pressure against the edge of a desk. [H.M.]

3.—Apparatus for Nitrous Oxid Ether Anesthesia.—Weller VanHook states that the advantages gained by the preceding ether anesthesia with nitrous oxid are, that the patient goes to sleep in from one to three minutes, the beginning of the anesthesia is not unpleasant, and the total amount of ether required for anesthesia is much diminished. For some time the author has used this method in his clinical work and private practice. A desire to obtain a very simple apparatus has induced him to devise an attachment for an ordinary nitrous oxid face piece, so that the ether vapor can be substituted for nitrous oxid gas at will. Several illustrations explaining the device accompany the article, which cannot be explained in abstract. [A.B.C.]

5.—Vesical Retention of Urine.—Ferd C. Valentine and T. M. Townsend state that in retention of urine from any cause, provided that danger to life is not imminent, and also provided that the patient is not too unmanageable for temporization, as during alcoholic inebriety, the ordinary domestic incitors to urination may prove successful. They are: 1. Exposing the patient to the sound of running water. 2. Causing him to suddenly plunge one or both hands into cold water. 3. Prolonged hot sitz baths or general baths. The article, which is of some length, is devoted to the various causes of retention, the operative and nonoperative methods of interference and the instruments to be used in treatment. The authors' conclusions are: 1. When danger to life is not imminent, the domestic methods ordinarily employed may relieve the vesical retention, provided no mechanical obstacle exists. 2. Diuretics, diluents, and antispasmodics are of no use in vesical retention of urine. 3. Opiates and general anesthesia are useful only under certain circumstances. 4. Capital surgical intervention may be necessary to cure the basic condition, but the urgent symptoms can, in most instances, be relieved without life-endangering procedures. 5. Even the youngest general practitioner can carry every case of vesical retention of urine to a successful issue. 6. The cause of the retention must in each case be ascertained. 7. Only most exceptionally does a case present which cannot be relieved by minor procedures. 8. No bladder should be suddenly entirely emptied because of the danger of hemorrhage *ex vacuo*. [A.B.C.]

6.—Opium in Infancy.—T. D. Crothers states that the sedative action of opium is that of palsy, in which the cell functions and the cells themselves are disturbed and diminished, and it is impossible to tell whether this checking may not become permanent, producing change and perversion that continues all through after life. The higher the organism the more pronounced the effect from small doses in infants as well as adults. Nursing infants are affected by opium taken by the mother; growth is retarded, the organism is defective, and a tendency is created to use some form of opium in later life. Continuous sedation or palsy of the sensory centers in early life is never repaired. Development of other organs may do much to repair the injury, but the defect appears in adult life in feeble pain centers and low power of resistance. [H.M.]

7.—Water Anesthesia in Surgery.—Joseph Clements recounts a number of instances in which distilled water was injected locally into tissues for the purpose of producing local anesthesia. This was successful in the surgical treatment of hemorrhoids, each "pile" being injected and at once emptied, clamped, tied, and cut away with entire success. Fistulas were treated in this manner, being cut and scraped. In one instance a laparotomy was performed and eight inches of the colon resected, using only distilled water for local anesthesia. The anesthetic effect is attributed to mechanical pressure upon cell protoplasm. The author says: The "property," the therapeutic, or whatever action arises, is protoplasmic. In the specific instance of anesthesia, in the cases referred to, the distention, the pressure, was mechanical, and effective in the suppression of cell respiration. Here we have what may be termed

negative results in suppressed protoplasmic activities, forestalling the cellular and protoplasmic action which occasions pain. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN

A. O. J. KELLY

REVIEW OF LITERATURE

Trichinosis and Eosinophilia.—The paper of I. Schleif¹ is based on the study of a number of cases occurring in an epidemic of trichinosis in Homberg and vicinity. A positive diagnosis cannot be made from the clinical symptoms alone. The blood investigation is the most valuable means of diagnosis, as other diseases which exhibit an increase in the eosinophiles have quite different clinical pictures. The eosinophilia is of marked degree in almost all cases of trichinosis, while the neutrophile cells undergo an absolute as well as relative diminution. During convalescence, however, the lymphocytes are markedly increased, and the blood swarms with blood-platelets. At the same time the eosinophiles are diminished, and the neutrophiles tend to regain their normal number. These changes in the leukocytes are no doubt due to the action of the lymphatic tissues of the metabolic products arising from the trichinas. Interstitial myositis is widespread in this disease; it occurs in foci, which are characterized by an accumulation of eosinophile cells. As eosinophilia occurs in all vermicular parasitic diseases, it is probable that this condition is caused by a chemotactic influence exerted by the worms. [B.K.]

Serum Diagnosis of Carcinoma.—V. E. Mertens² reports experiments which he has performed during the last three years to determine the presence of specific substances in the blood of carcinoma patients. The first experiments were performed with a carcinoma bouillon, which was injected into rabbits subcutaneously, but without producing any specific substances in the serum so gained. In the next experiments two forms of serum were used, one to precipitate the normal albumins of the blood, another to test for carcinoma precipitins. Ascitic fluid of cardiac cases fulfilled the first condition, ascitic fluid from carcinoma the second; they were injected intravenously. In other experiments, only the second serum was employed. After this method the blood of 50 patients was examined, 19 of whom had carcinoma. Of the latter, 10 patients reacted positively, 9 negatively. Of the 31 noncarcinomatous patients, one, a patient with tuberculous lymph glands of the neck, not yet broken down, gave a positive reaction. Other methods were employed, but all of them with about the same results. Proof therefore for the presence of specific substances in the blood of individuals suffering with carcinoma was not produced by these experiments. It would be of great practical importance to be able to prove the presence of carcinoma poison in the blood or other fluids of cancer patients, as knowing its presence, its action in producing cachexia could be prevented to an extent. Further experiments on the subject will be performed and reported as soon as completed. [E.L.]

Asylum Dysentery in Relation to *Bacillus Dysenteriae*.—J. W. H. Eyre³ presents a number of cases illustrative of the subject under discussion and concludes that the number of cases reported is obviously too few to admit of any generalization as to the etiology of asylum dysentery, but the following conclusions seem warranted: 1. That a bacillus identical with *Bacillus dysenteriae* described by Shiga as the specific cause of acute dysentery in Japan, can be isolated from the stools of many cases of asylum dysentery. 2. That the blood-serum of some of these cases of asylum dysentery possesses a specific agglutinative action when tested against *Bacillus dysenteriae*, isolated from the stools of other similar cases, and also against other strains of *Bacillus dysenteriae* isolated from cases of dysentery in tropical countries. On the other hand, the experience of an extended series of examinations of the stools of patients suffering from asylum dysentery seems to warrant the following: 3. In order to detect *Bacillus dysenteriae* the stools must be examined when fresh. 4. Postmortem material must

be collected and examined as soon after death as possible, as in a few hours' delay, even in quite acute cases, *Bacillus coli* becomes the predominant organism in the intestinal canal. 5. Under these conditions (3 and 4) the isolation of *Bacillus dysenteriae* from the stools of patients suffering from acute asylum dysentery is comparatively easy by the method indicated; that is, when these stools are, to the naked eye, typically dysenteric. 6. That in cases of chronic asylum dysentery *Bacillus dysenteriae*, if present, is so outnumbered by *Bacillus coli* and other intestinal saprophytes as to render its isolation a matter of extreme difficulty. [A.B.C.]

Heat Regulation in Fever.—Babak,⁴ as the result of calorimetric studies made in children suffering with various febrile conditions, comes to the following conclusions: The heat-regulating apparatus shows decided disturbances during the course of fever. These may affect the physical regulation of heat (regulation of heat dissipation) or its chemic regulation (regulation of heat production). In the majority of cases, the former is the more disturbed. This disturbance manifests itself in an abnormally diminished heat dissipation. With a normal heat production, or with one slightly diminished, the bodily temperature rises; but fever is more readily produced when, with diminished heat dissipation, the heat production is increased. Disturbance in the chemic regulation of heat may manifest itself in diminished heat production, in which case it is necessary to have a decided reduction in heat dissipation in order to produce fever. There are, however, cases in which heat dissipation is increased, but not sufficiently to carry off the heat generated by the increased heat production. [D.R.]

Improvement of a Case of Mycosis Fungoides Through the Röntgen Rays.—Brocq² showed a patient to the dermatologic society of Paris who for 12 years had been suffering from mycosis fungoides associated with violent itching. He was exposed to the röntgen rays more than 100 times. After each treatment an increased action was noticed; the tumors gradually diminished, and many of them disappeared altogether. This improvement is to be distinctly separated from the spontaneous improvement occasionally noticed in mycosis fungoides, as in it a few tumors may disappear, but new ones are constantly appearing. There is no method which equals in efficacy radiotherapy in mycosis fungoides. He employed the rays also in two cases of sarcoma of the back, noticing distinct improvement already after the third treatment. [E.L.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG

C. A. ORR

REVIEW OF LITERATURE

The Use of Radium in Rodent Ulcer.—J. A. B. Hammond³ reports the unsuccessful use of radium in the treatment of epithelioma of the face. The patient was a man of 85, and the malignant growth appeared on the right side of the face, in the distribution of the second division of the fifth nerve, and the growth had been in progress for three years when the author attempted treatment with a tube of radium. For a time it appeared that the growth took on a more healthy appearance, pain was relieved to some extent, the patient's condition improved somewhat, but he tired of the treatment, and refused further sittings. He then grew rapidly worse and died. The author used a tube containing 5 mg. of the radium bromid, giving exposures daily of 15 minutes each, holding the tube within half an inch of the ulcer, without any screen, and slowly moving it over the surface. There were no visible effects for five days, and then the patient complained less of pain, the exposures being increased to twice a day, and the discharge became markedly less, the granulations more healthy, but the edges of the ulcer remained unaffected, the treatment having been persisted in for six weeks with the results which have been enumerated. [A.B.C.]

Cholecystectomy.—B. G. A. Moynihan,⁴ in a paper pub-

¹ Deut. Archiv f. klin. Med., Bd. lxxx, p. 1.

² Deutsche medizinische Wochenschrift, 1904, Vol. xxx, No. 6, p. 203.

³ British Medical Journal, April 30, 1904.

¹ Arch. f. d. gesamm. Physiol., Bd. cii, Hft. 7, April 9, 1904.

² Societe de Dermatologie et Syphiligraphie, 1904, February 4.

³ British Medical Journal, April 23, 1904.

⁴ The Lancet, April 30, 1904.

lished in 1902, laid down a series of conditions indicating cholecystectomy, rather than cholecystotomy. Additional experience has led him to believe that in almost all cases of operations for gallstones, cholecystectomy is the proper procedure. The plea that the need for drainage is opposed to the routine removal of the gallbladder is answered by the fact that when the gallbladder is removed the need for drainage does not often exist, and by the fact that if drainage of the ducts is desirable, or necessary, it can be carried out without difficulty, even though the gallbladder be removed. The appearance of the gallbladder during abdominal operation will indicate at once whether there be stones present. If that viscus is blue, it is healthy, if opaque and gray, or yellow, there are, or have been, stones and inflammation around them. The advantages of cholecystectomy are that the operation removes the chief source of the disease; that it prevents, in great measure, a recurrence of stones, or of the inflammation which indicates their presence; that growths in the gallbladder, or adhesions around it, are subsequently impossible. His method of procedure in cholecystectomy is given in detail. The abdominal incision is the vertical incision near the outer border of the right rectus, the incision being prolonged toward the xiphoid cartilage if necessary, as is done by Mayo Robson. The technic of effectual removal of the gallbladder is very similar to that advocated by the Mayo brothers, of Rochester, namely: Ligation of the common duct, cutting through the same and stripping off the gallbladder from the direction of the severed common duct toward the fundus; a cuff of peritoneum covers the stump of the severed common duct, unless drainage is placed therein. [A.B.C.]

One Hundred Operations for Appendicitis.—Leonard Freeman¹ reports 100 cases of appendicitis operated upon since the introduction of the Ochsner principle of treatment to which he has adhered in nearly all instances where it was indicated. His experience leads him to endorse in every particular that method of treatment. There were 8 deaths in the series, but 3 should not be included in the statistics for reasons that are appended. The cases are classified as: Interval operations, 46, with 1 death; early operations (36 to 40 hours), 20, no deaths; intermediate (second to fifth day), 2, with 2 deaths; abscesses, 29, with 3 deaths; diffuse peritonitis, 2, both died. The technic of operation is: McBurney incision (separation of muscles), ligation of appendix, cauterization of stump with carbolic acid and burying in cecum by means of a pursestring suture, union of incision in layers, subcutaneous suture, collodion dressing. Rubber gloves are almost invariably worn. [A.G.E.]

Recent Electrotherapeutic Work.—John MacIntyre² discusses the relative merits of radium, the Finsen light, and röntgen rays. With radium many workers have shown that therapeutic results can be had in cases of lupus and rodent ulcer, but the use of radium for ordinary purposes is not likely to displace the Finsen light and röntgen rays. The limits are discussed as to the use of these agents in the treatment of lupus, rodent ulcer, and malignant disease, as where one of these agents has been employed with benefit, the other two can be shown to have had some success. Finsen light is the oldest of these, and according to the reports of Finsen, himself, there can be no question of its efficacy in the diseases mentioned. The main drawback in its use is the long time required to effect a cure, but notwithstanding this many prefer it to the röntgen rays. The best results are undoubtedly obtained with the use of the large lamps, Finsen, himself, claiming that his results are better than others because of his use of the large lamps and his attention to details. The writer believes, however, that the most striking results in the diseases mentioned have thus far been obtained in the therapeutic use of the röntgen rays, and this, where only one of the methods can be conveniently used, he unquestionably advocates. Many patients with lupus which surgeons have operated upon with poor success, have been cured by treatment with the röntgen rays. [A.B.C.]

Practical Value of Cryoscopy.—H. W. Cattell³ concludes

that cryoscopy has a valuable though somewhat limited use among laboratory methods. Repeated examinations of the urine in conjunction with those of the blood are valuable in determining the presence or absence of renal or cardiac insufficiency; separate catheterization of the ureters increases the value of the test. In doubtful kidney cases, cryoscopy should be supplemented by other wellknown laboratory methods. T. Tiekens¹ reports the results of examination of the blood and urine in 338 cases. He concludes that cryoscopy of the urine possesses no great advantage over the well-established chemic and microscopic methods. In the single specimen it is of no value whatever; in the mixed 24-hour output it furnishes nothing in addition to chemic analysis; in specimens obtained by ureteral catheterization it does render assistance. In doubtful cases of surgical disease of the kidney Tiekens recommends cryoscopic examination of the blood, of urine obtained from the respective ureters, and of the mixed 24-hour output. This, in addition, to the usual methods, may be of value in both diagnosis and prognosis. [A.G.E.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN

FRANK C. HAMMOND

REVIEW OF LITERATURE

Increase of Arterial Pressure in Acute Lead-poisoning; Uremia and Eclampsia, and Their Sequels.—Increase in arterial pressure is of great importance in the complications arising during the course of acute lead-poisoning, uremia and eclampsia; (amaurosis, hemianopsia, transitory aphasia, convulsions, sudden death). Vaquez² found that in the diseases mentioned the appearance of these complications is usually associated with considerable increase in blood-pressure; it amounts to as much as 250 mm. to 300 mm. of mercury. The amaurosis of these diseases coming on with headache is independent of the retinitis and often improves very quickly again. It usually coincides with the highest point of the blood-pressure. In one case of Bright's disease with hemianopsia the blood-pressure amounted to 290 mm. Similar increases in pressure were noticed in the transitory aphasia, occurring during acute lead-poisoning, uremia and eclampsia, as well as during a case of maniac delirium, occurring during chronic nephritis. Before and during the convulsions of these diseases the pressure also rises. In four cases sudden death was preceded by considerable blood-pressure increase. Sudden death may occur in any case in which blood-pressure is kept for some time above 250 mm. mercury, and is therefore noted oftenest in uremia, and rarely in acute lead-poisoning, as here the high blood-pressure is but transient. All the complications may be said to be due to the high blood-pressure. It is due to the action of the products of the internal secretion, probably of the suprarenal glands. In a patient with Bright's disease and high blood-pressure of longer duration, which gradually returned to normal, the autopsy revealed hypertrophy and fatty degeneration of one of the suprarenal glands. [E.L.]

Source of Infection during Operation not Sufficiently Recognized.—Mendes de Leon³ believes that a source of infection generally ignored is the saliva emitted by the operator when speaking. By careful experiment he found that in speaking while operating multitudes of infectious germs are emitted from the mouth, some of which may be projected into the wound. Among the germs found were streptococcus, staphylococcus and diplococcus. Convinced of this danger he has devised a kind of respirator, in which a small quantity of cotton wool wadding is placed between two metal plates which are perforated with small holes. This does not interfere with speech while the microbes are intercepted by the wadding. His conclusion then is that while we take so much trouble in sterilizing our hands, instruments and the whole area of operation, as well as the room in which it is done, and everything which comes near the patient, we should also guard against the

¹ Colorado Medicine, April, 1904.

² British Medical Journal, April 23, 1904.

³ International Clinics, Vol. I, Fourteenth Series, 1904.

¹ Chicago Medical Recorder, April 15, 1904.

² Soc. med. des. Hôpitaux, February 5, 1904.

³ British Gynecological Journal, February, 1904.

risk of infection from saliva emitted from the mouth while speaking. [W.K.]

The Diminishing Birthrate.—J. W. Taylor¹ presents statistics showing a diminishing birthrate in Great Britain and Europe, excluding Russia, in which country and Japan it is notably rising. The marriage rate in the United Kingdom has at the same time been slowly rising. That the type is not improving is shown by criminal statistics, and lunacy and idiocy have almost doubled in 20 years. Alcoholism also is increasing. Figures show that intellectual and artistic culture has materially diminished. The mentally better stock of the nation is not reproducing itself as of old. This is due to deliberate prevention of conception. Both acute and chronic disease follow the methods generally employed. Seminal fluid has a function beyond reproduction, its absorption by the uterus probably allaying the exhaustion of intercourse and thus preventing neurasthenia, etc. Pregnancy provides periods of ovarian rest. The storing up of semen in the male is of value in the economy. Prevention is injurious not only to the race, but to those who practise it. Incomplete congress resembles self-abuse. Restraint adds power to the man, which is transmitted to the children. "Prevision" and "precaution" reverse the progress from the brute. The solitary child is self-centered and illy-prepared for the battle of life. It is the refusal of life by the French which is at the bottom of the antisemite feeling, the Hebrews rising not only individually but racially. The State should establish pensions, remissions of taxation, etc., to encourage large families. Susceptibility to pain increases with civilization, and mothers of today need greater help during pregnancy and lactation than those of former years. Much may be done through hygiene and a more liberal diet. [H.M.]

Removal of Stones from the Ureters.—R. Gradenwitz² gives the history of a patient suffering from stones in the ureters, and a detailed description of their removal by the vaginal route. The patient left the hospital in three weeks, both ureters performing their function without any hindrance and the two vaginal sutures scarcely perceptible. On the ground of this experience the writer recommends the vaginal removal of stones from the ureters as the best method. [W.K.]

Gonorrhea in Childbed.—Martin,³ in the 191 cases operated upon for pus-tubes, examined 97; in only 14 of these did he find the gonococcus present. From his observations, he is able to say that, in spite of a chronic gonorrhea, pregnancy may occur and terminate at term. [J.F.]

TREATMENT

SOLOMON SOLIS COHEN

L. F. APPLEMAN

E. LINDAUER

REVIEW OF LITERATURE

Painless Copper Sulfate in the Treatment of Granular Conjunctivitis.⁴

Copper sulfate	1 gm. (15 gr.)
Orthoform	0.5 gm. (7½ gr.)
Holocain hydrochlorate	0.4 gm. (6 gr.)
Gum tragacanth	0.1 gm. (1½ gr.)
Water, a sufficient quantity.	

To be made into one stick 5 cm. long and containing half its weight of copper sulfate.

This preparation has the advantages of being caustic and painless. Holocain hydrochlorate acts as an anesthetic on the inflamed mucous membrane; orthoform has a slow and persistent action. Excellent results have been obtained with this preparation. [L.F.A.]

The Dangers of Suprarenal Treatment in Hemoptysis. J. Gray Duncanson⁵ reports the case of a man of 36, a heavy drinker, who had suffered twice previously from hemorrhages from the lungs; two years having elapsed since the last. He had lost a pint of blood when Duncanson saw him and was still bleeding freely. He at once administered, by mouth, .92 cc.

(15 m.) adrenalin chlorid solution 1 to 1,000 in a little water and ordered .15 cc. (2½ m.) suprarenal liquid with potassium bromid and Tolu syrup every hour, and after 4 hours gave .3 cc. (5m.) every 1½ hours. The bleeding ceased in 6 hours. Next day the pulse, which had been rapid, soft and slightly irregular, was regular (72 to the minute), wiry and not easily compressible. The amount of suprarenal liquid was reduced on the third day, the pulse was still higher (80 to the minute). That afternoon a hemorrhage to the extent of a half pint took place. Adrenalin chlorid was again administered (1 to 1,000) every 2 hours in combination with iron; on the fourth day bleeding again occurred. The suprarenal treatment was discontinued and the man made an uninterrupted recovery. It has been shown that the active principle of the suprarenal gland not only fails to produce contraction of the pulmonary vessels but causes decided dilation. Duncanson is certain that in hemoptysis, suprarenal treatment should be withheld, unless the questionable procedure of spraying a solution of the adrenalin products from an atomizer be tried. [A.B.C.]

Plasmon.—This is a new preparation for use in conditions of malnutrition, and in cases requiring forced feeding. It is a lactated albumen. Baccelli,¹ Rossoni, and Galli, having made tests of it in the laboratory of clinical medicine of the Royal University of Rome, announced that: 1. It never causes gastrointestinal irregularities however long administered. 2. There is never produced any albuminuria. 3. Plasmon is entirely assimilable, and is assimilated. [T.H.E.]

Chinopyrin in Malaria.—Chinopyrin is a combination of two parts antipyrin and three parts muriate of quinin. It is recommended by Laveran for hypodermic use in malaria. He prescribes the remedy thus: Antipyrin, 2.0; chinin. muriat., 3.0; aq. dest tepidae, 6.0; mix. A syringe under the skin is the dose. A. K. Zikar² tested 51 cases of malaria with chinopyrin with excellent results, which he ascribes to the quinin, the antipyrin simply favoring the solution and absorption of the quinin. At the site of injection a reaction takes place in the form of indurations, which are usually painless, but apt to persist for several weeks. [L.J.]

A Nontoxic Preparation of Iodin.—V. H. Wyatt Wingrave³ has effected a combination of iodine with other drugs which has given what he terms a nontoxic preparation, and which has been highly satisfactory in the treatment of certain conditions requiring iodine. His formula is iodine, 2½ gm.; tannic acid, 4 gm.; alcohol (90%), 38 cc.; syrup, sufficient to make 75 cc.; the iodine is dissolved in the alcohol, the tannic acid and 30 cc. of the syrup are added, and the solution is heated to just below boiling point until it affords no evidence of free iodine with a starch reaction (about 20 minutes); it is then cooled and the remainder of the syrup is added with flavoring; each dram contains two grains of iodine. It may be given in doses of from ½ dr. to 2 dr. in water or wine, before meals. He has found that children tolerate it well, and it has proved specially useful in cases of chronic lymphadenitis associated with or independent of enlarged tonsils and adenoids, especially when the enlarged cervical glands persist after tonsillotomy. It is also indicated in those children who possess but slightly enlarged faucial and pharyngeal tonsils in which operation is contraindicated or is objected to. In chronic rhinitis it affords gratifying results, especially when combined with arsenic. Such an organic combination of iodine, says the writer, is not new, since it was introduced many years ago in the form of a wine—"Vin Nourry." [A.B.C.]

Treatment of Hepatic Colic.—Chauffard⁴ recommends the following emulsion in the treatment of hepatic colic:

Olive oil	150 gm. to 400 gm. (5 oz. to 13 oz.)
Cognac	15 gm. (4 dr.)
Yolk of egg, No. 2	
Menthol	0.5 gm. (7½ gr.)

To be taken in the morning in 2 doses, 15 minutes apart. [L.F.A.]

¹ Medical Press and Circular, March 2 and 9, 1904.

² Zentralblatt für Gynäkologie, March 26, 1904.

³ Berliner klin. Wochenschrift, 1904, No. 13.

⁴ Bulletin Général de Thérapeutique, Vol. cxlvii, No. 12, 1904, p. 486.

⁵ British Medical Journal, March 12, 1904.

¹ Il Polliclinico (Rome), No. 17, 1904.

² Praktitcheskí Vrach, 1903, No. 36.

³ The Lancet, April 9, 1904.

⁴ Bulletin Général de Thérapeutique, Vol. cxlvii, No. 12, 1904, p. 486.

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$$E = 0.881 \sqrt{\frac{10}{0.881}} = 0.881 \times 0.985 = 0.8185 \times 100, \\ = 81.85\% \text{ } \therefore \text{ page 764}$$
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